CATALOG & TECHNICAL GUIDE – INCH

MILLING

Seco

SOLUTIONS & SUPPORT

By choosing Seco, you get more than just a comprehensive portfolio of advanced metal-cutting solutions and expert services. You get a partnership based on trust, respect and communication and a team that is always ready to help you gain the competitive advantage.

Globally headquartered in Fagersta, Sweden and present in more than 50 countries, Seco develops cutting tools, processes and services for high productivity and profitability. Our team of over 5,000 dedicated employees maintains partnerships around the world to identify and overcome the challenges faced by today's manufacturers.

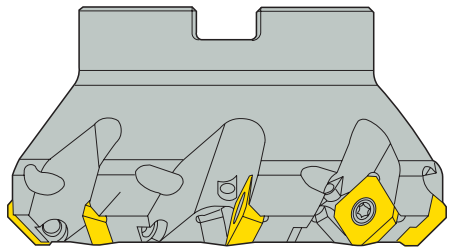
Our broad selection of milling, turning, holemaking and toolholding solutions include over 30,000 standard products, custom items for special applications and a team of metal-cutting experts who help customers identify and implement cost-effective solutions.

Contents

* SMG = Seco Material Group

Code key

In milling Seco® uses product specific designation systems. There is no ISO system available for cutters. See example below. Parts of the code key vary for different cutter systems.



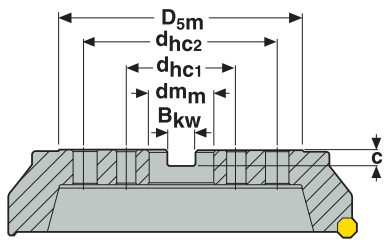
Code key for face milling cutter 217/220.53

R/L	220	.	53	-	04.00	-	12	-	3	A

- Shank type: 217 = With shank; 220 = For arbor
- Cutter diameter
- Effective No. of teeth (Z_c)
- Right/Left-hand rotation
- Cutter system
- Insert size
- A = With through coolant supply
  AD=Anti vibration material with through coolant supply
  G = Coarse pitch version for low power machines
  T = Close pitch version for contouring operations
  C = With adjustable cassettes
  N = Nickel coated

Diameter of the back face for arbor mounted cutters.

Arbor hole inch	Diameter of back face D_{5m} inch
0.500	1.38
0.750	1.85
1.00	2.44***
1.25	3.03
1.50	3.54
2.00	4.33
2.50	5.11*
2.50	8.85**



* For cutter diameter 08.00" - 10.00" the back face diameter = 5.11"
** For cutter diameter 12.50" - 20.00" the back face diameter = 8.85"
*** For cutter 220.69-02.50-12 / 13 / 18 the back face diameter = 2.047"

Type 0 – Cylindrical

Ex.: R217.69-01.25-**0**-16

Type 3 – Weldon
Tool chucks acc. to
ISO 5414
DIN 1835

Ex.: R217.69-01.00-**3**-09

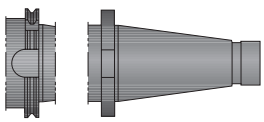
Type 3S – Seco/Weldon
Tool chucks acc. to
ISO 5414
DIN 1835

Ex.: R217.69-01.25-**3S**-16A

Type 3P – Weldon/Bayonet
Inch version for use in Weldon holder or collet chuck with bayonet fitting.

Ex.: R218.19-02.00-**3P**-65H

Type NMTB50

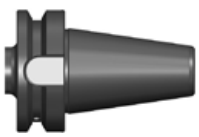


Ex.: R215.59-3.00-**5**-12.S4K No. 50

Type CV
ISO 7388
DIN 69871 Form A
ANSI-B5.50
JIS B6339

Ex.: R215.59-02.50-**CV5**-12.M3H No.50

Type MAS BT



Ex.: R215.59-**BT50**.063.068-12.4 No. BT50

Type Seco-Capto™

Ex.: **C6**-R217.48-063-09-05SA

Clamping by S-screw

The inserts are clamped by an inclined screw which holds the insert in position in its seat.

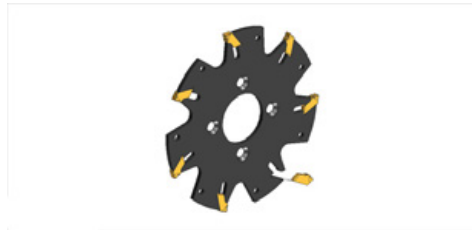
Clamping by a wedge

The inserts are held in position by a wedge and a screw which clamps the insert onto the seat. (Example shows milling cutter with cassettes).

Center-lock clamping

The inserts are secured through a center hole by means of a screw which clamps the insert firmly against the bottom and side of its seat.

Clamping by spring action



The inserts are retained by a clamping/spring action into a fixed insert seat.

Minimaster® clamping

The insert is clamped in position by means of a finger-shaped clamping screw which draws the insert into a cone.

Minimaster® Plus clamping

The insert is clamped in position by a thread and fastened by a fixed key or a torque wrench.

Square T4

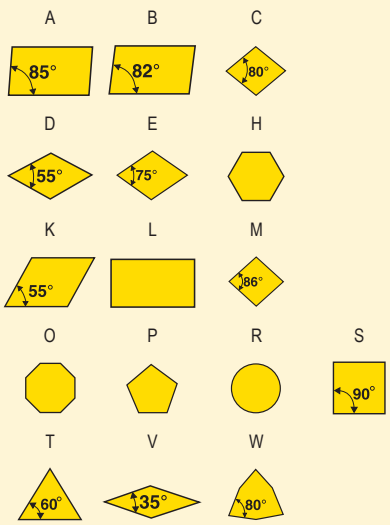
The inserts are secured through a center hole by means of a screw which clamps the insert firmly against the bottom and side of its seat.

Inserts – Inch series

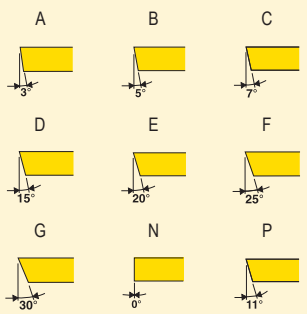
Dimensions refer to theoretical measurements. Nominal dimensions and tolerances on Seco inserts may differ from the table below.

S	E	M	X	12	04	AF	T	N	-	ME12
1	2	3	4	5	6	7	8	9		10

1. Shape



2. Side clearance angle



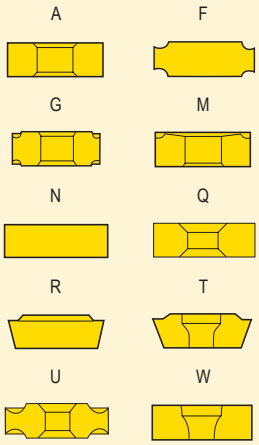
O = Special

3. Tolerances

Tol.-class	Tolerance +/- inch			For d, dimension inch					
	m	s	d	0.250	0.375	0.500	0.625	0.750	1.000
A	.0002	.001	.001	•	•	•	•	•	•
E	.001	.001	.001	•	•	•	•	•	•
F	.0002	.001	.0005	•	•	•	•	•	•
G	.001	.005	.001	•	•	•	•	•	•
H	.0005	.001	.0005	•	•	•	•	•	•
J	.0002	.001	.002	•	•				
	.0002	.001	.003			•			
	.0002	.001	.004				•	•	
	.0002	.001	.005						•
K	.0005	.001	.002	•	•				
	.0005	.001	.003			•			
	.0005	.001	.004				•	•	
	.0005	.001	.005						•
M	.003	.005	.002	•	•				
	.005	.005	.003			•			
	.006	.005	.004				•	•	
	.007	.005	.005						•
U	.005	.005	.003	•	•				
	.008	.005	.005			•			
	.011	.005	.007				•	•	
	.015	.005	.010						•

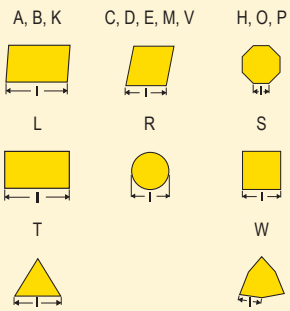
Inserts – Inch series

4 Type

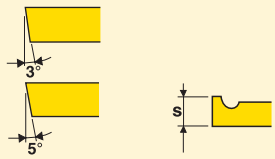


X=Special

5. Cutting edge length

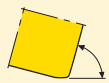


6. Thickness



inch	inch
01 = .062	04 = .187
T1 = .078	05 = .219
02 = .094	06 = .250
03 = .125	07 = .312
T3 = .156	08 = .315
	09 = .375

7. Insert with corner chamfer/nose radius



1st letter

A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = Special

2nd letter

A = 3°
B = 5°
C = 7°
D = 15°
E = 20°
Z = Special

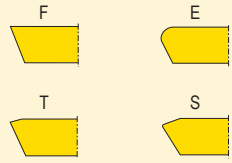
F = 25°
G = 30°
N = 0°
P = 11°

Nose radius

M0* = round inserts
00 = sharp
01 = .004
02 = .008
04 = .016
08 = .031
12 = .047
etc

* Metric version

8. Cutting edge designation



Not mandatory information

9. Direction of cutting

R

Right-rotated

L

Left-rotated

N

Neutral
(R- and L-rotated)

10. Internal designation

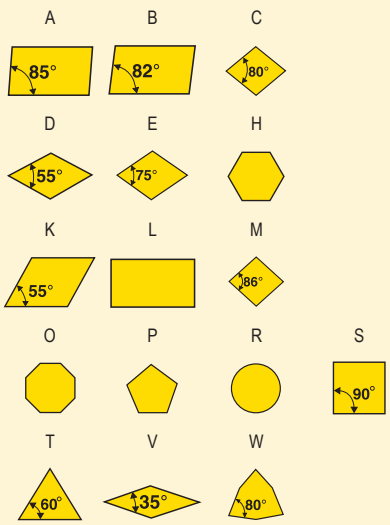
Machining conditions
E = Easy
M = Medium
D = Difficult

Inserts – Metric series, Extract from ISO 1832—1991

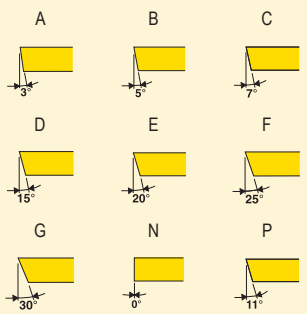
Dimensions refer to theoretical measurements. Nominal dimensions and tolerances on Seco inserts may differ from the table below.

S	E	M	X	12	04	AF	T	N	-	ME12
1	2	3	4	5	6	7	8	9		10

1. Shape



2. Side clearance angle



O = Special

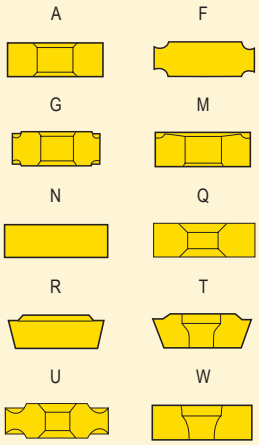
3. Tolerances

Tol.-class	Tolerance +/- mm			For d, dimension mm									
	m	s	d	3.175*	4.76	6.35	9.525	12.7	15.875	19.05	25.4	31.75	38.1*
A	0.005	0.025	0.025	•	•	•	•	•	•	•	•	•	•
E	0.025	0.025	0.025	•	•	•	•	•	•	•	•	•	•
F	0.005	0.025	0.013	•	•	•	•	•	•	•	•	•	•
G	0.025	0.13	0.025	•	•	•	•	•	•	•	•	•	•
H	0.013	0.025	0.013	•	•	•	•	•	•	•	•	•	•
J	0.005	0.025	0.05	•	•	•	•						
	0.005	0.025	0.08					•					
	0.005	0.025	0.10						•	•			
	0.005	0.025	0.13								•		
	0.005	0.025	0.15									•	•
K	0.013	0.025	0.05	•	•	•	•						
	0.013	0.025	0.08					•					
	0.013	0.025	0.10						•	•			
	0.013	0.025	0.13								•		
	0.013	0.025	0.15									•	•
M	0.08	0.13	0.05	•	•	•	•						
	0.13	0.13	0.08					•					
	0.15	0.13	0.10						•	•			
	0.18	0.13	0.13								•		
	0.20	0.13	0.15									•	•
U	0.13	0.13	0.08	•	•	•	•						
	0.20	0.13	0.13					•					
	0.27	0.13	0.18						•	•			
	0.38	0.13	0.25								•	•	•

* Not ISO

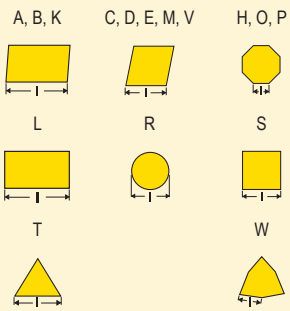
Inserts – Metric series

4 Type

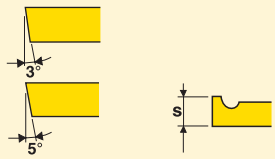


X=Special

5. Cutting edge length

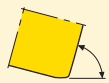


6. Thickness



01 = 1.59 mm	04 = 4.76 mm
T1 = 1.98 mm	05 = 5.56 mm
02 = 2.38 mm	06 = 6.35 mm
03 = 3.18 mm	07 = 7.94 mm
T3 = 3.97 mm	08 = 8.00 mm
	09 = 9.52 mm

7. Insert with corner chamfer/nose radius



1st letter

A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = Special

2nd letter

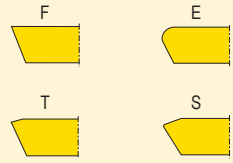
A = 3°	F = 25°
B = 5°	G = 30°
C = 7°	N = 0°
D = 15°	P = 11°
E = 20°	
Z = Special	

Nose radius

M0* = round inserts
00 = sharp
01 = 0.1 mm
02 = 0.2 mm
04 = 0.4 mm
08 = 0.8 mm
12 = 1.2 mm
etc

* Metric version

8. Cutting edge designation



Not mandatory information

9. Direction of cutting

R

Right-rotated

L

Left-rotated

N

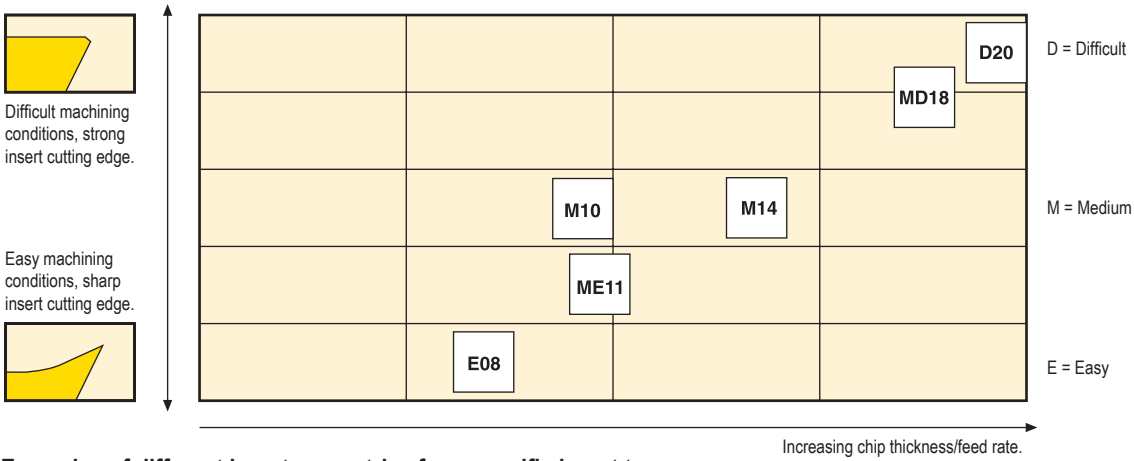
Neutral
(R- and L-rotated)

10. Internal designation

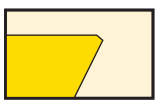
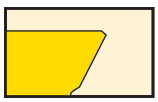
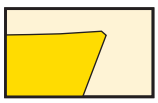
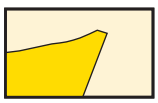
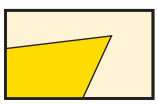
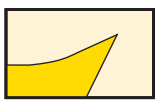
Machining conditions
E = Easy
M = Medium
D = Difficult

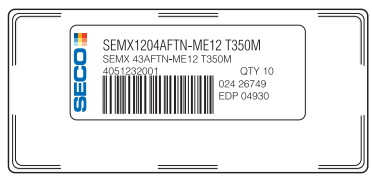
Designation system

The Seco designation system for milling inserts has been developed to provide the user with better guidance concerning the fields of application for the various insert geometries.



Examples of different insert geometries for a specific insert type

	..AFTN-D20	Negative and very protected cutting edge
	..AFTN-MD18	Negative and protected cutting edge
	..AFTN-M14	Positive and protected cutting edge
	..AFTN-ME11	Very positive and protected cutting edge
	..AFN-M10	Positive and sharp cutting edge
	..AFN-E08	Very positive and very sharp cutting edge

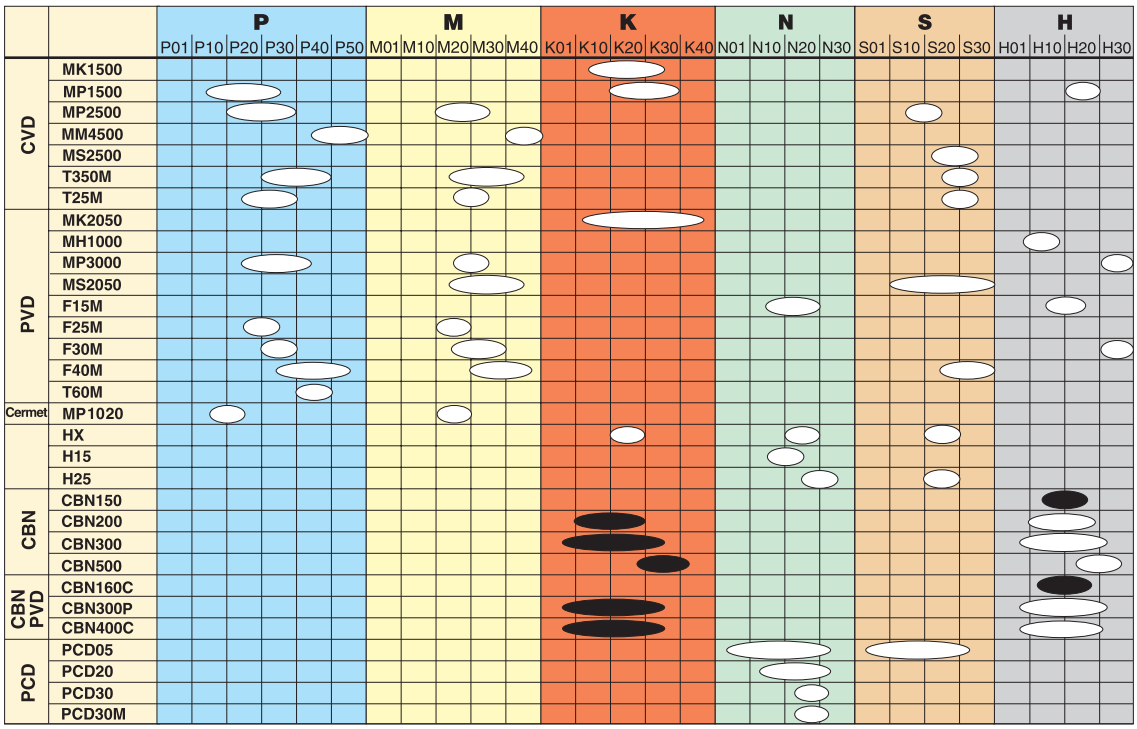


Grades

Cemented carbide is an alloy of tungsten carbide (WC) and cobalt (Co). Cubic carbides like tantalum carbide (TaC), titanium carbide (TiC) and niobium carbide (NbC) can also be added. Tungsten carbide is the main component and gives the hardness. Cobalt is the binder phase and gives the toughness. Cubic carbides are added in order to affect properties like hot hardness, deformation resistance and chemical wear resistance.

Most modern grades are coated with either CVD (Chemical Vapor Deposition) or PVD (Physical Vapor Deposition) technique. The coating improves the wear resistance of the grade.

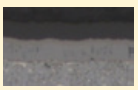
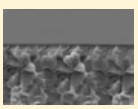
CVD-coated grades are suitable for wear resistance in demanding applications with high feed rates and intermediate to high cutting speed. PVD-coated grades are recommended for applications with low feed rate where high edge toughness is required. PVD-coated grades are suitable for applications with low to intermediate cutting speed.



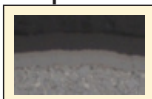
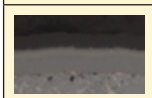
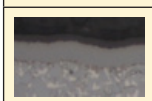
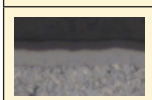
HX, H15 and H25 are uncoated grades.

Insert grades

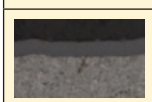
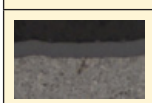
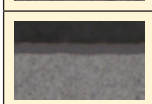
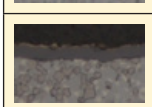
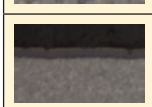
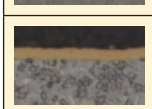
Basic grades

	**F40M**	PVD-coated grade for fine to medium rough milling. First choice for milling with small feeds and/or low cutting speeds. Excellent for milling when there is a risk of vibrations and when coolant is used. Recommended for machining superalloys. (Ti, Al) N – TiN
	**MP2500** **Duratomic®**	CVD-coated grade based on Duratomic coating. Basic grade for milling steel and easy/medium difficult stainless steel, with or without coolant. Ti (C, N) – Al_2O_3
	**MK1500** **Duratomic**	CVD-coated grade based on Duratomic coating. Basic grade for milling cast iron and nodular cast iron, with or without coolant. Ti (C, N) – Al_2O_3
	**MK2050**	PVD-coated grade for cast iron, Improved edge integrity. First choice in all cast iron materials. Excellent for milling with and without coolant. (Ti,Si)N/(Ti,Al)N

Complementary CVD coated grades

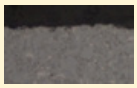
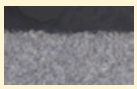
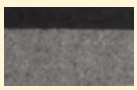
	**MP1500**	Grade for medium rough milling under stable conditions at high cutting speeds and for milling hardened steel. Excellent grade for roughing grey and nodular cast iron. Ti (C, N) – Al_2O_3
	**MS2500**	Optimization grade for superalloy materials, also suitable for rough milling in tool steel. Ti (C, N) – Al_2O_3
	**MM4500**	Extremely tough grade for duplex stainless steel. Can also be used for a wide range of materials when cutting conditions are unstable. Ti (C, N) – Al_2O_3
	**T350M**	CVD-coated grade as basic choice for difficult stainless steel and an alternative in difficult operations in steel. Ti (C, N) – Al_2O_3

Complementary PVD coated grades

	**MH1000**	Extremely hard grade for milling hard steel but also favorable in finishing operations in cast iron. (Ti, Al) N
	**MS2050**	PVD-coated grade first choice for machining titanium alloys. Can also be used as a complementary grade for milling stainless steels when increased toughness is needed. (Ti, Al) N – NbN
	**MP3000**	Highly wear resistant optimized grade for milling in steel. (Ti, Al) N
	**F15M**	Hard and wear resistant grade for milling in aluminum and non-ferrous alloys. Excellent grade, in combination with protected cutting edges, for high speed machining in hardened steel. (Ti, Al) N – TiN
	**F25M**	Tough grade for rough milling in tool steel. (Ti, Al) N – TiN
	**F30M**	Basic grade for Minimaster inserts and thread milling inserts. Also suitable for milling stainless steel, hardened steel and superalloys. (Ti, Al) N – TiN
	**T60M**	Tough grade for Minimaster inserts. Suitable for milling in soft and medium hard steel. (Ti, Al) N – TiN

Insert grades

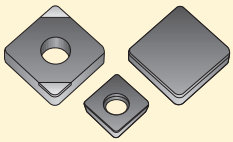
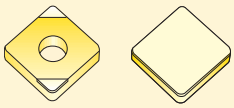
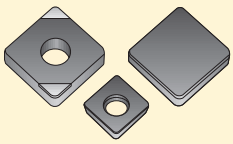
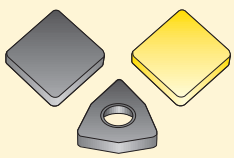
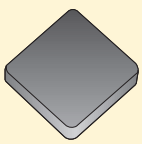
Uncoated grades

	**HX**	Wear resistant grade for milling in cast iron and non-ferrous alloys.
	**H15**	Hard, wear resistant grade for milling in aluminum.
	**H25**	Tough micro-grain carbide grade for milling in superalloys and aluminum.

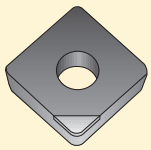
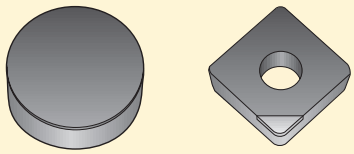
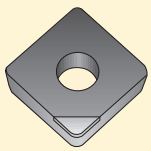
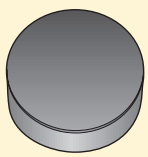
Cermet

	**MP1020**	Cermet grade for fine to medium rough milling of steel at high cutting speeds and for finishing in austenitic stainless steel. First choice for high demand on surface finishes.

Grades

CBN150 	Format: Full-face brazed layer and brazed tips (single sided). Composition: 45% cBN content grade with an average grain size of < 1 µm and a TiCN ceramic binder. Coating: No coating.
CBN160C 	Format: Full-face brazed layer and brazed tips (single sided). Composition: 65% cBN content grade with an average grain size of < 1 µm and a TiCN ceramic binder. Coating: (Ti, Si)N coating.
CBN200 (Tipped and Full-face) 	Format: Full-face brazed layer and brazed tips (single sided). Composition: 85% cBN content grade with an average grain size of 2 µm and a Co-W-Al ceramic binder. Coating: No coating
CBN200 (Solid) 	Format: Solid. Composition: 90% cBN content grade with an average grain size of 3-6 µm and a Al ceramic binder. Coating: No coating.
CBN300, CBN300P 	Format: Solid. Composition: 90% cBN content grade with an average grain size of 22 µm and a Al ceramic binder. Coating: CBN300: No coating. CBN300P: (Ti, Al)N coating.
CBN500 	Format: Solid. Composition: 90% cBN content grade with an average grain size of 15 µm and a AlN ceramic binder. Coating: No coating.

Grades

PCD05 	Format: Brazed tips (single sided). Composition: Grade with an average grain size of < 1 µm and a Co binder. Coating: No coating.
PCD20 	Format: Full-face brazed layer and brazed tips (single sided). Composition: Grade with an average grain size of 10 µm and a Co binder. Coating: No coating.
PCD30 	Format: Full-face brazed layer (single sided). Composition: Grade with an average grain size of 25 µm and a Co binder. Coating: No coating.
PCD30M 	Format: Full-face brazed layer (single sided). Composition: Grade with an average grain size of 2-30 µm and a Co binder. Coating: No coating.

SMG version 2 – Introduction

Seco Material Groups version 2 (SMG v2) is the foundation for a new and accurate way of organizing work materials and choosing the correct speed, feed rate and depth of cut for any work material and any Seco tool. In addition to using a greater number of work material groups compared to our previous system, SMG v2 also incorporates a reference material or standard for each group.The machinability of all other materials within that group can be compared to the standard, allowing for adjustments to the cutting data, accounting for the unique characteristics of each material. (See pages 644-647)

The use of SMG v2 is illustrated below.

As shown in Table 1, the reference material for work material group P4 is 1045, for P5 it is 4140 steel and for H5 it is 4140 hardened to 50 HRC. 4140 steel is available in a wide variety of hardness and tensile strengths. It will be expected that the machinability will vary with these properties.

SMG	Description	Properties	Reference
P4	Low alloy general structural steels, 0.25% < C < 0.67%wt Low alloy Quench & Temper steels	75 < UTS < 175	1045 UTS = 95 ksi
P5	Structural steels, 0.25% < C < 0.67%wt Quench & Temper steels	80 < UTS < 175	4140 UTS = 100 ksi

SMG	Description	Properties	Reference
H5	Quenched & Tempered steels	38 < HRC < 56	4140 50 HRC

Table 2 gives some examples of 4140 in different conditions.

SMG	AISI / ASTM	EN	W.-Nr	AFNOR	BS	UNI	JIS	GOST	Condition	UTS (ksi)	HRC_{nom}
P5	4142, 4140	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	38HM	Annealed	100	
	4142, 4140	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	38HM	Quenched & Tempered	145	
H5	4142, 4140	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	38HM	Quenched & Tempered		45
	4142, 4140	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	38HM	Quenched & Tempered		50

The graphs indicate how the speed recommendation for a specific material can be adjusted to account for the different properties of the steel. As an example, consider 4140 with a tensile strength (UTS) of 145 ksi. The standard material for SMG P5 is 4140 steel with a tensile strength of 100 ksi. Since the material of interest is 45% stronger, the cutting speed will have to be reduced. Following the black arrows in Figure 1, it can be seen that a speed 75% of that recommended for 4140 at 100 ksi should be used. So if a cutting speed of 900 sf/min is suggested for a tool of interest when machining 4140 at 100 ksi, a speed of 675 sf/min (900 X 0.75) should be used if the 4140 has a tensile strength of 145 ksi.

Figure 1

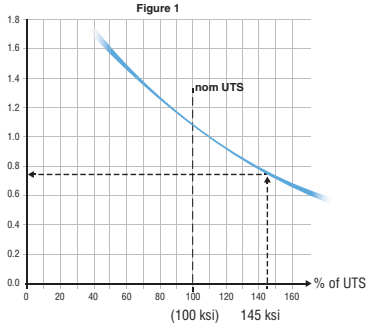
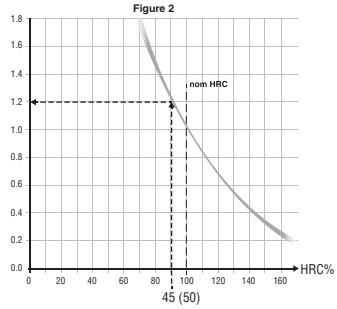


Figure 2



If the 4140 is quenched and tempered to a hardness of 45 HRC, an accurate cutting speed can be obtained by using Figure 2. The standard material for SMG H5 is 4140 heat treated to a hardness of 50 HRC. Logically, a softer material, in this case 45 HRC, can be machined at a higher speed. Since the hardness, 45 HRC, is 90% that of the standard material, the graph shows a speed 120% that of the standard could be used. If a speed of 200 sf/min is recommended when machining 4140 at 50 HRC, a speed of 240 sf/min (200 X 1.2) could be used if the 4140 is only 45 HRC.

Note that when using PCBN tools material groups cutting data recommendations start on page 622.

For further workpiece material details use the tables beginning on page 644 to classify the workpiece material into a SMG v2.

For more convenient cutting data handling we recommend applicable tools in My Pages – Suggest on www.secotools.com

Square shoulder and slot milling cutters

Cutter	Insert	Recommended a_p		Material suitability					Corner radius (inch)					
				P	M	K	N	S						
Turbo	XO..06	0.118		■	■	■	■	■	.008 / .016 .031 / .063	■	□	■	■	◩
			0.197											
	XO..10	0.197		■	■	■	■	■	.016 / .031 .047 / .063 .079 / .094 .122	■	◩	■	■	◩
			0.354											
	XO..12	0.236		■	■	■	■	■	.016 / .031 .047 / .063 .079 / .094 .122 / .157 .197 / .248	◩	■	■	■	◩
			0.433											
	XO..18	0.354		■	◩	■	■	◩	.016 / .031 .047 / .063 .079 / .094 .122 / .157 .197 / .248	□	■	■	■	◩
			0.669											
ABEX26	ABEX26	0.512		■	◩	■	–	–	.063	□	■	■	□	□
			0.787											
Square T4	LOEX08	0.118		■	◩	■	–	□	.016 / .031 .047 / .063	■	◩	◩	–	□
			0.276											
	LOEX12	0.276		■	◩	■	–	□	.031 / .047 .063 / .094 .122	■	◩	◩	–	□
			0.393											
Square 6™	XN..04	0.079		■	◩	■	–	□	.016 / .031	■	□	◩	–	◩
			0.118											
	XN..08	0.157		■	◩	■	–	□	.016 / .031 .047 / .063	□	■	□	–	◩
			0.276											

1st choice	■
Alternative choice	◩
Possible choice	□
Not recommended	–

High speed machine with low Power / Torque	
Strong stable machine with rigid connection	
a_p max	Max depth of cut

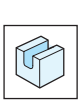
Unstable condition suitability	
Ramping ability	
Plunging ability	

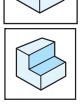
Square shoulder and slot milling cutters

No. of cutting edges	Applica-tion	Cutter diameter available (inch) / effective number of teeth																Page
		0.375	0.50	0.625	0.75	0.875	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	8.00	10.00	12.00	
2		2	2	3	4	5	6												25
		2	3	4	5	6	7	8	10										26-27
2				2	2/3	3	3	3	4	5									30-31
							4	5	6	7	8	10	12						32-33
2					2	2	2/3	3/4	4	3/4/5	4/6	4/7	5	8		12			36-39
								4	5	5/7	6/8	7/10	8/12						40-41
2							2	2	3	4/5	4/5	4/6	5	8	9	12			44-47
								3	4	5	6	8	7/9	11	12				48-49
2										4	5	7	8	9	10				52
																			
4				2	2		3	3/4	4	5	6								54-55
					3		4	5		7	9								56-57
4							2	3	3/4	4	5/6	8	10	12					60-61
										6	8								62
6					2		4	5	6	6	7								65-66
					3		5	6	7	8/9	9/10								67-68
6									3	4/5	4/5	5	6	7/8	10/12	12	16	20	71-73
										5	6/7	7/9	8/11	11/14	16				74

x — Fixed pocket (x indicates number of teeth)

x — With cassette (x indicates number of teeth)

 Slotting and contouring

 Optimized for contouring

Code key

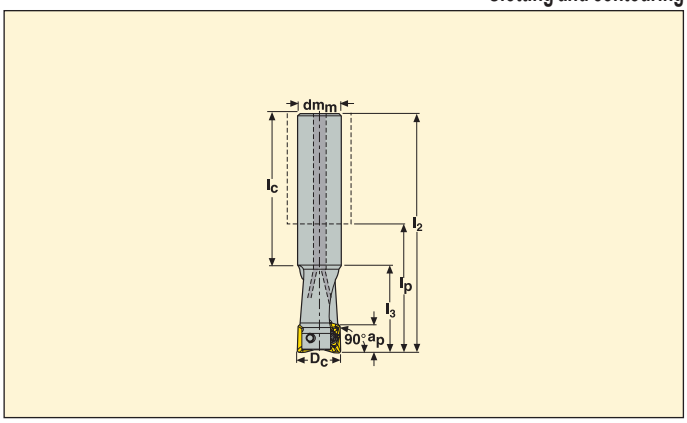
There is no ISO system available for cutters.
Parts of the code key vary for different cutter systems.

	216/217 = With shank 220 = For arbor			Shank type: 0 = Cylindrical 3 = Weldon 3S = Seco/Weldon RE = Combimaster™		Effective No. of teeth (Z_c)	
R	217 .	69	- 01.25	- 3S	- 12	- 4	A
Right hand rotation		Cutter system	Cutter diameter		Insert size		A = Holes for internal coolant supply AD = Anti vibration material with through coolant supply C = With adjustable cassettes G = Coarse pitch version for low power machines L = Long shank N = Nickel coated T = Close pitch version for contouring operations

Turbo 06 – R217.69-06

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 28-29.
- For complete insert program, see page 594, 617.
- For helical interpolation, see page 632.

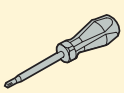


EDP No.	Part No.	Dimensions in inch D_c	dm_m	l_2	l_3	l_p	l_c	a_p	α° max		lbs	Type of mounting	Max rpm	Insert
55419	R217.69 -00.375-0-06-2LAN	0.375	0.312	3.94	0.71	2.36	3.23	0.197	10.0	2	0.4	Cylindrical*	60000	XO.X06
55308	-00.500-0-06-2LAN	0.500	0.375	3.94	0.71	2.36	3.23	0.197	6.5	2	0.4	Cylindrical*	54000	XO.X06
55311	-00.625-0-06-3LAN	0.625	0.500	4.92	0.79	3.15	4.13	0.197	4.0	3	0.4	Cylindrical*	48000	XO.X06
55315	-00.750-0-06-4LAN	0.750	0.625	5.91	0.79	4.02	5.12	0.197	2.0	4	0.7	Cylindrical*	44000	XO.X06
55316	-00.875-0-06-5LAN	0.875	0.750	5.91	0.79	3.94	5.12	0.197	2.0	5	0.7	Cylindrical*	44000	XO.X06
55319	-01.00-0-06-6LAN	1.000	0.750	7.87	0.79	5.91	7.09	0.197	1.0	6	1.1	Cylindrical*	37600	XO.X06
55418	R217.69 -00.375-0-06-2AN	0.375	0.375	2.17	0.67	0.59	1.50	0.197	10.0	2	0.2	Cylindrical	60000	XO.X06
55307	-00.500-0-06-2AN	0.500	0.500	3.15	0.71	1.38	2.44	0.197	6.5	2	0.4	Cylindrical	54000	XO.X06
55310	-00.625-0-06-3AN	0.625	0.625	3.54	0.79	1.65	2.76	0.197	4.0	3	0.4	Cylindrical	48000	XO.X06
55313	-00.750-0-06-4AN	0.750	0.750	3.94	0.79	1.97	3.15	0.197	2.0	4	0.7	Cylindrical	44000	XO.X06

α° = Ramping angle

When using inserts with a corner radius > 0.031" the cutter body must be modified.
* Reduced shank diameter

Spare Parts, included in delivery.

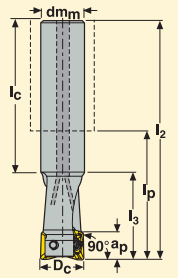
For cutter	Insert key	Insert screw
		
R217.69-..	T06P-3	C01804-T06P

Please check availability in current price and stock-list.

Torque value 4.4 in/lbs.
Torque keys available, see page 643.

Turbo 06 – R217.69-06

Optimized for contouring



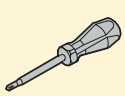
- For insert selection and cutting data recommendations, see pages 28-29.
- For complete insert program, see page 594, 617.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch							α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_2	l_3	l_p	l_c	a_p						
95811	R217.69 -00.375-0-06-2AD	0.375	0.375	2.17	0.67	0.59	1.50	0.197	10.0	2	0.4	Cylindrical	60000	XO.X06
55309	-00.500-0-06-3AN	0.500	0.500	2.36	0.71	0.59	1.65	0.197	6.0	3	0.4	Cylindrical	54000	XO.X06
55312	-00.625-0-06-4AN	0.625	0.625	3.54	0.79	1.65	2.76	0.197	4.0	4	0.4	Cylindrical	48000	XO.X06
55314	-00.750-0-06-5AN	0.750	0.750	3.94	0.79	1.97	3.15	0.197	2.5	5	0.7	Cylindrical	44000	XO.X06
55320	-01.00-0-06-7AN	1.000	0.875	4.53	0.79	2.56	3.74	0.197	1.5	7	0.9	Cylindrical	37600	XO.X06
55322	-01.25-0-06-8AN	1.250	1.000	5.12	0.98	2.91	4.13	0.197	1.0	8	1.3	Cylindrical	33600	XO.X06
55323	-01.50-0-06-10AN	1.500	1.250	5.51	0.98	3.15	4.53	0.197	1.0	10	2.0	Cylindrical	28000	XO.X06

α° = Ramping angle

When using inserts with a corner radius > 0.031" the cutter body must be modified.
AD = Densimet anti vibration shank with through coolant.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T06P-3	C01804-T06P

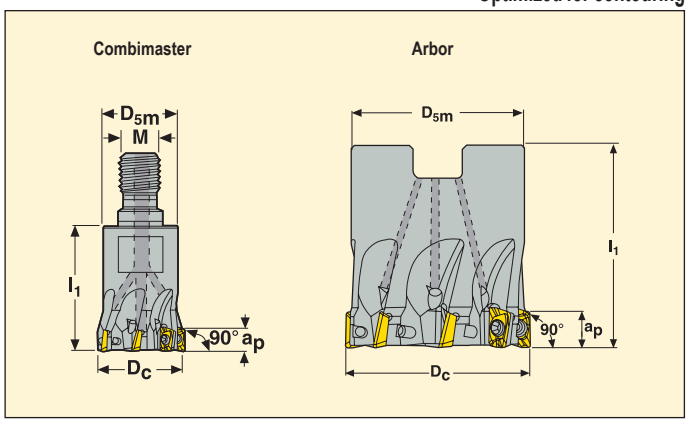
Please check availability in current price and stock-list.

Torque value 4.4 in/lbs.
Torque keys available, see page 643.

Turbo 06 – R217/220.69-06

Optimized for contouring

- For insert selection and cutting data recommendations, see pages 28-29.
- For complete insert program, see page 594, 617.
- For helical interpolation, see page 632.



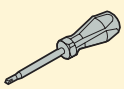
EDP No.	Part No.	Dimensions in inch					α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	D_{5m}	l_1	M	a_p						
55359	R217.69 -00.750-10RE-06-5AN	0.750	0.709	1.18	M10	0.197	2.0	5	0.4	Combimaster*	44000	XO.X06
55360	-00.875-12RE-06-6AN	0.875	0.827	1.38	M12	0.197	2.0	6	0.4	Combimaster*	44000	XO.X06
55361	-01.00-12RE-06-7AN	1.000	0.906	1.38	M12	0.197	1.5	7	0.4	Combimaster*	37600	XO.X06
55362	-01.25-16RE-06-8AN	1.250	1.102	1.38	M16	0.197	1.5	8	0.7	Combimaster*	33600	XO.X06
55363	-01.50-16RE-06-10AN	1.500	1.102	1.38	M16	0.197	1.0	10	0.7	Combimaster*	28000	XO.X06
55325	R220.69 -01.25-06-8AN	1.250	1.378	1.38	–	0.197	1.0	8	0.4	Arbor	33600	XO.X06
55326	-01.50-06-10AN	1.500	1.378	1.38	–	0.197	1.0	10	0.7	Arbor	28000	XO.X06

α° = Ramping angle

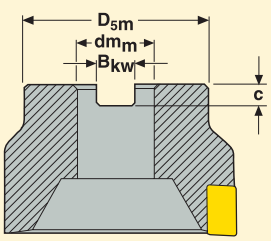
When using inserts with a corner radius > 0.031" the cutter body must be modified.

* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.69-..	–	T06P-3	C01804-T06P
R220.69-..	UC6S1/4UNFX1SHCS	T06P-3	C01804-T06P

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.69-..	0.75	1.38	0.26	0.17

Please check availability in current price and stock-list.

Torque value 4.4 in/lbs.

Torque keys available, see page 643.

R217/220.69-06 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	XOMX060204R-M05 F40M	0.10	0.0028	0.0032	0.0048
P2	XOMX060204R-M05 F40M	0.10	0.0028	0.0032	0.0048
P3	XOMX060204R-M05 F40M	0.10	0.0028	0.0030	0.0044
P4	XOMX060204R-M05 F40M	0.10	0.0026	0.0030	0.0044
P5	XOMX060204R-M05 F40M	0.10	0.0026	0.0028	0.0044
P6	XOMX060204R-M05 F40M	0.10	0.0026	0.0028	0.0044
P7	XOMX060204R-M05 F40M	0.10	0.0026	0.0028	0.0044
P8	XOMX060204R-M05 F40M	0.10	0.0028	0.0030	0.0044
P11	XOMX060204R-M05 MP3000	0.10	0.0026	0.0028	0.0044
M1	XOMX060204R-M05 F40M	0.10	0.0028	0.0032	0.0048
M2	XOMX060204R-M05 F40M	0.10	0.0026	0.0028	0.0044
M3	XOMX060204R-M05 F40M	0.080	0.0022	0.0024	0.0036
M4	XOMX060204R-M05 MP3000	0.060	0.0019	0.0020	0.0032
M5	XOMX060204R-M05 MM4500	0.060	0.0019	0.0020	0.0032
K1	XOMX060204R-M05 MP3000	0.10	0.0028	0.0032	0.0048
K2	XOMX060204R-M05 MP3000	0.10	0.0026	0.0028	0.0044
K3	XOMX060204R-M05 MP3000	0.10	0.0026	0.0028	0.0044
K4	XOMX060204R-M05 MP3000	0.10	0.0026	0.0028	0.0044
K5	XOMX060204R-M05 MP3000	0.10	0.0024	0.0026	0.0040
K6	XOMX060204R-M05 MP3000	0.10	0.0026	0.0028	0.0044
K7	XOMX060204R-M05 MP3000	0.10	0.0024	0.0026	0.0040
N1	XOEX060204FR-E03 H15	0.10	0.0030	0.0032	0.0048
N2	XOEX060204FR-E03 H15	0.10	0.0030	0.0032	0.0048
N3	XOEX060204FR-E03 H15	0.10	0.0030	0.0032	0.0048
N11	XOEX060204FR-E03 H15	0.10	0.0030	0.0032	0.0048
S1	XOMX060204R-M05 F40M	0.060	0.0019	0.0020	0.0032
S2	XOMX060204R-M05 F40M	0.060	0.0019	0.0020	0.0032
S3	XOMX060204R-M05 F40M	0.060	0.0017	0.0019	0.0030
S11	XOMX060204R-M05 F40M	0.065	0.0022	0.0024	0.0036
S12	XOMX060204R-M05 F40M	0.065	0.0022	0.0024	0.0036
S13	XOMX060204R-M05 F40M	0.060	0.0019	0.0020	0.0032
H8	XOMX060204R-M05 MP3000	0.065	0.0013	0.0015	0.0024
H11	XOMX060204R-M05 MP3000	0.080	0.0018	0.0020	0.0030
H12	XOMX060204R-M05 MP3000	0.080	0.0018	0.0020	0.0030

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

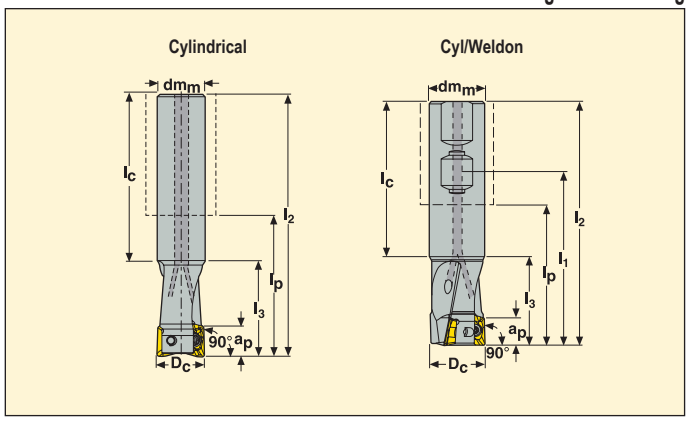
R217/220.69-06 – Cutting data v_c = (sf/min)

	MP1020			MP3000			F40M			MM4500			H15		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1425	1425	1425	1150	1500	1750	910	1200	1400	740	970	1125	—	—	—
P2	1450	1450	1400	1100	1425	1700	890	1150	1350	720	930	1100	—	—	—
P3	1200	1200	1150	950	1250	1475	760	1000	1200	620	810	960	—	—	—
P4	1050	1050	1000	850	1100	1300	680	880	1050	550	710	850	—	—	—
P5	1000	940	960	820	1075	1250	650	850	1000	530	690	810	—	—	—
P6	1075	1050	1025	920	1200	1400	730	960	1125	590	780	910	—	—	—
P7	1000	1000	980	860	1125	1325	690	910	1050	560	730	860	—	—	—
P8	1000	1000	960	800	1050	1250	640	840	1000	520	680	810	—	—	—
P11	980	970	950	840	1100	1275	670	880	1025	540	710	830	—	—	—
M1	—	—	—	830	1075	1275	710	930	1100	620	800	940	—	—	—
M2	—	—	—	680	890	1050	590	770	900	510	660	780	—	—	—
M3	—	—	—	540	710	830	465	610	710	405	530	620	—	—	—
M4	—	—	—	420	550	640	365	480	550	315	410	475	—	—	—
M5	—	—	—	350	460	530	305	400	460	260	345	400	—	—	—
K1	—	—	—	880	1125	1350	700	910	1075	—	—	—	—	—	—
K2	—	—	—	770	1025	1175	620	810	950	—	—	—	—	—	—
K3	—	—	—	650	860	1000	520	690	800	—	—	—	—	—	—
K4	—	—	—	630	820	960	500	660	770	—	—	—	—	—	—
K5	—	—	—	380	495	580	305	395	465	—	—	—	—	—	—
K6	—	—	—	550	720	840	440	580	670	—	—	—	—	—	—
K7	—	—	—	485	630	740	390	510	600	—	—	—	—	—	—
N1	—	—	—	3275	4275	5050	2625	3425	4050	—	—	—	2750	3600	4250
N2	—	—	—	2650	3450	4075	2125	2750	3275	—	—	—	2225	2900	3450
N3	—	—	—	1750	2300	2725	1400	1850	2175	—	—	—	1475	1950	2300
N11	—	—	—	2025	2625	3100	1600	2100	2475	—	—	—	1675	2225	2625
S1	—	—	—	195	260	300	170	225	260	95	125	145	—	—	—
S2	—	—	—	160	210	240	135	180	210	75	100	120	—	—	—
S3	—	—	—	140	180	210	120	155	180	70	90	105	—	—	—
S11	—	—	—	275	360	420	240	310	360	135	175	205	—	—	—
S12	—	—	—	160	205	240	135	180	210	105	135	155	—	—	—
S13	—	—	—	125	165	195	110	145	165	85	110	125	—	—	—
H5	—	—	—	165	220	255	140	185	215	—	—	—	—	—	—
H8	—	—	—	175	230	265	150	195	230	—	—	—	—	—	—
H11	—	—	—	210	280	325	180	235	275	—	—	—	—	—	—
H12	—	—	—	320	420	490	275	360	415	—	—	—	—	—	—
H21	—	—	—	175	230	265	150	195	230	—	—	—	—	—	—

Turbo 10 – R217.69-10

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 34-35.
- For complete insert program, see page 595, 617.
- For helical interpolation, see page 632.

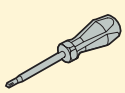


EDP No.	Part No.	Dimensions in inch D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p	α° max		lbs	Type of mounting	Max rpm	Insert
68442	R217.69 -00.625-0-10-2A	0.625	0.625	–	5.31	1.08	3.43	4.23	0.354	7.5	2	0.4	Cylindrical	29400	XO.X10
68445	-00.750-0-10-2A	0.750	0.750	–	5.91	1.18	3.94	4.72	0.354	5.0	2	0.7	Cylindrical	26300	XO.X10
68455	-00.875-0-10-3A	0.875	0.750	–	5.91	1.18	3.94	4.72	0.354	5.0	3	0.7	Cylindrical	26300	XO.X10
68449	-01.00-0-10-3A	1.000	1.000	–	6.69	1.28	4.49	5.41	0.354	3.0	3	1.3	Cylindrical	23500	XO.X10
68459	-01.25-0-10-3A	1.250	1.250	–	7.68	1.24	5.31	6.44	0.354	2.0	3	2.4	Cylindrical	20800	XO.X10
68464	-01.50-0-10-4A	1.500	1.250	–	7.68	1.24	5.31	6.44	0.354	1.5	4	2.6	Cylindrical	18600	XO.X10
68443	R217.69 -00.625-3-10-2A	0.625	0.625	2.36	3.25	1.08	1.36	2.17	0.354	7.5	2	0.2	Cyl/Weldon	29400	XO.X10
68446	-00.750-3-10-2A	0.750	0.750	2.37	3.39	1.19	1.42	2.20	0.354	5.0	2	0.4	Cyl/Weldon	26300	XO.X10
91754	-00.750-3-10-3A	0.750	0.750	2.37	3.39	1.18	1.57	2.20	0.354	4.5	3	0.4	Cyl/Weldon	26300	XO.X10
68456	-00.875-3-10-3A	0.875	0.750	2.37	3.39	1.19	1.42	2.20	0.354	5.0	3	0.4	Cyl/Weldon	25000	XO.X10
68451	-01.00-3-10-3A	1.000	1.000	2.64	3.78	1.28	1.57	2.50	0.354	3.0	3	0.7	Cyl/Weldon	23500	XO.X10
68461	-01.25-3-10-3A	1.250	1.250	2.86	4.00	1.24	1.63	2.76	0.354	2.0	3	1.3	Cyl/Weldon	20800	XO.X10
68466	-01.50-3-10-4A	1.500	1.250	2.81	4.00	1.24	1.63	2.76	0.354	1.5	4	2.0	Cyl/Weldon	18600	XO.X10

α° = Ramping angle

When using inserts with a corner radius > 0.094" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T07P-3	C02506-T07P

Please check availability in current price and stock-list.

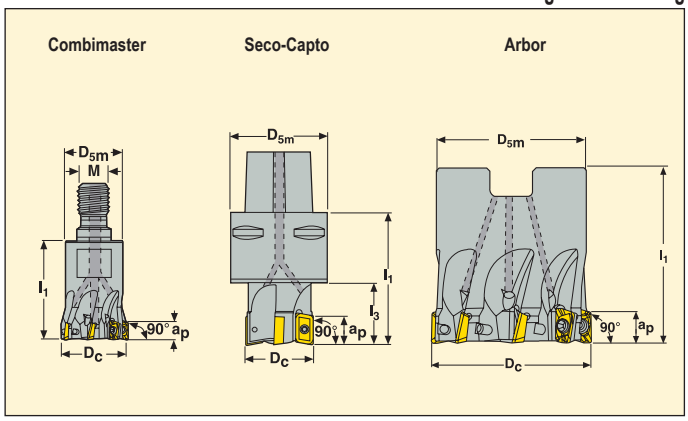
Torque value 7.9 in/lbs.

Torque keys available, see page 643.

Turbo 10 – R217/220.69-10

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 34-35.
- For complete insert program, see page 595, 617.
- For helical interpolation, see page 632.

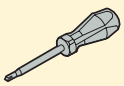


EDP No.	Part No.		Dimensions in inch D_c	D_{5m}	l_1	l_3	M	a_p	$\alpha°$ max		lbs	Type of mounting	Max rpm	Insert
68441	R217.69	-00.625-08RE-10-2A	0.625	0.531	0.91	–	M8	0.354	7.5	2	0.2	Combimaster*	29400	XO.X10
68444		-00.750-10RE-10-2A	0.750	0.728	1.38	–	M10	0.354	5.0	2	0.2	Combimaster*	26300	XO.X10
68447		-01.00-12RE-10-3A	1.000	0.906	1.57	–	M12	0.354	2.5	3	0.4	Combimaster*	23500	XO.X10
68457		-01.25-16RE-10-3A	1.250	1.181	1.57	–	M16	0.354	1.5	3	0.4	Combimaster*	20800	XO.X10
80634	C5-R217.69	-02.00-10-5A	2.000	1.969	2.36	2.36	–	0.354	1.2	5	2.0	Seco-Capto	18300	XO.X10
68468	R220.69	-01.50-10-4A	1.500	1.378	1.57	–	–	0.354	1.5	4	0.4	Arbor	18600	XO.X10
68470		-02.00-10-5A	2.000	1.850	1.57	–	–	0.354	1.0	5	0.9	Arbor	16600	XO.X10

$\alpha°$ = Ramping angle

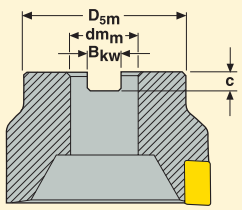
When using inserts with a corner radius > 0.094" the cutter body must be modified.
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.69-..	–	T07P-3	C02506-T07P
C5-R217.69-..	–	T07P-3	C02506-T07P
R220.69-01.50 - 02.50	UC6S3/8UNFX1	T07P-2	C02506-T07P

Torque value 7.9 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



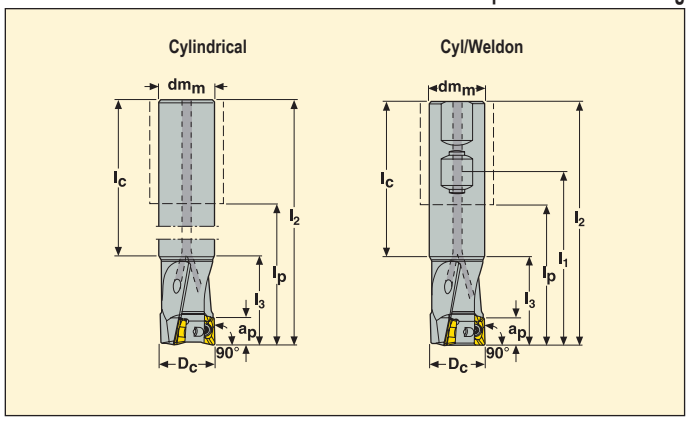
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.69-01.50	0.75	1.38	0.32	0.19
R220.69-02.00 / 02.50	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

Turbo 10 – R217.69-10

Optimized for contouring

- For insert selection and cutting data recommendations, see pages 34-35.
- For complete insert program, see page 595, 617.
- For helical interpolation, see page 632.

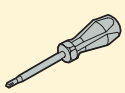


EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p						
68450	R217.69 -01.00-0-10-4A	1.00	1.00	–	6.69	1.28	4.49	5.41	0.354	3.0	4	1.3	Cylindrical	23500	XO.X10
68460	-01.25-0-10-5A	1.25	1.25	–	7.68	1.24	5.31	6.44	0.354	2.0	5	2.4	Cylindrical	20800	XO.X10
68465	-01.50-0-10-6A	1.50	1.25	–	7.68	1.24	5.31	6.44	0.354	1.5	6	2.6	Cylindrical	18600	XO.X10
68452	R217.69 -01.00-3-10-4A	1.00	1.00	2.64	3.78	1.28	1.57	2.50	0.354	3.0	4	0.7	Cyl/Weldon	23500	XO.X10
68462	-01.25-3-10-5A	1.25	1.25	2.86	4.00	1.24	1.63	2.76	0.354	2.0	5	1.3	Cyl/Weldon	20800	XO.X10
68467	-01.50-3-10-6A	1.50	1.25	2.81	4.00	1.24	1.63	2.76	0.354	1.5	6	2.0	Cyl/Weldon	18600	XO.X10

α° = Ramping angle

When using inserts with a corner radius > 0.094" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T07P-3	C02506-T07P

Please check availability in current price and stock-list.

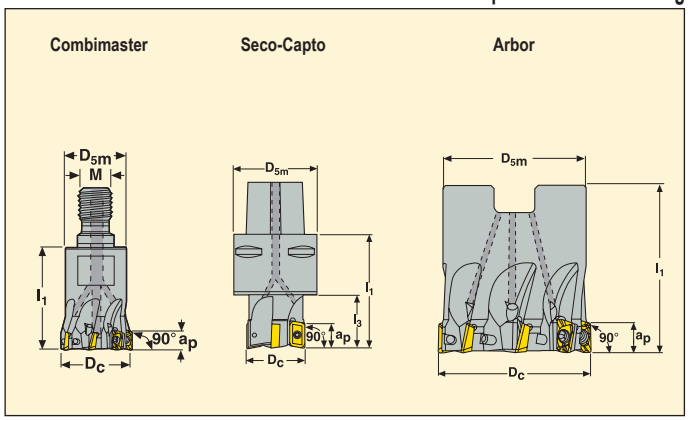
Torque value 7.9 in/lbs.

Torque keys available, see page 643.

Turbo 10 – R217/220.69-10

Optimized for contouring

- For insert selection and cutting data recommendations, see pages 34-35.
- For complete insert program, see page 595, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.		Dimensions in inch D_c	D_{5m}	l_1	l_3	M	a_p	$\alpha°$ max		lbs	Type of mounting	Max rpm	Insert
68448	R217.69	-01.00-12RE-10-4A	1.00	0.91	1.57	–	M12	0.354	2.5	4	0.4	Combimaster*	23500	XO.X10
68458		-01.25-16RE-10-5A	1.25	1.18	1.57	–	M16	0.354	1.5	5	0.4	Combimaster*	20800	XO.X10
80665	C6-R217.69	-02.50-10-8A	2.50	2.36	2.36	2.36	–	0.354	0.9	8	3.3	Seco-Capto	13200	XO.X10
43847		-03.00-10-10A	3.00	2.48	2.36	2.36	–	0.354	0.8	10	3.7	Seco-Capto	7000	XO.X10
68469	R220.69	-01.50-10-6A	1.50	1.38	1.57	–	–	0.354	1.5	6	0.4	Arbor	18600	XO.X10
68471		-02.00-10-7A	2.00	1.85	1.57	–	–	0.354	1.0	7	0.9	Arbor	16600	XO.X10
68472		-02.50-10-8A	2.50	1.85	1.57	–	–	0.354	0.5	8	1.3	Arbor	14800	XO.X10
68473		-03.00-10-10A	3.00	2.44	1.97	–	–	0.354	0.5	10	2.4	Arbor	13200	XO.X10
68474		-04.00-10-12A	4.00	3.03	1.97	–	–	0.354	0.5	12	4.0	Arbor	11800	XO.X10

$\alpha°$ = Ramping angle

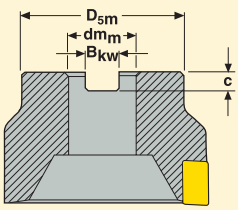
When using inserts with a corner radius > 0.094" the cutter body must be modified.
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.69-..	–	T07P-3	C02506-T07P
C6-R217.69-..	–	T07P-3	C02506-T07P
R220.69-01.50 - 02.50	UC6S3/8UNFX1	T07P-2	C02506-T07P
R220.69-03.00	UC6S1/2UNFX1-1/4	T07P-2	C02506-T07P
R220.69-04.00	UC6S3/4UNFX1-1/4	T07P-2	C02506-T07P

Torque value 7.9 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.69-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.69-03.00	1.00	2.44	0.38	0.22
R220.69-04.00	1.50	3.03	0.63	0.38

Please check availability in current price and stock-list.

R217/220.69-10 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	XOMX10T308TR-ME07 F40M	0.18	0.0044	0.0048	0.0075
P2	XOMX10T308TR-ME07 F40M	0.18	0.0048	0.0050	0.0075
P3	XOMX10T308TR-ME07 MP2500	0.18	0.0044	0.0048	0.0070
P4	XOMX10T308TR-ME07 MP2500	0.18	0.0044	0.0048	0.0070
P5	XOMX10T308TR-M09 MP2500	0.18	0.0048	0.0050	0.0080
P6	XOMX10T308TR-M09 MP2500	0.18	0.0048	0.0050	0.0080
P7	XOMX10T308TR-M09 MP2500	0.18	0.0048	0.0050	0.0080
P8	XOMX10T308TR-M09 MP2500	0.18	0.0048	0.0050	0.0080
P11	XOMX10T308TR-M09 T350M	0.18	0.0048	0.0050	0.0080
M1	XOEX10T308R-M06 F40M	0.18	0.0034	0.0038	0.0060
M2	XOEX10T308R-M06 F40M	0.18	0.0032	0.0034	0.0050
M3	XOEX10T308R-M06 F40M	0.14	0.0026	0.0028	0.0044
M4	XOEX10T308R-M06 T350M	0.10	0.0022	0.0024	0.0038
M5	XOEX10T308R-M06 T350M	0.10	0.0022	0.0024	0.0038
K1	XOMX10T308TR-M09 MK2050	0.18	0.0050	0.0055	0.0085
K2	XOMX10T308TR-M09 MK2050	0.18	0.0048	0.0050	0.0080
K3	XOMX10T308TR-M09 MK2050	0.18	0.0048	0.0050	0.0080
K4	XOMX10T308TR-M09 MK2050	0.18	0.0048	0.0050	0.0080
K5	XOMX10T308TR-M09 MK2050	0.18	0.0044	0.0048	0.0070
K6	XOMX10T308TR-M09 MK2050	0.18	0.0048	0.0050	0.0080
K7	XOMX10T308TR-M09 MK2050	0.18	0.0044	0.0048	0.0070
N1	XOEX10T308FR-E05 H15	0.18	0.0044	0.0048	0.0075
N2	XOEX10T308FR-E05 H15	0.18	0.0044	0.0048	0.0075
N3	XOEX10T308FR-E05 H15	0.18	0.0044	0.0048	0.0075
N11	XOEX10T308FR-E05 H15	0.18	0.0044	0.0048	0.0075
S1	XOEX10T308R-M06 T350M	0.10	0.0022	0.0024	0.0038
S2	XOEX10T308R-M06 T350M	0.10	0.0022	0.0024	0.0038
S3	XOEX10T308R-M06 T350M	0.10	0.0022	0.0024	0.0036
S11	XOEX10T308R-M06 MS2050	0.12	0.0026	0.0028	0.0044
S12	XOEX10T308R-M06 MS2050	0.12	0.0026	0.0028	0.0044
S13	XOEX10T308R-M06 MS2050	0.10	0.0022	0.0024	0.0038
H5	XOMX10T304TR-M09 MP1500	0.14	0.0032	0.0034	0.0050
H8	XOMX10T308TR-M09 MP3000	0.12	0.0026	0.0028	0.0044
H11	XOMX10T304TR-M09 MP1500	0.14	0.0032	0.0034	0.0050
H12	XOMX10T304TR-M09 MP1500	0.14	0.0032	0.0034	0.0050

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R217/220.69-10 – Cutting data v_c = (sf/min)

	MP1020			MP1500			MP2500			MP3000			T350M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1225	1425	1525	1225	1625	1900	1100	1425	1675	1025	1350	1575	950	1250	1450	830	1075	1275
P2	1175	1375	1475	1175	1550	1850	1025	1375	1625	980	1300	1550	900	1200	1425	780	1025	1225
P3	1075	1225	1325	1025	1350	1600	910	1200	1425	860	1150	1350	800	1050	1250	690	910	1075
P4	940	1075	1150	910	1200	1425	800	1050	1250	760	1000	1175	700	920	1100	610	800	950
P5	900	1025	1100	870	1175	1350	770	1025	1200	730	980	1125	670	900	1050	580	780	910
P6	1000	1150	1250	1000	1300	1525	880	1150	1350	840	1100	1300	770	1000	1175	670	880	1025
P7	950	1100	1175	940	1225	1450	830	1100	1275	790	1025	1225	730	950	1125	630	830	970
P8	900	1025	1100	870	1150	1350	770	1000	1200	730	960	1125	670	880	1050	580	770	910
P11	920	1050	1125	910	1200	1400	810	1075	1250	770	1000	1175	710	930	1100	610	810	950
M1	—	—	—	—	—	—	750	990	1175	730	970	1150	700	920	1100	630	840	1000
M2	—	—	—	—	—	—	620	830	960	610	820	950	580	770	900	520	700	820
M3	—	—	—	—	—	—	510	660	780	500	650	770	475	620	730	430	560	660
M4	—	—	—	—	—	—	400	520	600	390	510	590	370	485	560	335	440	510
M5	—	—	—	—	—	—	330	435	500	325	425	495	310	405	470	280	370	425
K1	—	—	—	930	1225	1450	820	1075	1300	780	1025	1225	720	940	1125	620	820	980
K2	—	—	—	820	1100	1275	730	980	1125	690	930	1075	630	850	990	550	740	860
K3	—	—	—	700	940	1075	620	830	960	580	790	910	540	720	840	465	630	730
K4	—	—	—	660	890	1025	590	790	920	560	750	870	510	690	800	445	600	690
K5	—	—	—	410	540	630	365	485	560	345	455	530	315	420	490	275	365	425
K6	—	—	—	580	790	910	520	700	810	490	660	760	450	610	700	395	530	610
K7	—	—	—	530	700	810	465	620	720	440	580	680	405	540	630	355	470	540
N1	—	—	—	—	—	—	3050	4050	4800	2875	3825	4550	—	—	—	2300	3075	3650
N2	—	—	—	—	—	—	2450	3275	3875	2325	3100	3675	—	—	—	1875	2475	2950
N3	—	—	—	—	—	—	1650	2175	2575	1550	2075	2450	—	—	—	1250	1650	1950
N11	—	—	—	—	—	—	1875	2500	2950	1775	2350	2800	—	—	—	1425	1900	2250
S1	—	—	—	—	—	—	195	255	295	185	240	275	175	225	265	155	205	240
S2	—	—	—	—	—	—	155	205	235	145	195	225	140	185	210	125	165	195
S3	—	—	—	—	—	—	135	180	210	130	170	195	120	160	185	110	145	170
S11	—	—	—	—	—	—	270	350	410	255	330	385	240	315	365	220	285	335
S12	—	—	—	—	—	—	155	200	235	145	190	225	140	180	210	125	165	190
S13	—	—	—	—	—	—	125	165	190	120	155	180	110	145	170	100	135	155
H5	—	—	—	195	255	300	155	205	240	150	200	235	150	195	230	130	170	200
H8	—	—	—	210	270	315	170	220	255	165	215	250	160	210	245	140	185	215
H11	—	—	—	245	325	380	200	260	305	195	255	300	190	250	295	165	220	255
H12	—	—	—	375	490	580	300	395	465	295	385	450	290	380	445	250	330	385
H21	—	—	—	210	270	315	170	220	255	165	215	250	160	210	245	140	185	215

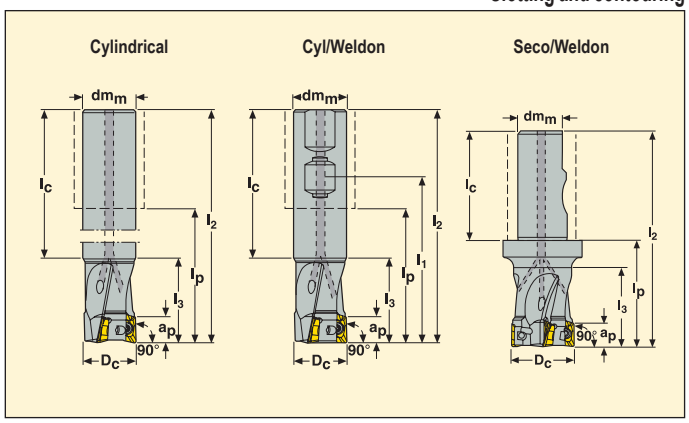
R217/220.69-10 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MM4500			MS2050			MS2500			H15		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	980	1300	1525	670	880	1025	820	940	980	1200	1575	1875	—	—	—
P2	—	—	—	950	1250	1475	640	840	1000	800	920	960	1175	1550	1825	—	—	—
P3	—	—	—	840	1100	1300	560	740	870	670	770	820	1025	1350	1575	—	—	—
P4	—	—	—	740	970	1150	495	650	770	590	680	690	910	1175	1400	—	—	—
P5	—	—	—	700	930	1100	470	630	730	570	630	660	860	1150	1350	—	—	—
P6	—	—	—	790	1050	1225	540	710	840	640	700	740	970	1275	1500	—	—	—
P7	—	—	—	750	980	1150	510	670	790	600	660	700	920	1200	1425	—	—	—
P8	—	—	—	700	930	1100	470	620	730	570	650	690	860	1125	1325	—	—	—
P11	—	—	—	720	960	1125	495	650	770	580	640	680	890	1175	1375	—	—	—
M1	—	—	—	—	—	—	550	720	860	700	800	840	840	1100	1300	—	—	—
M2	—	—	—	—	—	—	450	610	700	550	610	640	690	910	1075	—	—	—
M3	—	—	—	—	—	—	370	485	570	370	400	430	560	730	850	—	—	—
M4	—	—	—	—	—	—	290	380	440	240	255	270	440	570	660	—	—	—
M5	—	—	—	—	—	—	245	320	370	200	215	225	365	475	550	—	—	—
K1	1075	1425	1675	1025	1350	1600	—	—	—	810	930	960	930	1225	1450	—	—	—
K2	960	1275	1500	910	1200	1400	—	—	—	680	760	800	820	1075	1275	—	—	—
K3	810	1075	1250	770	1025	1200	—	—	—	580	640	670	690	920	1075	—	—	—
K4	780	1025	1200	730	970	1150	—	—	—	550	610	640	660	880	1025	—	—	—
K5	475	620	740	450	590	700	—	—	—	310	350	360	405	530	620	—	—	—
K6	680	900	1050	650	850	1000	—	—	—	485	540	570	580	770	910	—	—	—
K7	610	800	940	570	750	890	—	—	—	395	450	465	520	680	800	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2375	3125	3700
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1925	2525	3000
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1275	1675	2000
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1475	1925	2275
S1	—	—	—	—	—	—	90	115	135	190	230	255	215	280	325	—	—	—
S2	—	—	—	—	—	—	70	95	110	155	185	205	175	225	260	—	—	—
S3	—	—	—	—	—	—	65	80	95	135	165	180	150	200	225	—	—	—
S11	—	—	—	—	—	—	125	160	190	255	320	350	295	390	450	—	—	—
S12	—	—	—	—	—	—	95	125	145	200	245	270	170	225	260	—	—	—
S13	—	—	—	—	—	—	75	100	115	165	200	220	140	180	210	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	175	225	265	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	185	240	275	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	220	285	335	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	330	435	510	—	—	—

Turbo 12 – R217.69-12

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p						
45373	R217.69 -00.750-0-12-2AN	0.750	0.75	–	5.91	1.18	3.94	4.72	0.433	8.0	2	0.9	Cylindrical	23200	XO.X12
45375	-00.875-0-12-2AN	0.875	0.75	–	5.91	1.18	3.94	4.72	0.433	6.0	2	0.9	Cylindrical	22000	XO.X12
45378	-01.00-0-12-2AN	1.000	1.00	–	6.69	1.38	4.49	5.31	0.433	5.0	2	1.5	Cylindrical	20800	XO.X12
45379	-01.00-0-12-3AN	1.000	1.00	–	6.69	1.38	4.49	5.31	0.433	5.0	3	1.5	Cylindrical	20800	XO.X12
45380	-01.25-0-12-3AN	1.250	1.25	–	7.68	1.57	5.31	6.10	0.433	3.0	3	2.6	Cylindrical	18400	XO.X12
52518	R217.69 -00.750-3-12-2AN	0.750	0.75	2.36	3.38	1.17	1.42	2.20	0.433	8.0	2	0.7	Cyl/Weldon	23200	XO.X12
52519	-00.875-3-12-2AN	0.875	0.75	2.36	3.38	1.17	1.41	2.20	0.433	6	2	0.7	Cyl/Weldon	22000	XO.X12
52521	-01.00-3-12-3AN	1.000	1.00	2.86	4.00	1.57	1.80	2.43	0.433	5.0	3	0.9	Cyl/Weldon	20800	XO.X12
52525	-01.25-3-12-3AN	1.250	1.25	3.11	4.25	1.34	1.89	2.91	0.433	3	3	1.3	Cyl/Weldon	18400	XO.X12
52535	R217.69 -01.00-3S-12-3AN	1.000	0.75	–	4.00	1.48	2.03	1.97	0.433	5	3	0.9	Seco/Weldon	20800	XO.X12
52536	-01.25-3S-12-4AN	1.250	1.00	–	4.25	1.26	1.81	2.44	0.433	3	4	1.3	Seco/Weldon	18400	XO.X12

α° = Ramping angle

When using inserts with a corner radius > 0.094" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T10P-3	C03507-T10P

Please check availability in current price and stock-list.

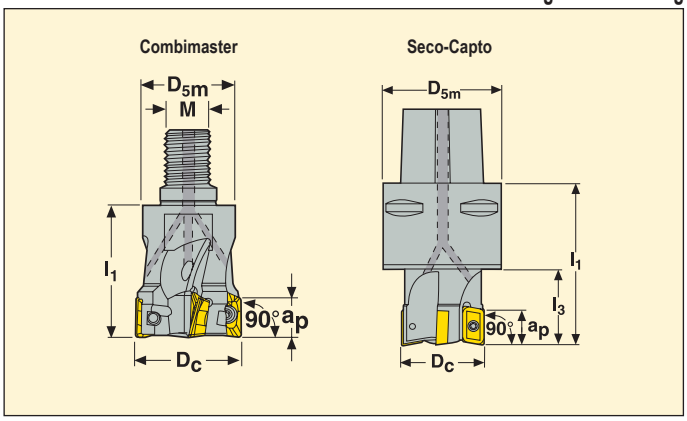
Torque value 17.7 in/lbs.

Torque keys available, see page 643.

Turbo 12 – R217.69-12

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.		Dimensions in inch D_c	D_{5m}	l_1	l_3	M	a_p	$\alpha°$ max		lbs	Type of mounting	Max rpm	Insert
52584	R217.69	-00.750-10RE-12-2AN	0.75	0.71	1.38	–	M10	0.433	8.0	2	0.4	Combimaster*	23200	XO.X12
52585		-01.00-12RE-12-3AN	1.00	0.91	1.57	–	M12	0.433	5.0	3	0.4	Combimaster*	20800	XO.X12
52586		-01.25-16RE-12-3AN	1.25	1.18	1.57	–	M16	0.433	3.0	3	0.7	Combimaster*	18400	XO.X12
52588		-01.50-16RE-12-4AN	1.50	1.18	1.57	–	M16	0.433	2.5	4	0.9	Combimaster*	16400	XO.X12
37951	C5-R217.69	-01.50-12-4AN	1.50	1.97	3.15	3.15	–	0.433	2.5	4	1.8	Seco-Capto	16400	XO.X12
37952		-02.00-12-5AN	2.00	1.97	2.36	2.36	–	0.433	2.0	5	2.0	Seco-Capto	18300	XO.X12
37953		-02.50-12-6AN	2.50	1.97	2.36	2.36	–	0.433	1.5	6	2.4	Seco-Capto	13200	XO.X12
37954		-03.00-12-7AN	3.00	1.97	2.36	2.36	–	0.433	1.0	7	2.9	Seco-Capto	11600	XO.X12
37955	C6-R217.69	-01.50-12-4AN	1.50	2.48	3.15	2.09	–	0.433	2.5	4	2.4	Seco-Capto	16400	XO.X12
37956		-02.00-12-5AN	2.00	2.48	2.36	1.34	–	0.433	2.0	5	2.6	Seco-Capto	14800	XO.X12
37957		-02.50-12-6AN	2.50	2.48	2.36	2.36	–	0.433	1.5	6	3.3	Seco-Capto	13200	XO.X12
37958		-03.00-12-7AN	3.00	2.48	2.36	2.36	–	0.433	1.0	7	3.7	Seco-Capto	11600	XO.X12

$\alpha°$ = Ramping angle

When using inserts with a corner radius > 0.094" the cutter body must be modified.

* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T10P-3	C03507-T10P
C5-R217.69-..	T10P-3	C03509-T10P
C6-R217.69-..	T10P-3	C03509-T10P

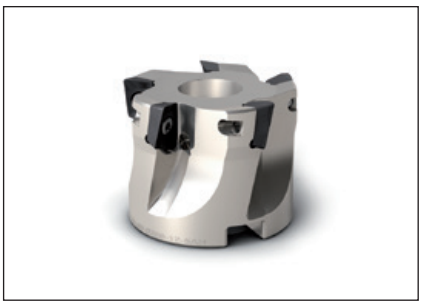
Please check availability in current price and stock-list.

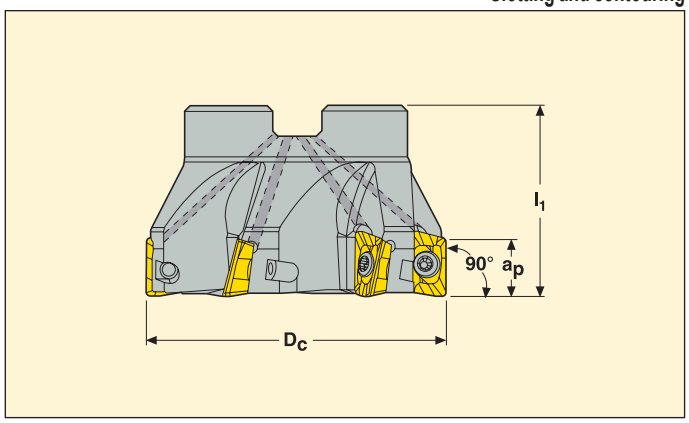
Torque value 17.7 in/lbs.

Torque keys available, see page 643.

Turbo 12 – R220.69-12

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch			α° max		lbs	Max rpm	Insert
		D_c	l_1	a_p					
52590	R220.69 -01.50-12-4AN	1.50	1.57	0.433	2.5	4	0.7	16400	XO.X12
52593	-02.00-12-3AN	2.00	1.57	0.433	2.0	3	0.9	14800	XO.X12
52595	-02.00-12-4AN	2.00	1.57	0.433	2.0	4	0.9	14800	XO.X12
52598	-02.50-12-4AN	2.50	1.57	0.433	1.5	4	1.1	13200	XO.X12
52602	-03.00-12-4AN	3.00	2.00	0.433	1.0	4	2.2	11600	XO.X12
52610	-04.00-12-5AN	4.00	2.00	0.433	0.5	5	5.1	10400	XO.X12

α° = Ramping angle

When using inserts with a corner radius > 0.094" the cutter body must be modified.

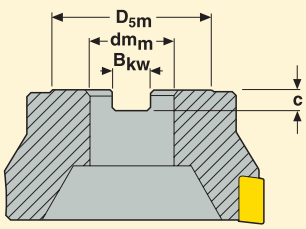
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R220.69-01.50	220.17-698	T10P-3	C03509-T10P
R220.69-02.00 / 02.50	UC6S3/8UNFX1	T10P-3	C03509-T10P
R220.69-03.00	UC6S1/2UNFX1-1/4	T10P-3	C03509-T10P
R220.69-04.00	UC6S3/4UNFX1-1/4	T10P-3	C03509-T10P

Torque value 17.7 in/lbs.

Torque keys available, see page 643.

Mounting Dimensions

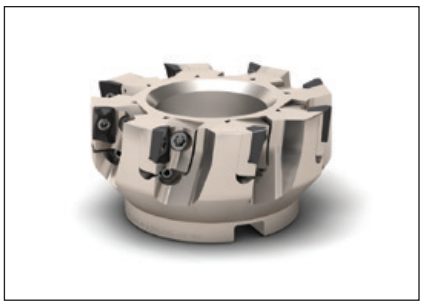


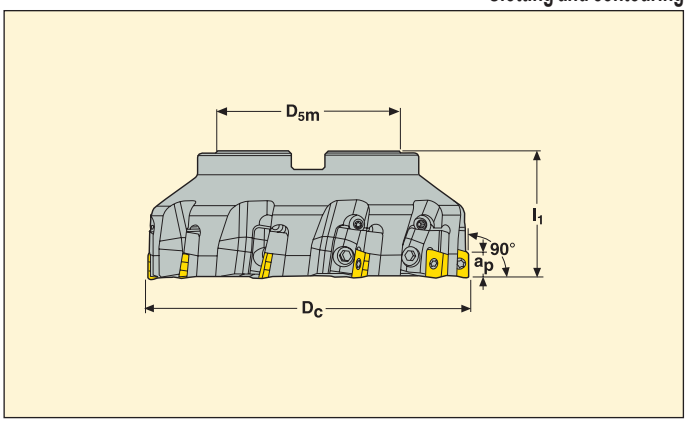
For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.69-01.50	0.75	1.38	0.32	0.19
R220.69-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.69-03.00	1.00	2.44	0.38	0.22
R220.69-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

Turbo 12 – R220.69-12C S/C

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch D_c	l_1	a_p	α° max		lbs	Max rpm	Insert
57505	R220.69 -05.00-12-8CN	5.00	2.48	0.433	0.5	8	6.8	9200	XO.X12
57507	-808.00-12-12CN	8.00	2.48	0.433	–	12	16.5	7300	XO.X12

α° = Ramping angle

When using inserts with a corner radius > 0.094" the cutter body must be modified.

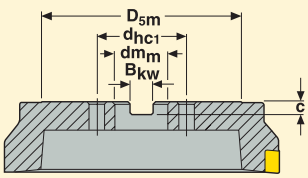
Spare Parts, included in delivery.

For cutter	Cassette	Cassette screw	Insert key	Insert screw	Setting gauge
R220.69-..	XO12PRN	FS96018	T10P-3	C03509-T10P	AU1114T-T15P

Locking screw C03509-T10P and insert locking key T10P-3 included.

Torque value 17.7 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



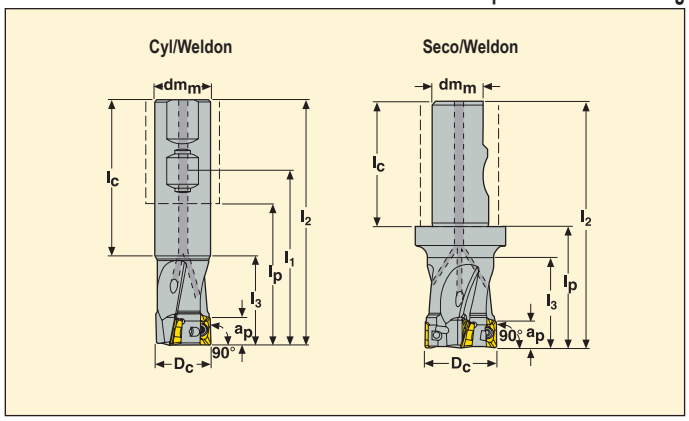
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	d_{hc1}
R220.69-05.00	1.50	3.54	0.63	0.38	–
R220.69-808.00 / 810.00	2.50	5.12	1.01	0.56	4.00

Please check availability in current price and stock-list.

Turbo 12 – R217.69-12

Optimized for contouring

- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p						
52527	**R217.69 -01.25-3-12-4AN**	1.250	1.250	3.11	4.25	1.34	1.89	2.91	0.433	3.0	4	1.5	Cyl/Weldon	18400	XO.X12
52543	**R217.69 -01.50-3S-12-5AN**	1.500	1.250	–	4.78	1.79	2.34	2.44	0.433	2.5	5	2.0	Seco/Weldon	16400	XO.X12

α° = Ramping angle

When using inserts with a corner radius > 0.094" the cutter body must be modified.

Spare Parts, included in delivery.

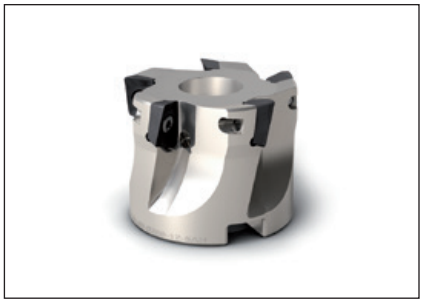
For cutter	Insert key	Insert screw
R217.69-..	T10P-3	C03507-T10P

Please check availability in current price and stock-list.

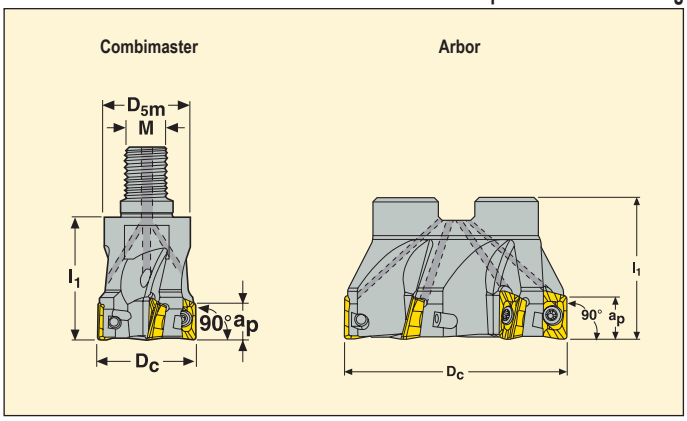
Torque value 17.7 in/lbs.
Torque keys available, see page 643.

Turbo 12 – R217/220.69-12

Optimized for contouring



- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch					α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	D_{5m}	l_1	M	a_p						
52587	R217.69 -01.25-16RE-12-4AN	1.25	1.18	1.57	M16	0.433	3.0	4	0.7	Combimaster*	18400	XO.X12
52589	-01.50-16RE-12-5AN	1.50	1.18	1.57	M16	0.433	2.5	5	0.9	Combimaster*	16400	XO.X12
52592	R220.69 -01.50-12-5AN	1.50	1.38	1.57	–	0.433	2.5	5	0.9	Arbor	16400	XO.X12
52596	-02.00-12-5AN	2.00	1.85	1.57	–	0.433	2.0	5	0.9	Arbor	14800	XO.X12
52597	-02.00-12-7AN	2.00	1.85	1.57	–	0.433	2.0	7	0.9	Arbor	14800	XO.X12
52599	-02.50-12-6AN	2.50	1.85	1.57	–	0.433	1.5	6	1.3	Arbor	13200	XO.X12
52601	-02.50-12-8AN	2.50	1.85	1.57	–	0.433	1.5	8	1.3	Arbor	13200	XO.X12
52607	-03.00-12-7AN	3.00	2.44	2.00	–	0.433	1.0	7	2.4	Arbor	11600	XO.X12
52604	-03.00-12-10AN	3.00	2.44	2.00	–	0.433	1.0	10	2.2	Arbor	11600	XO.X12
52621	-04.00-12-8AN	4.00	3.54	2.00	–	0.433	0.5	8	4.4	Arbor	10400	XO.X12
52619	-04.00-12-12AN	4.00	3.54	2.00	–	0.433	0.5	12	3.7	Arbor	10400	XO.X12

α° = Ramping angle

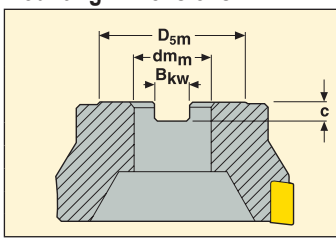
When using inserts with a corner radius > 0.094" the cutter body must be modified.
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.69-00.75 - 01.50	–	T10P-3	C03507-T10P
R220.69-01.50	220.17-698	T10P-3	C03509-T10P
R220.69-02.00 / 02.50	UC6S3/8UNFX1	T10P-3	C03509-T10P
R220.69-03.00	UC6S1/2UNFX1-1/4	T10P-3	C03509-T10P
R220.69-04.00	UC6S3/4UNFX1-1/4	T10P-3	C03509-T10P

Torque value 17.7 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.69-01.50	0.75	1.38	0.32	0.19
R220.69-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.69-03.00	1.00	2.44	0.38	0.22
R220.69-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217/220.69-12 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	XOMX120408TR-ME08 F40M	0.20	0.0055	0.0065	0.0095
P2	XOMX120408TR-ME08 F40M	0.20	0.0055	0.0065	0.0095
P3	XOMX120408TR-ME08 MP2500	0.20	0.0055	0.0060	0.0085
P4	XOMX120408TR-ME08 MP2500	0.20	0.0050	0.0060	0.0085
P5	XOMX120408TR-M12 MP2500	0.20	0.0065	0.0065	0.010
P6	XOMX120408TR-M12 MP2500	0.20	0.0065	0.0065	0.010
P7	XOMX120408TR-M12 MP2500	0.20	0.0065	0.0065	0.010
P8	XOMX120408TR-M12 MP2500	0.20	0.0065	0.0070	0.011
P11	XOMX120408TR-M12 T350M	0.20	0.0065	0.0065	0.010
M1	XOEX120408R-M07 F40M	0.20	0.0048	0.0050	0.0075
M2	XOEX120408R-M07 F40M	0.20	0.0044	0.0044	0.0070
M3	XOEX120408R-M07 F40M	0.18	0.0034	0.0036	0.0055
M4	XOEX120408R-M07 T350M	0.12	0.0030	0.0032	0.0050
M5	XOEX120408R-M07 T350M	0.12	0.0030	0.0032	0.0050
K1	XOMX120408TR-M12 MK2050	0.20	0.0065	0.0075	0.012
K2	XOMX120408TR-M12 MK2050	0.20	0.0065	0.0065	0.010
K3	XOMX120408TR-M12 MK2050	0.20	0.0065	0.0065	0.010
K4	XOMX120408TR-M12 MK2050	0.20	0.0065	0.0065	0.010
K5	XOMX120408TR-MD13 MK2050	0.20	0.0060	0.0065	0.010
K6	XOMX120408TR-MD13 MK2050	0.20	0.0065	0.0075	0.011
K7	XOMX120408TR-MD13 MK2050	0.20	0.0060	0.0065	0.010
N1	XOEX120408FR-E06 H15	0.20	0.0050	0.0055	0.0085
N2	XOEX120408FR-E06 H15	0.20	0.0050	0.0055	0.0085
N3	XOEX120408FR-E06 H15	0.20	0.0050	0.0055	0.0085
N11	XOEX120408FR-E06 H15	0.20	0.0050	0.0055	0.0085
S1	XOEX120408R-M07 T350M	0.12	0.0030	0.0032	0.0050
S2	XOEX120408R-M07 T350M	0.12	0.0030	0.0032	0.0050
S3	XOEX120408R-M07 T350M	0.12	0.0028	0.0030	0.0048
S11	XOEX120408R-M07 MS2050	0.16	0.0030	0.0032	0.0048
S12	XOEX120408R-M07 MS2050	0.16	0.0030	0.0032	0.0048
S13	XOEX120408R-M07 MS2050	0.12	0.0026	0.0028	0.0044
H5	XOMX120408TR-MD13 MP1500	0.18	0.0048	0.0050	0.0080
H8	XOMX120408TR-MD13 MP2500	0.16	0.0036	0.0040	0.0060
H11	XOMX120408TR-MD13 MP3000	0.18	0.0048	0.0050	0.0080
H12	XOMX120408TR-MD13 MP1500	0.18	0.0048	0.0050	0.0080
H21	XOMX120408TR-D14 MP1500	0.16	0.0038	0.0044	0.0065

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R217/220.69-12 – Cutting data v_c = (sf/min)

	MP1020			MP1500			MP2500			MP3000			T350M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1350	1525	1600	980	1275	1525	990	1300	1525	1000	1300	1525	860	1125	1325	750	990	1150
P2	1250	1450	1550	950	1250	1475	960	1250	1475	950	1250	1500	840	1075	1275	730	940	1125
P3	1125	1275	1350	830	1100	1275	830	1100	1300	840	1100	1300	720	950	1125	630	830	990
P4	990	1125	1200	730	960	1150	740	960	1150	740	970	1150	650	840	1000	560	730	870
P5	950	1075	1150	700	930	1100	710	940	1100	700	940	1100	620	820	950	540	710	830
P6	1100	1225	1275	790	1050	1225	800	1050	1225	810	1050	1250	690	920	1075	600	800	930
P7	1050	1150	1200	740	990	1175	750	990	1150	760	1000	1175	650	860	1000	570	750	880
P8	950	1075	1150	700	920	1075	690	920	1100	700	920	1100	600	800	950	530	700	830
P11	1000	1125	1175	720	960	1125	730	960	1125	740	970	1150	640	840	980	550	730	850
M1	—	—	—	—	—	—	690	900	1075	710	940	1125	640	840	990	590	760	900
M2	—	—	—	—	—	—	570	750	880	590	790	930	530	700	820	485	640	750
M3	—	—	—	—	—	—	455	610	720	480	630	740	425	570	670	385	520	610
M4	—	—	—	—	—	—	360	480	550	375	495	570	335	445	520	305	405	470
M5	—	—	—	—	—	—	300	400	460	315	410	480	280	370	430	255	340	390
K1	—	—	—	750	990	1175	760	990	1175	750	990	1175	660	860	1025	580	750	890
K2	—	—	—	670	890	1050	670	890	1050	670	900	1050	590	770	900	510	670	790
K3	—	—	—	560	750	880	570	750	880	560	760	890	495	660	770	430	570	670
K4	—	—	—	540	710	840	540	720	840	540	720	850	475	630	730	410	540	640
K5	—	—	—	335	440	510	330	435	510	335	440	510	290	380	445	250	330	390
K6	—	—	—	475	630	740	480	630	740	475	640	750	415	550	640	365	480	560
K7	—	—	—	425	560	660	425	560	660	425	560	660	370	485	570	320	425	495
N1	—	—	—	—	—	—	2800	3650	4350	2800	3700	4375	—	—	—	2125	2775	3300
N2	—	—	—	—	—	—	2250	2950	3500	2250	3000	3550	—	—	—	1700	2250	2650
N3	—	—	—	—	—	—	1500	1975	2350	1500	2000	2350	—	—	—	1150	1500	1775
N11	—	—	—	—	—	—	1725	2250	2675	1725	2275	2700	—	—	—	1300	1700	2025
S1	—	—	—	—	—	—	175	235	270	175	230	270	155	210	240	145	190	220
S2	—	—	—	—	—	—	140	185	215	140	185	215	125	170	195	115	150	175
S3	—	—	—	—	—	—	125	165	190	125	165	190	110	145	170	100	135	155
S11	—	—	—	—	—	—	240	320	380	245	320	375	215	285	340	195	260	305
S12	—	—	—	—	—	—	140	185	220	140	185	215	125	165	195	115	150	175
S13	—	—	—	—	—	—	115	150	175	115	150	175	100	135	155	90	120	140
H5	—	—	—	160	210	245	145	190	220	150	195	225	140	180	210	120	155	185
H8	—	—	—	170	225	260	155	200	235	160	205	240	145	195	225	130	170	195
H11	—	—	—	200	265	310	185	240	280	190	245	290	175	230	270	155	200	235
H12	—	—	—	305	400	470	275	360	425	285	370	435	265	345	405	230	300	355
H21	—	—	—	170	225	260	155	200	235	160	205	240	145	195	225	130	170	195

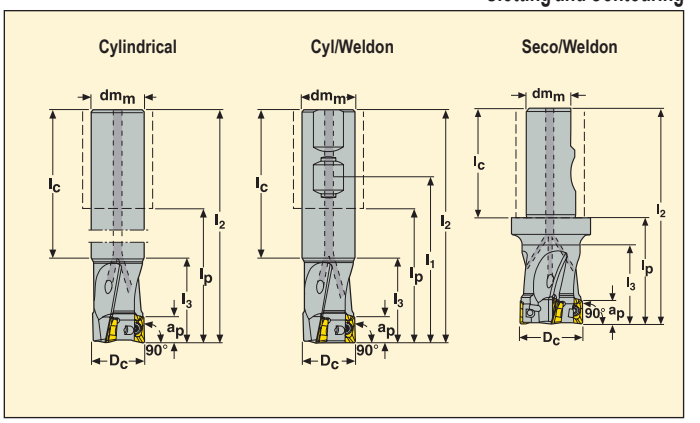
R217/220.69-12 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MM4500			MS2050			MS2500			H15		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	860	1125	1350	600	800	930	880	1025	1100	1150	1500	1750	—	—	—
P2	—	—	—	830	1100	1275	590	770	910	860	990	1075	1100	1450	1725	—	—	—
P3	—	—	—	720	960	1125	510	670	800	730	830	900	960	1275	1500	—	—	—
P4	—	—	—	650	850	990	455	590	700	640	730	800	850	1125	1325	—	—	—
P5	—	—	—	620	810	970	435	570	670	600	690	740	810	1100	1275	—	—	—
P6	—	—	—	690	920	1075	490	650	750	680	780	830	930	1225	1425	—	—	—
P7	—	—	—	660	870	1025	460	610	710	640	740	780	880	1150	1350	—	—	—
P8	—	—	—	610	810	950	425	560	670	610	690	760	810	1075	1250	—	—	—
P11	—	—	—	640	850	990	450	590	690	620	710	760	850	1125	1325	—	—	—
M1	—	—	—	—	—	—	510	660	780	750	870	940	780	1025	1225	—	—	—
M2	—	—	—	—	—	—	415	550	640	590	680	720	650	870	1025	—	—	—
M3	—	—	—	—	—	—	335	450	520	415	455	475	530	700	810	—	—	—
M4	—	—	—	—	—	—	265	350	405	280	305	335	415	550	630	—	—	—
M5	—	—	—	—	—	—	220	290	340	235	255	280	345	455	530	—	—	—
K1	940	1250	1475	890	1200	1375	—	—	—	860	1000	1100	870	1150	1350	—	—	—
K2	840	1100	1325	800	1050	1250	—	—	—	730	840	890	770	1025	1200	—	—	—
K3	710	940	1125	680	890	1050	—	—	—	620	710	750	650	870	1025	—	—	—
K4	680	890	1075	650	850	1000	—	—	—	590	680	720	620	830	980	—	—	—
K5	420	550	650	400	520	610	—	—	—	345	385	415	385	510	590	—	—	—
K6	600	790	940	570	750	890	—	—	—	520	600	630	550	730	860	—	—	—
K7	540	700	830	510	670	780	—	—	—	440	490	530	490	650	760	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2325	3050	3575
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1875	2475	2900
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1250	1650	1925
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1425	1875	2200
S1	—	—	—	—	—	—	80	105	125	180	225	245	205	265	310	—	—	—
S2	—	—	—	—	—	—	65	85	100	145	180	200	165	215	250	—	—	—
S3	—	—	—	—	—	—	60	75	85	130	160	175	145	190	220	—	—	—
S11	—	—	—	—	—	—	110	145	175	240	305	345	280	370	430	—	—	—
S12	—	—	—	—	—	—	85	110	135	185	235	265	160	215	250	—	—	—
S13	—	—	—	—	—	—	70	90	105	155	195	210	130	170	200	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	165	215	250	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	175	230	265	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	210	275	320	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	320	415	485	—	—	—
H21	—	—	—	—	—	—	—	—	—	—	—	—	175	230	265	—	—	—

Turbo 18 – R217.69-18

Slotting and Contouring

- For insert selection and cutting data recommendations, see pages 50-51.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p						
55595	R217.69 -01.00-0-18-2LAN	1.00	1.00	–	6.69	1.57	4.49	5.12	0.669	5.0	2	1.5	Cylindrical	13800	XO.X18
55327	-01.25-0-18-2LAN	1.25	1.00	–	7.68	1.57	5.31	6.10	0.669	2.0	2	2.0	Cylindrical	11100	XO.X18
55329	-01.50-0-18-3LAN	1.50	1.25	–	8.27	1.77	5.91	6.50	0.669	4.5	3	3.1	Cylindrical	9900	XO.X18
55331	-02.00-0-18-5LAN	1.98	1.50	–	8.66	1.77	6.30	6.89	0.669	3.0	5	4.6	Cylindrical	8900	XO.X18
55596	R217.69 -01.00-3-18-2AN	1.00	1.00	2.80	3.94	1.57	1.73	2.36	0.669	6	2	1.1	Cyl/Weldon	13800	XO.X18
55332	-01.25-3-18-2AN	1.25	1.25	3.19	4.33	1.57	1.97	2.76	0.669	7.0	2	1.1	Cyl/Weldon	11100	XO.X18
55334	-01.50-3-18-3AN	1.50	1.25	3.58	4.72	1.57	2.36	3.15	0.669	4.5	3	1.5	Cyl/Weldon	9900	XO.X18
55337	R217.69 -01.25-3S-18-2AN	1.25	1.00	–	4.57	1.57	2.13	2.44	0.669	7.0	2	1.3	Seco/Weldon	11100	XO.X18
55338	-01.50-3S-18-3AN	1.50	1.25	–	4.80	1.81	2.36	2.44	0.669	4.5	3	2.0	Seco/Weldon	9900	XO.X18

α° = Ramping angle

When using inserts with a corner radius > 0.157" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T20P-3	C04510-T20P

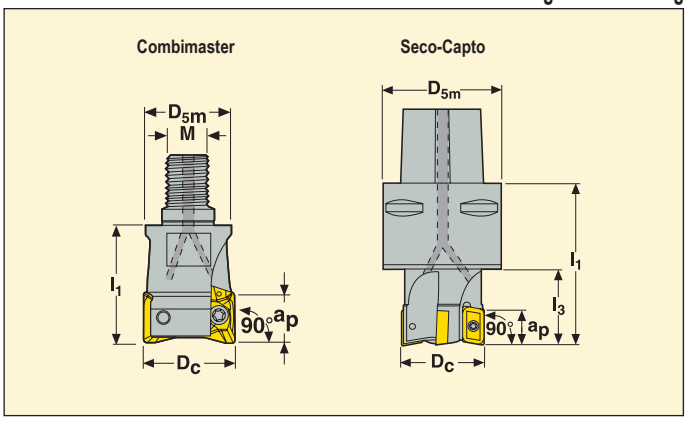
Please check availability in current price and stock-list.

Torque value 44 in/lbs.

Torque keys available, see page 643.

Turbo 18 – R217.69-18

- For insert selection and cutting data recommendations, see pages 50-51.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch D_c	D_{5m}	l_1	l_3	M	a_p	α° max		lbs	Type of mounting	Max rpm	Insert
55600	R217.69 -01.00-12RE-18-2AN	1.00	0.91	1.57	–	M12	0.669	6.0	2	0.7	Combimaster*	13800	XO.X18
55601	-01.25-16RE-18-2AN	1.25	1.18	1.77	–	M16	0.669	7.0	2	0.7	Combimaster*	11100	XO.X18
55603	-01.50-16RE-18-3AN	1.50	1.18	1.77	–	M16	0.669	4.5	3	0.9	Combimaster*	9900	XO.X18
37959	C6-R217.69 -01.50-18-3AN	1.50	2.48	3.15	2.09	–	0.669	4.5	3	2.4	Seco-Capto	9900	XO.X18
37960	-02.00-18-4AN	2.00	2.48	3.15	2.09	–	0.669	3.0	4	3.1	Seco-Capto	8900	XO.X18
37961	-02.50-18-5AN	2.50	2.48	3.15	3.15	–	0.669	2.0	5	4.0	Seco-Capto	7900	XO.X18
37962	-03.00-18-6AN	3.00	2.48	2.36	2.36	–	0.669	1.5	6	5.0	Seco-Capto	7000	XO.X18

α° = Ramping angle

When using inserts with a corner radius > 0.157" the cutter body must be modified.

* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
C6-R217.69-..	T20P-3	C04510-T20P

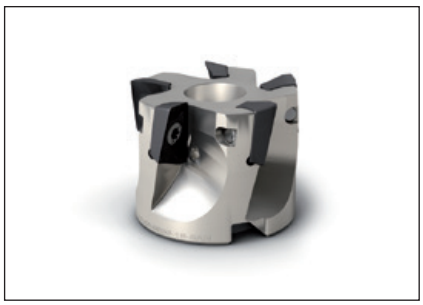
Please check availability in current price and stock-list.

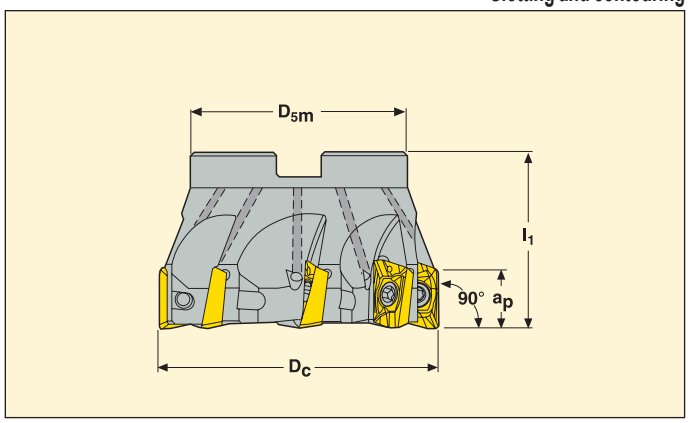
Torque value 44 in/lbs.

Torque keys available, see page 643.

Turbo 18 – R220.69-18

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 50-51.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch			α° max		lbs	Max rpm	Insert
		D_c	l_1	a_p					
55340	R220.69 -02.00-18-3AN	2.00	1.57	0.669	3.0	3	0.9	8900	XO.X18
55341	-02.00-18-4AN	2.00	1.57	0.669	3.0	4	0.9	8900	XO.X18
55343	-02.50-18-4AN	2.50	1.57	0.669	2.0	4	1.3	7900	XO.X18
55344	-02.50-18-5AN	2.50	1.57	0.669	2.0	5	1.1	7900	XO.X18
55346	-03.00-18-4AN	3.00	1.97	0.669	1.5	4	2.2	7000	XO.X18
55347	-03.00-18-6AN	3.00	1.97	0.669	1.5	6	2.2	7000	XO.X18
55350	-04.00-18-5AN	4.00	1.97	0.669	1.0	5	4.4	6300	XO.X18
55355	-05.00-18-8AN	5.00	2.48	0.669	1.0	8	7.7	5600	XO.X18
55358	-06.00-18-9N	6.00	2.48	0.669	0.5	9	9.5	5000	XO.X18

α° = Ramping angle

When using inserts with a corner radius > 0.157" the cutter body must be modified.

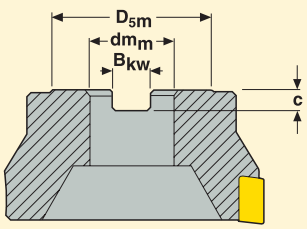
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.69-02.00 / 02.50	220.17-695	T20P-3	C04510-T20P
R220.69-03.00	UC6S1/2UNFX1-1/4	T20P-3	C04510-T20P
R220.69-04.00	UF6S3/4UNFX2	T20P-3	C04510-T20P
R220.69-05.00	UC6S3/4UNFX1-1/4	T20P-4	C04510-T20P
R220.69-06.00	–	T20P-4	C04510-T20P

Torque value 44 in /lbs.

Torque keys available, see page 643.

Mounting Dimensions

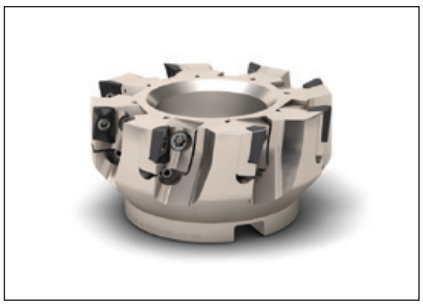


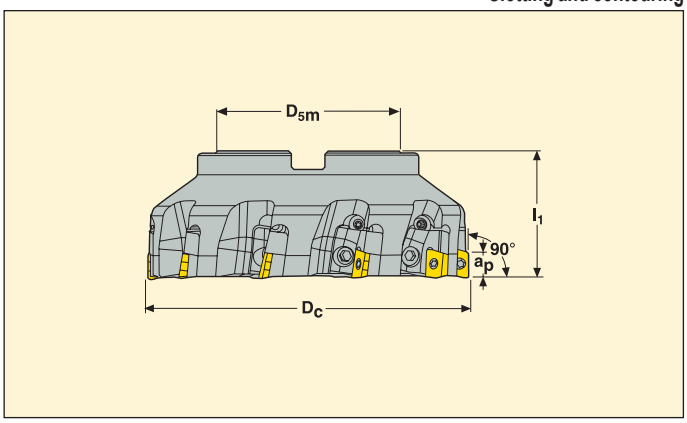
For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.69-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.69-03.00	1.00	2.44	0.38	0.22
R220.69-04.00	1.50	3.54	0.63	0.38
R220.69-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.69-06.00	2.00	3.54	0.63	0.38

Please check availability in current price and stock-list.

Turbo 18 – R220.69-18C

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 50-51.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch D_c	l_1	a_p		lbs	Max rpm	Insert
57509	R220.69 -05.00-18-8CN	5.00	2.48	0.669	8	7.7	5600	XO.X18
57511	-808.00-18-12CN	8.00	2.48	0.669	12	17.6	4400	XO.X18

When using inserts with a corner radius > 0.157" the cutter body must be modified.

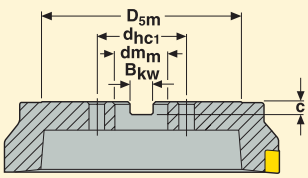
Spare Parts, included in delivery.

For cutter	Cassette	Cassette screw	Insert key	Insert screw	Setting gauge
R220.69-..	XO18PRN	FS96018	H05-4	C04510-T20P	AU1114T-T15P

Nest key H05-4 and setting key T15P-3 included.

Torque value 44 in /lbs.
Torque keys available, see page 643.

Mounting Dimensions



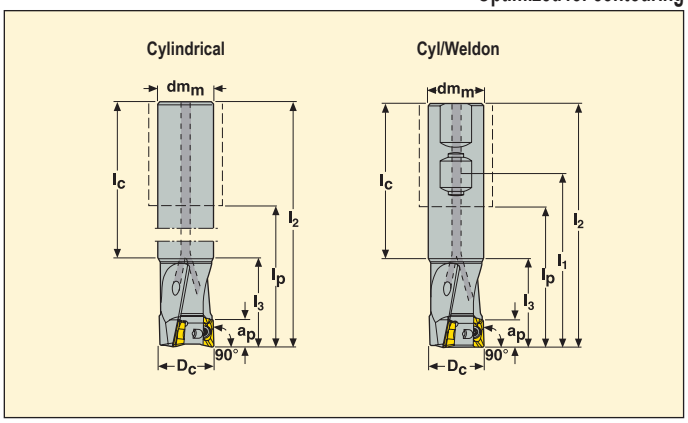
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	d_{hc1}
R220.69-05.00	1.50	3.54	0.63	0.38	–
R220.69-808.00 / 810.00	2.50	5.12	1.01	0.56	4.00

Please check availability in current price and stock-list.

Turbo 18 – R217.69-18

Optimized for contouring

- For insert selection and cutting data recommendations, see pages 50-51.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p						
55328	R217.69 -01.25-0-18-3LAN	1.25	1.00	–	7.68	1.57	5.47	6.10	0.669	7.0	3	2.0	Cylindrical	11100	XO.X18
55330	-01.50-0-18-4LAN	1.50	1.25	–	8.27	1.77	5.91	6.50	0.669	4.5	4	2.9	Cylindrical	9900	XO.X18
55333	R217.69 -01.25-3-18-3AN	1.25	1.25	3.19	4.33	1.57	1.97	2.76	0.669	7.0	3	1.3	Cyl/Weldon	11100	XO.X18
55335	-01.50-3-18-4AN	1.50	1.25	3.54	4.72	1.57	2.36	3.15	0.669	4.5	4	1.5	Cyl/Weldon	9900	XO.X18

α° = Ramping angle

When using inserts with a corner radius > 0.157" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T20P-3	C04510-T20P

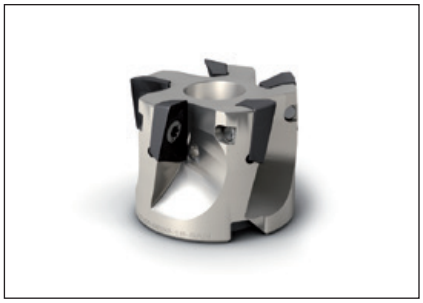
Please check availability in current price and stock-list.

Torque value 44 in/lbs.

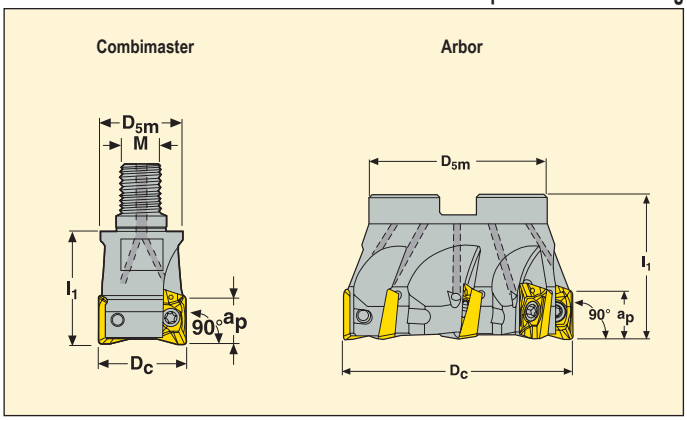
Torque keys available, see page 643.

Turbo 18 – 217/220.69-18

Optimized for contouring



- For insert selection and cutting data recommendations, see pages 50-51.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch					α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	D_{5m}	l_1	M	a_p						
55602	R217.69 -01.25-16RE-18-3AN	1.25	1.18	1.77	M16	0.669	7.0	3	0.7	Combimaster*	11100	XO.X18
55607	-01.50-16RE-18-4AN	1.50	1.18	1.77	M16	0.669	4.5	4	0.9	Combimaster*	9900	XO.X18
55342	R220.69 -02.00-18-5AN	2.00	1.85	1.57	–	0.669	3.0	5	0.7	Arbor	8900	XO.X18
55345	-02.50-18-6AN	2.50	1.85	1.57	–	0.669	2.0	6	1.1	Arbor	7900	XO.X18
55348	-03.00-18-8AN	3.00	2.44	1.97	–	0.669	1.5	8	2.0	Arbor	7000	XO.X18
55352	-04.00-18-7AN	4.00	3.54	1.97	–	0.669	1.0	7	4.4	Arbor	6300	XO.X18
55353	-04.00-18-9AN	4.00	3.54	1.97	–	0.669	1.0	9	4.2	Arbor	6300	XO.X18
55354	-05.00-18-11AN	5.00	3.54	2.48	–	0.669	1.0	11	7.7	Arbor	5600	XO.X18
55357	-06.00-18-12N	6.00	3.54	2.48	–	0.669	0.5	12	9.3	Arbor	5000	XO.X18

α° = Ramping angle

When using inserts with a corner radius > 0.157" the cutter body must be modified.

* For Combimaster holders and adapters, see page 534.

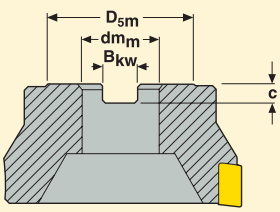
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.69-..	–	T20P-3	C04510-T20P
R220.69-02.00 / 02.50	220.17-695	T20P-3	C04510-T20P
R220.69-03.00	UC6S1/2UNFX1-1/4	T20P-3	C04510-T20P
R220.69-04.00	UF6S3/4UNFX2	T20P-3	C04510-T20P
R220.69-05.00	UC6S3/4UNFX1-1/4	T20P-3	C04510-T20P
R220.69-06.00	–	T20P-4	C04510-T20P

Torque value 44 in /lbs.

Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.69-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.69-03.00	1.00	2.44	0.38	0.22
R220.69-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.69-06.00	2.00	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217/220.69-18 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	XOMX180608TR-ME13 F40M	0.32	0.0070	0.0080	0.012
P2	XOMX180608TR-ME13 F40M	0.32	0.0075	0.0080	0.013
P3	XOMX180608TR-M14 MP2500	0.32	0.0075	0.0080	0.013
P4	XOMX180608TR-M14 MP2500	0.32	0.0075	0.0080	0.013
P5	XOMX180608TR-M14 MP2500	0.32	0.0070	0.0080	0.012
P6	XOMX180608TR-M14 MP2500	0.32	0.0070	0.0080	0.012
P7	XOMX180608TR-M14 MP2500	0.32	0.0070	0.0080	0.012
P8	XOMX180608TR-MD15 MP1500	0.32	0.0080	0.0085	0.013
P11	XOMX180608TR-M14 T350M	0.32	0.0070	0.0080	0.012
M1	XOMX180608TR-M14 F40M	0.32	0.0080	0.0085	0.013
M2	XOMX180608TR-M14 F40M	0.32	0.0070	0.0080	0.012
M3	XOMX180608TR-M14 F40M	0.28	0.0060	0.0065	0.0095
M4	XOMX180608R-M10 T350M	0.20	0.0036	0.0040	0.0060
M5	XOMX180608R-M10 T350M	0.20	0.0036	0.0040	0.0060
K1	XOMX180608TR-M14 MK2050	0.32	0.0080	0.0085	0.013
K2	XOMX180608TR-M14 MK2050	0.32	0.0070	0.0080	0.012
K3	XOMX180608TR-M14 MK2050	0.32	0.0070	0.0080	0.012
K4	XOMX180608TR-M14 MK2050	0.32	0.0070	0.0080	0.012
K5	XOMX180608TR-M14 MK2050	0.32	0.0065	0.0070	0.011
K6	XOMX180608TR-M14 MK2050	0.32	0.0070	0.0080	0.012
K7	XOMX180608TR-M14 MK2050	0.32	0.0065	0.0070	0.011
N1	XOEX180608FR-E10 H25	0.32	0.0070	0.0080	0.012
N2	XOEX180608FR-E10 H25	0.32	0.0070	0.0080	0.012
N3	XOEX180608FR-E10 H25	0.32	0.0070	0.0080	0.012
N11	XOEX180608FR-E10 H25	0.32	0.0070	0.0080	0.012
S1	XOMX180608R-M10 T350M	0.20	0.0036	0.0040	0.0060
S2	XOMX180608R-M10 T350M	0.20	0.0036	0.0040	0.0060
S3	XOMX180608R-M10 T350M	0.20	0.0034	0.0038	0.0055
S11	XOMX180608R-M10 MS2050	0.24	0.0040	0.0044	0.0070
S12	XOMX180608R-M10 MS2050	0.24	0.0040	0.0044	0.0070
S13	XOMX180608R-M10 MS2050	0.20	0.0036	0.0040	0.0060
H5	XOMX180608TR-MD15 MP1500	0.28	0.0050	0.0060	0.0085
H8	XOMX180608TR-MD15 MP2500	0.24	0.0040	0.0044	0.0065
H11	XOMX180608TR-MD15 MP1500	0.28	0.0050	0.0060	0.0085
H12	XOMX180608TR-MD15 MP1500	0.28	0.0050	0.0060	0.0085

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R217/220.69-18 – Cutting data v_c = (sf/min)

	MP1020			MP1500			MP2500			MP3000			T350M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1125	1375	1475	950	1250	1500	930	1225	1475	800	1050	1275	810	1075	1275	710	930	1100
P2	1100	1275	1425	930	1225	1450	890	1200	1400	780	1025	1200	780	1050	1225	680	910	1050
P3	950	1150	1275	810	1075	1275	780	1050	1225	680	910	1075	680	910	1075	590	790	930
P4	880	1000	1125	710	950	1125	700	920	1100	600	800	940	610	800	960	530	700	830
P5	840	1000	1075	690	910	1075	670	880	1050	580	760	910	580	760	920	510	660	800
P6	950	1125	1200	780	1025	1225	750	1000	1175	650	860	1025	650	870	1025	570	760	890
P7	890	1050	1150	730	970	1150	710	950	1125	620	810	970	620	820	970	540	720	840
P8	800	960	1075	680	910	1075	660	880	1025	570	760	890	570	760	900	495	660	780
P11	870	1025	1100	710	940	1125	690	920	1075	600	790	940	600	800	940	520	700	820
M1	—	—	—	—	—	—	640	860	1000	580	770	910	600	800	940	540	730	850
M2	—	—	—	—	—	—	540	710	850	485	640	760	500	660	790	455	600	720
M3	—	—	—	—	—	—	435	580	690	390	520	620	405	540	640	370	490	580
M4	—	—	—	—	—	—	345	455	530	310	410	475	320	425	495	290	385	450
M5	—	—	—	—	—	—	285	380	440	260	340	395	270	355	410	245	320	375
K1	—	—	—	730	970	1150	710	950	1100	620	810	960	620	820	960	540	720	840
K2	—	—	—	660	860	1025	630	830	1000	550	730	860	550	730	870	480	630	760
K3	—	—	—	560	730	870	540	700	840	465	610	730	470	610	740	405	530	640
K4	—	—	—	530	700	830	510	670	810	445	590	700	445	590	700	390	510	610
K5	—	—	—	330	430	510	315	415	490	275	360	425	275	360	425	240	315	370
K6	—	—	—	470	620	730	450	590	710	390	520	620	395	520	620	340	450	540
K7	—	—	—	420	550	650	405	530	630	350	460	540	355	460	550	305	400	475
N1	—	—	—	—	—	—	2600	3450	4075	2225	2975	3550	—	—	—	1950	2600	3100
N2	—	—	—	—	—	—	2100	2775	3300	1800	2400	2875	—	—	—	1575	2100	2500
N3	—	—	—	—	—	—	1400	1850	2200	1200	1600	1925	—	—	—	1050	1400	1675
N11	—	—	—	—	—	—	1600	2125	2500	1375	1825	2175	—	—	—	1200	1600	1900
S1	—	—	—	—	—	—	170	220	260	145	190	220	150	200	230	135	180	210
S2	—	—	—	—	—	—	135	180	210	115	155	180	120	160	185	110	145	170
S3	—	—	—	—	—	—	120	155	185	105	135	160	105	140	165	95	130	150
S11	—	—	—	—	—	—	230	305	365	200	265	315	205	275	325	185	250	295
S12	—	—	—	—	—	—	135	175	210	115	155	180	120	160	190	110	145	170
S13	—	—	—	—	—	—	110	145	165	95	125	145	95	130	150	90	115	135
H5	—	—	—	160	205	245	135	180	215	125	160	195	130	175	205	115	150	180
H8	—	—	—	170	225	260	150	195	225	135	175	205	140	185	220	125	165	190
H11	—	—	—	200	260	310	175	230	275	160	205	245	165	220	260	145	190	230
H12	—	—	—	305	395	470	260	345	410	240	310	370	250	330	395	220	290	345
H21	—	—	—	170	225	260	150	195	225	135	175	205	140	185	220	125	165	190

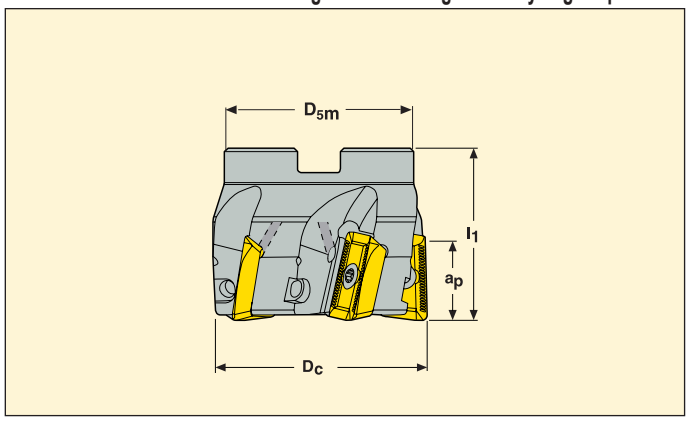
R217/220.69-18 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MM4500			MS2050			H25		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	830	1100	1325	570	750	900	880	1075	1200	—	—	—
P2	—	—	—	810	1075	1250	550	730	860	860	1050	1150	—	—	—
P3	—	—	—	710	950	1100	480	640	750	740	900	990	—	—	—
P4	—	—	—	620	830	970	430	560	680	660	790	870	—	—	—
P5	—	—	—	600	790	950	410	540	650	630	750	840	—	—	—
P6	—	—	—	680	890	1075	460	610	720	700	850	940	—	—	—
P7	—	—	—	640	840	1000	435	580	680	660	800	880	—	—	—
P8	—	—	—	590	790	930	405	540	630	620	750	840	—	—	—
P11	—	—	—	620	820	980	420	560	660	640	780	860	—	—	—
M1	—	—	—	—	—	—	470	630	740	750	910	1025	—	—	—
M2	—	—	—	—	—	—	395	520	620	610	740	820	—	—	—
M3	—	—	—	—	—	—	320	425	500	460	540	580	—	—	—
M4	—	—	—	—	—	—	250	335	390	335	390	415	—	—	—
M5	—	—	—	—	—	—	210	275	325	280	325	345	—	—	—
K1	920	1225	1425	870	1150	1350	—	—	—	870	1050	1175	—	—	—
K2	820	1075	1300	780	1025	1225	—	—	—	760	910	1000	—	—	—
K3	700	920	1100	660	870	1025	—	—	—	640	770	850	—	—	—
K4	670	880	1050	630	830	990	—	—	—	610	740	820	—	—	—
K5	410	540	630	390	510	600	—	—	—	365	435	480	—	—	—
K6	590	770	920	560	730	870	—	—	—	540	650	720	—	—	—
K7	530	690	810	500	650	770	—	—	—	470	560	610	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	2100	2775	3300
N2	—	—	—	—	—	—	—	—	—	—	—	—	1700	2225	2675
N3	—	—	—	—	—	—	—	—	—	—	—	—	1125	1500	1775
N11	—	—	—	—	—	—	—	—	—	—	—	—	1300	1700	2025
S1	—	—	—	—	—	—	75	100	120	150	190	215	—	—	—
S2	—	—	—	—	—	—	60	80	95	120	150	175	—	—	—
S3	—	—	—	—	—	—	55	70	85	105	135	155	—	—	—
S11	—	—	—	—	—	—	105	140	165	200	255	295	—	—	—
S12	—	—	—	—	—	—	80	110	130	155	195	225	—	—	—
S13	—	—	—	—	—	—	65	90	100	130	160	185	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

R220.90-26 ABEX

Slotting and contouring – For very large depth of cut

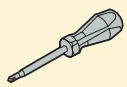
- For insert selection and cutting data recommendations, see pages 53.
- For complete insert program, see page 555.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch			α° max		lbs	Max rpm	Insert
		D_c	l_1	a_p					
81496	R220.90 -02.00-26-4AN	2.00	1.97	0.787	1.5	4	0.9	7500	ABEX26
81498	-02.50-26-5AN	2.50	1.97	0.787	1.5	5	1.5	6700	ABEX26
81500	-03.00-26-7AN	3.00	1.97	0.787	1.0	7	2.2	6100	ABEX26
81501	-04.00-26-8AN	4.00	1.97	0.787	1.0	8	3.7	5300	ABEX26
81502	-05.00-26-9AN	5.00	2.48	0.787	0.5	9	7.9	4700	ABEX26
81504	-06.00-26-10AN	6.00	2.48	0.787	0.5	10	9.5	4300	ABEX26

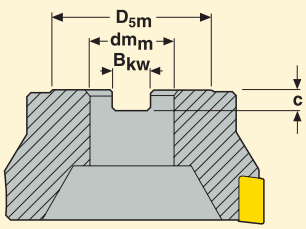
α° = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R220.90-02.00 / 02.50	UC6S3/8UNFX1	T20P-4	C05013-T20P
R220.90-03.00	UC6S1/2UNFX1-1/4	T20P-4	C05013-T20P
R220.90-04.00 / 05.00	UC6S3/4UNFX1-1/4	T20P-4	C05013-T20P
R220.90-06.00	–	T20P-4	C05013-T20P

Torque value 17.7 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.90-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.90-03.00	1.00	2.44	0.38	0.22
R220.90-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.90-06.00	2.00	4.33	0.76	0.44

Please check availability in current price and stock-list.

R220.90-26 ABEX – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	ABEX2606ZFFR-M15 F40M	0.40	0.0085	0.0095	0.014
P2	ABEX2606ZFFR-M15 F40M	0.40	0.0085	0.0095	0.014
P3	ABEX2606ZFFR-M15 MP2500	0.40	0.0080	0.0085	0.013
P4	ABEX2606ZFFR-M15 MP2500	0.40	0.0080	0.0085	0.013
P5	ABEX2606ZFFR-M15 MP2500	0.40	0.0080	0.0085	0.013
P6	ABEX2606ZFFR-M15 MP2500	0.40	0.0080	0.0085	0.013
P7	ABEX2606ZFFR-M15 MP2500	0.40	0.0080	0.0085	0.013
P8	ABEX2606ZFFR-M15 MP2500	0.40	0.0080	0.0085	0.013
P11	ABEX2606ZFFR-M15 T350M	0.40	0.0080	0.0085	0.013
M1	ABEX2606ZFFR-M15 F40M	0.40	0.0085	0.0095	0.014
M2	ABEX2606ZFFR-M15 F40M	0.40	0.0080	0.0085	0.013
M3	ABEX2606ZFFR-M15 F40M	0.32	0.0065	0.0065	0.010
M4	ABEX2606ZFFR-M15 T350M	0.24	0.0055	0.0060	0.0095
M5	ABEX2606ZFFR-M15 MM4500	0.24	0.0055	0.0060	0.0095
K1	ABEX2606ZFFR-M15 MK1500	0.40	0.0085	0.0095	0.014
K2	ABEX2606ZFFR-M15 MK1500	0.40	0.0080	0.0085	0.013
K3	ABEX2606ZFFR-M15 MK1500	0.40	0.0080	0.0085	0.013
K4	ABEX2606ZFFR-M15 MK1500	0.40	0.0080	0.0085	0.013
K5	ABEX2606ZFFR-M15 T350M	0.40	0.0070	0.0075	0.012
K6	ABEX2606ZFFR-M15 T350M	0.40	0.0080	0.0085	0.013
K7	ABEX2606ZFFR-M15 T350M	0.40	0.0070	0.0075	0.012

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

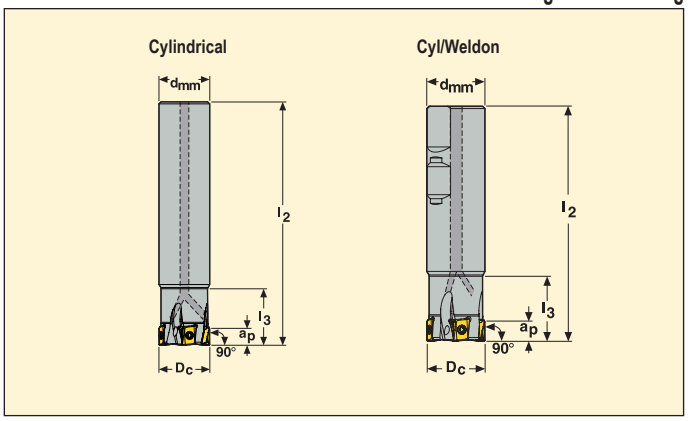
R220.90-26 ABEX – Cutting data v_c = (sf/min)

SMG	MP1500			MP2500			T350M			F40M			MK1500			MM4500		
	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	930	1225	1450	820	1075	1275	710	950	1125	620	820	970	—	—	—	500	670	790
P2	900	1200	1425	800	1050	1250	700	920	1100	600	800	950	—	—	—	490	650	770
P3	800	1050	1250	710	930	1100	620	810	960	540	710	830	—	—	—	435	570	670
P4	700	930	1100	620	820	970	540	720	840	470	620	730	—	—	—	385	500	590
P5	670	890	1050	600	790	940	520	680	820	450	590	710	—	—	—	365	480	580
P6	750	1000	1200	670	880	1050	580	770	920	510	670	800	—	—	—	410	540	650
P7	710	940	1125	630	830	1000	550	720	870	480	630	750	—	—	—	385	510	610
P8	670	890	1050	600	790	920	520	680	800	450	590	700	—	—	—	365	480	570
P11	690	910	1100	610	810	970	530	700	840	465	610	730	—	—	—	375	495	590
M1	—	—	—	570	760	900	540	710	840	485	640	760	—	—	—	420	560	660
M2	—	—	—	480	630	760	445	590	700	405	540	640	—	—	—	350	460	550
M3	—	—	—	395	530	610	370	490	570	335	445	520	—	—	—	290	385	445
M4	—	—	—	315	415	480	295	385	450	265	350	405	—	—	—	230	305	350
M5	—	—	—	260	345	400	245	320	375	220	290	340	—	—	—	190	250	295
K1	710	940	1125	630	840	990	550	730	860	480	630	750	900	1175	1400	—	—	—
K2	640	840	1000	560	750	890	490	650	780	430	560	680	800	1050	1275	—	—	—
K3	540	710	850	480	630	750	415	550	660	360	480	570	680	890	1075	—	—	—
K4	520	680	810	455	600	720	400	520	630	345	455	550	650	850	1025	—	—	—
K5	315	425	495	280	375	435	245	325	380	215	285	330	400	530	620	—	—	—
K6	455	600	720	400	530	630	350	460	550	305	400	480	570	750	900	—	—	—
K7	405	540	630	360	480	560	315	420	485	270	365	425	510	680	790	—	—	—
N1	—	—	—	2300	3075	3625	—	—	—	1750	2325	2750	—	—	—	—	—	—
N2	—	—	—	1850	2475	2925	—	—	—	1400	1875	2225	—	—	—	—	—	—
N3	—	—	—	1250	1650	1950	—	—	—	940	1250	1475	—	—	—	—	—	—
N11	—	—	—	1425	1900	2225	—	—	—	1075	1425	1700	—	—	—	—	—	—

R217.94-08

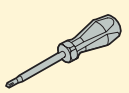
Slotting and contouring

- For insert selection and cutting data recommendations, see pages 58-59.
- For complete insert program, see page 563.



EDP No.	Part No.	Dimensions in inch						lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_2	l_3	a_p					
15581	**R217.94 -00.625-0-08-2A**	0.625	0.625	5.52	1.12	0.315	2	0.4	Cylindrical	20600	LOEX08
15950	**-00.750-0-08-2A**	0.750	0.750	6.00	1.14	0.315	2	0.7	Cylindrical	18400	LOEX08
85504	**-01.00-0-08-3A**	1.000	1.000	7.87	1.14	0.315	3	1.5	Cylindrical	16500	LOEX08
85507	**-01.25-0-08-4A**	1.250	1.250	7.87	1.11	0.315	4	2.6	Cylindrical	14600	LOEX08
15923	**R217.94 -00.625-3-08-2A**	0.625	0.625	3.00	0.92	0.315	2	0.2	Cyl/Weldon	20600	LOEX08
85476	**-00.750-3-08-2A**	0.750	0.750	3.50	1.14	0.315	2	0.4	Cyl/Weldon	18400	LOEX08
85505	**-01.00-3-08-3A**	1.000	1.000	4.00	1.14	0.315	3	0.9	Cyl/Weldon	16500	LOEX08
85508	**-01.25-3-08-4A**	1.250	1.250	4.50	1.11	0.315	4	1.5	Cyl/Weldon	14600	LOEX08

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.94-00.62	T08P-3	C02707-T08P
R217.94-00.75 - 01.25	T08P-3	C02708-T08P

Please check availability in current price and stock-list.

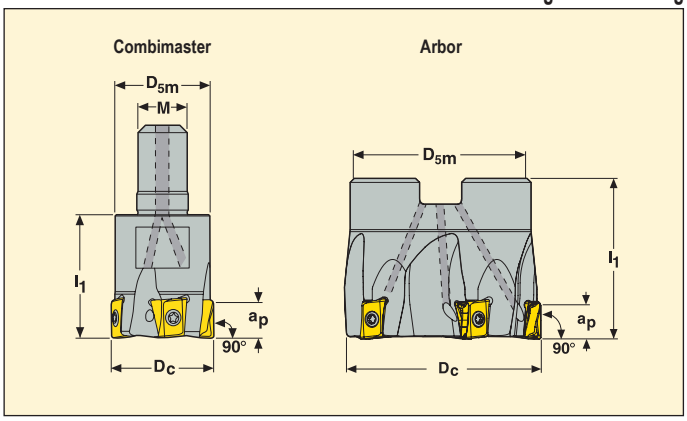
Torque value 10.6 in/lbs.

Torque keys available, see page 643.

R217/220.94-08

Slotting and contouring

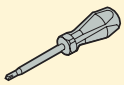
- For insert selection and cutting data recommendations, see pages 58-59.
- For complete insert program, see page 563.



EDP No.	Part No.	Dimensions in inch							Type of mounting	Max rpm	Insert
		D_c	D_{5m}	l_1	M	a_p		lbs			
85808	R217.94 -00.625-08RE-08-2A	0.625	0.53	0.91	M08	0.138	2	0.2	Combimaster*	20600	LOEX08
85809	-00.750-10RE-08-2A	0.750	0.73	1.10	M10	0.138	2	0.2	Combimaster*	18400	LOEX08
85810	-01.00-12RE-08-3A	1.000	0.91	1.18	M12	0.138	3	0.2	Combimaster*	16500	LOEX08
85811	-01.25-16RE-08-3A	1.250	1.18	1.38	M16	0.138	3	0.4	Combimaster*	14600	LOEX08
85510	R220.94 -01.50-08-4A	1.498	1.38	1.57	–	0.315	4	0.4	Arbor	16400	LOEX08
85511	-02.00-08-5A	2.000	1.77	1.57	–	0.315	5	0.9	Arbor	14800	LOEX08
85513	-02.50-08-6A	2.500	1.85	1.57	–	0.315	6	1.3	Arbor	13200	LOEX08

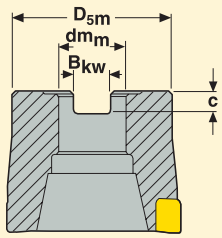
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.94-00.625	–	T08P-3	C02707-T08P
R217.94-00.750 - 01.25	–	T08P-3	C02708-T08P
R220.94-..	UC6S3/8UNFX1	T08P-3	C02708-T08P

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



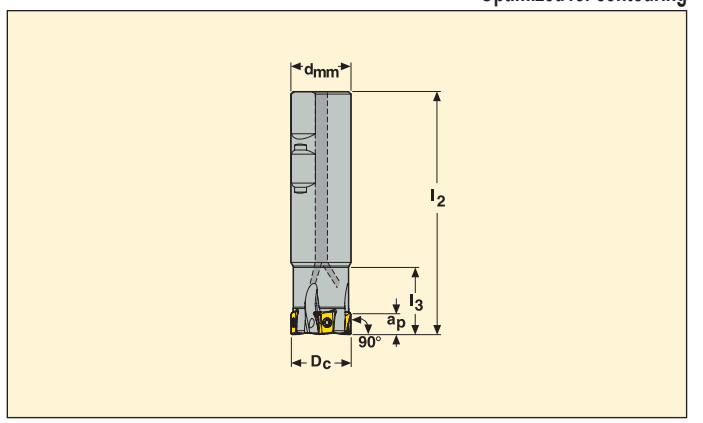
For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.94-01.50	0.75	1.38	0.32	0.19
R220.94-02.00	0.75	1.77	0.32	0.19
R220.94-02.50	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R217.94-08

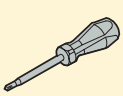
Optimized for contouring

- For insert selection and cutting data recommendations, see pages 58-59.
- For complete insert program, see pages 563.



EDP No.	Part No.	Dimensions in inch						lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_2	l_3	a_p					
85503	R217.94 -00.750-3-08-3A	0.75	0.75	3.50	1.14	0.315	3	0.4	Cyl/Weldon	18400	LOEX08
85506	-01.00-3-08-4A	1.00	1.00	4.00	1.14	0.315	4	0.9	Cyl/Weldon	16500	LOEX08
85509	-01.25-3-08-5A	1.25	1.25	4.50	1.11	0.315	5	1.5	Cyl/Weldon	14600	LOEX08

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.94-..	T08P-3	C02708-T08P

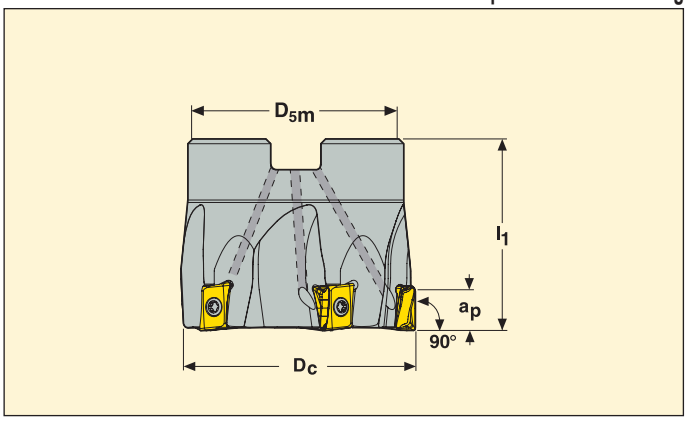
Please check availability in current price and stock-list.

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

R220.94-08

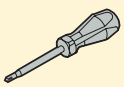
Optimized for contouring

- For insert selection and cutting data recommendations, see pages 58-59.
- For complete insert program, see page 563.



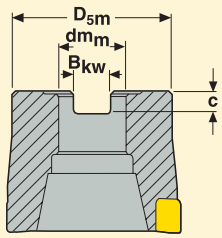
Pitch	EDP No.	Part No.	Dimensions in inch						
			D_c	l_1	a_p		lbs	Max rpm	Insert
Close									
	85512	R220.94 -02.00-08-7A	2.00	1.57	0.315	7	0.9	14800	LOEX08
	85514	-02.50-08-9A	2.50	1.57	0.315	9	1.3	13200	LOEX08

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R220.94-..	UC6S3/8UNFX1	T08P-3	C02708-T08P

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.94-2.00	0.75	1.77	0.32	0.19
R220.94-2.50	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R217/220.94-08 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	LOEX080408TR-M08 F40M	0.16	0.0044	0.0050	0.0075
P2	LOEX080408TR-M08 F40M	0.16	0.0048	0.0050	0.0080
P3	LOEX080408TR-M08 MP2500	0.16	0.0044	0.0048	0.0075
P4	LOEX080408TR-M08 MP2500	0.16	0.0044	0.0048	0.0070
P5	LOEX080408TR-M08 MP2500	0.16	0.0044	0.0048	0.0070
P6	LOEX080408TR-M08 MP2500	0.16	0.0040	0.0044	0.0070
P7	LOEX080408TR-M08 MP2500	0.16	0.0040	0.0044	0.0070
P8	LOEX080408TR-M08 MP2500	0.16	0.0044	0.0048	0.0075
P11	LOEX080408TR-M08 MP3000	0.16	0.0040	0.0044	0.0070
M1	LOEX080408TR-M08 F40M	0.16	0.0048	0.0050	0.0080
M2	LOEX080408TR-M08 F40M	0.16	0.0044	0.0048	0.0070
M3	LOEX080408TR-M08 F40M	0.12	0.0034	0.0038	0.0055
K1	LOEX080408TR-MD08 MK2050	0.16	0.0048	0.0050	0.0080
K2	LOEX080408TR-MD08 MK2050	0.16	0.0044	0.0048	0.0070
K3	LOEX080408TR-MD08 MK2050	0.16	0.0044	0.0048	0.0070
K4	LOEX080408TR-MD08 MK2050	0.16	0.0044	0.0048	0.0070
K5	LOEX080408TR-MD08 MK2050	0.16	0.0038	0.0040	0.0065
K6	LOEX080408TR-MD08 MK2050	0.16	0.0044	0.0048	0.0070
K7	LOEX080408TR-MD08 MK2050	0.16	0.0038	0.0040	0.0065

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R217/220.94-08 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F40M			MK1500		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1200	1550	1825	1050	1375	1625	1000	1300	1525	920	1200	1400	800	1050	1225	—	—	—
P2	1125	1500	1775	1000	1325	1575	950	1250	1500	870	1150	1375	760	1000	1200	—	—	—
P3	1000	1300	1550	880	1150	1375	840	1100	1300	770	1000	1200	670	880	1050	—	—	—
P4	880	1150	1375	780	1025	1200	740	970	1150	680	890	1050	590	770	910	—	—	—
P5	840	1100	1300	740	970	1150	700	920	1100	650	850	1000	560	740	870	—	—	—
P6	960	1275	1475	850	1125	1300	810	1050	1250	740	970	1150	650	850	990	—	—	—
P7	910	1200	1400	810	1050	1250	760	1000	1175	700	920	1075	610	800	940	—	—	—
P8	840	1100	1300	740	970	1150	700	920	1100	650	850	1000	560	740	870	—	—	—
P11	880	1150	1350	780	1025	1200	740	970	1150	680	890	1050	590	780	910	—	—	—
M1	—	—	—	720	950	1125	710	930	1125	670	890	1050	610	810	960	—	—	—
M2	—	—	—	600	780	930	590	770	910	560	730	860	510	660	790	—	—	—
M3	—	—	—	490	640	750	480	630	740	455	590	700	415	540	640	—	—	—
K1	900	1175	1400	790	1050	1250	750	990	1175	690	910	1075	600	790	940	1075	1425	1700
K2	800	1050	1225	700	930	1100	670	880	1025	610	810	950	530	700	830	960	1275	1500
K3	670	880	1050	600	780	930	560	740	880	520	680	810	450	590	700	810	1075	1275
K4	640	840	1000	570	750	880	540	710	840	495	650	770	430	570	670	780	1025	1200
K5	395	530	610	350	465	540	335	440	510	305	405	470	265	355	410	480	640	740
K6	570	740	880	500	660	780	475	620	740	435	570	680	380	500	590	680	900	1075
K7	510	670	780	450	600	690	425	560	660	390	520	600	340	450	530	620	810	950

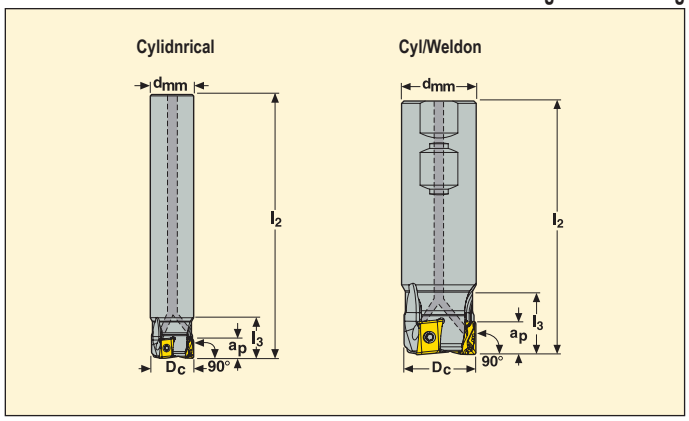
R217/220.94-08 – Cutting data v_c = (sf/min)

	MK2050			MM4500		
SMG	100%	30%	10%	100%	30%	10%
P1	1000	1325	1525	650	850	990
P2	950	1250	1500	620	810	960
P3	840	1100	1300	540	710	840
P4	740	970	1150	475	630	740
P5	700	930	1100	455	600	710
P6	810	1050	1250	520	690	810
P7	770	1000	1175	495	650	760
P8	700	930	1100	455	600	710
P11	740	970	1150	480	630	740
M1	—	—	—	530	700	830
M2	—	—	—	435	570	680
M3	—	—	—	360	465	550
K1	1025	1350	1600	—	—	—
K2	910	1200	1425	—	—	—
K3	770	1000	1200	—	—	—
K4	740	970	1150	—	—	—
K5	455	600	700	—	—	—
K6	650	850	1000	—	—	—
K7	580	770	900	—	—	—

R217.94-12

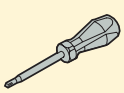
Slotting and contouring

- For insert selection and cutting data recommendations, see pages 58-59.
- For complete insert program, see page 563.



EDP No.	Part No.	Dimensions in inch						lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_2	l_3	a_p					
29122	R217.94 -01.00-0-12-2A	1.00	1.00	6.69	1.18	0.472	2	1.5	Cylindrical	13900	LOEX12
29123	-01.25-0-12-3A	1.25	1.25	7.68	1.18	0.472	3	2.6	Cylindrical	14600	LOEX12
29124	-01.50-0-12-4A	1.50	1.50	8.27	1.18	0.472	4	4.0	Cylindrical	13200	LOEX12
29058	R217.94 -01.00-3-12-2A	1.00	1.00	4.00	1.18	0.472	2	0.9	Cyl/Weldon	14000	LOEX12
29109	-01.25-3-12-3A	1.25	1.25	4.25	1.18	0.472	3	1.5	Cyl/Weldon	12400	LOEX12
29118	-01.50-3-12-4A	1.50	1.50	4.72	1.18	0.472	4	2.4	Cyl/Weldon	11300	LOEX12

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.94-..	T15P-3	C040105-T15P

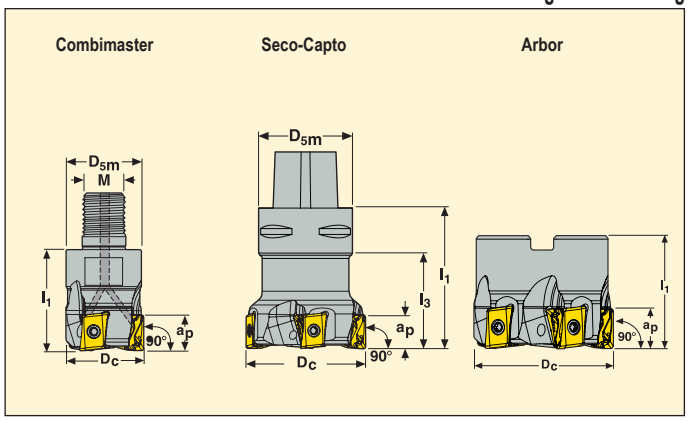
Torque value 26.6 in/lbs.

Torque keys available, see page 643.

R217/220.94-12

Slotting and contouring

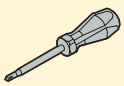
- For insert selection and cutting data recommendations, see pages 58-59.
- For complete insert program, see page 563.



EDP No.	Part No.	Dimensions in inch							lbs	Type of mounting	Max rpm	Insert
		D_c	D_{5m}	l_1	l_3	M	a_p					
29125	R217.94 -01.25-16RE-12-3A	1.25	1.18	1.57	1.18	M16	0.472	3	0.7	Combimaster*	11800	LOEX12
29126	-01.50-20RE-12-3A	1.52	1.44	1.57	1.18	M20	0.472	3	0.9	Combimaster*	16400	LOEX12
29127	-01.50-20RE-12-4A	1.52	1.44	1.57	1.18	M20	0.472	4	0.9	Combimaster*	16400	LOEX12
29129	C4-R217.94-02.00-12-4A	2.00	1.57	2.36	2.36	–	0.472	4	1.5	Seco-Capto	10600	LOEX12
29130	C5-R217.94-02.50-12-5A	2.50	1.97	2.36	2.36	–	0.472	5	2.4	Seco-Capto	10200	LOEX12
29170	R220.94 -01.50-12-4A	1.50	1.38	1.57	–	–	0.472	4	0.7	Arbor	16400	LOEX12
29171	-02.00-12-5A	2.00	1.85	1.57	–	–	0.472	5	1.1	Arbor	14800	LOEX12
29211	-02.50-12-6A	2.50	1.85	1.57	–	–	0.472	6	1.5	Arbor	13200	LOEX12
29213	-03.00-12-8A	3.00	2.44	1.97	–	–	0.472	8	2.6	Arbor	8000	LOEX12
29215	-04.00-12-10A	4.00	3.54	1.97	–	–	0.472	10	4.9	Arbor	7000	LOEX12
29216	-05.00-12-12A	5.00	3.54	2.48	–	–	0.472	12	8.2	Arbor	6200	LOEX12

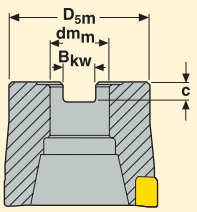
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.94-..	–	T15P-3	C04012-T15P
R220.94-..	UC6S1/4UNFX1SHCS	T15P-3	C04012-T15P

Torque value 26.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

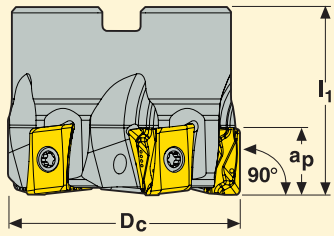


For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.94-01.50	0.50	1.38	0.32	0.19
R220.94-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.94-03.00	1.00	2.44	0.38	0.22
R220.94-04.00 / 05.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217/220.94-12

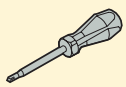
Optimized for contouring



- For insert selection and cutting data recommendations, see pages 58-59.
- For complete insert program, see page 563.

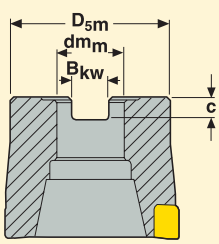
EDP No.	Part No.	Dimensions in inch					lbs	Max rpm	Insert
		D_c	D_{5m}	l_1	a_p				
29196	R220.94 -02.00-12-6A	2.00	1.85	1.57	0.472	6	1.1	14800	LOEX12
29212	-02.50-12-8A	2.50	1.85	1.57	0.472	8	1.5	13200	LOEX12

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R220.94-..	UC6S3/8UNFX1	T15P-3	C04012-T15P

Torque value 26.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.94-..	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R217/220.94-12 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	LOEX120708TR-M12 F40M	0.24	0.0071	0.0079	0.012
P2	LOEX120708TR-M12 F40M	0.24	0.0075	0.0079	0.013
P3	LOEX120708TR-M12 MP2500	0.24	0.0071	0.0075	0.012
P4	LOEX120708TR-M12 MP2500	0.24	0.0067	0.0075	0.012
P5	LOEX120708TR-M12 MP2500	0.24	0.0067	0.0075	0.011
P6	LOEX120708TR-M12 MP2500	0.24	0.0067	0.0071	0.011
P7	LOEX120708TR-M12 MP2500	0.24	0.0067	0.0071	0.011
P8	LOEX120708TR-M12 MP2500	0.24	0.0071	0.0075	0.012
P11	LOEX120708TR-M12 MP3000	0.24	0.0067	0.0071	0.011
M1	LOEX120708TR-M12 F40M	0.24	0.0075	0.0079	0.013
M2	LOEX120708TR-M12 F40M	0.24	0.0067	0.0075	0.011
M3	LOEX120708TR-M12 F40M	0.20	0.0055	0.0059	0.0087
M4	LOEX120708TR-M12 F40M	0.16	0.0047	0.0051	0.0079
M5	LOEX120708TR-M12 F40M	0.16	0.0047	0.0051	0.0079
K1	LOEX120708TR-MD13 MK2050	0.24	0.0079	0.0087	0.013
K2	LOEX120708TR-MD13 MK2050	0.24	0.0071	0.0079	0.012
K3	LOEX120708TR-MD13 MK2050	0.24	0.0071	0.0079	0.012
K4	LOEX120708TR-MD13 MK2050	0.24	0.0071	0.0079	0.012
K5	LOEX120708TR-MD13 MK2050	0.24	0.0067	0.0071	0.011
K6	LOEX120708TR-MD13 MK2050	0.24	0.0071	0.0079	0.012
K7	LOEX120708TR-MD13 MK2050	0.24	0.0067	0.0071	0.011
N1	LOEX120708TR-M12 F40M	0.24	0.0094	0.010	0.016
N2	LOEX120708TR-M12 F40M	0.24	0.0094	0.010	0.016
N3	LOEX120708TR-M12 F40M	0.24	0.0094	0.010	0.016
N11	LOEX120708TR-M12 F40M	0.24	0.0094	0.010	0.016
S1	LOEX120708TR-M12 T350M	0.16	0.0047	0.0051	0.0079
S2	LOEX120708TR-M12 T350M	0.16	0.0047	0.0051	0.0079
S3	LOEX120708TR-M12 T350M	0.16	0.0043	0.0047	0.0075
S11	LOEX120708TR-M12 MS2050	0.18	0.0055	0.0059	0.0094
S12	LOEX120708TR-M12 MS2050	0.18	0.0055	0.0059	0.0094
S13	LOEX120708TR-M12 MS2050	0.16	0.0047	0.0051	0.0079

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R217/220.94-12 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			MK1500			MK2050		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	930	1225	1450	880	1175	1400	840	1100	1325	770	1025	1200	—	—	—	810	1075	1275
P2	910	1200	1425	850	1125	1325	800	1075	1250	740	990	1150	—	—	—	790	1050	1250
P3	790	1075	1250	740	990	1175	700	940	1100	650	860	1025	—	—	—	690	930	1075
P4	700	940	1100	660	870	1025	630	830	970	580	760	890	—	—	—	610	820	960
P5	680	890	1075	630	830	1000	600	790	950	550	730	870	—	—	—	590	780	930
P6	760	1000	1200	710	950	1125	670	900	1075	620	830	980	—	—	—	660	880	1050
P7	720	950	1125	670	900	1050	640	850	1000	580	780	920	—	—	—	630	830	990
P8	670	890	1050	620	830	980	590	790	930	540	730	850	—	—	—	580	780	910
P11	700	920	1100	650	870	1025	620	830	970	570	760	900	—	—	—	610	800	960
M1	—	—	—	610	820	960	600	800	940	570	760	890	—	—	—	—	—	—
M2	—	—	—	510	670	800	500	660	790	475	630	750	—	—	—	—	—	—
M3	—	—	—	415	550	660	405	540	640	385	510	610	—	—	—	—	—	—
K1	720	950	1125	670	900	1050	630	850	1000	—	—	—	900	1200	1400	850	1125	1325
K2	640	850	1025	600	790	950	570	750	900	—	—	—	810	1075	1275	760	1000	1200
K3	540	720	860	510	670	800	480	630	760	—	—	—	680	900	1075	650	850	1025
K4	520	690	820	485	640	770	460	610	730	—	—	—	650	860	1025	620	820	970
K5	315	420	495	300	395	465	285	375	440	—	—	—	395	530	620	375	500	590
K6	460	600	720	430	560	680	405	530	640	—	—	—	570	760	900	540	720	860
K7	405	540	640	385	500	600	365	475	560	—	—	—	510	680	800	480	640	760
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S1	—	—	—	—	—	—	150	200	230	140	190	220	—	—	—	—	—	—
S2	—	—	—	—	—	—	120	160	185	115	150	175	—	—	—	—	—	—
S3	—	—	—	—	—	—	105	140	165	100	135	155	—	—	—	—	—	—
S11	—	—	—	—	—	—	205	275	325	195	260	310	—	—	—	—	—	—
S12	—	—	—	—	—	—	120	160	190	115	150	180	—	—	—	—	—	—
S13	—	—	—	—	—	—	95	130	150	90	120	140	—	—	—	—	—	—

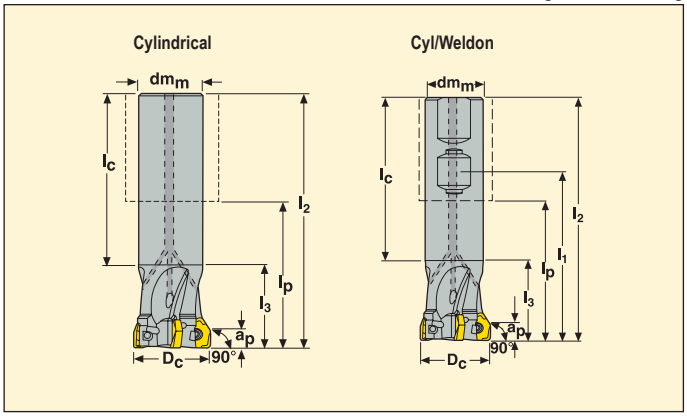
R217/220.94-12 – Cutting data v_c = (sf/min)

	F40M			MM4500			MS2050			T25M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	670	880	1050	540	720	850	—	—	—	740	970	1150
P2	640	860	1000	520	700	820	—	—	—	710	950	1100
P3	560	750	880	455	610	720	—	—	—	620	830	970
P4	500	660	780	405	540	630	—	—	—	550	730	860
P5	480	630	760	390	510	610	—	—	—	530	700	830
P6	540	720	850	435	580	690	—	—	—	590	790	940
P7	510	680	800	410	550	650	—	—	—	560	750	880
P8	470	630	740	380	510	600	—	—	—	520	700	820
P11	495	660	780	400	540	630	—	—	—	540	730	860
M1	520	690	810	445	600	700	670	860	970	570	760	890
M2	430	570	680	375	490	590	560	700	800	475	630	750
M3	350	465	560	305	405	480	450	550	610	385	510	610
M4	275	365	425	240	315	370	340	405	445	305	405	470
M5	230	305	355	200	265	305	285	335	370	255	335	390
K1	510	680	800	—	—	—	—	—	—	560	750	880
K2	455	600	720	—	—	—	—	—	—	500	660	790
K3	385	510	610	—	—	—	—	—	—	425	560	670
K4	370	485	580	—	—	—	—	—	—	405	530	640
K5	225	300	355	—	—	—	—	—	—	250	330	390
K6	325	425	510	—	—	—	—	—	—	355	470	560
K7	290	380	450	—	—	—	—	—	—	320	420	495
N1	1850	2475	2950	—	—	—	—	—	—	—	—	—
N2	1500	2000	2375	—	—	—	—	—	—	—	—	—
N3	1000	1325	1575	—	—	—	—	—	—	—	—	—
N11	1150	1525	1800	—	—	—	—	—	—	—	—	—
S1	130	170	200	75	95	115	125	160	185	—	—	—
S2	105	140	160	60	80	90	100	130	145	—	—	—
S3	90	120	140	50	70	80	90	115	135	—	—	—
S11	180	235	280	100	135	160	155	210	250	—	—	—
S12	105	135	160	75	105	120	120	160	190	—	—	—
S13	85	110	130	65	85	95	105	140	155	—	—	—

Square 6™ R217.96-04

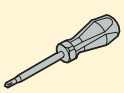
Slotting and contouring

- For insert selection and cutting data recommendations, see pages 69-70.
- For complete insert program, see page 592.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch									lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p					
70287	R217.96 -00.750-0-04-2A	0.75	0.75	–	5.91	1.39	3.94	4.52	0.157	2	0.7	Cylindrical	29400	XNEX04
68245	-01.00-0-04-4A	1.00	1.00	–	6.69	1.57	4.49	5.12	0.157	4	1.3	Cylindrical	26300	XNEX04
68278	-01.25-0-04-5A	1.25	1.25	–	7.68	1.58	5.32	6.10	0.157	5	2.4	Cylindrical	23200	XNEX04
70288	R217.96 -00.750-3-04-2A	0.75	0.75	2.37	3.39	1.19	1.42	2.20	0.157	2	0.4	Cyl/Weldon	29400	XNEX04
68247	-01.00-3-04-4A	1.00	1.00	2.64	3.78	1.18	1.58	2.60	0.157	4	0.9	Cyl/Weldon	26300	XNEX04
68251	-01.25-3-04-5A	1.25	1.25	2.86	4.00	1.24	1.64	2.76	0.157	5	1.3	Cyl/Weldon	23200	XNEX04

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.96..	T08P-3	C02506-T08P

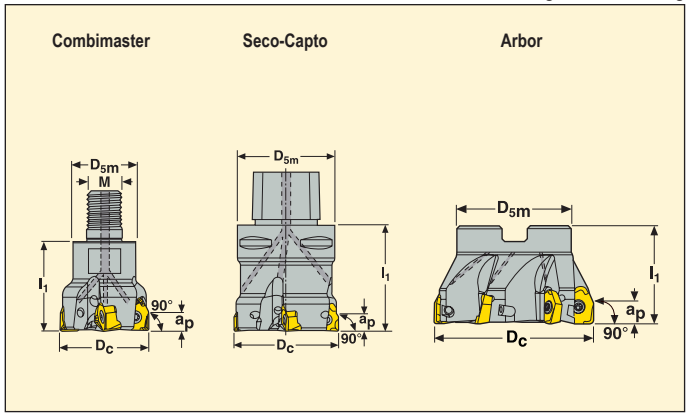
Please check availability in current price and stock-list.

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

Square 6™ R217/220.96-04

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 69-70.
- For complete insert program, see page 592.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch D_c	D_{5m}	l_1	M	a_p		lbs	Type of mounting	Max rpm	Insert
70286	R217.96 -00.750-10RE-04-2A	0.75	0.69	1.07	M10	0.157	2	0.2	Combimaster*	29400	XNEX04
68243	R217.96 -01.00-12RE-04-4A	1.00	0.91	1.57	M12	0.157	4	0.4	Combimaster*	26300	XNEX04
68249	R217.96 -01.25-16RE-04-5A	1.25	1.18	1.57	M16	0.157	5	0.7	Combimaster*	23200	XNEX04
68253	R217.96 -01.50-20RE-04-6A	1.50	1.42	1.57	M20	0.157	6	0.2	Combimaster*	20700	XNEX04
77702	C5-R217.96 -054-04-8A	2.13	1.97	1.97	–	0.157	8	1.8	Seco-Capto	17900	XNEX04
68256	R220.96 -01.50-04-6A	1.50	1.85	1.57	–	0.157	6	0.4	Arbor	20700	XNEX04
81084	R220.96 -02.00-04-6A	2.00	1.85	1.57	–	0.157	6	1.1	Arbor	150000	XNEX04
81085	R220.96 -02.50-04-7A	2.50	1.85	1.57	–	0.157	7	1.3	Arbor	16000	XNEX04

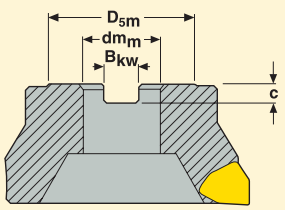
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
C5/R217.96-..	–	T08P-3	C02506-T08P
R220.96-..	UC6S3/8UNFX1	T08P-3	C02506-T08P

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



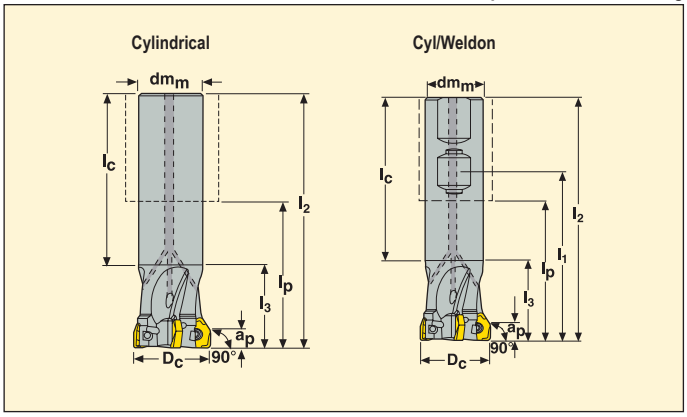
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.96-..	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

Square 6™ R217.96-04

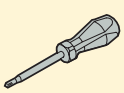
Optimized for contouring

- For insert selection and cutting data recommendations, see pages 69-70.
- For complete insert program, see page 592.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch									lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p					
68231	R217.96 -00.750-0-04-3A	0.75	0.75	–	5.91	1.39	3.94	4.52	0.157	3	0.7	Cylindrical	29400	XNEX04
68246	-01.00-0-04-5A	1.00	1.00	–	6.69	1.57	4.49	5.12	0.157	5	1.3	Cylindrical	26300	XNEX04
68279	-01.25-0-04-6A	1.25	1.25	–	7.68	1.58	5.32	6.10	0.157	6	2.4	Cylindrical	23200	XNEX04
68234	R217.96 -00.750-3-04-3A	0.75	0.75	2.37	3.39	1.19	1.42	2.20	0.157	3	0.4	Cyl/Weldon	29400	XNEX04
68248	-01.00-3-04-5A	1.00	1.00	2.64	3.78	1.18	1.58	2.60	0.157	5	0.9	Cyl/Weldon	26300	XNEX04
68252	-01.25-3-04-6A	1.25	1.25	2.86	4.00	1.24	1.64	2.76	0.157	6	1.3	Cyl/Weldon	23200	XNEX04

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.96..	T08P-3	C02506-T08P

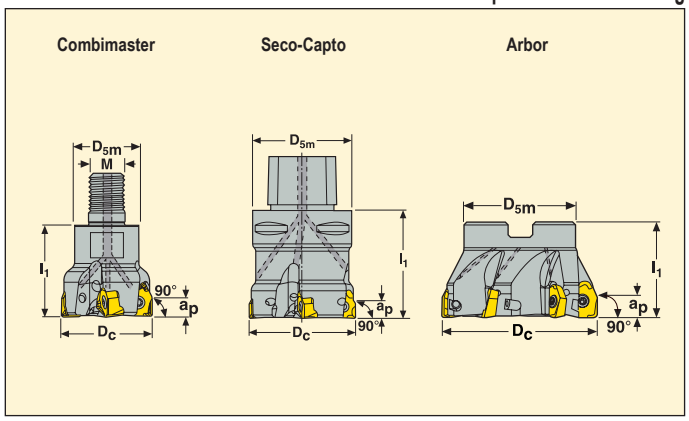
Please check availability in current price and stock-list.

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

Square 6™ R217/220.96-04

Optimized for contouring

- For insert selection and cutting data recommendations, see pages 69-70.
- For complete insert program, see page 592.
- For plunging, see page 634.



EDP No.	Part No.		Dimensions in inch D_c	D_{5m}	l_1	M	a_p		lbs	Type of mounting	Max rpm	Insert
68227	R217.96	-00.750-10RE-04-3A	0.75	0.69	1.07	M10	0.157	3	0.2	Combimaster*	29400	XNEX04
68244		-01.00-12RE-04-5A	1.00	0.91	1.57	M12	0.157	5	0.4	Combimaster*	26300	XNEX04
68250		-01.25-16RE-04-6A	1.25	1.18	1.57	M16	0.157	6	0.4	Combimaster*	23200	XNEX04
68254		-01.50-20RE-04-7A	1.50	1.42	1.57	M20	0.157	7	0.2	Combimaster*	20700	XNEX04
77695	C4-R217.96	-044-04-6A	1.73	1.57	1.97	–	0.157	6	1.1	Seco-Capto	19800	XNEX04
77710	C6-R217.96	-066-04-9A	2.60	2.48	2.36	–	0.157	9	3.3	Seco-Capto	16200	XNEX04
68257	R220.96	-01.50-04-7A	1.50	1.85	1.57	–	0.157	7	0.4	Arbor	20700	XNEX04
68260		-02.00-04-8A	2.00	1.85	1.57	–	0.157	8	1.1	Arbor	18600	XNEX04
68262		-02.00-04-9A	2.00	1.85	1.57	–	0.157	9	0.9	Arbor	18600	XNEX04
68263		-02.50-04-9A	2.50	1.85	1.57	–	0.157	9	1.3	Arbor	16500	XNEX04
68264		-02.50-04-10A	2.50	1.85	1.57	–	0.157	10	1.3	Arbor	16500	XNEX04

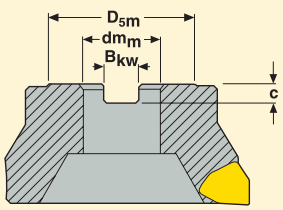
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
C4/C6/R217.96-..	–	T08P-3	C02506-T08P
R220.96-01.50-..	UC6S3/8UNFX1	T08P-2	C02506-T08P
R220.96-02.00-..	UC6S3/8UNFX1	T08P-3	C02506-T08P
R220.96-02.50-..	UC6S3/8UNFX1	T08P-2	C02506-T08P

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
	–	2.48	–	–
R220.96-..	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R217/220.96-04 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	XNEX040304TR-M08 F40M	0.080	0.0044	0.0050	0.0075
P2	XNEX040304TR-M08 F40M	0.080	0.0048	0.0050	0.0080
P3	XNEX040304TR-M08 MP2500	0.080	0.0044	0.0048	0.0075
P4	XNEX040304TR-M08 MP2500	0.080	0.0044	0.0048	0.0070
P5	XNEX040304TR-M08 MP2500	0.080	0.0044	0.0048	0.0070
P6	XNEX040304TR-M08 MP2500	0.080	0.0040	0.0044	0.0070
P7	XNEX040304TR-M08 MP2500	0.080	0.0040	0.0044	0.0070
P8	XNEX040304TR-M08 MP2500	0.080	0.0044	0.0048	0.0075
P11	XNEX040304TR-M08 MP3000	0.080	0.0040	0.0044	0.0070
M1	XNEX040304R-M06 F40M	0.080	0.0034	0.0038	0.0060
M2	XNEX040304R-M06 F40M	0.080	0.0032	0.0034	0.0050
M3	XNEX040304R-M06 F40M	0.060	0.0026	0.0028	0.0044
M4	XNEX040304R-M06 F40M	0.048	0.0022	0.0026	0.0038
M5	XNEX040304R-M06 MM4500	0.048	0.0022	0.0026	0.0038
K1	XNEX040304TR-M08 MK2050	0.080	0.0048	0.0050	0.0080
K2	XNEX040304TR-M08 MK2050	0.080	0.0044	0.0048	0.0070
K3	XNEX040304TR-M08 MK2050	0.080	0.0044	0.0048	0.0070
K4	XNEX040304TR-M08 MK2050	0.080	0.0044	0.0048	0.0070
K5	XNEX040304TR-M08 MK2050	0.080	0.0038	0.0040	0.0065
K6	XNEX040304TR-M08 MK2050	0.080	0.0044	0.0048	0.0070
K7	XNEX040304TR-M08 MK2050	0.080	0.0038	0.0040	0.0065
N1	XNEX040304R-M06 F40M	0.080	0.0044	0.0048	0.0075
N2	XNEX040304R-M06 F40M	0.080	0.0044	0.0048	0.0075
N3	XNEX040304R-M06 F40M	0.080	0.0044	0.0048	0.0075
N11	XNEX040304R-M06 F40M	0.080	0.0044	0.0048	0.0075
S1	XNEX040304R-M06 F40M	0.048	0.0022	0.0026	0.0038
S2	XNEX040304R-M06 F40M	0.048	0.0022	0.0026	0.0038
S3	XNEX040304R-M06 F40M	0.048	0.0022	0.0024	0.0036
S11	XNEX040304R-M06 F40M	0.055	0.0026	0.0028	0.0044
S12	XNEX040304R-M06 F40M	0.055	0.0026	0.0028	0.0044
S13	XNEX040304R-M06 F40M	0.048	0.0022	0.0026	0.0038
H5	XNEX040304TR-M08 MP2500	0.060	0.0030	0.0032	0.0048
H8	XNEX040304TR-M08 MP3000	0.055	0.0022	0.0024	0.0038
H11	XNEX040304TR-M08 MP2500	0.060	0.0030	0.0032	0.0048
H12	XNEX040304TR-M08 MP2500	0.060	0.0030	0.0032	0.0048

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R217/220.96-04 – Cutting data v_c = (sf/min)

	MP1020			MP1500			MP2500			MP3000			F40M			MK1500		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1325	1500	1575	1150	1500	1775	1025	1325	1575	1075	1400	1650	780	1000	1200	—	—	—
P2	1300	1450	1525	1100	1450	1725	970	1300	1525	1050	1375	1600	740	980	1150	—	—	—
P3	1100	1250	1325	970	1275	1500	860	1125	1325	900	1200	1400	650	860	1000	—	—	—
P4	1000	1125	1175	850	1125	1325	760	1000	1175	800	1050	1250	570	760	890	—	—	—
P5	960	1075	1125	810	1075	1275	720	950	1125	770	1025	1200	550	720	850	—	—	—
P6	1075	1200	1250	940	1225	1450	830	1100	1275	860	1150	1325	630	830	970	—	—	—
P7	1025	1125	1175	880	1175	1350	780	1025	1200	810	1075	1250	590	780	910	—	—	—
P8	940	1050	1125	810	1075	1275	720	950	1125	760	1000	1175	550	720	850	—	—	—
P11	990	1100	1150	860	1125	1325	760	1000	1175	790	1050	1225	580	760	890	—	—	—
M1	—	—	—	—	—	—	700	930	1100	780	1025	1200	590	790	940	—	—	—
M2	—	—	—	—	—	—	580	770	900	640	850	990	490	650	770	—	—	—
M3	—	—	—	—	—	—	475	620	730	520	680	780	405	530	620	—	—	—
M4	—	—	—	—	—	—	370	480	570	395	530	610	315	410	480	—	—	—
M5	—	—	—	—	—	—	310	400	475	330	440	510	260	340	400	—	—	—
K1	—	—	—	870	1150	1375	770	1025	1225	830	1075	1250	580	770	920	1100	1450	1725
K2	—	—	—	770	1025	1200	680	900	1075	730	960	1125	520	690	810	970	1275	1500
K3	—	—	—	650	860	1025	580	770	900	620	820	960	440	580	680	820	1075	1275
K4	—	—	—	620	820	970	550	730	860	590	780	910	420	550	650	780	1025	1225
K5	—	—	—	385	510	600	340	455	530	360	470	550	260	345	400	485	640	750
K6	—	—	—	550	730	860	485	640	760	520	690	800	370	485	570	690	910	1075
K7	—	—	—	495	660	760	440	580	680	460	600	710	330	440	510	620	820	960
N1	—	—	—	—	—	—	2875	3825	4525	3075	4050	4700	2175	2900	3425	—	—	—
N2	—	—	—	—	—	—	2325	3100	3650	2475	3275	3800	1750	2350	2750	—	—	—
N3	—	—	—	—	—	—	1550	2050	2425	1650	2175	2525	1175	1550	1850	—	—	—
N11	—	—	—	—	—	—	1775	2350	2775	1875	2500	2900	1350	1775	2100	—	—	—
S1	—	—	—	—	—	—	180	235	275	185	245	285	145	190	225	—	—	—
S2	—	—	—	—	—	—	145	190	220	150	200	230	120	155	180	—	—	—
S3	—	—	—	—	—	—	125	165	195	130	170	200	105	135	160	—	—	—
S11	—	—	—	—	—	—	250	330	385	260	345	395	205	265	315	—	—	—
S12	—	—	—	—	—	—	145	190	220	150	200	230	120	155	180	—	—	—
S13	—	—	—	—	—	—	115	150	180	120	160	185	95	125	145	—	—	—
H5	—	—	—	180	240	280	145	195	225	160	205	240	120	160	190	—	—	—
H8	—	—	—	195	255	300	155	205	240	165	220	255	130	170	200	—	—	—
H11	—	—	—	230	305	360	185	245	290	200	265	310	155	205	240	—	—	—
H12	—	—	—	350	460	540	280	370	435	305	395	465	235	310	360	—	—	—

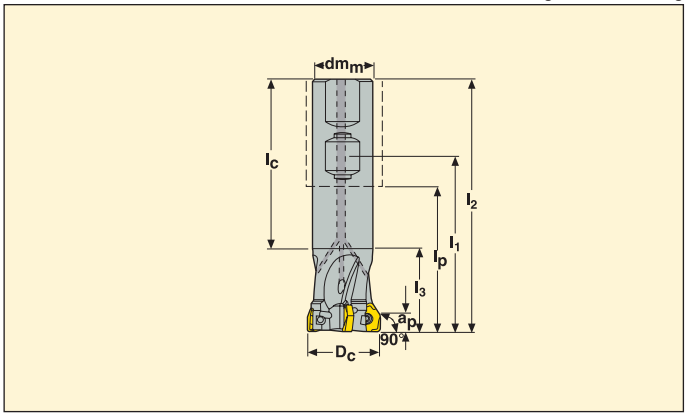
R217/220.96-04 – Cutting data v_c = (sf/min)

	MK2050			MM4500			MS2050		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1000	1300	1550	700	910	1075	830	950	1000
P2	960	1275	1500	680	890	1025	810	920	1000
P3	850	1125	1325	580	770	900	700	770	840
P4	740	980	1150	520	680	810	600	680	700
P5	710	940	1100	495	660	770	570	630	670
P6	820	1075	1250	560	740	870	640	700	750
P7	770	1025	1200	530	700	820	600	660	710
P8	710	940	1100	490	650	760	590	650	700
P11	750	990	1150	510	680	790	590	640	690
M1	—	—	—	580	760	890	710	810	880
M2	—	—	—	475	630	740	560	610	660
M3	—	—	—	385	500	580	370	400	440
M4	—	—	—	295	390	455	255	250	275
M5	—	—	—	245	325	380	215	210	230
K1	1025	1375	1625	—	—	—	820	930	1025
K2	920	1225	1425	—	—	—	690	760	810
K3	780	1025	1200	—	—	—	580	640	690
K4	740	980	1150	—	—	—	560	610	660
K5	460	610	710	—	—	—	310	350	370
K6	650	860	1025	—	—	—	490	540	580
K7	590	780	910	—	—	—	395	450	470
N1	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—
S1	—	—	—	90	120	140	190	235	260
S2	—	—	—	75	95	110	150	190	210
S3	—	—	—	65	85	100	135	165	185
S11	—	—	—	125	165	195	260	325	360
S12	—	—	—	100	130	150	200	250	275
S13	—	—	—	80	105	120	160	205	225
H5	—	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—	—
H11	—	—	—	—	—	—	—	—	—
H12	—	—	—	—	—	—	—	—	—

Square 6™ R217.96-08

Slotting and contouring

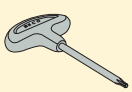
- For insert selection and cutting data recommendations, see pages 75-76.
- For complete insert program, see page 592.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch									lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p					
43719	R217.96 -01.50-3-08-3A	1.50	1.25	3.36	4.50	1.15	2.14	3.35	0.157	3	1.8	Cyl/Weldon	20700	XNEX08

* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.96-..	T15P-4	C04011-T15P

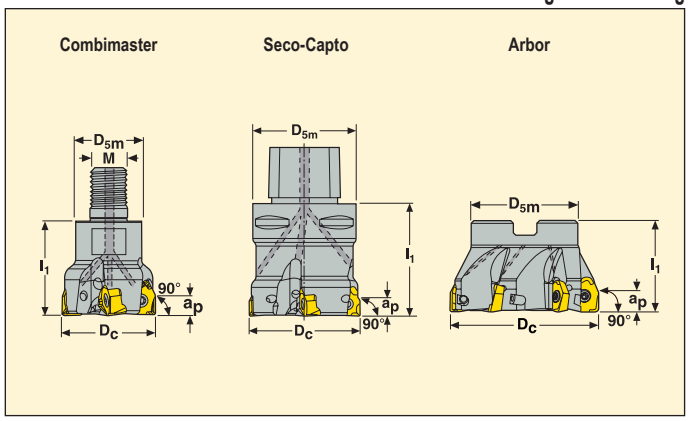
Please check availability in current price and stock-list.

Torque value 31.0 in/lbs.
Torque keys available, see page 643.

Square 6™ R217/220.96-08

Slotting and contouring

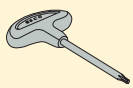
- For insert selection and cutting data recommendations, see pages 75-76.
- For complete insert program, see page 592.
- For plunging, see page 634.



EDP No.	Part No.		Dimensions in inch D_c	D_{5m}	l_1	M	a_p		lbs	Type of mounting	Max rpm	Insert
51594	R217.96	-01.50-16RE-08-3A	1.50	1.10	1.54	M16	0.295	3	0.4	Combimaster*	11800	XNEX08
64444	C5-R217.96	-02.00-08-5A	2.00	1.97	2.36	–	0.295	5	2.0	Seco-Capto	10200	XNEX08
64445		-02.50-08-5A	2.50	1.97	2.36	–	0.295	5	2.4	Seco-Capto	9400	XNEX08
43721	R220.96	-02.00-08-4A	2.00	1.85	1.57	–	0.295	4	1.1	Arbor	10600	XNEX08
43726		-02.50-08-4A	2.50	1.85	1.57	–	0.295	4	1.5	Arbor	9400	XNEX08
43734		-03.00-08-5A	3.00	2.44	1.97	–	0.295	5	2.9	Arbor	8400	XNEX08
43738		-04.00-08-6A	4.00	3.54	1.97	–	0.295	6	3.5	Arbor	7500	XNEX08
43743		-05.00-08-7A	5.00	3.54	2.48	–	0.295	7	7.3	Arbor	6700	XNEX08
43747		-06.00-08-12	6.00	4.33	2.48	–	0.295	12	9.5	Arbor	5900	XNEX08

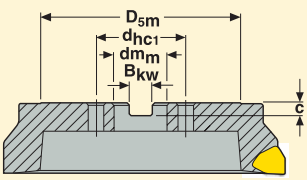
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
C5/R217.96-..	–	T15P-4	C04011-T15P
R220.96-02.00 / 02.50	UC6S3/8UNFX1	T15P-4	C04011-T15P
R220.96-03.00	UC6S1/2UNFX1-1/4	T15P-4	C04011-T15P
R220.96-04.00	UF6S3/4UNFX1-3/4	T15P-4	C04011-T15P
R220.96-05.00	UF6S3/4UNFX1-1/4	T15P-4	C04011-T15P
R220.96-06.00	–	T15P-4	C04011-T15P

Torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

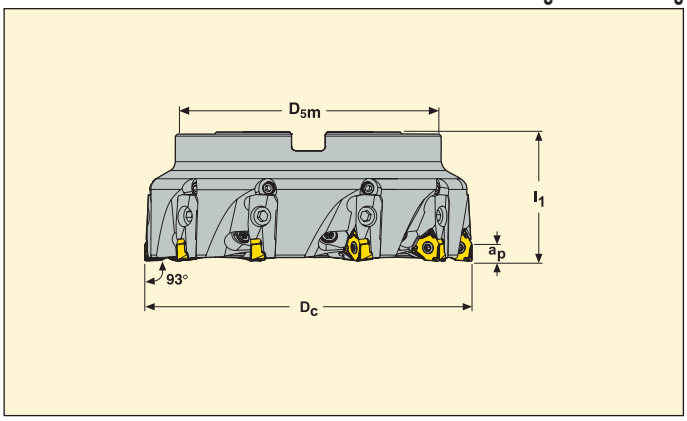


For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.96-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.96-03.00	1.00	2.44	0.38	0.22
R220.96-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.96-06.00	2.00	4.33	0.76	0.44

Please check availability in current price and stock-list.

Square 6™ R220.96-08

Slotting and contouring



- For insert selection and cutting data recommendations, see pages 75-76.
- For complete insert program, see pages 592.

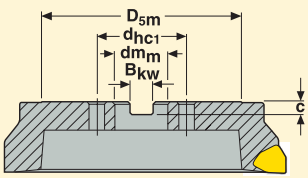
Pitch	EDP No.	Part No.	Dimensions in inch D_c	l_1	a_p		lbs	Max rpm	Insert
Normal									
	84950	R220.96 -05.00-08-8C	5.00	2.48	0.276	8	7.9	5900	XNEX08
	84951	-06.00-08-10C	6.00	2.48	0.276	10	9.0	5900	XNEX08
	84952	-808.00-08-12C	8.00	2.48	0.276	12	17.6	5300	XNEX08
	84953	-810.00-08-16C	10.00	2.48	0.276	16	33.5	4200	XNEX08
	84954	-812.00-08-20C	12.00	2.48	0.276	20	55.1	4200	XNEX08

Spare Parts, included in delivery.

For cutter	Cassette	Cassette screw	Insert/clamp key	Insert screw	Wedge clamp radial adj.	Wedge screw	Wedge clamp axial adj.
R220.96-..	XN08PRN	FS96018	T15P-4	C04011-T15P	CW0810	LD8020-T25P	AU1114T-T15P

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	d_{hc1}	d_{hc2}
R220.96-05.00-08-8C	1.50	3.54	0.63	0.40	–	–
R220.96-06.00-08-10C	2.00	4.33	0.76	0.44	–	–
R220.96-808.00-08-12C	2.50	6.30	1.00	0.55	4.00	–
R220.96-810.00-08-16C	2.50	8.27	1.00	0.55	4.00	–
R220.96-812.00-08-20C	2.50	10.63	1.00	0.55	4.00	7.00

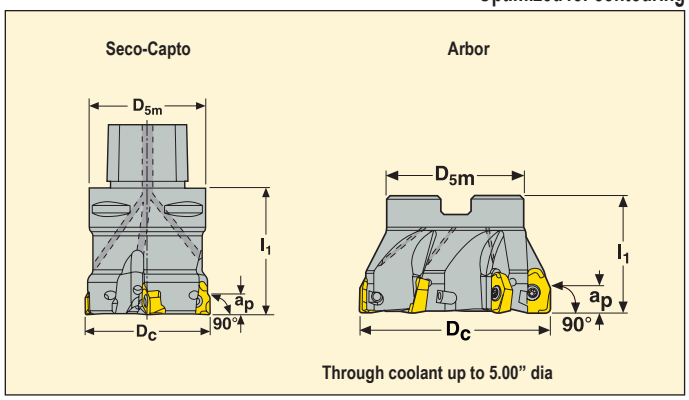
Please check availability in current price and stock-list.

Square shoulder and slot milling cutters

Square 6™ R217/220.96-08

Optimized for contouring

- For insert selection and cutting data recommendations, see pages 75-76.
- For complete insert program, see page 592.
- For plunging, see page 634.



Through coolant up to 5.00" dia

EDP No.	Part No.	Dimensions in inch D_c	D_{5m}	l_1	a_p		lbs	Type of mounting	Max rpm	Insert
64447	**C5-R217.96 -02.50-08-7A**	2.50	1.97	2.36	0.295	7	2.4	Seco-Capto	9400	XNEX08
64449	**C6-R217.96 -03.00-08-9A**	3.00	2.48	2.36	0.295	9	3.7	Seco-Capto	8400	XNEX08
64452	**C8-R217.96 -04.00-08-11A**	4.00	3.15	3.15	0.295	11	8.8	Seco-Capto	6300	XNEX08
43722	**R220.96 -02.00-08-5A**	2.00	1.85	1.57	0.295	5	1.1	Arbor	10600	XNEX08
43729	**-02.50-08-6A**	2.50	1.85	1.57	0.295	6	1.3	Arbor	9400	XNEX08
43732	**-02.50-08-7A**	2.50	1.85	1.57	0.295	7	1.3	Arbor	9400	XNEX08
43735	**-03.00-08-7A**	3.00	2.44	1.97	0.295	7	2.2	Arbor	8400	XNEX08
43737	**-03.00-08-9A**	3.00	2.44	1.97	0.295	9	2.0	Arbor	8400	XNEX08
43739	**-04.00-08-8A**	4.00	3.54	1.97	0.295	8	4.0	Arbor	7500	XNEX08
43740	**-04.00-08-11A**	4.00	3.54	1.97	0.295	11	4.2	Arbor	7500	XNEX08
43745	**-05.00-08-11A**	5.00	3.54	2.48	0.295	11	7.1	Arbor	6700	XNEX08
43746	**-05.00-08-14A**	5.00	3.54	2.48	0.295	14	6.8	Arbor	6700	XNEX08
43748	**-06.00-08-16**	6.00	4.33	2.48	0.295	16	10.4	Arbor	5900	XNEX08

* For Combimaster holders and adapters, see page 534.

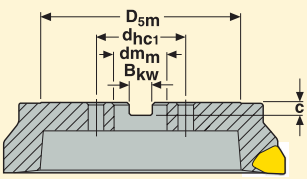
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
C5/C6/C7-R217.96-..	–	T15P-4	C04011-T15P
R220.96-02.00 / 02.50	UC6S3/8UNFX1	T15P-4	C04011-T15P
R220.96-03.00	UC6S1/2UNFX1-1/4	T15P-4	C04011-T15P
R220.96-04.00	UF6S3/4UNFX1-3/4	T15P-4	C04011-T15P
R220.96-05.00	UF6S3/4UNFX1-1/4	T15P-4	C04011-T15P
R220.96-06.00	–	T15P-4	C04011-T15P

Torque value 31.0 in/lbs.

Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.96-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.96-03.00	1.00	2.44	0.38	0.22
R220.96-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.96-06.00	2.00	4.33	0.76	0.46

Please check availability in current price and stock-list.

R217/220.96-08 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	XNEX080608TR-ME09 F40M	0.14	0.0050	0.0055	0.0085
P2	XNEX080608TR-ME09 F40M	0.14	0.0050	0.0055	0.0085
P3	XNEX080608TR-M13 MP2500	0.14	0.0070	0.0080	0.012
P4	XNEX080608TR-M13 MP2500	0.14	0.0070	0.0075	0.012
P5	XNEX080608TR-M13 MP2500	0.14	0.0065	0.0075	0.012
P6	XNEX080608TR-M13 MP2500	0.14	0.0065	0.0075	0.011
P7	XNEX080608TR-M13 MP2500	0.14	0.0065	0.0075	0.011
P8	XNEX080608TR-M13 MP2500	0.14	0.0070	0.0080	0.012
P11	XNEX080608TR-M13 T350M	0.14	0.0065	0.0075	0.011
M1	XNEX080608R-M08 F40M	0.14	0.0048	0.0050	0.0080
M2	XNEX080608R-M08 F40M	0.14	0.0044	0.0048	0.0070
M3	XNEX080608R-M08 F40M	0.12	0.0034	0.0038	0.0055
M4	XNEX080608R-M08 T350M	0.080	0.0032	0.0034	0.0050
M5	XNEX080608R-M08 T350M	0.080	0.0032	0.0034	0.0050
K1	XNEX080608TR-M13 MK2050	0.14	0.0075	0.0080	0.013
K2	XNEX080608TR-M13 MK2050	0.14	0.0065	0.0075	0.012
K3	XNEX080608TR-M13 MK2050	0.14	0.0065	0.0075	0.012
K4	XNEX080608TR-M13 MK2050	0.14	0.0065	0.0075	0.012
K5	XNEX080608TR-M13 MK2050	0.14	0.0065	0.0065	0.010
K6	XNEX080608TR-M13 MK2050	0.14	0.0065	0.0075	0.012
K7	XNEX080608TR-M13 MK2050	0.14	0.0065	0.0065	0.010
N1	XNEX080608R-M08 H25	0.14	0.0060	0.0065	0.0095
N2	XNEX080608R-M08 H25	0.14	0.0060	0.0065	0.0095
N3	XNEX080608R-M08 H25	0.14	0.0060	0.0065	0.0095
N11	XNEX080608R-M08 H25	0.14	0.0060	0.0065	0.0095
S1	XNEX080608R-M08 T350M	0.080	0.0032	0.0034	0.0050
S2	XNEX080608R-M08 T350M	0.080	0.0032	0.0034	0.0050
S3	XNEX080608R-M08 T350M	0.080	0.0030	0.0032	0.0048
S11	XNEX080608R-M08 MS2050	0.10	0.0034	0.0038	0.0060
S12	XNEX080608R-M08 MS2050	0.10	0.0034	0.0038	0.0060
S13	XNEX080608R-M08 MS2050	0.080	0.0032	0.0034	0.0050
H5	XNEX080608TR-M13 MP1500	0.12	0.0048	0.0050	0.0080
H8	XNEX080608TR-M13 MP2500	0.10	0.0036	0.0040	0.0060
H11	XNEX080608TR-M13 MP1500	0.12	0.0048	0.0050	0.0080
H12	XNEX080608TR-M13 MP1500	0.12	0.0048	0.0050	0.0080

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R217/220.96-08 – Cutting data v_c = (sf/min)

	MP1020			MP1500			MP2500			MP3000			T350M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	930	1175	1250	1125	1500	1750	1000	1325	1550	950	1275	1475	880	1150	1350	760	1000	1175
P2	860	1050	1225	1100	1475	1725	980	1300	1525	930	1225	1450	850	1125	1325	740	980	1150
P3	780	980	1100	970	1250	1525	860	1125	1350	820	1050	1275	750	970	1175	650	850	1025
P4	720	860	970	860	1125	1325	760	1000	1175	720	950	1125	660	870	1025	580	760	890
P5	690	850	920	820	1075	1275	730	960	1125	690	910	1075	630	830	980	550	730	850
P6	780	960	1075	920	1225	1425	810	1075	1275	770	1025	1200	710	940	1100	620	810	960
P7	730	910	1025	870	1150	1350	770	1025	1200	730	960	1125	670	880	1050	580	770	900
P8	660	820	920	820	1050	1275	730	940	1125	690	890	1075	630	820	980	550	710	850
P11	710	880	990	840	1125	1300	750	990	1150	710	930	1100	650	860	1000	570	750	880
M1	—	—	—	—	—	—	710	940	1100	690	920	1075	660	870	1025	600	790	930
M2	—	—	—	—	—	—	580	770	910	570	760	890	540	720	850	495	650	770
M3	—	—	—	—	—	—	475	630	730	465	620	720	440	590	680	400	530	620
M4	—	—	—	—	—	—	365	480	570	360	475	560	340	450	530	310	410	480
M5	—	—	—	—	—	—	305	400	470	300	395	465	285	375	440	260	340	400
K1	—	—	—	880	1150	1350	780	1025	1200	740	970	1150	680	900	1050	590	780	910
K2	—	—	—	780	1025	1200	690	910	1075	650	860	1025	600	790	930	520	690	810
K3	—	—	—	660	870	1025	580	770	910	550	730	860	510	670	790	440	580	690
K4	—	—	—	630	830	980	560	730	860	530	700	820	485	640	750	420	560	650
K5	—	—	—	380	500	600	340	445	530	320	420	500	295	390	460	255	340	400
K6	—	—	—	550	730	860	490	650	760	465	610	720	425	560	660	370	490	580
K7	—	—	—	490	640	760	435	570	680	410	540	640	380	500	590	330	435	510
N1	—	—	—	—	—	—	2850	3800	4450	2700	3600	4225	—	—	—	2150	2875	3375
N2	—	—	—	—	—	—	2300	3075	3600	2175	2900	3400	—	—	—	1750	2325	2725
N3	—	—	—	—	—	—	1525	2050	2400	1450	1925	2275	—	—	—	1150	1550	1825
N11	—	—	—	—	—	—	1750	2325	2750	1650	2200	2600	—	—	—	1325	1775	2075
S1	—	—	—	—	—	—	180	235	275	170	220	260	160	210	245	145	190	225
S2	—	—	—	—	—	—	145	190	220	135	180	210	130	170	200	115	155	180
S3	—	—	—	—	—	—	125	165	195	120	155	185	115	150	175	105	135	160
S11	—	—	—	—	—	—	250	325	385	235	305	365	220	290	345	200	265	315
S12	—	—	—	—	—	—	145	190	220	135	175	210	130	170	200	115	155	180
S13	—	—	—	—	—	—	115	150	180	110	145	165	105	135	160	95	125	145
H5	—	—	—	185	240	285	150	195	230	145	190	225	140	185	220	125	160	190
H8	—	—	—	195	255	300	155	205	240	150	200	235	150	195	230	130	170	200
H11	—	—	—	235	305	360	190	245	290	185	240	285	180	235	280	155	205	245
H12	—	—	—	355	460	550	285	370	440	275	360	430	275	355	420	235	310	365

R217/220.96-08 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MM4500			MS2050			MS2500			H25		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	790	1050	1250	620	820	960	870	1025	1100	1100	1450	1725	—	—	—
P2	—	—	—	770	1025	1200	600	800	930	840	1000	1075	1075	1425	1675	—	—	—
P3	—	—	—	680	900	1050	530	690	820	720	840	910	940	1250	1475	—	—	—
P4	—	—	—	600	790	930	465	620	720	630	740	800	830	1100	1300	—	—	—
P5	—	—	—	570	760	890	445	590	690	610	710	770	790	1050	1225	—	—	—
P6	—	—	—	640	850	1025	500	660	780	680	770	840	890	1200	1400	—	—	—
P7	—	—	—	610	800	960	470	620	730	640	730	790	840	1125	1325	—	—	—
P8	—	—	—	570	760	890	445	580	690	610	710	770	790	1050	1225	—	—	—
P11	—	—	—	590	780	930	460	610	710	620	710	770	820	1100	1300	—	—	—
M1	—	—	—	—	—	—	520	680	800	740	870	940	770	1025	1200	—	—	—
M2	—	—	—	—	—	—	425	560	660	590	690	750	630	840	990	—	—	—
M3	—	—	—	—	—	—	345	460	530	415	480	500	520	680	800	—	—	—
M4	—	—	—	—	—	—	270	350	415	295	325	340	400	530	620	—	—	—
M5	—	—	—	—	—	—	225	295	345	245	270	285	335	440	520	—	—	—
K1	880	1150	1375	830	1100	1300	—	—	—	850	1000	1100	850	1125	1325	—	—	—
K2	780	1025	1225	740	980	1150	—	—	—	730	860	930	750	990	1175	—	—	—
K3	660	870	1025	630	830	970	—	—	—	620	730	780	640	840	990	—	—	—
K4	630	830	980	600	790	930	—	—	—	590	690	750	610	800	950	—	—	—
K5	390	510	610	370	485	570	—	—	—	340	385	425	375	500	580	—	—	—
K6	560	730	870	530	700	820	—	—	—	520	610	660	540	710	840	—	—	—
K7	495	650	780	470	620	740	—	—	—	435	495	540	480	640	740	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2075	2775	3275
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1675	2225	2650
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1125	1500	1775
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1275	1700	2025
S1	—	—	—	—	—	—	80	110	125	165	205	235	195	255	305	—	—	—
S2	—	—	—	—	—	—	65	85	100	130	165	190	155	205	245	—	—	—
S3	—	—	—	—	—	—	60	75	90	115	150	170	140	185	215	—	—	—
S11	—	—	—	—	—	—	115	150	175	225	280	320	275	360	425	—	—	—
S12	—	—	—	—	—	—	90	115	135	175	215	245	160	205	245	—	—	—
S13	—	—	—	—	—	—	70	95	110	140	175	205	125	165	195	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	160	210	245	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	170	225	260	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	205	265	315	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	305	405	475	—	—	—

Helical milling cutters

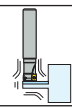
Cutters	Insert	Material suitability P	M	K	N	S	Corner radius (inch)					
Turbo	XO..06 	■	■	■	■	■	.007 / .016 .031 / .630	■	□	■	■	◩
	XO..10 	■	■	■	■	■	.016 / .031 .047 / .630 .079 / .094 .122	■	◩	■	■	◩
	XO..12 	■	■	■	■	■	.016 / .031 .047 / .630 .079 / .094 .122 / .157 .197 / .248	◩	■	■	■	◩
	XO..18 	■	■	■	■	■	.016 / .031 .047 / .630 .079 / .094 .122 / .157 .197 / .248	□	■	■	■	◩
Helical T4	LOEX08 	■	□	■	–	◩	.016 / .031 .047 / .063	◩	◩	◩	–	□
215/220.59	AC..15/ SC..12 	◩	◩	◩	□	□	.047 / .122 .236	–	■	□	–	□
220.69-15	AC..15 	◩	◩	◩	□	□	.047 / .122 .236	–	■	□	–	□

Helical solution for side-finishing operation (small radial engagement)

235.15		■	■	■	–	■	chamfer	■	■	◩	–	–

1st choice	■
Alternative choice	◩
Possible choice	□

High speed machine with low Power / Torque	
Strong stable machine with rigid connection	
Not recommended	–

Unstable condition suitability	
Ramping ability	
Plunging ability	

Helical milling cutters

No. of cutting edges	Application	Cutter diameter available/maximum depth of cut										Page
		0.50	0.625	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	
2		0.44	0.83	1.02								81
												
2				1.08	1.02	1.38	1.38	3.04				84-85
					1.69	2.05	2.36	1.69				86-87
2					0.90	1.30	1.73	1.74	1.73			90-91
					0.87	1.73	2.56	2.59	2.95			92-93
2							1.86	2.44	2.44	2.48	2.44	96-97
								3.02	3.02	3.02	3.02	98
4					1.42	1.42	1.42	1.69				101-102
					1.69	1.97	1.97	2.52				103-104
2 & 4 half effective								3.03				106
2 & 4 full and half effective									3.50/5.17	3.26/6.32	4.00	107-108
2								1.57		2.00		110-111
1						1.57		1.97		3.50		113

x — Slotting and contouring operations (x indicates the maximum depth of cut)

x — For contouring operations only(x indicates the maximum depth of cut)

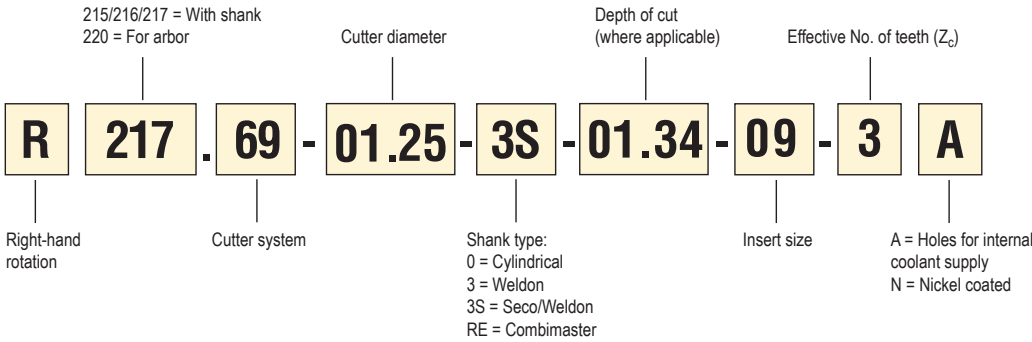
 Slotting and contouring

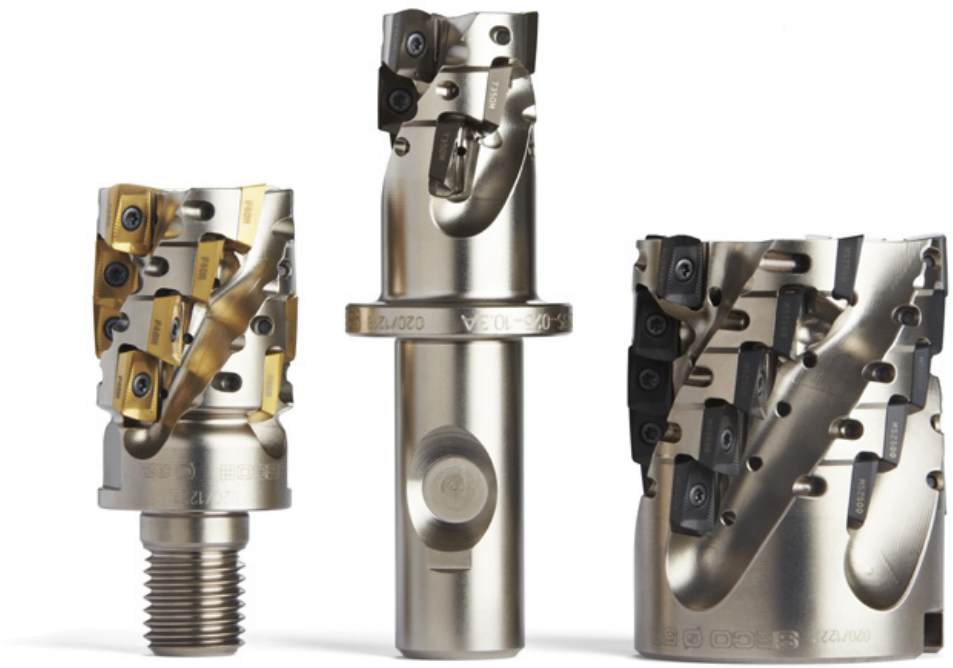
 Contouring only

Code key

There is no ISO system available for cutters.
Parts of the code key vary for different cutter systems.

Molykote 1000 or equivalent lubrication is recommended for insert locking screws.

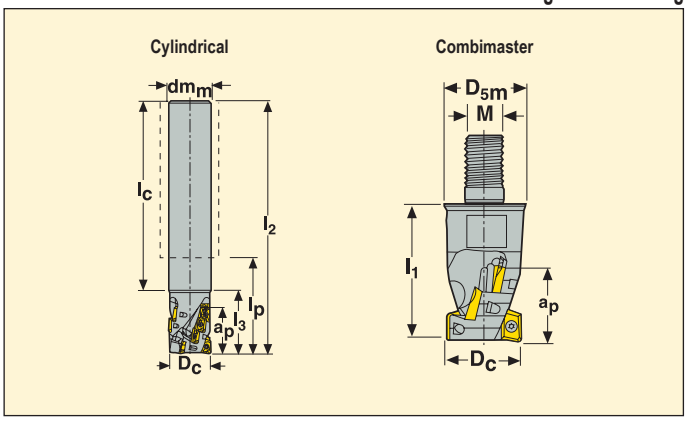




Helical Turbo 06 – R217.69-06

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 82-83.
- For complete insert program, see page 594, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch									α° max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m D_{5m}	l_1	l_2	l_3	l_p	l_c	M	a_p								
22143	R217.69 -00.500-0-06S2N	.500	.625	–	4.00	1.36	2.11	2.64	–	0.437	6.5	2	2	4	0.4	Cylindrical	54400	XO.X06
25391	-00.625-0-06S3N	.625	.625	–	4.50	1.14	2.61	3.35	–	0.630	4.0	3	3	9	0.4	Cylindrical	48000	XO.X06
25390	-00.625-0-06M2N	.625	.625	–	4.50	1.14	2.61	3.35	–	0.827	4.0	2	2	8	0.4	Cylindrical	48000	XO.X06
25839	-00.750-0-06M3N	.750	.750	–	5.00	1.38	3.03	3.62	–	1.024	2.5	3	3	15	0.9	Cylindrical	44000	XO.X06
22140	R217.69 -0.625-08RE-06S2N	.625	.531	0.98	–	–	–	–	M08	0.630	4.0	2	2	6	0.2	Combimaster**	48000	XO.X06
22141	-0.625-08RE-06S3N	.625	.531	0.98	–	–	–	–	M08	0.630	4.0	3	3	9	0.2	Combimaster**	48000	XO.X06
22142	-0.750-10RE-06M3AN	.750	.709	1.38	–	–	–	–	M10	0.827	2.5	3	3	12	0.2	Combimaster**	44000	XO.X06

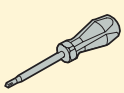
α° = Ramping angle

When using inserts with a corner radius > 0.031" the cutter body must be modified.

* Effective Number of teeth.

** For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T06P-3	C01804-T06P

Please check availability in current price and stock-list.

Torque value 4.4 in/lbs.

Torque keys available, see page 643.

R217.69-06 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	XOMX060204R-M05 F40M	0.0022	0.0024	0.0038
P2	XOMX060204R-M05 F40M	0.0022	0.0026	0.0038
P3	XOMX060204R-M05 F40M	0.0022	0.0024	0.0036
P4	XOMX060204R-M05 F40M	0.0022	0.0024	0.0036
P5	XOMX060204R-M05 F40M	0.0020	0.0022	0.0034
P6	XOMX060204R-M05 F40M	0.0020	0.0022	0.0034
P7	XOMX060204R-M05 F40M	0.0020	0.0022	0.0034
P8	XOMX060204R-M05 F40M	0.0022	0.0024	0.0036
P11	XOMX060204R-M05 MP3000	0.0020	0.0022	0.0034
M1	XOMX060204R-M05 F40M	0.0022	0.0026	0.0038
M2	XOMX060204R-M05 F40M	0.0020	0.0022	0.0034
M3	XOMX060204R-M05 F40M	0.0017	0.0018	0.0028
M4	XOMX060204R-M05 MP3000	0.0014	0.0016	0.0024
M5	XOMX060204R-M05 MM4500	0.0014	0.0016	0.0024
K1	XOMX060204R-M05 MP3000	0.0022	0.0026	0.0038
K2	XOMX060204R-M05 MP3000	0.0020	0.0022	0.0034
K3	XOMX060204R-M05 MP3000	0.0020	0.0022	0.0034
K4	XOMX060204R-M05 MP3000	0.0020	0.0022	0.0034
K5	XOMX060204R-M05 MP3000	0.0018	0.0020	0.0032
K6	XOMX060204R-M05 MP3000	0.0020	0.0022	0.0034
K7	XOMX060204R-M05 MP3000	0.0018	0.0020	0.0032
N1	XOEX060204FR-E03 H15	0.0024	0.0026	0.0040
N2	XOMX060204R-M05 MP3000	0.0030	0.0032	0.0048
N3	XOMX060204R-M05 MP3000	0.0030	0.0032	0.0048
N11	XOEX060204FR-E03 H15	0.0024	0.0026	0.0040
S1	XOMX060204R-M05 F40M	0.0014	0.0016	0.0024
S2	XOMX060204R-M05 F40M	0.0014	0.0016	0.0024
S3	XOMX060204R-M05 F40M	0.0013	0.0014	0.0022
S11	XOMX060204R-M05 F40M	0.0017	0.0018	0.0028
S12	XOMX060204R-M05 F40M	0.0017	0.0018	0.0028
S13	XOMX060204R-M05 F40M	0.0014	0.0016	0.0024
H11	XOMX060204R-M05 MP3000	0.0014	0.0015	0.0024
H12	XOMX060204R-M05 MP3000	0.0014	0.0015	0.0024

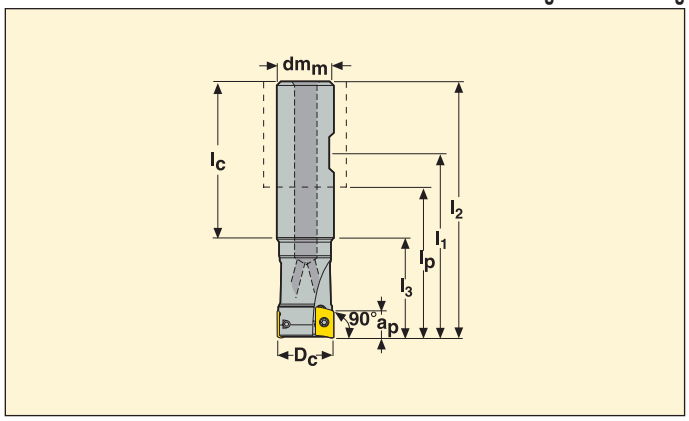
SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values

R217.69-06 – Cutting data v_c = (sf/min)

	MP3000			F40M			MM4500			H15		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	580	640	670	530	590	620	480	540	580	—	—	—
P2	570	630	660	520	580	620	475	530	570	—	—	—
P3	540	600	630	490	550	590	445	500	540	—	—	—
P4	510	570	610	460	520	560	415	475	510	—	—	—
P5	500	560	600	455	510	550	410	470	500	—	—	—
P6	530	590	620	480	540	580	435	495	530	—	—	—
P7	520	580	610	470	530	560	425	480	520	—	—	—
P8	500	560	600	450	510	550	405	465	500	—	—	—
P11	510	570	600	460	520	560	415	475	510	—	—	—
M1	510	560	600	475	530	570	445	500	540	—	—	—
M2	465	520	560	435	490	530	400	460	495	—	—	—
M3	415	470	510	380	440	475	350	410	445	—	—	—
M4	360	415	450	325	385	420	295	350	385	—	—	—
M5	320	375	410	285	345	380	255	310	345	—	—	—
K1	520	580	610	470	530	560	—	—	—	—	—	—
K2	495	550	590	445	500	540	—	—	—	—	—	—
K3	455	520	550	410	465	500	—	—	—	—	—	—
K4	445	510	540	400	455	490	—	—	—	—	—	—
K5	335	395	430	290	345	380	—	—	—	—	—	—
K6	420	480	510	370	430	465	—	—	—	—	—	—
K7	390	450	485	340	400	435	—	—	—	—	—	—
N1	810	870	900	760	820	850	—	—	—	770	830	860
N2	760	820	860	710	770	810	—	—	—	720	780	820
N3	670	730	770	620	680	720	—	—	—	630	690	730
N11	700	760	800	650	710	750	—	—	—	660	720	760
S1	195	250	285	165	215	250	95	120	145	—	—	—
S2	155	200	235	135	175	205	75	100	115	—	—	—
S3	135	175	210	115	155	180	65	85	100	—	—	—
S11	265	325	360	235	290	325	130	170	200	—	—	—
S12	155	205	240	135	175	205	100	135	155	—	—	—
S13	125	160	190	110	140	165	80	105	125	—	—	—
H11	210	265	300	180	235	265	—	—	—	—	—	—
H12	300	355	390	265	325	355	—	—	—	—	—	—

Helical Turbo 10 – R217.69-10

Slotting and contouring



- For insert selection and cutting data recommendations, see pages 88-89.
- For complete insert program, see page 595, 617.
- For helical interpolation, see page 632.

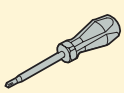
EDP No.	Part No.	Dimensions in inch								α° max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p								
81724	R217.69 -00.750-3-01.00-10-1A	0.75	0.75	2.69	3.75	1.71	1.86	2.04	1.079	4.5	1	1	3	0.4	Cyl/Weldon	26300	XO.X10
81725	-01.00-3-01.00-10-2A	1.00	1.00	2.86	4.00	1.87	1.87	2.28	1.024	3.0	2	2	6	0.9	Cyl/Weldon	23500	XO.X10
81637	-01.00-3-01.00-10-3A	1.00	1.00	2.86	4.00	1.72	1.87	2.28	1.024	3.0	3	3	9	0.9	Cyl/Weldon	23500	XO.X10
81640	-01.25-3-01.34-10-4A	1.25	1.25	3.19	4.33	2.05	2.05	2.28	1.378	2.0	4	4	16	1.3	Cyl/Weldon	20800	XO.X10
82057	-01.50-3-01.34-10-4A	1.50	1.25	3.75	4.89	2.61	2.61	2.68	1.378	1.5	4	4	16	1.5	Cyl/Weldon	18600	XO.X10

α° = Ramping angle

* Effective Number of teeth.

When using inserts with a corner radius > 0.094" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T07P-3	C02506-T07P

Please check availability in current price and stock-list.

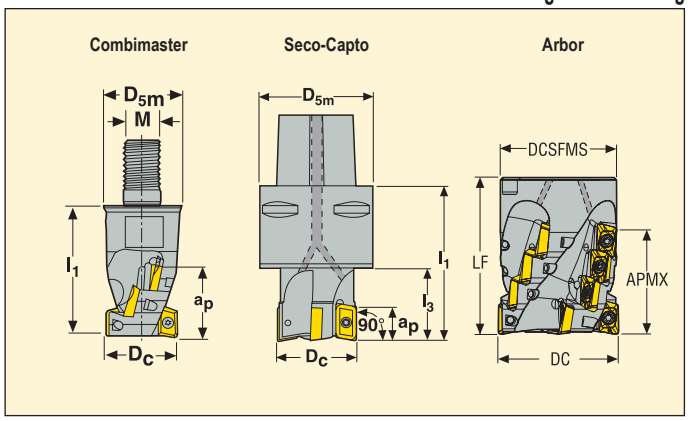
Torque value 7.9 in/lbs.

Torque keys available, see page 643.

Helical Turbo 10 – R217/220.69-10

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 88-89.
- For complete insert program, see page 595, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch						Zc*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		Dc	D5m	l1	l3	M	ap							
54303	R217.69-01.50-20RE-01.34-10-4A	1.50	1.44	1.97	–	M20	1.339	4	4	16	0.9	Combimaster**	18600	XO.X10
81648	C5-R217.69-02.00-03.05-10-5SA	2.00	1.97	4.50	4.50	–	3.037	5	5	45	3.1	Seco-Capto	16600	XO.X10
81646	R220.69-02.00-01.65-10-5A	2.00	1.89	2.56	–	–	1.693	5	5	25	1.3	Arbor	16600	XO.X10

** For Combimaster holders and adapters, see page 534.

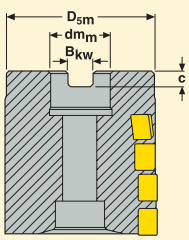
* Effective Number of teeth.
When using inserts with a corner radius > 0.094" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Replaceable end
R217.69-..	–	T07P-3	C02506-T07P	–
C5-R217.69-..	UC6S3/8UNFX11/2	T07P-3	C02506-T07P	R220.69-RE-02.00-01.00-10.5A
R220.69-..	UC6S1/2UNFX2	T07P-3	C02506-T07P	–

Torque value 7.9 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

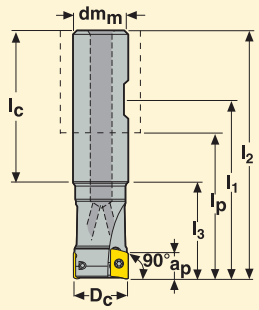


For cutter	Dimensions in inch			
	dmm	D5m	Bkw	c
R220.69-..	1.00	1.89	0.38	0.22

Please check availability in current price and stock-list.

Helical Turbo 10 – R217.69-10

Contouring only



- For insert selection and cutting data recommendations, see pages 88-89.
- For complete insert program, see page 595, 617.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch								α° max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p								
81642	R217.69 -01.00-3-01.65-10-2A	1.00	1.00	3.36	4.50	2.08	2.37	2.42	1.693	3.0	2	2	10	0.9	Cyl/Weldon	23500	XO.X10
81638	-01.00-3-01.34-10-3A	1.00	1.00	3.11	4.25	1.97	2.12	2.28	1.378	3.0	3	3	12	0.9	Cyl/Weldon	23500	XO.X10
81643	-01.25-3-01.96-10-3A	1.25	1.00	3.86	5.00	2.87	2.87	2.32	2.047	2.0	3	3	18	1.1	Cyl/Weldon	20800	XO.X10
81641	-01.25-3-01.65-10-4A	1.25	1.25	3.36	4.50	2.22	2.22	2.28	1.693	2.0	4	4	20	1.3	Cyl/Weldon	20800	XO.X10
81644	-01.50-3-02.28-10-5A	1.50	1.25	4.61	5.75	3.46	3.46	2.68	2.362	1.5	5	5	35	1.8	Cyl/Weldon	18600	XO.X10

α° = Ramping angle

* Effective Number of teeth.

When using inserts with a corner radius > 0.094" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T07P-3	C02506-T07P

Please check availability in current price and stock-list.

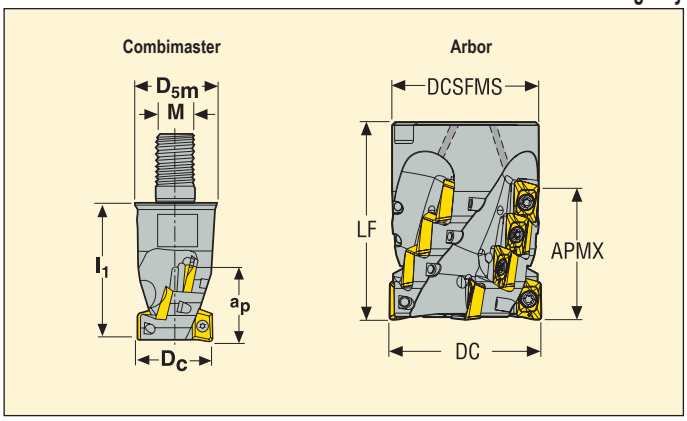
Torque value 7.9 in/lbs.

Torque keys available, see page 643.

Helical Turbo 10 – R220.69-10

Contouring only

- For insert selection and cutting data recommendations, see pages 88-89.
- For complete insert program, see page 595, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch					Zc*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		Dc	D5m	l1	M	ap							
54304	R217.69-01.50-20RE-01.34-10-5A	1.50	1.44	2.17	M20	1.339	5	5	20	0.9	Combimaster**	18600	XO.X10
81647	R220.69-02.00-01.65-10-6A	2.00	1.89	2.56	–	1.693	6	6	30	1.3	Arbor	16600	XO.X10

** For Combimaster holders and adapters, see page 534.

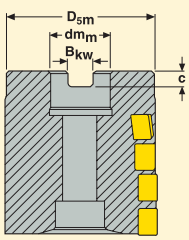
* Effective Number of teeth.
When using inserts with a corner radius > 0.094" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.69-..	–	T07P-3	C02506-T07P
R220.69-..	UC6S1/2UNFX2	T07P-3	C02506-T07P

Torque value 7.9 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dmm	D5m	Bkw	c
R220.69-..	1.00	1.89	0.38	0.22

Please check availability in current price and stock-list.

R217/220.69-10 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	XOMX10T308TR-ME07 F40M	0.0036	0.0040	0.0060
P2	XOMX10T308TR-ME07 F40M	0.0036	0.0040	0.0060
P3	XOMX10T308TR-ME07 MP2500	0.0034	0.0038	0.0060
P4	XOMX10T308TR-M09 MP2500	0.0038	0.0040	0.0065
P5	XOMX10T308TR-M09 MP2500	0.0038	0.0040	0.0065
P6	XOMX10T308TR-M09 MP2500	0.0038	0.0040	0.0065
P7	XOMX10T308TR-M09 MP2500	0.0038	0.0040	0.0065
P8	XOMX10T308TR-M09 MP2500	0.0038	0.0044	0.0065
P11	XOMX10T308TR-M09 MP3000	0.0038	0.0040	0.0065
M1	XOEX10T308R-M06 F40M	0.0028	0.0030	0.0048
M2	XOEX10T308R-M06 F40M	0.0024	0.0028	0.0040
M3	XOEX10T308R-M06 F40M	0.0020	0.0022	0.0034
M4	XOEX10T308R-M06 T350M	0.0017	0.0019	0.0030
M5	XOEX10T308R-M06 T350M	0.0017	0.0019	0.0030
K1	XOMX10T308TR-M09 MK2050	0.0040	0.0044	0.0065
K2	XOMX10T308TR-M09 MK2050	0.0038	0.0040	0.0065
K3	XOMX10T308TR-M09 MK2050	0.0038	0.0040	0.0065
K4	XOMX10T308TR-M09 MK2050	0.0038	0.0040	0.0065
K5	XOMX10T308TR-M09 MK2050	0.0034	0.0036	0.0055
K6	XOMX10T308TR-M09 MK2050	0.0038	0.0040	0.0065
K7	XOMX10T308TR-M09 MK2050	0.0034	0.0036	0.0055
N1	XOEX10T308FR-E05 H15	0.0034	0.0038	0.0060
N2	XOEX10T308FR-E05 H15	0.0034	0.0038	0.0060
N3	XOEX10T308FR-E05 H15	0.0034	0.0038	0.0060
N11	XOEX10T308FR-E05 H15	0.0034	0.0038	0.0060
S1	XOEX10T308R-M06 F40M	0.0017	0.0019	0.0030
S2	XOEX10T308R-M06 F40M	0.0017	0.0019	0.0030
S3	XOEX10T308R-M06 F40M	0.0016	0.0017	0.0028
S11	XOEX10T308R-M06 MS2050	0.0020	0.0022	0.0034
S12	XOEX10T308R-M06 MS2050	0.0020	0.0022	0.0034
S13	XOEX10T308R-M06 MS2050	0.0017	0.0019	0.0030
H5	XOMX10T308TR-M09 MP1500	0.0026	0.0028	0.0044
H11	XOMX10T308TR-M09 MP1500	0.0026	0.0028	0.0044
H12	XOMX10T308TR-M09 MP1500	0.0026	0.0028	0.0044

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values

R217/220.69-10 – Cutting data v_c = (sf/min)

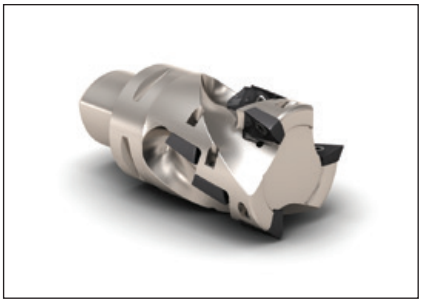
	MP1500			MP2500			MP3000			T350M			F40M			MK1500		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	530	580	620	500	560	590	495	550	580	475	530	560	450	500	540	—	—	—
P2	520	580	610	500	550	590	490	540	580	470	530	560	445	500	530	—	—	—
P3	495	550	580	470	530	560	460	510	550	445	500	530	420	470	500	—	—	—
P4	470	520	560	445	500	530	435	490	520	420	475	510	390	445	480	—	—	—
P5	460	520	550	440	495	530	425	485	510	410	465	500	385	440	470	—	—	—
P6	490	540	570	465	520	550	455	510	540	435	490	520	410	460	495	—	—	—
P7	475	530	560	450	510	540	440	495	530	425	480	510	400	450	480	—	—	—
P8	460	520	550	440	490	520	425	480	510	410	465	495	385	435	470	—	—	—
P11	470	520	560	445	500	530	435	490	520	420	470	500	390	445	475	—	—	—
M1	—	—	—	435	490	520	430	485	520	420	475	510	400	455	490	—	—	—
M2	—	—	—	395	450	485	390	450	480	380	435	470	365	420	450	—	—	—
M3	—	—	—	355	405	440	350	405	435	340	390	425	320	375	405	—	—	—
M4	—	—	—	300	355	385	300	350	385	290	340	375	270	325	355	—	—	—
M5	—	—	—	265	320	350	265	315	350	250	305	335	235	285	320	—	—	—
K1	475	530	560	455	510	540	440	495	530	425	480	510	400	450	485	510	560	590
K2	450	510	540	430	485	520	415	475	500	400	455	490	375	430	460	480	540	570
K3	420	475	510	395	450	485	385	440	470	370	425	455	340	395	430	450	500	540
K4	410	465	495	385	440	475	375	430	465	360	415	445	330	385	420	440	495	530
K5	315	370	400	290	345	375	280	335	365	260	315	345	235	290	320	340	400	430
K6	385	440	470	360	415	450	350	405	440	335	390	420	305	360	395	415	470	500
K7	360	415	445	340	395	425	325	380	410	310	365	395	285	340	370	390	445	480
N1	—	—	—	710	760	800	700	750	790	—	—	—	650	710	740	—	—	—
N2	—	—	—	670	720	760	660	710	740	—	—	—	610	670	700	—	—	—
N3	—	—	—	590	640	680	580	630	660	—	—	—	530	590	620	—	—	—
N11	—	—	—	610	670	700	600	660	690	—	—	—	560	610	650	—	—	—
S1	—	—	—	165	215	245	155	200	235	145	190	225	135	175	205	—	—	—
S2	—	—	—	130	175	200	125	165	190	120	155	180	105	140	165	—	—	—
S3	—	—	—	115	150	180	110	145	170	105	135	160	95	125	145	—	—	—
S11	—	—	—	230	280	315	215	270	300	205	260	290	190	240	275	—	—	—
S12	—	—	—	135	175	205	125	165	195	120	155	185	110	140	165	—	—	—
S13	—	—	—	105	140	160	100	130	155	95	125	145	85	115	130	—	—	—
H5	170	220	250	135	180	210	135	175	205	130	170	200	115	150	175	—	—	—
H11	215	270	300	175	225	255	170	220	250	165	215	245	145	190	220	—	—	—
H12	295	350	380	255	305	335	250	300	330	245	300	330	215	270	300	—	—	—

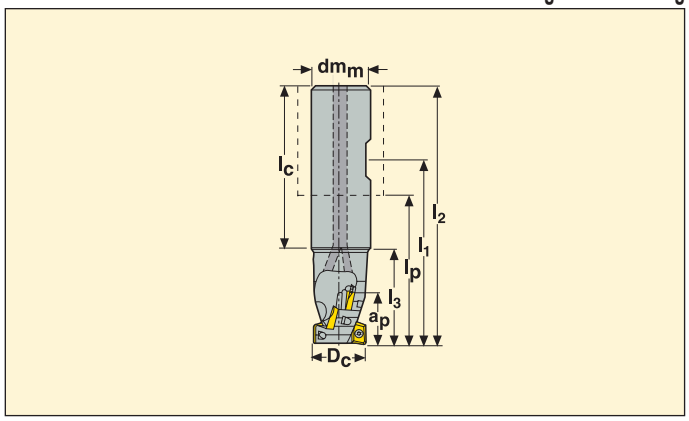
R217/220.69-10 – Cutting data v_c = (sf/min)

	MK2050			MM4500			MS2050			MS2500			H15		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	485	540	570	410	460	495	425	450	455	530	580	610	—	—	—
P2	480	540	570	405	455	490	430	445	450	520	570	610	—	—	—
P3	455	510	540	375	430	460	390	405	420	495	550	580	—	—	—
P4	430	485	520	350	405	440	365	380	395	465	520	550	—	—	—
P5	420	475	510	340	400	430	345	375	370	460	510	550	—	—	—
P6	445	500	530	370	420	450	370	385	390	485	540	570	—	—	—
P7	430	485	520	355	410	440	360	375	380	475	530	560	—	—	—
P8	420	470	510	340	395	425	355	375	385	460	510	540	—	—	—
P11	425	480	510	350	405	435	355	370	375	470	520	550	—	—	—
M1	—	—	—	375	425	460	400	420	420	455	510	540	—	—	—
M2	—	—	—	335	390	420	340	370	365	420	470	500	—	—	—
M3	—	—	—	295	345	380	260	275	280	370	425	455	—	—	—
M4	—	—	—	240	295	325	180	190	195	320	375	405	—	—	—
M5	—	—	—	205	260	290	150	155	165	285	340	370	—	—	—
K1	495	550	580	—	—	—	430	450	450	475	530	560	—	—	—
K2	470	530	560	—	—	—	385	410	405	450	500	540	—	—	—
K3	435	495	520	—	—	—	350	375	375	420	470	500	—	—	—
K4	430	485	520	—	—	—	340	370	365	410	460	495	—	—	—
K5	330	385	420	—	—	—	230	240	255	310	365	395	—	—	—
K6	405	460	490	—	—	—	315	345	340	385	435	470	—	—	—
K7	380	435	470	—	—	—	275	290	300	360	415	445	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	660	710	750
N2	—	—	—	—	—	—	—	—	—	—	—	—	620	670	700
N3	—	—	—	—	—	—	—	—	—	—	—	—	540	590	620
N11	—	—	—	—	—	—	—	—	—	—	—	—	570	620	650
S1	—	—	—	75	100	115	160	195	215	180	235	265	—	—	—
S2	—	—	—	60	80	95	130	160	175	145	190	220	—	—	—
S3	—	—	—	55	70	80	115	140	150	130	165	195	—	—	—
S11	—	—	—	105	140	165	225	260	285	245	300	330	—	—	—
S12	—	—	—	80	105	125	175	210	235	145	190	225	—	—	—
S13	—	—	—	65	85	100	140	170	185	115	155	180	—	—	—
H5	—	—	—	—	—	—	—	—	—	150	195	225	—	—	—
H11	—	—	—	—	—	—	—	—	—	190	240	275	—	—	—
H12	—	—	—	—	—	—	—	—	—	270	320	355	—	—	—

Helical Turbo 12 – R217.69-12

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 94-95.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch								α° max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p								
58587	R217.69 -01.00-3-12S2AN	1.00	1.00	2.61	3.75	1.47	1.59	2.28	0.902	5.0	2	2	4	0.9	Cyl/Weldon	20800	XO.X12**
58583	-01.25-3-12S2AN	1.25	1.25	3.36	4.50	2.22	2.14	2.28	1.299	3.0	2	2	6	1.3	Cyl/Weldon	18400	XO.X12**
58593	-01.50-3-12S3AN	1.50	1.50	4.06	5.25	2.51	2.93	2.74	1.732	2.5	3	3	12	2.2	Cyl/Weldon	16400	XO.X12**

α° = Ramping angle

* Effective Number of teeth.

** For slotting and contouring cutters, inserts with max corner radius 0.236" can be used but cutter bodies must be modified for radii > 0.094".

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-01.00 / 01.25	T10P-3	C03507-T10P
R217.69-01.50 / 02.00	T10P-3	C03509-T10P

Please check availability in current price and stock-list.

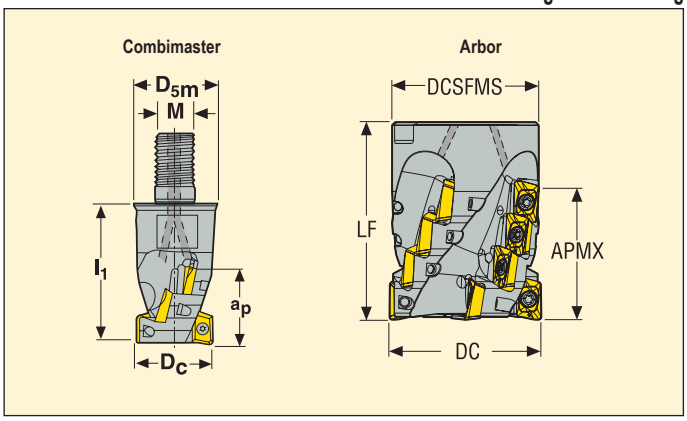
Torque value 17.7 in/lbs.

Torque keys available, see page 643.

Helical Turbo 12 – R220.69-12

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 94-95.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch D_c	D_{5m}	l_1	M	a_p	α° max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
54305	**R217.69-01.50-20RE-01.30-12-3A**	1.50	1.44	2.17	M20	1.299	2.5	3	3	9	0.9	Combimaster**	16400	XO.X12***
58600	**R220.69-02.00-12-S4AN**	2.00	2.44	2.75	–	1.740	2	4	4	16	1.3	Arbor	14800	XO.X12***
58602	**R220.69-02.50-12-S5AN**	2.50	2.44	2.75	–	1.732	1.5	5	5	20	2.4	Arbor	13200	XO.X12***

** For Combimaster holders and adapters, see page 534.

*** Inserts with max corner radius 0.236" can be used but cutter bodies must be modified for radii > 0.094".

* Effective Number of teeth.

α° = Ramping angle

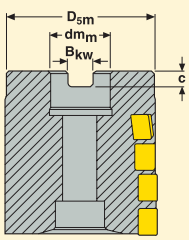
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.69-..	–	T07P-3	C02506-T07P
R220.69-..	UC6S1/2UNFX2-1/2	T10P-3	C03509-T10P

Torque value 17.7 in/lbs.

Torque keys available, see page 643.

Mounting Dimensions

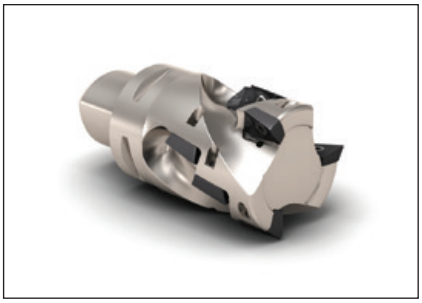


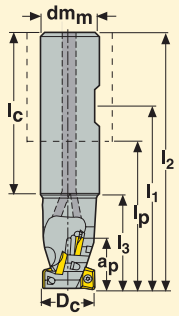
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.69-..	1.00	2.44	0.38	0.22

Please check availability in current price and stock-list.

Helical Turbo 12 – R217.69-12

Contouring only





- For insert selection and cutting data recommendations, see pages 94-95.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch								α° max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p								
58582	R217.69 -01.25-3-12M3AN	1.25	1.25	3.86	5.00	2.70	2.64	2.28	1.732	3.0	3	3	12	1.3	Cyl/Weldon	18400	XO.X12**
58590	-01.50-3-12L3AN	1.50	1.50	4.81	6.00	3.26	3.64	2.69	2.559	2.5	3	3	18	2.2	Cyl/Weldon	16400	XO.X12**
58592	-01.50-3-12M4AN	1.50	1.50	4.56	5.75	3.01	3.06	2.69	2.165	2.5	4	4	20	2.4	Cyl/Weldon	16400	XO.X12**
58594	-02.00-3-12M4AN	2.00	1.50	4.81	6.00	3.31	3.31	2.69	2.591	2.0	4	4	24	3.1	Cyl/Weldon	14800	XO.X12**

α° = Ramping angle

* Effective Number of teeth.

** For contouring cutters, inserts with max corner radius 0.047" can be used.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-01.25	T10P-3	C03507-T10P
R217.69-01.50 / 02.00	T10P-3	C03509-T10P

Please check availability in current price and stock-list.

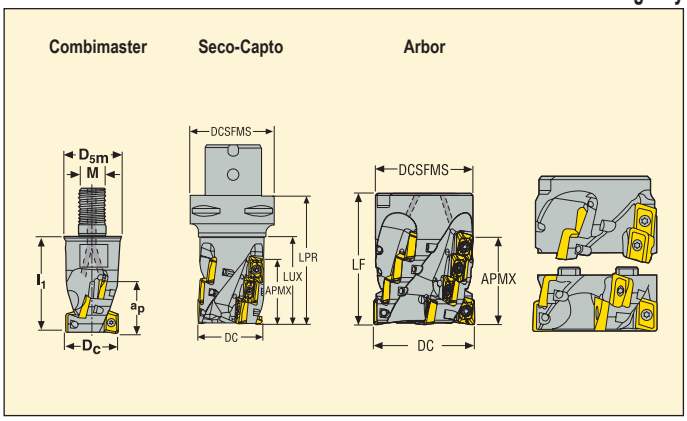
Torque value 17.7 in/lbs.

Torque keys available, see page 643.

Helical Turbo 12 – R217/220.69-12

Contouring only

- For insert selection and cutting data recommendations, see pages 94-95.
- For complete insert program, see page 596, 617.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch D_c	D_{5m}	l_1	l_3	M	a_p	α° max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
58581	R217.69 -01.00-12RE-12-S2AN	1.00	0.91	1.38	–	M12	0.870	5	2	2	4	0.4	Combimaster**	14800	XO.X12***
54306	-01.50-20RE-01.73-12-4A	1.50	1.44	2.17	–	M20	1.732	2.5	4	4	16	0.9	Combimaster**	16400	XO.X12***
62434	C5-R217.69 -01.25-12M3AN	1.25	1.97	3.11	2.32	–	1.717	3.0	3	3	12	1.3	Seco-Capto	18400	XO.X12***
62435	C6-R217.69 -01.50-12M3AN	1.50	2.48	3.62	2.76	–	2.150	2.5	3	3	15	2.4	Seco-Capto	18400	XO.X12***
62436	-02.00-12M4AN	2.00	2.48	3.62	2.76	–	2.150	2.0	4	4	20	3.1	Seco-Capto	14800	XO.X12***
62460	-02.00-12L4SAN	2.00	2.48	3.99	3.11	–	2.579	2.0	4	4	24	4.2	Seco-Capto	14800	XO.X12***
58596	R220.69 -02.00-12-M5AN	2.00	2.44	3.25	–	–	2.146	2	5	5	25	1.5	Arbor	14800	XO.X12***
58601	-02.50-12-M5AN	2.50	2.44	3.25	–	–	2.165	1.5	5	5	25	3.3	Arbor	13200	XO.X12***
62462	-02.50-12-L4SAN	2.50	2.44	2.99	–	–	2.953	1.5	4	4	24	4.6	Arbor	13200	XO.X12***

** For Combimaster holders and adapters, see page 534.
*** For contouring cutters, inserts with max corner radius 0.047" can be used.

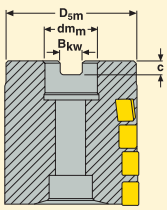
* Effective Number of teeth.
α° = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Replaceable end
R217.69-01.00 / 01.25	–	T10P-3	C03507-T10P	–
R217.69-01.50	–	T10P-3	C03509-T10P	–
R217.69-01.50 / 02.00	–	T10P-3	C03509-T10P	–
C6-R217.69-..L4	MC6S10X40	T10P-3	C03509-T10P	R220.69-02.00-RE-12-4AN
R220.69-..	UC6S1/2UNFX3	T10P-3	C03509-T10P	–
R220.69-..L4	UP6S1/2UNFX3-1/4	T10P-3	C03509-T10P	R220.69-02.50-RE-12-4AN

Torque value 17.7 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.69-..	1.00	2.44	0.38	0.22

Please check availability in current price and stock-list.

R217/220.69-12 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	XOMX120408TR-ME08 F40M	0.0048	0.0050	0.0080
P2	XOMX120408TR-ME08 F40M	0.0048	0.0050	0.0080
P3	XOMX120408TR-ME08 MP2500	0.0048	0.0050	0.0075
P4	XOMX120408TR-M12 MP2500	0.0055	0.0060	0.0085
P5	XOMX120408TR-M12 MP2500	0.0050	0.0060	0.0085
P6	XOMX120408TR-M12 MP2500	0.0050	0.0060	0.0085
P7	XOMX120408TR-M12 MP2500	0.0050	0.0060	0.0085
P8	XOMX120408TR-M12 MP2500	0.0055	0.0060	0.0095
P11	XOMX120408TR-M12 T350M	0.0050	0.0060	0.0085
M1	XOEX120408R-M07 F40M	0.0040	0.0044	0.0065
M2	XOEX120408R-M07 F40M	0.0036	0.0040	0.0060
M3	XOEX120408R-M07 F40M	0.0028	0.0032	0.0048
M4	XOEX120408R-M07 T350M	0.0026	0.0028	0.0040
M5	XOEX120408R-M07 T350M	0.0026	0.0028	0.0040
K1	XOMX120408TR-M12 MK2050	0.0060	0.0065	0.0095
K2	XOMX120408TR-M12 MK2050	0.0050	0.0060	0.0085
K3	XOMX120408TR-M12 MK2050	0.0050	0.0060	0.0085
K4	XOMX120408TR-M12 MK2050	0.0050	0.0060	0.0085
K5	XOMX120408TR-MD13 MK2050	0.0050	0.0055	0.0085
K6	XOMX120408TR-MD13 MK2050	0.0060	0.0065	0.0095
K7	XOMX120408TR-MD13 MK2050	0.0050	0.0055	0.0085
N1	XOEX120408FR-E06 H15	0.0044	0.0048	0.0070
N2	XOEX120408R-M07 MP3000	0.0050	0.0055	0.0085
N3	XOEX120408R-M07 MP3000	0.0050	0.0055	0.0085
N11	XOEX120408FR-E06 H15	0.0044	0.0048	0.0070
S1	XOEX120408R-M07 F40M	0.0026	0.0028	0.0040
S2	XOEX120408R-M07 F40M	0.0026	0.0028	0.0040
S3	XOEX120408R-M07 F40M	0.0024	0.0026	0.0038
S11	XOEX120408R-M07 MS2050	0.0026	0.0028	0.0040
S12	XOEX120408R-M07 MS2050	0.0026	0.0028	0.0040
S13	XOEX120408R-M07 MS2050	0.0022	0.0024	0.0036
H5	XOMX120408TR-MD13 MP1500	0.0040	0.0044	0.0065
H11	XOMX120412TR-MD13 MP3000	0.0040	0.0044	0.0065
H12	XOMX120408TR-MD13 MP1500	0.0040	0.0044	0.0065

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values

R217/220.69-12 – Cutting data v_c = (sf/min)

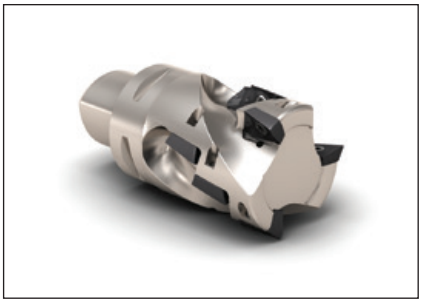
	MP1500			MP2500			MP3000			T350M			F40M			MK1500		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	490	540	580	465	520	550	455	510	540	440	490	530	410	465	500	—	—	—
P2	480	540	570	455	510	550	445	500	540	430	485	520	405	460	495	—	—	—
P3	455	510	540	430	490	520	420	475	510	405	460	495	375	435	465	—	—	—
P4	430	485	520	405	465	495	395	450	485	380	435	470	350	410	440	—	—	—
P5	425	480	510	400	455	490	390	445	480	375	425	465	350	400	435	—	—	—
P6	450	500	540	425	480	510	415	470	500	400	455	485	370	425	460	—	—	—
P7	440	495	530	415	470	500	405	460	490	385	440	475	360	415	450	—	—	—
P8	420	480	510	400	455	485	385	445	475	370	425	460	345	400	430	—	—	—
P11	430	490	520	410	465	495	395	455	485	380	435	470	355	410	440	—	—	—
M1	—	—	—	395	450	485	390	445	480	380	435	470	360	415	450	—	—	—
M2	—	—	—	360	410	450	355	410	445	345	395	435	325	380	415	—	—	—
M3	—	—	—	315	370	405	315	365	400	300	355	390	285	340	370	—	—	—
M4	—	—	—	270	320	350	265	320	350	255	310	340	235	290	320	—	—	—
M5	—	—	—	230	285	315	230	280	315	220	270	300	200	255	285	—	—	—
K1	435	490	530	410	470	500	400	455	495	385	440	475	355	415	450	480	540	570
K2	415	465	500	390	445	480	380	435	470	365	415	455	335	390	425	460	510	550
K3	385	435	470	360	410	450	350	400	435	330	385	420	305	355	395	430	480	520
K4	375	425	460	350	400	440	340	390	430	325	375	410	295	345	385	420	470	510
K5	275	330	365	250	305	340	240	295	330	225	280	310	200	255	285	320	375	410
K6	350	400	435	325	375	415	315	365	405	300	350	385	270	320	360	395	445	480
K7	325	380	410	300	355	390	290	345	375	275	330	360	245	300	335	370	425	455
N1	—	—	—	670	730	760	660	710	750	—	—	—	620	670	700	—	—	—
N2	—	—	—	630	680	720	620	670	700	—	—	—	570	630	660	—	—	—
N3	—	—	—	550	600	640	540	590	620	—	—	—	495	550	580	—	—	—
N11	—	—	—	580	630	660	560	620	650	—	—	—	520	570	610	—	—	—
S1	—	—	—	140	180	210	130	170	200	125	160	190	110	145	170	—	—	—
S2	—	—	—	110	145	170	105	135	160	100	130	150	90	120	140	—	—	—
S3	—	—	—	95	125	150	90	120	140	85	115	135	80	105	120	—	—	—
S11	—	—	—	190	245	275	180	235	265	170	220	255	155	205	235	—	—	—
S12	—	—	—	110	145	170	105	135	160	100	130	150	90	120	140	—	—	—
S13	—	—	—	90	115	135	85	110	130	80	105	120	70	95	110	—	—	—
H5	140	185	215	110	145	175	110	145	170	110	140	170	95	125	145	—	—	—
H11	180	230	265	145	190	220	140	185	215	135	180	215	120	155	185	—	—	—
H12	260	310	345	215	270	305	210	265	300	205	260	295	180	235	265	—	—	—

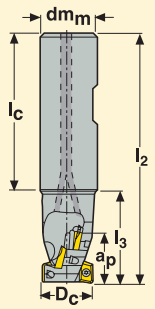
R217/220.69-12 – Cutting data v_c = (sf/min)

	MK2050			MM4500			MS2050			MS2500			H15		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	490	550	590	415	475	510	475	500	510	550	610	650	—	—	—
P2	480	540	580	410	470	500	470	495	510	550	610	640	—	—	—
P3	455	520	550	375	435	475	435	460	475	520	580	610	—	—	—
P4	425	490	520	350	410	445	405	425	435	490	550	590	—	—	—
P5	420	480	520	345	405	440	395	415	425	480	540	580	—	—	—
P6	445	510	540	370	430	465	415	445	450	510	570	600	—	—	—
P7	435	495	530	355	415	455	400	430	435	495	550	590	—	—	—
P8	415	480	510	340	400	435	395	425	435	480	540	580	—	—	—
P11	425	490	530	350	410	445	395	425	430	490	550	580	—	—	—
M1	—	—	—	375	435	470	440	465	480	475	530	570	—	—	—
M2	—	—	—	335	395	430	390	410	420	430	490	530	—	—	—
M3	—	—	—	285	345	380	305	320	320	385	440	480	—	—	—
M4	—	—	—	230	290	325	210	225	230	325	385	425	—	—	—
M5	—	—	—	190	250	285	175	190	195	285	345	385	—	—	—
K1	500	560	600	—	—	—	475	495	510	495	560	590	—	—	—
K2	475	530	570	—	—	—	435	460	465	465	530	560	—	—	—
K3	440	495	540	—	—	—	400	420	430	430	495	530	—	—	—
K4	430	485	530	—	—	—	390	410	420	420	485	520	—	—	—
K5	320	385	420	—	—	—	260	280	290	315	375	410	—	—	—
K6	400	460	500	—	—	—	360	385	390	395	455	490	—	—	—
K7	375	435	470	—	—	—	315	335	345	370	430	465	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	710	770	810
N2	—	—	—	—	—	—	—	—	—	—	—	—	660	720	760
N3	—	—	—	—	—	—	—	—	—	—	—	—	570	630	670
N11	—	—	—	—	—	—	—	—	—	—	—	—	600	660	700
S1	—	—	—	70	95	110	160	195	220	175	230	265	—	—	—
S2	—	—	—	55	75	90	130	160	175	140	185	220	—	—	—
S3	—	—	—	50	65	80	115	140	155	125	165	190	—	—	—
S11	—	—	—	100	130	155	215	265	295	245	305	340	—	—	—
S12	—	—	—	75	100	120	165	210	240	145	185	220	—	—	—
S13	—	—	—	60	80	95	140	170	190	115	150	175	—	—	—
H5	—	—	—	—	—	—	—	—	—	145	190	225	—	—	—
H11	—	—	—	—	—	—	—	—	—	185	240	275	—	—	—
H12	—	—	—	—	—	—	—	—	—	270	330	365	—	—	—

Helical Turbo 18 – R217.69-18

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 99-100.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch							α° max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_c	a_p								
58603	R217.69 -01.50-3-18S2AN	1.50	1.50	4.25	5.44	2.62	2.69	1.862	4.5	2	2	6	2.2	Cyl/Weldon	9900	XO.X18
58606	-02.00-3-18S3AN	2.00	1.50	4.30	5.49	2.80	2.69	1.850	3.0	3	3	9	2.9	Cyl/Weldon	8900	XO.X18
58604	-02.00-3-18M2AN	2.00	2.00	4.80	6.65	3.16	3.25	2.441	3.0	2	2	8	4.6	Cyl/Weldon	7900	XO.X18

α° = Ramping angle

* Effective Number of teeth.

When using inserts with a corner radius > 0.157" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.69-..	T20P-3	C04510-T20P

Please check availability in current price and stock-list.

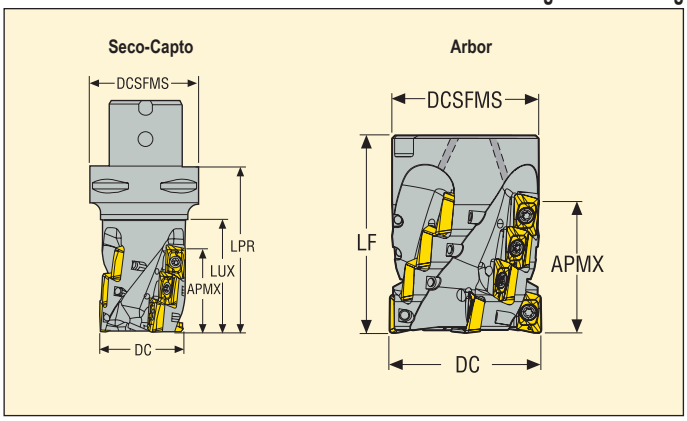
Torque value 44.0 in/lbs.

Torque keys available, see page 643.

Helical Turbo 18 – R217/220.69-18

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 99-100.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch D_c	D_{5m}	l_1	l_3	a_p	$\alpha°$ max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
62437	C5-R217.69 -01.50-18S2AN	1.50	1.97	3.23	2.44	1.862	4.5	2	2	6	1.8	Seco-Capto	9900	XO.X18
62439	C6-R217.69 -02.00-18M3AN	2.00	2.48	3.90	3.03	2.441	3.0	3	3	12	2.4	Seco-Capto	8900	XO.X18
62440	-02.50-18M4AN	2.50	2.48	3.90	3.90	2.409	2.0	4	4	16	3.1	Seco-Capto	7900	XO.X18
58608	R220.69 -02.50-18S4AN	2.50	2.44	2.75	–	1.866	2.4	4	4	12	2.2	Arbor	7900	XO.X18
58607	-02.50-18M4AN	2.50	2.44	3.35	–	2.441	2.4	4	4	16	2.2	Arbor	7900	XO.X18
58610	-03.00-18M5AN	3.00	3.03	3.50	–	2.480	1.55	5	5	20	4.0	Arbor	7000	XO.X18
58612	-04.00-18M6AN	4.00	3.54	3.50	–	2.441	1.3	6	6	24	7.7	Arbor	6300	XO.X18

$\alpha°$ = Ramping angle

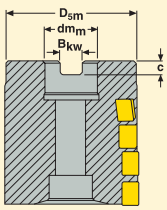
* Effective Number of teeth.
When using inserts with a corner radius > 0.157" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.69-..	–	T20P-3	C04510-T20P
R220.69-02.50-18S	UC6S1/2UNFX2-1/2	T20P-4	C04510-T20P
R220.69-02.50-18M	UC6S1/2UNFX3	T20P-4	C04510-T20P
R220.69-03.00-18M	UC6S5/8UNFX3	T20P-4	C04510-T20P
R220.69-04.00-18M	UC6S3/4UNFX3	T20P-4	C04510-T20P

Torque value 44.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



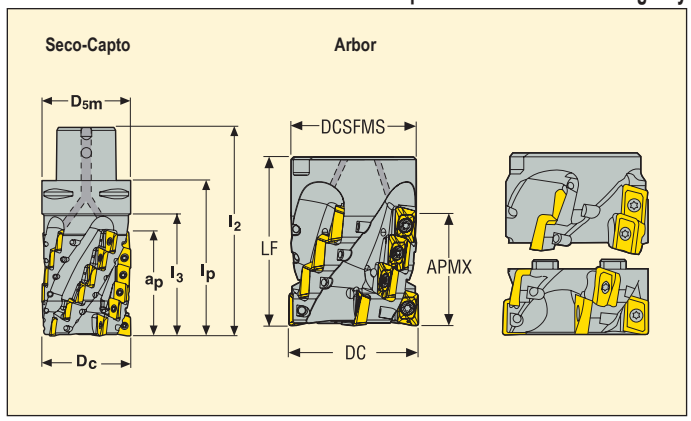
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.69-02.50	1.00	2.44	0.38	0.22
R220.69-03.00	1.25	3.03	0.51	0.29
R220.69-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

Helical Turbo 18 – R217/220.69-18

Replaceable end for contouring only

- For insert selection and cutting data recommendations, see pages 99-100.
- For complete insert program, see page 597.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch D_c	D_{5m}	l_1	l_2	l_3	l_p	a_p	$\alpha°$ max	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
07499	C6-R217.69 -02.00-18L2SAN	2.00	2.48	4.49	5.98	3.60	4.49	3.020	3.0	2	2	10	4.6	Seco-Capto	8900	XO.X18
62465	R220.69 -02.50-18L4SAN	2.50	2.44	3.94	–	–	–	3.024	2.4	4	4	20	2.4	Arbor	7900	XO.X18
62466	-03.00-18L4SAN	3.00	3.03	3.94	–	–	–	3.024	1.55	4	4	20	6.6	Arbor	7000	XO.X18
62467	-04.00-18L5SAN	4.00	3.54	3.94	–	–	–	3.024	1.3	5	5	25	8.8	Arbor	6300	XO.X18

$\alpha°$ = Ramping angle

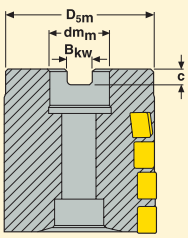
* Effective Number of teeth.
When using inserts with a corner radius > 0.157" the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Replaceable end
C6-R217.69-02.00	MC6S10X40	T20P-4	C04510-T20P	R220.69-02.00-RE-18-2AN
R220.69-02.50	UP6S1/2UNFX3-1/4	T20P-4	C04510-T20P	R220.69-02.50-RE-18-4AN
R220.69-03.00	UP6S5/8UNFX3-1/4	T20P-4	C04510-T20P	R220.69-03.00-RE-18-4AN
R220.69-04.00	UP6S3/4UNFX3-1/4	T20P-4	C04510-T20P	R220.69-04.00-RE-18-5AN

Torque value 44.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.69-02.50	1.00	2.44	0.38	0.22
R220.69-03.00	1.25	3.03	0.51	0.29
R220.69-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217/220.69-18 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	XOMX180608TR-ME13 F40M	0.0060	0.0065	0.0095
P2	XOMX180608TR-ME13 F40M	0.0060	0.0065	0.0095
P3	XOMX180608TR-ME13 MP2500	0.0055	0.0060	0.0095
P4	XOMX180608TR-M14 MP2500	0.0060	0.0065	0.0095
P5	XOMX180608TR-M14 MP2500	0.0060	0.0065	0.0095
P6	XOMX180608TR-M14 MP2500	0.0055	0.0065	0.0095
P7	XOMX180608TR-M14 MP2500	0.0055	0.0065	0.0095
P8	XOMX180608TR-M14 MP2500	0.0060	0.0065	0.010
P11	XOMX180608TR-M14 T350M	0.0055	0.0065	0.0095
M1	XOMX180608TR-M14 F40M	0.0065	0.0065	0.010
M2	XOMX180608TR-M14 F40M	0.0060	0.0065	0.0095
M3	XOMX180608TR-M14 F40M	0.0048	0.0050	0.0075
M4	XOMX180608TR-M14 T350M	0.0040	0.0044	0.0065
M5	XOMX180608TR-M14 T350M	0.0040	0.0044	0.0065
K1	XOMX180608TR-M14 MK2050	0.0065	0.0065	0.010
K2	XOMX180608TR-M14 MK2050	0.0060	0.0065	0.0095
K3	XOMX180608TR-M14 MK2050	0.0060	0.0065	0.0095
K4	XOMX180608TR-M14 MK2050	0.0060	0.0065	0.0095
K5	XOMX180608TR-M14 MK2050	0.0050	0.0055	0.0085
K6	XOMX180608TR-M14 MK2050	0.0060	0.0065	0.0095
K7	XOMX180608TR-M14 MK2050	0.0050	0.0055	0.0085
N1	XOEX180608FR-E10 H25	0.0060	0.0065	0.0095
N2	XOMX180608R-M10 F30M	0.0060	0.0065	0.0095
N3	XOMX180608R-M10 F30M	0.0060	0.0065	0.0095
N11	XOEX180608FR-E10 H25	0.0060	0.0065	0.0095
S1	XOMX180608R-M10 F40M	0.0030	0.0032	0.0048
S2	XOMX180608R-M10 F40M	0.0030	0.0032	0.0048
S3	XOMX180608R-M10 F40M	0.0028	0.0030	0.0044
S11	XOMX180608R-M10 MS2050	0.0034	0.0036	0.0055
S12	XOMX180608R-M10 MS2050	0.0034	0.0036	0.0055
S13	XOMX180608R-M10 MS2050	0.0030	0.0032	0.0048
H5	XOMX180608TR-MD15 MP1500	0.0044	0.0048	0.0070
H11	XOMX180608TR-MD15 MP1500	0.0044	0.0048	0.0070

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values

R217/220.69-18 – Cutting data v_c = (sf/min)

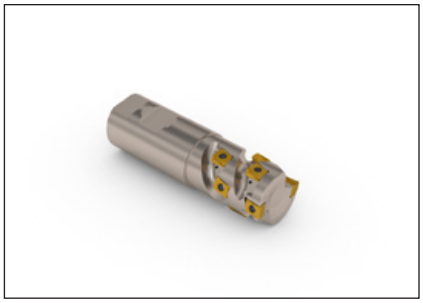
	MP1500			MP2500			MP3000			T350M			F30M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	490	550	580	465	520	560	455	510	540	435	495	530	450	500	530	410	465	500
P2	485	540	570	460	520	550	450	510	540	430	490	520	445	500	530	405	460	495
P3	455	510	540	435	485	520	425	475	510	405	460	495	415	470	500	380	430	465
P4	430	490	520	410	465	500	400	455	490	380	440	475	390	445	475	355	410	445
P5	425	480	510	400	455	490	390	445	480	370	430	465	385	440	470	345	400	435
P6	450	500	540	425	480	510	415	470	500	400	450	485	405	460	495	370	425	460
P7	440	490	530	415	470	500	405	455	490	390	440	475	395	450	480	360	415	450
P8	425	475	510	400	455	485	390	440	475	370	425	460	380	435	470	345	400	430
P11	435	485	520	410	460	495	400	450	485	380	435	470	390	445	475	355	405	440
M1	—	—	—	395	450	485	390	450	480	380	440	470	400	455	485	360	420	455
M2	—	—	—	355	415	450	355	410	445	340	400	435	365	420	450	325	380	415
M3	—	—	—	315	370	405	315	370	405	300	360	395	320	375	405	285	340	375
M4	—	—	—	270	325	355	265	320	355	255	310	340	270	325	355	235	290	325
M5	—	—	—	235	290	320	230	285	315	220	275	305	230	285	320	200	255	285
K1	435	495	530	415	470	500	400	460	495	385	445	475	395	450	485	360	415	450
K2	415	470	500	390	445	480	380	435	470	360	420	455	375	430	460	335	390	425
K3	380	435	470	355	415	450	345	400	435	330	385	420	340	395	430	300	360	395
K4	370	430	465	345	405	440	335	395	430	320	375	410	330	385	420	290	350	385
K5	275	335	365	255	310	340	240	300	330	225	280	315	230	290	320	200	255	285
K6	345	405	440	320	380	415	310	370	405	295	350	385	305	360	395	265	325	360
K7	325	380	415	300	360	390	290	345	380	275	330	365	280	335	370	245	305	335
N1	—	—	—	670	730	760	660	720	750	—	—	—	650	710	740	620	670	710
N2	—	—	—	630	680	720	620	670	710	—	—	—	610	670	700	570	630	660
N3	—	—	—	550	600	640	540	590	630	—	—	—	530	590	620	495	550	580
N11	—	—	—	570	630	660	560	620	650	—	—	—	550	610	650	520	580	610
S1	—	—	—	140	180	215	130	170	200	125	165	190	130	175	205	110	150	175
S2	—	—	—	110	145	175	105	140	165	100	130	155	105	140	165	90	120	140
S3	—	—	—	95	130	150	90	120	145	85	115	135	95	125	145	80	105	125
S11	—	—	—	190	245	280	180	235	270	170	225	260	185	240	270	155	205	240
S12	—	—	—	110	145	175	105	135	165	100	130	155	105	140	165	90	120	140
S13	—	—	—	90	120	140	85	110	130	80	105	125	85	115	135	75	95	115
H5	140	185	215	115	150	175	110	145	170	110	145	170	110	150	175	95	125	145
H11	180	235	265	145	190	220	140	185	215	140	180	215	145	190	220	120	160	185

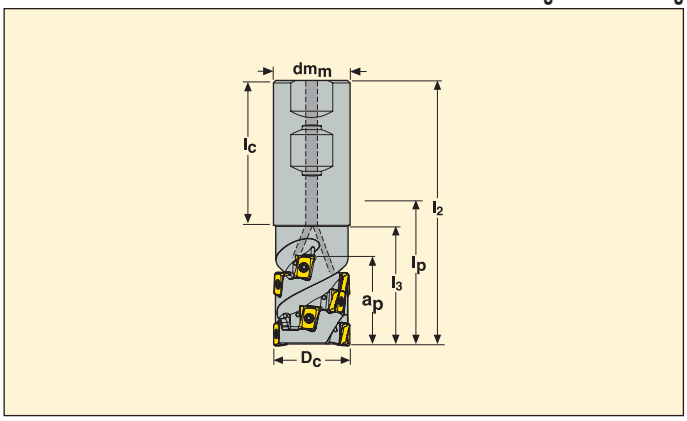
R217/220.69-18 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MM4500			MS2050			H25		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	460	520	550	385	445	475	465	500	520	—	—	—
P2	—	—	—	455	510	550	380	435	470	460	495	510	—	—	—
P3	—	—	—	430	485	520	355	410	445	430	465	480	—	—	—
P4	—	—	—	405	460	495	330	385	415	405	440	455	—	—	—
P5	—	—	—	395	455	490	320	375	415	395	425	440	—	—	—
P6	—	—	—	425	475	510	350	400	435	420	450	465	—	—	—
P7	—	—	—	410	465	500	335	390	425	405	435	455	—	—	—
P8	—	—	—	395	450	485	320	375	410	395	430	445	—	—	—
P11	—	—	—	405	460	495	330	385	420	400	430	450	—	—	—
M1	—	—	—	—	—	—	350	405	440	435	465	485	—	—	—
M2	—	—	—	—	—	—	310	370	405	390	420	435	—	—	—
M3	—	—	—	—	—	—	270	330	360	330	355	365	—	—	—
M4	—	—	—	—	—	—	225	280	310	265	285	290	—	—	—
M5	—	—	—	—	—	—	190	245	275	230	250	255	—	—	—
K1	480	540	570	470	530	560	—	—	—	460	495	510	—	—	—
K2	460	510	550	445	500	540	—	—	—	430	465	480	—	—	—
K3	425	480	520	415	470	510	—	—	—	400	430	445	—	—	—
K4	415	475	510	405	460	495	—	—	—	390	420	435	—	—	—
K5	320	380	410	310	365	400	—	—	—	285	315	330	—	—	—
K6	390	450	480	380	435	470	—	—	—	365	395	410	—	—	—
K7	370	425	460	360	415	450	—	—	—	335	360	380	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	640	700	730
N2	—	—	—	—	—	—	—	—	—	—	—	—	600	660	690
N3	—	—	—	—	—	—	—	—	—	—	—	—	520	580	610
N11	—	—	—	—	—	—	—	—	—	—	—	—	550	600	640
S1	—	—	—	—	—	—	70	90	105	135	175	200	—	—	—
S2	—	—	—	—	—	—	55	75	85	110	140	160	—	—	—
S3	—	—	—	—	—	—	49	65	75	100	125	145	—	—	—
S11	—	—	—	—	—	—	95	125	150	185	235	260	—	—	—
S12	—	—	—	—	—	—	75	95	115	140	185	210	—	—	—
S13	—	—	—	—	—	—	60	80	90	115	150	175	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

R217.94-08

Slotting and contouring





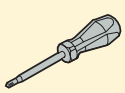
- For insert selection and cutting data recommendations, see pages 105.
- For complete insert program, see page 563.

EDP No.	Part No.	Dimensions in inch							Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_2	l_3	l_p	l_c	a_p							
11703	R217.94 -01.00-3-01.40-08-2A	0.996	1.00	4.25	1.87	1.77	2.38	1.417	2	2	10	0.9	Cyl/Weldon	20800	LOEX08**
11705	-01.25-3-01.40-08-2A	1.246	1.25	4.33	1.95	1.97	2.38	1.417	2	2	10	1.3	Cyl/Weldon	18400	LOEX08**
11710	-01.50-3-01.40-08-3A	1.496	1.25	4.33	1.95	1.97	2.38	1.417	3	3	15	1.3	Cyl/Weldon	16400	LOEX08**

* Effective Number of teeth.

** All corner radii can be used in front row insert.

Spare Parts, included in delivery.

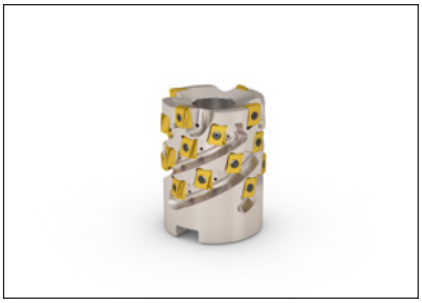
For cutter	Insert key	Insert screw
		
R127.94-..	T08P-3	C02708-T08P

Please check availability in current price and stock-list.

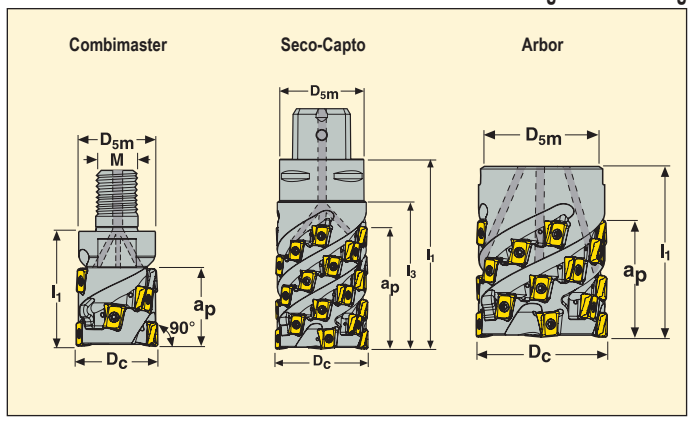
Locking screw torque value 10.6 in/lbs.
Torque keys available, see page 643.

R217/220.94-08

Slotting and contouring



- For insert selection and cutting data recommendations, see pages 105.
- For complete insert program, see page 563.



EDP No.	Part No.	Dimensions in inch						Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	D_{5m}	l_1	l_3	M	a_p							
54307	R217.94-01.50-20RE-01.42-08-3A	1.50	1.44	2.17	–	M20	1.417	3	3	15	0.9	Combimaster**	16400	LOEX08***
11720	C5-R217.94-02.00-01.70-08-4A	2.00	1.97	2.36	3.15	–	1.693	4	4	24	2.4	Seco-Capto	14800	LOEX08***
11716	R220.94-02.00-01.70-08-4A	2.00	1.89	2.36	–	–	1.693	4	4	24	1.3	Arbor	14800	LOEX08***

** For Combimaster holders and adapters, see page 534.

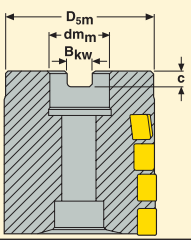
* Effective Number of teeth.
*** All corner radii can be used in front row insert.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.94-..	–	T07P-3	C02506-T07P
C5-R217.94-..	–	T08P-3	C02708-T08P
R220.94-..	UC6S1/2UNFX2	T08P-3	C02708-T08P

Locking screw torque value 10.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

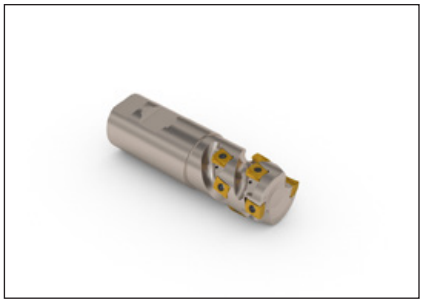


For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.94-..	1.00	1.89	0.49	0.28

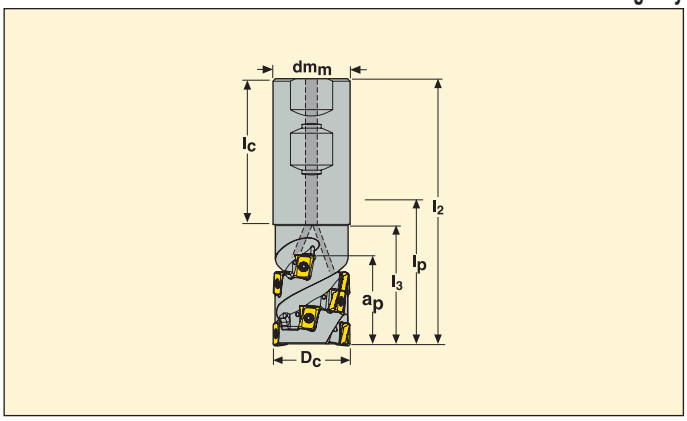
Please check availability in current price and stock-list.

R217.94-08

Contouring only



- For insert selection and cutting data recommendations, see pages 105.
- For complete insert program, see page 563.

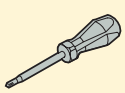


EDP No.	Part No.	Dimensions in inch							Zc*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		Dc	dmm	l2	l3	lp	lc	ap							
11722	R217.94 -01.00-3-01.70-08-2A	1.00	1.00	4.49	2.11	1.77	2.38	1.693	2	2	10	0.9	Cyl/Weldon	20800	LOEX08**
11726	-01.25-3-02.00-08-3A	1.25	1.00	5.00	2.68	1.97	2.32	1.969	3	3	21	1.1	Cyl/Weldon	18400	LOEX08**
11727	-01.50-3-02.00-08-4A	1.50	1.25	5.00	2.68	1.97	2.32	1.969	4	4	28	1.5	Cyl/Weldon	16400	LOEX08**

* Effective Number of teeth.

** All corner radii can be used in front row insert.

Spare Parts, included in delivery.

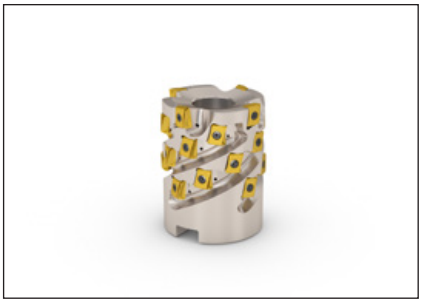
For cutter	Insert key	Insert screw
		
R217.94-..	T08P-3	C02708-T08P

Please check availability in current price and stock-list.

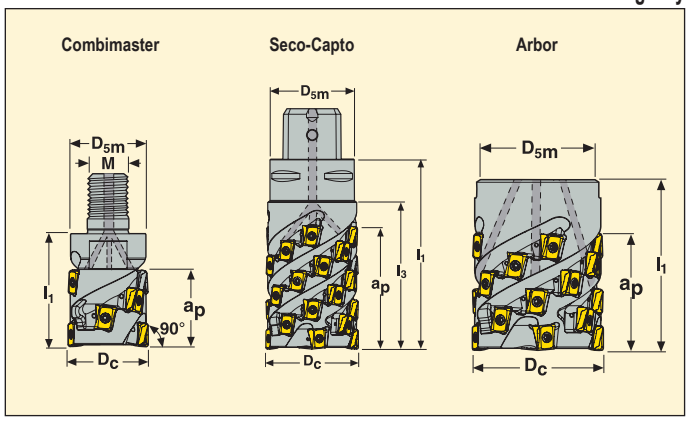
Locking screw torque value 10.6 in/lbs.
Torque keys available, see page 643.

R217/220.94-08

Contouring only



- For insert selection and cutting data recommendations, see pages 105.
- For complete insert program, see page 563.



EDP No.	Part No.	Dimensions in inch						Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	D_{5m}	l_1	l_3	M	a_p							
54308	R217.94-01.50-20RE-01.69-08-4A	1.50	1.44	2.36	–	M20	1.693	4	4	24	0.9	Combimaster**	16400	LOEX08***
11733	C5-R217.94-02.00-02.52-08-5A	2.00	1.97	3.07	3.86	–	2.520	5	5	45	2.9	Seco-Capto	14800	LOEX08***
11731	R220.94-02.00-02.25-08-5A	2.00	1.89	2.76	–	–	2.244	5	5	40	1.3	Arbor	14800	LOEX08***

** For Combimaster holders and adapters, see page 534.

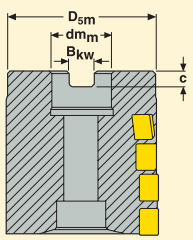
* Effective Number of teeth.
*** All corner radii can be used in front row insert.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.94-..	–	T07P-3	C02506-T07P
C5-R217.94-..	–	T08P-3	C02708-T08P
R220.94-..	UC6S1/2UNFX2	T08P-3	C02708-T08P

Locking screw torque value 10.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R217.94-..	–	1.97	–	–
R220.94-..	1.00	1.89	0.38	0.22

Please check availability in current price and stock-list.

R217/220.94-08 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	LOEX080408TR-M08 F40M	0.0036	0.0040	0.0060
P2	LOEX080408TR-M08 F40M	0.0036	0.0040	0.0060
P3	LOEX080408TR-M08 F40M	0.0034	0.0038	0.0060
P4	LOEX080408TR-M08 F40M	0.0034	0.0038	0.0055
P5	LOEX080408TR-M08 F40M	0.0034	0.0036	0.0055
P6	LOEX080408TR-M08 F40M	0.0034	0.0036	0.0055
P7	LOEX080408TR-M08 F40M	0.0034	0.0036	0.0055
P8	LOEX080408TR-M08 F40M	0.0034	0.0038	0.0060
P11	LOEX080408TR-M08 F40M	0.0034	0.0036	0.0055
M1	LOEX080408TR-M08 F40M	0.0036	0.0040	0.0060
M2	LOEX080408TR-M08 F40M	0.0034	0.0036	0.0055
M3	LOEX080408TR-M08 F40M	0.0026	0.0030	0.0044
M4	LOEX080408TR-M08 F40M	0.0024	0.0026	0.0040
M5	LOEX080408TR-M08 F40M	0.0024	0.0026	0.0040
K1	LOEX080408TR-MD08 MK2050	0.0036	0.0040	0.0060
K2	LOEX080408TR-MD08 MK2050	0.0034	0.0036	0.0055
K3	LOEX080408TR-MD08 MK2050	0.0034	0.0036	0.0055
K4	LOEX080408TR-MD08 MK2050	0.0034	0.0036	0.0055
K5	LOEX080408TR-MD08 MK2050	0.0030	0.0032	0.0050
K6	LOEX080408TR-MD08 MK2050	0.0034	0.0036	0.0055
K7	LOEX080408TR-MD08 MK2050	0.0030	0.0032	0.0050

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_e/D_c = %
All cutting data are start values

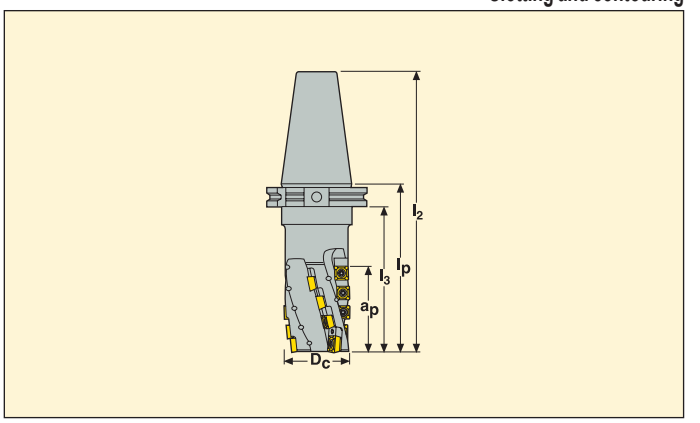
R217/220.94-08 – Cutting data v_c = (sf/min)

SMG	MP3000			F40M			MK2050		
	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	540	600	640	495	560	590	550	610	650
P2	540	600	640	490	550	590	550	610	640
P3	510	570	600	460	520	550	520	580	610
P4	480	540	580	435	490	530	490	550	590
P5	470	530	570	425	485	520	480	540	580
P6	495	560	590	450	510	540	510	570	600
P7	485	550	580	435	495	530	495	550	590
P8	470	530	560	425	480	520	480	540	570
P11	480	540	570	430	490	530	485	550	580
M1	475	530	570	445	500	540	—	—	—
M2	430	495	530	400	460	495	—	—	—
M3	385	445	480	355	410	450	—	—	—
M4	330	390	425	295	355	390	—	—	—
M5	290	350	385	255	315	350	—	—	—
K1	490	550	580	440	500	540	560	620	660
K2	460	520	560	410	475	510	540	600	630
K3	425	485	520	375	435	470	500	560	600
K4	415	475	510	365	425	460	490	550	590
K5	305	370	400	260	320	350	385	445	475
K6	385	445	480	335	400	435	460	520	560
K7	360	420	455	310	375	405	435	500	530

R215.59-12.4 – Half effective

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 109.
- For complete insert program, see pages 556, 574.



EDP No.	Part No.	Dimensions in inch					Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	No. of inserts	
		D_c	l_2	l_3	l_p	a_p							SC.. 1206	AC.. 1506
87668	R215.59 -02.00-CV5-12-4	2.00	9.53	3.98	5.51	3.031	2	4	18	8.8	CV50	8300	16	2

* Effective Number of teeth.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
R215.59-..	T20P-4	C45011-T20P

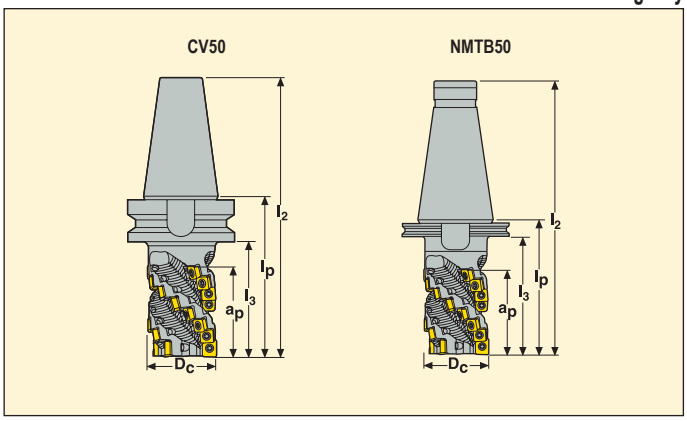
Please check availability in current price and stock-list.

Torque value 44.0 in/lbs.
Torque keys available, see page 643.

R215.59-12..K – Full effective

Contouring only

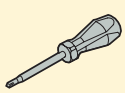
- For insert selection and cutting data recommendations, see pages 109.
- For complete insert program, see pages 556, 574.



EDP No.	Part No.	Dimensions in inch D_c	l_2	l_3	l_p	a_p	Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	No. of inserts SC.. 1206	AC.. 1506
46678	R215.59 -02.50-CV5-12-S3K	2.50	10.00	4.50	6.00	3.500	3	3	24	10.1	CV50	7400	24	3
46681	-03.00-CV5-12-M3K	3.00	12.25	7.50	8.25	6.315	3	3	45	14.6	CV50	6500	45	3
82472	R215.59 -02.50-5-12-M3K	2.50	12.25	5.75	7.25	5.169	3	3	36	11.0	NMTB50	7400	36	3

* Effective Number of teeth. Plunging: max radial depth of cut 0.394".

Spare Parts, included in delivery.

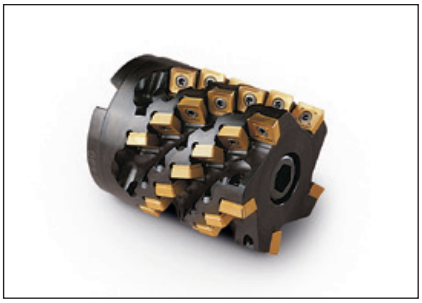
For cutter	Insert key	Insert screw
		
R215.59-..	T20P-4	C45011-T20P

Please check availability in current price and stock-list.

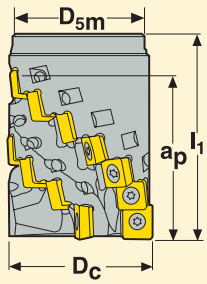
Torque value 44.0 in/lbs.
Torque keys available, see page 643.

R220.59-12..K – Full effective

Contouring only



- For insert selection and cutting data recommendations, see pages 109.
- For complete insert program, see pages 556, 574.



Max 30% radial engagement

EDP No.	Part No.	Dimensions in inch D_c	l_1	a_p	Z_c*	No. of flutes		lbs	Max rpm	No. of inserts SC.. 1206	AC.. 1506
46682	R220.59 -02.50-12-S4K	2.50	3.50	2.835	4	4	28	2.6	7400	24	4
46683	-03.00-12-S4K	3.00	4.00	3.256	4	4	32	4.9	6500	28	4
46684	-04.00-12-S6K	4.00	4.00	3.256	6	6	48	10.8	5800	42	6
46685	-04.00-12-M5K	4.00	5.00	4.020	5	5	50	11.7	5800	45	5

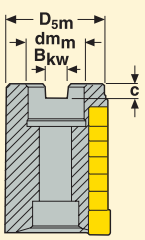
* Effective Number of teeth.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.59-02.50	UC6S1/2UNFX3	T20P-4	C45011-T20P
R220.59-03.00	UC6S5/8UNFX3-1/2	T20P-4	C45011-T20P
R220.59-04.00..S6K	UC6S3/4UNFX3	T20P-4	C45011-T20P
R220.59-04.00..M5K	UC6S3/4UNFX4	T20P-4	C45011-T20P

Locking screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.59-02.50	2.44	1.00	0.38	0.22
R220.59-03.00	3.03	1.25	0.57	0.31
R220.59-04.00	3.54	1.50	0.63	0.38

Please check availability in current price and stock-list.

R215/220.59-12.. – Insert selection

SMG			f_z		
			100%	30%	10%
P1	SCET120612T-ME10 F40M	ACET150612TR-ME10 F40M	0.0044	0.0048	0.0075
P2	SCET120612T-ME10 F40M	ACET150612TR-ME10 F40M	0.0044	0.0048	0.0075
P3	SCET120612T-M14 F40M	ACET150612TR-M14 F40M	0.0060	0.0065	0.010
P4	SCET120612T-M14 MP2500	ACET150612TR-M14 MP2500	0.0060	0.0065	0.0095
P5	SCET120612T-M11 MP2500	ACET150612TR-M11 MP2500	0.0044	0.0048	0.0075
P6	SCET120612T-M11 MP2500	ACET150612TR-M11 MP2500	0.0044	0.0048	0.0075
P7	SCET120612T-M11 MP2500	ACET150612TR-M11 MP2500	0.0044	0.0048	0.0075
P8	SCET120612T-M11 MP2500	ACET150612TR-M11 MP2500	0.0048	0.0050	0.0080
P11	SCMT120612T-M14 T350M	ACMT150612TR-M14 T350M	0.0055	0.0065	0.0095
M1	SCMT120612T-M14 F40M	ACMT150612TR-M14 F40M	0.0065	0.0065	0.010
M2	SCMT120612T-M14 F40M	ACMT150612TR-M14 F40M	0.0060	0.0065	0.0095
M3	SCMT120612T-M14 F40M	ACMT150612TR-M14 F40M	0.0048	0.0050	0.0075
M4	SCMT120612T-M14 F40M	ACMT150612TR-M14 F40M	0.0040	0.0044	0.0065
M5	SCMT120612T-M14 F40M	ACMT150612TR-M14 F40M	0.0040	0.0044	0.0065
K1	SCET120612T-M14 MK1500	ACET150612TR-M14 MK1500	0.0065	0.0065	0.010
K2	SCET120612T-M14 MK1500	ACET150612TR-M14 MK1500	0.0060	0.0065	0.0095
K3	SCET120612T-M14 MK1500	ACET150612TR-M14 MK1500	0.0060	0.0065	0.0095
K4	SCET120612T-M14 MK1500	ACET150612TR-M14 MK1500	0.0060	0.0065	0.0095
K5	SCET120612T-M14 MK1500	ACET150612TR-M14 MK1500	0.0050	0.0055	0.0085
K6	SCET120612T-M14 MK1500	ACET150612TR-M14 MK1500	0.0060	0.0065	0.0095
K7	SCET120612T-M14 MK1500	ACET150612TR-M14 MK1500	0.0050	0.0055	0.0085
S1	SCMT120612T-M14 T350M	ACMT150612TR-M14 T350M	0.0040	0.0044	0.0065
S2	SCMT120612T-M14 T350M	ACMT150612TR-M14 T350M	0.0040	0.0044	0.0065
S3	SCMT120612T-M14 T350M	ACMT150612TR-M14 T350M	0.0038	0.0040	0.0065
S11	SCMT120612T-M14 F40M	ACMT150612TR-M14 F40M	0.0048	0.0050	0.0075
S12	SCMT120612T-M14 F40M	ACMT150612TR-M14 F40M	0.0048	0.0050	0.0075
S13	SCMT120612T-M14 F40M	ACMT150612TR-M14 F40M	0.0040	0.0044	0.0065
H11	SCMT120612T-M14 T350M	ACMT150612TR-M14 T350M	0.0040	0.0044	0.0065

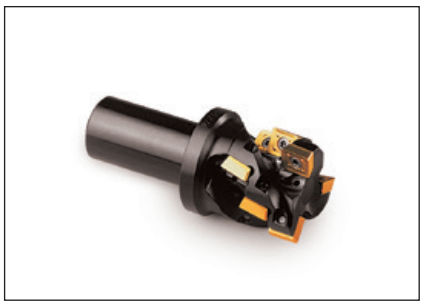
SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values

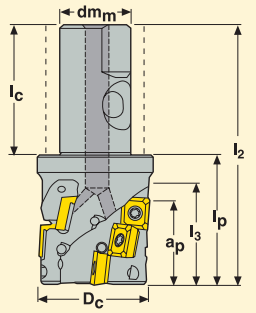
R215/220.59-12.. – Cutting data v_c = (sf/min)

SMG	MP1500			MP2500			T350M			F40M			MK1500		
	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	370	405	425	355	390	410	340	375	395	320	355	375	—	—	—
P2	365	400	420	350	385	405	335	365	385	315	350	370	—	—	—
P3	350	385	405	335	370	390	315	350	370	300	335	355	—	—	—
P4	335	370	390	320	355	375	300	335	355	285	320	340	—	—	—
P5	330	365	385	315	350	370	300	335	355	280	315	335	—	—	—
P6	345	380	400	330	365	385	315	345	365	295	330	350	—	—	—
P7	335	370	390	325	355	375	305	340	360	290	325	345	—	—	—
P8	325	360	380	315	345	370	295	330	350	280	315	335	—	—	—
P11	335	370	390	320	355	375	300	335	355	285	320	340	—	—	—
M1	—	—	—	310	345	365	300	335	355	290	325	345	—	—	—
M2	—	—	—	290	325	345	280	315	335	270	305	325	—	—	—
M3	—	—	—	265	295	315	255	285	310	240	275	295	—	—	—
M4	—	—	—	230	265	285	225	255	275	210	245	265	—	—	—
M5	—	—	—	210	245	265	200	235	255	190	225	245	—	—	—
K1	335	370	390	320	355	375	305	340	360	285	320	340	355	390	415
K2	325	360	380	310	345	365	290	325	345	275	310	330	340	375	400
K3	305	340	355	290	325	345	270	305	325	255	290	310	320	355	380
K4	300	330	350	285	315	335	265	300	320	250	285	305	315	350	370
K5	240	270	290	225	255	275	205	240	260	190	225	245	260	290	310
K6	285	315	335	270	300	320	250	285	305	235	270	290	300	335	355
K7	270	300	320	255	285	305	235	270	290	220	255	275	290	320	340
S1	—	—	—	145	180	200	130	165	185	120	150	175	—	—	—
S2	—	—	—	115	150	170	105	140	160	95	125	145	—	—	—
S3	—	—	—	100	135	155	90	120	140	85	110	130	—	—	—
S11	—	—	—	185	220	240	170	205	225	160	190	215	—	—	—
S12	—	—	—	115	150	170	105	135	160	95	125	145	—	—	—
S13	—	—	—	95	125	145	85	110	130	75	100	120	—	—	—
H11	175	210	230	150	185	205	145	180	200	125	160	180	—	—	—

R217.69-15

Slotting and contouring at high feed rates





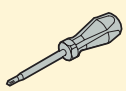
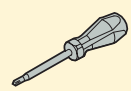
- For insert selection and cutting data recommendations, see pages 112.
- For complete insert program, see page 556.

EDP No.	Part No.	Dimensions in inch							Z_c*	No. of flutes		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_2	l_3	l_p	l_c	a_p							
72956	**R217.69 -02.00-3-15HS3A**	2.00	1.50	5.20	2.50	2.83	2.69	1.567	3	3	9	2.9	Cyl/Weldon	7900	AC..15

** For inserts with 0.118" radius, the axial support must be replaced by CH94R3, inserts with 0.236" radius, replace with CH94R6.

* Effective Number of teeth.

Spare Parts, included in delivery.

For cutter	Axial support**	Insert key	Insert screw	Key
				
R217.69-..	CH9411-T09P	T20P-4	C45011-T20P	T09P-3

Please check availability in current price and stock-list.

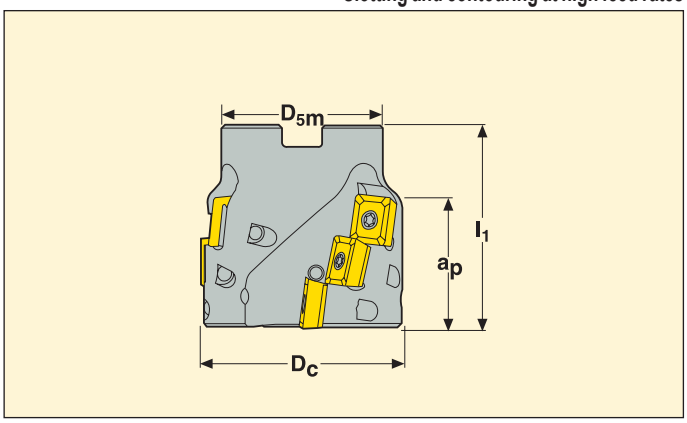
Torque value 44.0 in/lbs.

Torque keys available, see page 643.

R220.69-15

Slotting and contouring at high feed rates

- For insert selection and cutting data recommendations, see pages 112.
- For complete insert program, see page 556.



EDP No.	Part No.	Dimensions in inch			Z_c*	No. of flutes		lbs	Max rpm	Insert
		D_c	l_1	a_p						
72954	**R220.69 -03.00-15HM5**	3.00	3.00	2.000	5	5	20	3.7	6500	AC..15

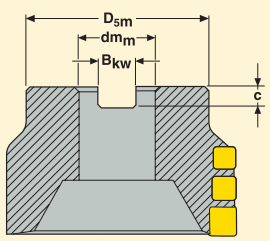
* Effective Number of teeth.

Spare Parts, included in delivery.

For cutter	Arbor screw	Axial support**	Insert key	Insert screw	Key
R220.69-..	UC6S5/8UNFX21/4	CH9411-T09P	T20P-4	C45011-T20P	T09P-3

** For inserts with 0.118" radius, the axial support must be replaced by CH94R3, inserts with 0.236" radius, replace with CH94R6.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.69-..	1.25	3.03	0.51	0.29

Please check availability in current price and stock-list.

Locking screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

R215/220.69-15XH – Insert selection

SMG		f_z		
		100%	30%	10%
P1	ACET150612TR-ME10 F40M	0.0048	0.0050	0.0080
P2	ACET150612TR-ME10 F40M	0.0048	0.0050	0.0080
P3	ACET150612TR-M14 F40M	0.0065	0.0070	0.011
P4	ACET150612TR-M14 MP2500	0.0065	0.0065	0.010
P5	ACET150612TR-M11 MP2500	0.0048	0.0050	0.0080
P6	ACET150612TR-M11 MP2500	0.0048	0.0050	0.0080
P7	ACET150612TR-M11 MP2500	0.0048	0.0050	0.0080
P8	ACET150612TR-M11 MP2500	0.0050	0.0055	0.0085
P11	ACMT150612TR-M14 T350M	0.0065	0.0065	0.010
M1	ACMT150612TR-M14 F40M	0.0065	0.0075	0.011
M2	ACMT150612TR-M14 F40M	0.0065	0.0065	0.010
M3	ACMT150612TR-M14 F40M	0.0050	0.0055	0.0085
M4	ACMT150612TR-M14 F40M	0.0044	0.0048	0.0070
M5	ACMT150612TR-M14 F40M	0.0044	0.0048	0.0070
K1	ACET150612TR-M14 MK1500	0.0065	0.0075	0.011
K2	ACET150612TR-M14 MK1500	0.0065	0.0065	0.010
K3	ACET150612TR-M14 MK1500	0.0065	0.0065	0.010
K4	ACET150612TR-M14 MK1500	0.0065	0.0065	0.010
K5	ACET150612TR-MD15 MP1500	0.0060	0.0065	0.010
K6	ACET150630TR-MD15 MP1500	0.0065	0.0075	0.011
K7	ACET150630TR-MD15 MP1500	0.0060	0.0065	0.010
S1	ACMT150612TR-M14 T350M	0.0044	0.0048	0.0070
S2	ACMT150612TR-M14 T350M	0.0044	0.0048	0.0070
S3	ACMT150612TR-M14 T350M	0.0040	0.0044	0.0065
S11	ACMT150612TR-M14 F40M	0.0050	0.0055	0.0085
S12	ACMT150612TR-M14 F40M	0.0050	0.0055	0.0085
S13	ACMT150612TR-M14 F40M	0.0044	0.0048	0.0070
H11	ACMT150612TR-M14 MP2500	0.0044	0.0048	0.0070

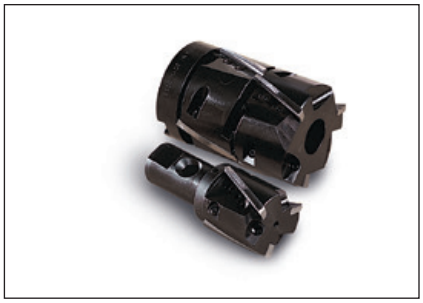
SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values

R215/220.69-15XH – Cutting data v_c = (sf/min)

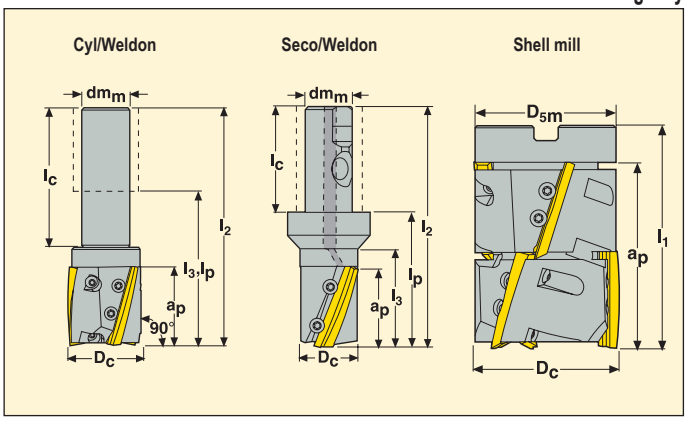
SMG	MP1500			MP2500			MP3000			T350M			F40M		
	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	590	650	690	560	620	670	520	590	630	520	590	630	490	550	600
P2	570	640	690	540	610	660	510	580	630	510	580	620	475	550	590
P3	540	610	650	510	580	620	480	550	590	480	550	590	445	510	550
P4	510	580	620	480	550	590	450	520	560	445	520	560	415	485	520
P5	510	570	610	475	540	590	440	510	550	440	510	550	405	475	520
P6	530	600	640	500	570	610	465	540	580	470	540	580	435	500	550
P7	520	590	630	490	560	600	455	520	560	455	520	570	420	490	530
P8	500	570	610	470	540	580	440	510	550	435	510	540	400	470	510
P11	510	580	620	485	550	590	445	520	560	450	520	560	415	485	520
M1	—	—	—	465	530	580	440	510	550	445	520	560	425	495	540
M2	—	—	—	420	490	530	395	465	510	405	475	510	380	450	490
M3	—	—	—	370	435	480	350	415	455	350	420	460	330	395	440
M4	—	—	—	310	375	415	285	355	390	290	360	400	270	335	375
M5	—	—	—	265	330	370	240	310	345	245	315	355	225	290	330
K1	520	590	630	485	560	600	455	520	570	455	520	570	420	490	530
K2	490	560	600	465	530	570	425	495	540	430	500	540	395	465	500
K3	450	520	560	420	490	530	385	455	495	390	455	495	355	420	465
K4	440	510	550	410	480	520	375	445	485	375	445	485	340	410	450
K5	320	385	425	290	355	395	255	320	365	255	325	360	220	290	325
K6	410	480	520	380	450	490	340	415	455	345	415	455	310	380	420
K7	380	445	485	350	420	455	315	380	425	315	385	420	280	350	390
S1	—	—	—	155	200	240	135	175	210	140	180	215	125	165	195
S2	—	—	—	125	165	195	110	145	165	110	145	170	100	130	155
S3	—	—	—	110	140	170	95	125	150	100	125	150	90	115	135
S11	—	—	—	215	280	320	190	245	290	190	250	295	175	230	270
S12	—	—	—	125	160	195	110	140	170	110	145	170	100	130	155
S13	—	—	—	100	130	155	85	115	135	90	115	140	80	105	125
H11	200	265	305	160	215	250	145	195	225	155	205	240	135	175	210

R235.15

Contouring only



- For insert selection and cutting data recommendations, see pages 114.
- For complete insert program, see page 603.



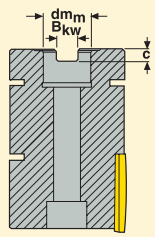
EDP No.	Part No.	Dimensions in inch									lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p					
54740	R235.15 -01.25-3-40	1.25	1.00	–	5.51	2.72	2.72	2.80	1.570	2	1.5	Cyl/Weldon	8000	R235.15-032
56423	R235.15A -02.00-3S-50A	2.00	1.25	–	4.72	2.28	2.28	2.44	1.969	3	2.2	Seco/Weldon	5500	R235.15-050
56424	R235.15A -03.00-90	3.00	1.00	4.72	–	–	–	–	3.500	6**	7.3	Shell mill	4400	R235.15-080

Max radial depth of cut = 0.040"
** Effective number of teeth = 3

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Setting gauge	Setting key
R235.15-01.25 / 02.00	–	T25P-3	CL85012-T25P	–	–
R235.15A-02.00	–	T25P-3	CL85012-T25P	AU8019-T15P	T15P-2
R235.15A-03.00	UC6S1/2UNFX4	T25P-3	CL85012-T25P	AU8019-T15P	T15P-2

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c

Please check availability in current price and stock-list.

Locking screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

R235.15 – Insert selection

SMG		f_z
		*3%
P1	R235.15-xxx-E05 F30M	0.0080
P2	R235.15-xxx-E05 F30M	0.0085
P3	R235.15-xxx-E05 F30M	0.0080
P4	R235.15-xxx-E05 F30M	0.0080
P5	R235.15-xxx-E05 F30M	0.0075
P6	R235.15-xxx-E05 F30M	0.0075
P7	R235.15-xxx-E05 F30M	0.0075
P8	R235.15-xxx-E05 F30M	0.0080
P11	R235.15-xxx-E05 F30M	0.0075
M1	R235.15-xxx-E05 F30M	0.0085
M2	R235.15-xxx-E05 F30M	0.0075
K1	R235.15-xxx-E05 F30M	0.0085
K2	R235.15-xxx-E05 F30M	0.0075
K3	R235.15-xxx-E05 F30M	0.0075
K4	R235.15-xxx-E05 F30M	0.0075
K5	R235.15-xxx-E05 F30M	0.0065
K6	R235.15-xxx-E05 F30M	0.0075
K7	R235.15-xxx-E05 F30M	0.0065
S1	R235.15-xxx-E05 F30M	0.0050
S2	R235.15-xxx-E05 F30M	0.0050
S3	R235.15-xxx-E05 F30M	0.0050
S11	R235.15-xxx-E05 F30M	0.0060

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = % (*3% values shown valid for 1.25 inch diameter only, recommended max a_e = 0.040 inch for all other diameters)
All cutting data are start values

R235.15 – Cutting data v_c = (sf/min)

SMG	F30M
	100%
P1	600
P2	580
P3	500
P4	450
P5	430
P6	480
P7	455
P8	420
P11	440
M1	390
M2	320
K1	460
K2	405
K3	345
K4	330
K5	200
K6	290
K7	255
S1	140
S2	110
S3	100
S11	195


16
9
10
11
12
13
14
15

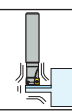
Face milling cutters

Cutters	Insert type	a_p max	a_p rec.	Material suitability P	M	K	N	S				Kr
Double Octomill™	ON..05 	0.118	0.079	■	■	■	□	◩	◩	◩	□	40°
Double Octomill	ON..09 	0.236	0.118	■	■	■	□	◩	□	■	□	40°
Octomill®	OF..05 	0.138	0.098	◩	◩	◩	◩	◩	■	◩	◩	42°
Octomill	OF..07 	0.197	0.157	◩	◩	◩	◩	◩	◩	■	◩	42°
Quattromill®	SE..09 	0.177	0.118	■	■	◩	■	■	■	◩	■	45°
Quattromill	SE..12 	0.236	0.177	■	■	◩	■	■	◩	■	■	45°
Quattromill	SE..15 	0.295	0.236	■	■	■	■	■	◩	■	■	45°

1st choice	■
Alternative choice	◩
Possible choice	□

a_p max	Max depth of cut
a_p rec.	Recommended depth of cut for optimal result

High speed machine with low Power / Torque	
Strong stable machine with rigid connecion	

Unstable condition suitability	

Face milling cutters

Insert	No. of cutting edges	Pitch/ Application	Cutter diameter available (inch) / number of teeth												Page
			0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	8.00	10.00	12.00	
ON..05	16					4	4	5								120
				3	4		5	6	6	7	8					119-120
						5	6	8	10	12	14					121
ON..09	16							5/6	6/7	7/8						125, 127
									9	12	15		24	30	40	125-126
											8	10	12	16	20	128
OF..05	8			2	3	3	4	5	6	7						131-132
OF..07	8							4	5	6						135
SE..09	4		2	3	4	4	5	6	6	7						139-140
SE..12	4									5	6	7				145
						3	4	5	6	7	8	10	12			143-144, 148
						4	5	6	8	10	12	16				146
									11	12	14	17	20			147
SE..15	4								6	7		10	12			151

x — Fixed pocket (x indicates number of teeth)

x — With cassette (x indicates number of teeth)

Troubleshooter for unstable fixturing and/or unstable conditions

First choice

Productivity (ideal in steels and cast irons)

Code key

There is no ISO system available for cutters.
Parts of the code key vary for different cutter systems.

	217 = With shank 220 = For arbor		Cutter diameter		Effective No. of teeth (Z_c)		
R/L	220	. 53	-04.00	- 12	- 3	A

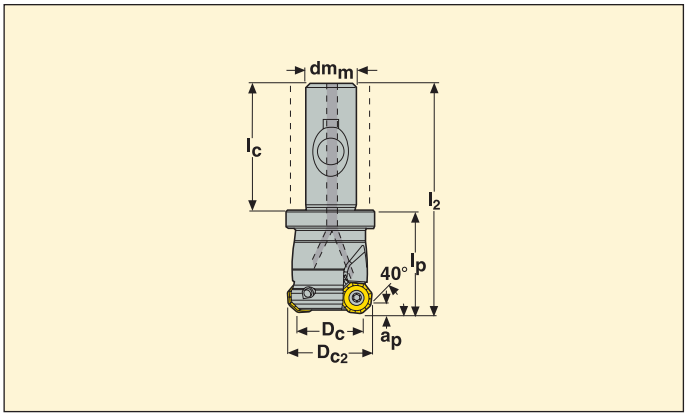
Right/left-hand rotation

Cutter system

Insert size

A = Holes for internal coolant supply
C = With adjustable cassettes
G = Coarse pitch version for low power machines
M = Wedge clamp
N = Nickel coated
S = Screw clamp
T = Close pitch version for high feed rates in powerful machines
W = Insert locking with wedge

Double Octomill™ R217.48-05



- For insert selection and cutting data recommendations, see pages 123-124.
- For complete insert program, see page 569, 607.
- Quick response items, call for delivery.

EDP No.	Part No.	Dimensions in inch								lbs	Type of mounting	Max rpm	Insert
		D_c	D_{c2}	dm_m	l_2	l_p	l_c	a_p					
10137	**R217.48 -01.00-3S-05-3SA**	1.00	1.30	0.75	3.54	1.57	1.97	0.118	3	0.7	Seco/Weldon	18000	ON.U05
10138	**-01.25-3S-05-4SA**	1.25	1.57	0.75	3.54	1.57	1.97	0.118	4	1.1	Seco/Weldon	20400	ON.U05

Spare Parts, included in delivery.

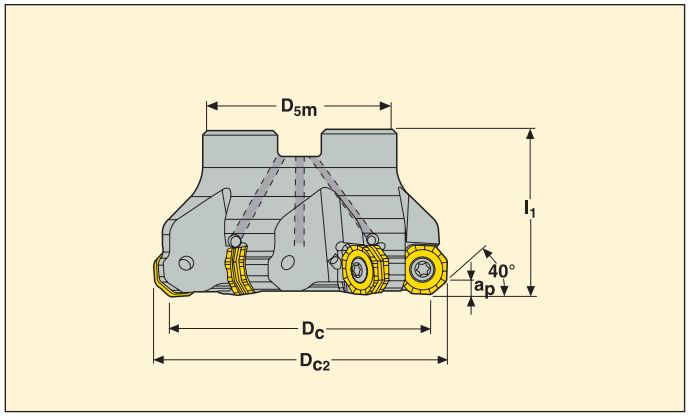
For cutter	Insert key	Insert screw
R217.48-..	T15P-2D	C04009-T15P

Please check availability in current price and stock-list.

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Double Octomill™ R220.48-05

- For insert selection and cutting data recommendations, see pages 123-124.
- For complete insert program, see page 569, 607.



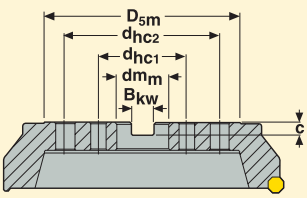
Pitch	EDP No.	Part No.	Dimensions in inch							
			D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Normal										
	10088	**R220.48 -02.00-05-04SA**	1.97	2.30	1.57	0.118	4	1.1	14400	ON..05
	10085	**-02.50-05-05SA**	2.48	2.81	1.57	0.118	5	1.3	12800	ON..05
	10117	**-03.00-05-06SA**	3.15	3.48	1.97	0.118	6	2.9	11400	ON..05
	10119	**-04.00-05-07SA**	3.94	4.27	1.97	0.118	7	4.0	10200	ON..05
	10121	**-05.00-05-08SA**	4.92	5.25	2.48	0.118	8	8.4	9100	ON..05
Normal+										
	10077	**R220.48 -01.50-05-04SA**	1.57	1.90	1.57	0.118	4	0.7	16100	ON..05
	10113	**-02.00-05-05SA**	1.97	2.30	1.57	0.118	5	0.9	14400	ON..05
	10115	**-02.50-05-06SA**	2.48	2.81	1.57	0.118	6	1.3	12800	ON..05

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.48-01.50	UC6S1/4UNFX1SHCS	T15P-3	C04009-T15P
R220.48-02.00 / 02.50	UC6S3/8UNFX1	T15P-3	C04009-T15P
R220.48-03.00	UC6S1/2UNFX1-1/4	T15P-3	C04009-T15P
R220.48-04.00	UF6S3/4UNFX1-3/4	T15P-3	C04009-T15P
R220.48-05.00	UC6S3/4UNFX1-1/4	T15P-3	C04009-T15P

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

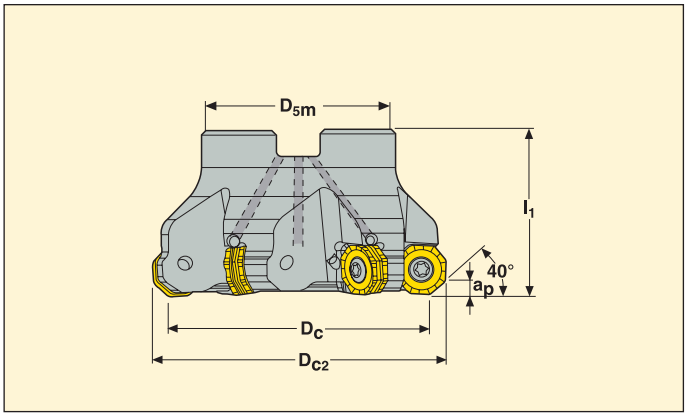


For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.48-02.00/02.50	0.75	1.85	0.32	0.19
R220.48-03.00	1.00	2.44	0.38	0.22
R220.48-04.00	1.50	3.03	0.63	0.38
R220.48-05.00	1.50	3.54	0.63	0.38
R220.48-01.50	0.75	1.38	0.32	0.19

Please check availability in current price and stock-list.

Double Octomill™ R220.48-05

- For insert selection and cutting data recommendations, see pages 123-124.
- For complete insert program, see page 569, 607.



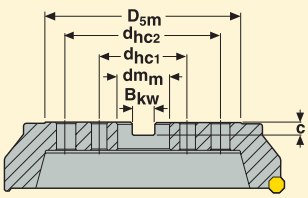
Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Close										
	10087	R220.48 -01.50-05-05SA	1.57	1.90	1.57	0.118	5	0.7	16100	ON..05
	10114	-02.00-05-06SA	1.97	2.30	1.57	0.118	6	0.9	14400	ON..05
	10116	-02.50-05-08SA	2.48	2.81	1.57	0.118	8	1.3	12800	ON..05
	10118	-03.00-05-10SA	3.15	3.48	1.97	0.118	10	2.6	11400	ON..05
	10120	-04.00-05-12SA	3.94	4.27	1.97	0.118	12	4.0	10200	ON..05
	10122	-05.00-05-14SA	4.92	5.25	2.48	0.118	14	8.2	9100	ON..05

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.48-01.50	UC6S1/4UNFX1SHCS	T15P-3	C04009-T15P
R220.48-02.00 / 02.50	UC6S3/8UNFX1	T15P-3	C04009-T15P
R220.48-03.00	UC6S1/2UNFX1-1/4	T15P-3	C04009-T15P
R220.48-04.00	UF6S3/4UNFX1-3/4	T15P-3	C04009-T15P
R220.48-05.00	UC6S3/4UNFX1-1/4	T15P-3	C04009-T15P

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

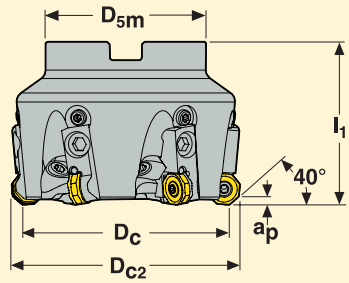
Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.48-01.50	0.75	1.38	0.32	0.19
R220.48-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.48-03.00	1.00	2.44	0.38	0.22
R220.48-04.00	1.50	3.03	0.63	0.38
R220.48-05.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

Double Octomill™ R220.48-05



- For insert selection and cutting data recommendations, see pages 123-124.
- For complete insert program, see page 569, 607.

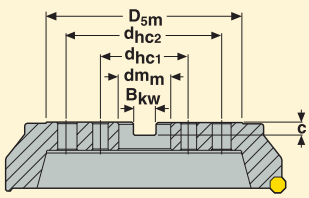
EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
52775	R220.48 -03.00-05-6CS	3.15	3.46	2.48	0.118	6	4.4	11400	ON..05
52777	-04.00-05-8CS	3.94	4.25	2.48	0.118	8	6.6	10200	ON..05
52778	-05.00-05-10CS	4.92	5.24	2.48	0.118	10	9.9	9100	ON..05
52779	-06.00-05-14CS	6.30	6.61	2.48	0.118	14	13.2	8000	ON..05
52780	-808.00-05-18CS	7.87	8.19	2.48	0.118	18	19.0	7200	ON..05

Spare Parts, included in delivery.

For cutter	Cassette	Cassette screw	Insert key	Insert screw	Wedge clamp	Wedge clampaxial adj.	Wedge screw
R220.48-03.00	ON05AR	FS96018	T15P-3	C04009-T15P	CW0810	AU1114T-T15P	LD8020-T25P
R220.48-4.00/5.00	ON05AR	FS96018	T15P-3	C04009-T15P	CW0810	AU1114T-T15P	LD8020-T25P
R220.48-6.00/8.00	ON05AR	FS96018	T15P-3	C04009-T15P	CW0810	AU1114T-T15P	LD8020-T25P

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.48-03.00	1.00	2.44	0.38	0.22
R220.48-04.00	1.50	3.03	0.63	0.38
R220.48-05.00	1.50	3.54	0.63	0.38
R220.48-06.00	2.00	5.12	0.76	0.44
R220.48-808.00	2.50	6.30	1.00	0.56

Please check availability in current price and stock-list.

R220.48-05 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	ONMU050410ANTN-M10 MP2500	0.070	0.0085	0.0095	0.014
P2	ONMU050410ANTN-M10 MP2500	0.070	0.0085	0.0095	0.015
P3	ONMU050410ANTN-M10 MP2500	0.070	0.0085	0.0085	0.014
P4	ONMU050410ANTN-M10 MP2500	0.070	0.0080	0.0085	0.013
P5	ONMU050410ANTN-M10 MP2500	0.070	0.0080	0.0085	0.013
P6	ONMU050410ANTN-M10 MP2500	0.070	0.0080	0.0085	0.013
P7	ONMU050410ANTN-M10 MP2500	0.070	0.0080	0.0085	0.013
P8	ONMU050410ANTN-M10 MP1500	0.070	0.0085	0.0085	0.014
P11	ONMU050410ANTN-M10 MP1500	0.070	0.0080	0.0085	0.013
M1	ONMU050410ANTN-ME10 MS2050	0.070	0.0085	0.0095	0.015
M2	ONMU050410ANTN-ME10 MS2050	0.070	0.0080	0.0085	0.013
M3	ONMU050410ANTN-ME10 MS2050	0.055	0.0065	0.0070	0.011
M4	ONMU050410ANTN-M10 T350M	0.044	0.0055	0.0060	0.0095
M5	ONMU050410ANTN-M10 MM4500	0.044	0.0055	0.0060	0.0095
K1	ONMU050410ANTN-M10 MK2050	0.070	0.0085	0.0095	0.015
K2	ONMU050410ANTN-M10 MK2050	0.070	0.0080	0.0085	0.013
K3	ONMU050410ANTN-M10 MK2050	0.070	0.0080	0.0085	0.013
K4	ONMU050410ANTN-M10 MK2050	0.070	0.0080	0.0085	0.013
K5	ONMU050410ANTN-M10 MK2050	0.070	0.0070	0.0080	0.012
K6	ONMU050410ANTN-M10 MK2050	0.070	0.0080	0.0085	0.013
K7	ONMU050410ANTN-M10 MK2050	0.070	0.0070	0.0080	0.012
N1	ONMU050410ANTN-ME10 F40M	0.070	0.011	0.012	0.019
N2	ONMU050410ANTN-ME10 F40M	0.070	0.011	0.012	0.019
N3	ONMU050410ANTN-ME10 F40M	0.070	0.011	0.012	0.019
N11	ONMU050410ANTN-ME10 F40M	0.070	0.011	0.012	0.019
S1	ONMU050410ANTN-ME10 F40M	0.044	0.0055	0.0060	0.0095
S2	ONMU050410ANTN-ME10 F40M	0.044	0.0055	0.0060	0.0095
S3	ONMU050410ANTN-ME10 F40M	0.044	0.0050	0.0055	0.0085
S11	ONMU050410ANTN-ME10 MS2050	0.050	0.0065	0.0070	0.011
S12	ONMU050410ANTN-ME10 MS2050	0.050	0.0065	0.0070	0.011
S13	ONMU050410ANTN-ME10 MS2050	0.044	0.0055	0.0060	0.0095
H5	ONMU050410ANTN-M10 MP1500	0.055	0.0055	0.0060	0.0085
H8	ONMU050410ANTN-M10 MP1500	0.050	0.0044	0.0044	0.0070
H11	ONMU050410ANTN-M10 MP1500	0.055	0.0055	0.0060	0.0085
H12	ONMU050410ANTN-M10 MP1500	0.055	0.0055	0.0060	0.0085
H21	ONMU050410ANTN-M10 MP1500	0.050	0.0044	0.0044	0.0070

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R220.48-05 – Cutting data v_c = (sf/min)

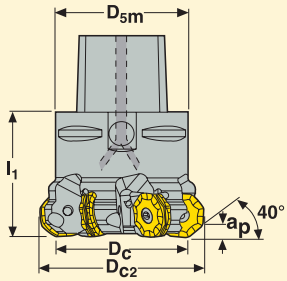
	MP1020			MP1500			MP2500			MP3000			T350M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1050	1275	1450	1050	1400	1650	920	1225	1475	870	1175	1400	800	1075	1275	700	940	1125
P2	1025	1250	1375	1000	1350	1600	900	1200	1400	850	1150	1325	780	1050	1225	680	910	1075
P3	880	1125	1200	870	1200	1400	770	1050	1225	730	1000	1175	670	920	1075	580	800	930
P4	830	990	1100	790	1050	1250	700	930	1100	660	880	1050	610	810	960	530	710	840
P5	790	950	1050	750	1000	1200	670	890	1050	630	840	1000	580	780	920	500	670	800
P6	890	1075	1175	840	1125	1325	750	1000	1175	710	950	1125	650	870	1025	570	760	900
P7	840	1000	1100	800	1075	1250	710	940	1125	670	890	1050	610	820	970	530	710	840
P8	740	950	1025	730	1000	1175	650	890	1025	610	840	980	560	780	900	490	670	790
P11	820	980	1075	770	1025	1225	690	920	1075	650	870	1025	600	800	940	520	690	820
M1	—	—	—	—	—	—	650	870	1025	630	850	1000	600	810	950	550	730	860
M2	—	—	—	—	—	—	540	720	850	530	700	830	500	670	790	455	610	720
M3	—	—	—	—	—	—	435	570	680	425	560	670	405	530	630	365	485	580
M4	—	—	—	—	—	—	335	450	530	330	440	520	315	420	495	285	380	450
M5	—	—	—	—	—	—	280	375	440	275	370	435	260	350	410	235	315	375
K1	—	—	—	800	1075	1275	710	950	1125	670	900	1050	620	830	970	540	720	850
K2	—	—	—	710	950	1125	630	850	1000	600	800	950	550	740	870	480	640	760
K3	—	—	—	600	810	950	530	720	850	510	680	800	465	620	740	405	540	640
K4	—	—	—	580	770	910	510	680	810	485	650	760	445	590	700	385	520	610
K5	—	—	—	355	470	560	315	415	495	295	395	470	275	365	430	235	315	375
K6	—	—	—	510	680	800	450	600	710	425	570	670	390	520	620	340	455	540
K7	—	—	—	450	600	720	400	530	640	380	510	600	350	465	550	305	405	480
N1	—	—	—	—	—	—	2600	3525	4150	2475	3350	3925	—	—	—	1975	2675	3125
N2	—	—	—	—	—	—	2100	2850	3350	2000	2700	3175	—	—	—	1600	2150	2525
N3	—	—	—	—	—	—	1400	1900	2225	1325	1800	2100	—	—	—	1075	1450	1700
N11	—	—	—	—	—	—	1600	2175	2550	1525	2050	2425	—	—	—	1225	1650	1925
S1	—	—	—	—	—	—	165	220	255	155	205	240	145	195	230	135	180	210
S2	—	—	—	—	—	—	130	175	205	125	165	195	120	155	185	105	145	170
S3	—	—	—	—	—	—	115	155	180	110	145	170	105	140	165	95	125	150
S11	—	—	—	—	—	—	230	300	360	215	285	335	205	270	320	185	245	290
S12	—	—	—	—	—	—	130	175	205	125	165	195	120	155	185	105	140	170
S13	—	—	—	—	—	—	105	140	165	100	135	155	95	125	150	85	115	135
H5	—	—	—	165	225	265	135	180	215	130	175	210	130	170	205	110	150	180
H8	—	—	—	175	240	280	140	190	225	140	190	220	135	185	215	120	160	190
H11	—	—	—	210	285	340	170	230	275	165	225	265	165	220	260	140	190	230
H12	—	—	—	320	430	510	260	345	415	250	335	405	245	330	395	215	290	345
H21	—	—	—	175	240	280	140	190	225	140	190	220	135	185	215	120	160	190

R220.48-05 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MM4500			MS2050		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	910	1225	1450	560	760	900	840	1025	1150
P2	—	—	—	880	1175	1400	550	740	870	810	1000	1125
P3	—	—	—	760	1050	1225	475	650	760	700	860	960
P4	—	—	—	690	920	1075	430	570	680	630	760	840
P5	—	—	—	660	880	1025	410	550	650	600	730	800
P6	—	—	—	740	980	1175	460	610	730	670	820	900
P7	—	—	—	690	930	1100	435	580	680	630	770	850
P8	—	—	—	640	880	1025	400	550	640	590	730	810
P11	—	—	—	670	900	1075	420	560	670	620	750	830
M1	—	—	—	—	—	—	470	630	740	710	880	980
M2	—	—	—	—	—	—	390	520	620	580	710	790
M3	—	—	—	—	—	—	315	420	495	445	530	570
M4	—	—	—	—	—	—	245	330	385	325	370	405
M5	—	—	—	—	—	—	205	275	320	270	310	340
K1	1000	1350	1575	950	1275	1500	—	—	—	820	1025	1125
K2	900	1200	1425	850	1125	1350	—	—	—	720	880	970
K3	760	1025	1200	720	960	1125	—	—	—	610	740	820
K4	720	970	1150	680	920	1075	—	—	—	580	710	790
K5	445	590	700	420	560	670	—	—	—	350	420	455
K6	640	850	1000	600	810	950	—	—	—	510	630	690
K7	570	760	900	540	720	850	—	—	—	450	540	590
N1	—	—	—	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—	—	—	—
S1	—	—	—	—	—	—	75	100	120	135	180	205
S2	—	—	—	—	—	—	60	80	95	110	145	165
S3	—	—	—	—	—	—	55	70	85	100	130	150
S11	—	—	—	—	—	—	105	140	165	180	235	275
S12	—	—	—	—	—	—	80	105	125	140	180	210
S13	—	—	—	—	—	—	65	85	100	115	155	175
H5	—	—	—	—	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—
H21	—	—	—	—	—	—	—	—	—	—	—	—

Double Octomill™ R217.48-09

- For insert selection and cutting data recommendations, see pages 129-130.
- For complete insert program, see page 569.



Through coolant with normal and normal+ pitch

Pitch	EDP No.	Part No.	Dimensions in inch						lbs	Type of mounting	Max rpm	Insert
			D_c	D_{c2}	D_{5m}	l_1	a_p*					
Normal												
	63846	**C6-R217.48 -02.50-09-05SA**	2.48	3.07	2.48	2.48	0.236	5	3.3	Seco-Capto	4900	ON..09
	63847	**-03.00-09-06SA**	3.15	3.74	2.48	2.48	0.236	6	3.7	Seco-Capto	4400	ON..09
	63853	**-04.00-09-07SA**	3.94	4.53	2.48	3.15	0.236	7	6.6	Seco-Capto	3900	ON..09
	63849	**C8-R217.48 -04.00-09-07SA**	3.94	4.53	3.15	3.15	0.236	7	8.2	Seco-Capto	3900	ON..09
Normal+												
	63845	**C6-R217.48 -02.50-09-06SA**	2.48	3.07	2.48	2.48	0.236	6	3.3	Seco-Capto	4900	ON..09
	63848	**-03.00-09-07SA**	3.15	3.74	2.48	2.48	0.236	7	4.0	Seco-Capto	4400	ON..09
	63850	**C8-R217.48 -04.00-09-08SA**	3.94	4.53	3.15	3.15	0.236	8	8.2	Seco-Capto	3900	ON..09
Close												
	63851	**C6-R217.48 -03.00-09-09M**	3.15	3.74	2.48	2.48	0.236	9	5.1	Seco-Capto	4400	ON..09
	63852	**C8-R217.48 -04.00-09-12M**	3.94	4.53	3.15	3.15	0.236	12	9.9	Seco-Capto	3900	ON..09

* Only M12, M14, MD16, ME12, ZZ..M14 geometries. Max a_p 0.157" for M13, M15, MD17, ME13.

Spare Parts, included in delivery.

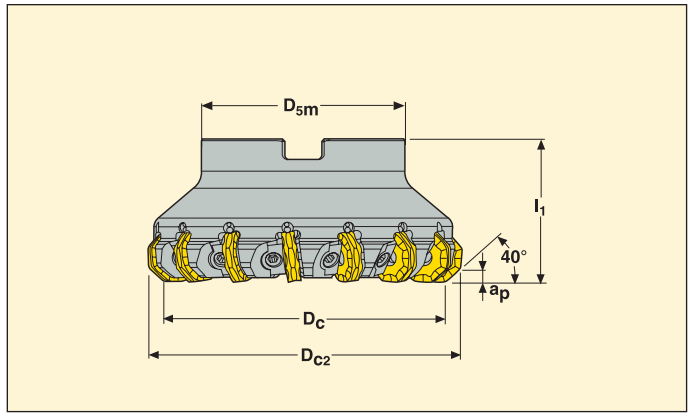
For cutter	Insert key	Insert screw	Wedge kit
C6-C8-217.48..SA	T20P-4	C05013-T20P	-
C6-C8-217.48..M	T20P-4	-	CW0816-RHA

Please check availability in current price and stock-list.

Insert screw torque value 44.3 in/lbs.
Torque keys available, see page 643.

Double Octomill™ R220.48-09

- For insert selection and cutting data recommendations, see pages 129-130.
- For complete insert program, see page 569.
- Quick response items, call for delivery.



Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	Max a_p*		lbs	Max rpm	Insert
Close										
	45142	R220.48 -03.00-09-09M	3.15	3.74	1.97	0.236	9	2.9	4400	ON..09
	45143	-04.00-09-12M	3.94	4.53	1.97	0.236	12	4.0	3900	ON..09
	45144	-05.00-09-15M	4.92	5.51	2.48	0.236	15	8.2	3500	ON..09
	45146	-808.00-09-24M	7.87	8.46	2.48	0.236	24	13.2	2700	ON..09
	45147	-810.00-09-30M	9.84	10.43	2.48	0.236	30	30.9	2500	ON..09
	45148	-812.50-09-40M	12.40	12.99	3.15	0.236	40	63.1	2200	ON..09

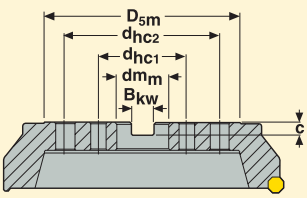
* Only M12, M14, MD16, ME12, ZZ..M14 geometries. Max a_p 0.157" for M13, M15, MD17, ME13.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Wedge kit
R220.48-03.00	UC6S1/2UNFX1-1/4	T20P-4	CW0816-RHA
R220.48-04.00	UC6S3/4UNFX1-1/4	T20P-4	CW0816-RHA
R220.48-05.00	UC6S3/4UNFX1-1/4	T20P-4	CW0816-RHA
R220.48-808.00 - 812.50	-	T20P-4	CW0816-RHA

Wedge screw torque value 53.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

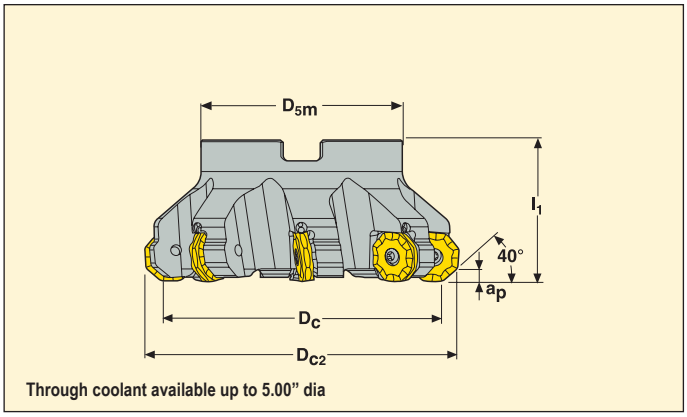


For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	dhc1	d_{hc2}
R220.48-03.00	1.00	2.44	0.38	0.22	–	–
R220.48-04.00 / 05.00	1.50	3.54	0.63	0.38	–	–
R220.48-808.00 / 810.00	2.50	5.12	1.00	0.55	4.00	–
R220.48-812.50	2.50	8.86	1.00	0.55	4.00	7.00

Please check availability in current price and stock-list.

Double Octomill™ R220.48-09

- For insert selection and cutting data recommendations, see pages 129-130.
- For complete insert program, see page 569.



Through coolant available up to 5.00" dia

Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	Max a_p*		lbs	Max rpm	Insert
Normal										
	45131	**R220.48 -02.50-09-05SA**	2.48	3.07	1.57	0.236	5	1.1	4900	ON..09
	45132	**-03.00-09-06SA**	3.15	3.74	1.97	0.236	6	2.4	4400	ON..09
	45135	**-04.00-09-07SA**	3.94	4.53	1.97	0.236	7	3.5	3900	ON..09
	45136	**-05.00-09-08SA**	4.92	5.51	2.48	0.236	8	7.1	3500	ON..09
	45137	**-06.00-09-10S**	6.30	6.89	2.48	0.236	10	8.8	3100	ON..09
	45138	**-808.00-09-12S**	7.87	8.46	2.48	0.236	12	11.9	2700	ON..09
	45139	**-810.00-09-16S**	9.84	10.43	2.48	0.236	16	28.7	2500	ON..09
	45140	**-812.50-09-20S**	12.40	12.99	3.15	0.236	20	59.5	2200	ON..09

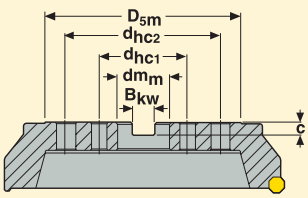
* Only M12, M14, MD16, ME12, ZZ..M14 geometries. Max a_p 0.157" for M13, M15, MD17, ME13.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.48-02.50	UC6S3/8UNFX1	T20P-4	C05013-T20P
R220.48-03.00	UC6S1/2UNFX1-1/4	T20P-4	C05013-T20P
R220.48-04.00	UF6S3/4UNFX1-3/4	T20P-4	C05013-T20P
R220.48-05.00	UC6S3/4UNFX1-1/4	T20P-4	C05013-T20P
R220.48-06.00 - 812.50	-	T20P-4	C05013-T20P

Insert screw torque value 53.0 in/lbs.
Torque keys available, see page 643.

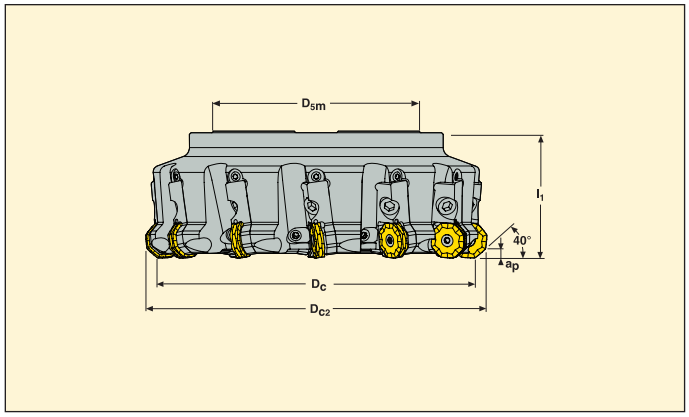
Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	d_{hc1}	d_{hc2}
R220.48-02.50	0.75	1.26	0.32	0.19	–	–
R220.48-03.00	1.00	2.44	0.38	0.22	–	–
R220.48-04.00 / 05.00	1.50	3.54	0.63	0.38	–	–
R220.48-06.00	2.00	4.33	0.76	0.44	–	–
R220.48-808.00 / 810.00	2.50	5.12	1.00	0.55	4.00	–
R220.48-812.50	2.50	8.86	1.00	0.55	4.00	7.00

Please check availability in current price and stock-list.

Double Octomill™ L/R220.48-09CS



- For insert selection and cutting data recommendations, see pages 129-130.
- For complete insert program, see page 569.

EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	Max a_p*		lbs	Max rpm	Insert
84759	R220.48 -05.00-09-08CS	4.92	5.51	3.15	0.236	8	10.8	3500	ON..09
84760	-06.00-09-10CS	6.30	6.89	3.15	0.236	10	16.8	3100	ON..09
84763	-808.00-09-12CS	7.87	8.46	3.15	0.236	12	23.1	2700	ON..09
84766	-810.00-09-16CS	9.84	10.43	3.15	0.236	16	43.2	2500	ON..09
84767	-812.50-09-20CS	12.40	12.99	3.15	0.236	20	78.3	2200	ON..09
84764	L220.48 -05.00-09-08CS	4.92	5.51	3.15	0.236	8	10.8	3500	ON..09
84765	-06.00-09-10CS	6.30	6.89	3.15	0.236	10	16.8	3100	ON..09
84805	-808.00-09-12CS	7.87	8.46	3.15	0.236	12	23.1	2700	ON..09
84806	-810.00-09-16CS	9.84	10.43	3.15	0.236	16	43.2	2500	ON..09
84768	-812.50-09-20CS	12.40	12.99	3.15	0.236	20	78.3	2200	ON.U09

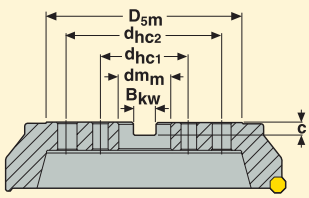
* Only M12, M14, MD16, ME12, ZZ..M14 geometries. Max a_p 0.157" for M13, M15, MD17, ME13.

Spare Parts, included in delivery.

For cutter	Cassette (L)	Cassette (R)	Cassette screw	Insert key	Insert screw	Setting gauge	Wedge clamp	Wedge screw
R220.48-05.00 / 06.00	-	ON09AR	FS98030	T15P-4	C05013-T20P	AU1114T-T15P	CW0810	LD8020-T25P
R220.48-808.00 / 810.00	-	ON09AR	FS98030	T20P-4	C05013-T20P	AU1114T-T15P	CW0810	LD8020-T25P
R220.48-812.50	-	ON09AR	FS98030	T15P-4	C05013-T20P	AU1114T-T15P	CW0810	LD8020-T25P
L220.48-05.00 / 06.00	ON09AL	-	FS98030	T15P-4	C05013-T20P	AU1114T-T15P	CW0810	LD8020-T25P
L220.48-808.00 / 810.00	ON09AL	-	FS98030	T20P-4	C05013-T20P	AU1114T-T15P	CW0810	LD8020-T25P
L220.48-812.50	ON09AL	-	FS98030	T15P-4	C05013-T20P	AU1114T-T15P	CW0810	LD8020-T25P

Wedge screw torque value 53.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	dhc1	d_{hc2}
..220.48-05.00	1.50	3.54	0.63	0.38	–	–
..220.48-06.00	2.00	4.33	0.76	0.44	–	–
..220.48-808.00 / 810.00	2.50	5.12	1.00	0.55	4.00	–
R220.48-812.50	2.50	8.86	1.00	0.55	4.00	7.00
L220.48-812.50	2.50	8.86	1.01	0.56	4.00	7.00

Please check availability in current price and stock-list.

R220.48-09 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	ONMU090520ANTN-M12 MP2500	0.14	0.010	0.011	0.017
P2	ONMU090520ANTN-M12 MP2500	0.14	0.010	0.012	0.017
P3	ONMU090520ANTN-M12 MP2500	0.14	0.010	0.011	0.017
P4	ONMU090520ANTN-M12 MP2500	0.14	0.0095	0.011	0.017
P5	ONMU090520ANTN-M12 MP2500	0.14	0.0095	0.010	0.016
P6	ONMU090520ANTN-M12 MP2500	0.14	0.0095	0.010	0.016
P7	ONMU090520ANTN-M12 T350M	0.14	0.0095	0.010	0.016
P8	ONMU090520ANTN-M12 T350M	0.14	0.010	0.011	0.017
P11	ONMU090520ANTN-M12 T350M	0.14	0.0095	0.010	0.016
M1	ONMU090520ANTN-ME12 MS2050	0.14	0.010	0.012	0.017
M2	ONMU090520ANTN-ME12 MS2050	0.14	0.0095	0.010	0.016
M3	ONMU090520ANTN-ME12 T350M	0.12	0.0075	0.0085	0.013
M4	ONMU090520ANTN-ME12 T350M	0.080	0.0065	0.0075	0.011
M5	ONMU090520ANTN-ME12 MM4500	0.080	0.0065	0.0075	0.011
K1	ONMU090520ANTN-M14 MK2050	0.14	0.013	0.013	0.020
K2	ONMU090520ANTN-M14 MK2050	0.14	0.011	0.012	0.019
K3	ONMU090520ANTN-M14 MK2050	0.14	0.011	0.012	0.019
K4	ONMU090520ANTN-M14 MK2050	0.14	0.011	0.012	0.019
K5	ONMU090520ANTN-M14 MK2050	0.14	0.010	0.011	0.017
K6	ONMU090520ANTN-M14 MK2050	0.14	0.011	0.012	0.019
K7	ONMU090520ANTN-M14 MK2050	0.14	0.010	0.011	0.017
N1	ONMU090520ANTN-ME12 F40M	0.14	0.013	0.015	0.022
N2	ONMU090520ANTN-ME12 F40M	0.14	0.013	0.015	0.022
N3	ONMU090520ANTN-ME12 F40M	0.14	0.013	0.015	0.022
N11	ONMU090520ANTN-ME12 F40M	0.14	0.013	0.015	0.022
S1	ONMU090520ANTN-ME12 MS2500	0.080	0.0065	0.0075	0.011
S2	ONMU090520ANTN-ME12 MS2500	0.080	0.0065	0.0075	0.011
S3	ONMU090520ANTN-ME12 MS2500	0.080	0.0065	0.0065	0.010
S11	ONMU090520ANTN-ME12 MS2050	0.10	0.0075	0.0085	0.013
S12	ONMU090520ANTN-ME12 MS2050	0.10	0.0075	0.0085	0.013
S13	ONMU090520ANTN-ME12 MS2050	0.080	0.0065	0.0075	0.011
H5	ONMU090520ANTN-MD16 MP1500	0.12	0.0080	0.0085	0.013
H8	ONMU090520ANTN-MD16 MP1500	0.10	0.0065	0.0065	0.010
H11	ONMU090520ANTN-MD16 MP1500	0.12	0.0080	0.0085	0.013
H12	ONMU090520ANTN-MD16 MP1500	0.12	0.0080	0.0085	0.013
H21	ONMU090520ANTN-MD16 MP1500	0.10	0.0065	0.0065	0.010

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R220.48-09 – Cutting data v_c = (sf/min)

	MP1020			MP1500			MP2500			MP3000			F40M			MK1500		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	730	940	1150	920	1225	1475	810	1100	1325	770	1025	1250	600	810	970	—	—	—
P2	660	920	1100	870	1200	1450	770	1075	1275	730	1000	1200	580	790	940	—	—	—
P3	610	840	960	770	1050	1250	680	930	1100	640	880	1050	500	690	810	—	—	—
P4	590	740	870	690	930	1100	610	820	980	580	780	930	455	610	730	—	—	—
P5	560	750	830	660	900	1050	580	800	940	550	760	890	435	580	700	—	—	—
P6	630	840	930	740	1025	1200	660	900	1050	620	850	1000	485	670	790	—	—	—
P7	590	800	880	700	960	1125	620	850	990	590	800	940	460	630	740	—	—	—
P8	510	710	800	650	880	1050	570	780	930	540	740	880	425	580	680	—	—	—
P11	580	770	860	680	930	1100	600	820	960	570	780	910	445	610	720	—	—	—
M1	—	—	—	—	—	—	560	770	920	550	750	910	465	640	760	—	—	—
M2	—	—	—	—	—	—	470	640	750	460	630	740	390	520	630	—	—	—
M3	—	—	—	—	—	—	385	520	610	380	510	600	320	430	510	—	—	—
M4	—	—	—	—	—	—	295	395	475	290	390	465	245	325	395	—	—	—
M5	—	—	—	—	—	—	245	330	395	240	325	390	205	275	330	—	—	—
K1	—	—	—	690	950	1150	610	840	1025	580	800	960	455	630	750	870	1200	1425
K2	—	—	—	630	860	1000	560	760	890	530	720	840	410	550	670	790	1075	1250
K3	—	—	—	530	720	850	470	640	750	445	610	710	350	470	560	670	910	1075
K4	—	—	—	510	690	810	450	610	720	425	580	680	330	445	540	640	870	1025
K5	—	—	—	310	420	500	275	370	445	260	355	420	200	275	330	385	530	630
K6	—	—	—	445	610	710	395	540	630	375	510	600	295	395	475	560	760	900
K7	—	—	—	395	540	640	350	475	570	330	450	540	260	355	420	495	680	810
N1	—	—	—	—	—	—	2250	3075	3700	2125	2900	3500	1675	2300	2725	—	—	—
N2	—	—	—	—	—	—	1825	2475	2975	1725	2350	2825	1350	1850	2200	—	—	—
N3	—	—	—	—	—	—	1225	1650	2000	1150	1575	1875	900	1225	1475	—	—	—
N11	—	—	—	—	—	—	1375	1900	2275	1325	1800	2150	1025	1400	1675	—	—	—
S1	—	—	—	—	—	—	145	190	230	135	180	220	115	155	185	—	—	—
S2	—	—	—	—	—	—	115	155	185	110	145	175	90	125	150	—	—	—
S3	—	—	—	—	—	—	105	135	165	95	130	155	80	110	130	—	—	—
S11	—	—	—	—	—	—	200	275	325	190	255	305	160	215	260	—	—	—
S12	—	—	—	—	—	—	115	155	185	110	150	175	90	125	150	—	—	—
S13	—	—	—	—	—	—	95	125	150	90	115	140	75	100	120	—	—	—
H5	—	—	—	150	200	240	120	160	190	115	155	190	100	135	160	—	—	—
H8	—	—	—	160	215	255	130	170	205	125	170	200	105	140	170	—	—	—
H11	—	—	—	190	250	305	155	205	245	150	200	240	125	170	200	—	—	—
H12	—	—	—	285	380	460	230	305	370	225	300	360	190	255	305	—	—	—
H21	—	—	—	160	215	255	130	170	205	125	170	200	105	140	170	—	—	—

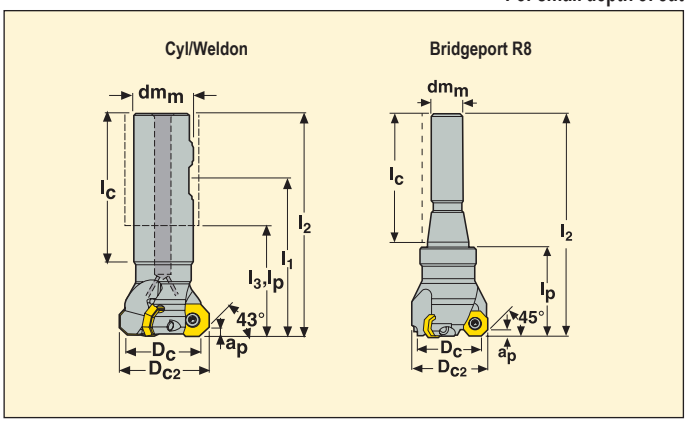
R220.48-09 – Cutting data v_c = (sf/min)

	MK2050			MM4500			MS2050			MS2500		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	800	1075	1300	540	740	870	800	1025	1150	940	1250	1500
P2	760	1050	1250	530	700	850	780	980	1125	910	1225	1475
P3	670	920	1075	455	620	740	670	860	980	790	1075	1275
P4	600	810	970	410	540	650	610	760	860	710	950	1150
P5	580	790	920	390	530	630	580	730	820	680	920	1100
P6	650	880	1025	440	600	710	650	820	920	760	1025	1225
P7	610	830	980	415	560	670	610	780	870	720	980	1150
P8	560	770	910	380	520	620	560	720	820	660	900	1075
P11	590	810	950	400	550	650	600	750	850	700	950	1125
M1	—	—	—	450	600	730	680	860	990	660	880	1050
M2	—	—	—	375	510	600	570	720	800	540	740	870
M3	—	—	—	305	405	490	450	550	600	435	600	700
M4	—	—	—	235	310	380	335	400	435	340	455	550
M5	—	—	—	195	260	315	280	335	365	285	380	460
K1	820	1125	1350	—	—	—	790	990	1150	720	970	1150
K2	740	1025	1200	—	—	—	700	890	990	640	880	1025
K3	630	860	1000	—	—	—	590	750	840	540	740	870
K4	600	820	960	—	—	—	570	720	800	520	710	830
K5	365	500	600	—	—	—	345	430	475	315	430	510
K6	530	720	850	—	—	—	500	630	710	455	620	730
K7	470	640	760	—	—	—	440	550	610	405	550	650
S1	—	—	—	70	95	115	120	155	195	165	225	270
S2	—	—	—	60	75	95	95	125	155	135	180	215
S3	—	—	—	50	70	80	85	115	140	120	155	190
S11	—	—	—	100	135	160	160	205	260	230	315	370
S12	—	—	—	75	100	125	120	160	200	130	180	215
S13	—	—	—	60	80	100	105	135	165	110	145	175
H5	—	—	—	—	—	—	—	—	—	135	185	220
H8	—	—	—	—	—	—	—	—	—	145	195	235
H11	—	—	—	—	—	—	—	—	—	175	235	280
H12	—	—	—	—	—	—	—	—	—	265	355	425
H21	—	—	—	—	—	—	—	—	—	145	195	235

Octomill® R217.43-05

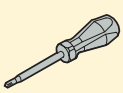
For small depth of cut

- For insert selection and cutting data recommendations, see pages 133-134.
- For complete insert program, see page 566, 615.
- For helical interpolation, see page 632.



EDP No.	Part No.	Dimensions in inch								lbs	Type of mounting	Max rpm	Insert
		D_c	D_{c2}	dm_m	l_c	l_2	l_p	a_p					
87684	**R217.43 -01.25-3-05A**	1.26	1.61	1.00	2.44	4.02	1.57	0.138	3	1.1	Cyl/Weldon	19800	OF..05
87687	**R217.43 -02.00-R8-05**	1.97	2.32	0.95	4.09	6.02	1.89	0.138	4	2.2	Bridgeport R8	15800	OF..05

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.43-..	T15P-3	C04008-T15P

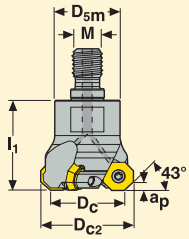
Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Octomill® R217/220.43-05

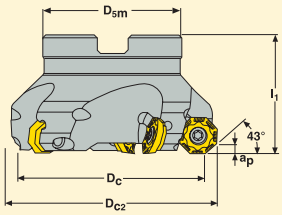
For small depth of cut

- For insert selection and cutting data recommendations, see pages 133-134.
- For complete insert program, see page 566, 615.
- For helical interpolation, see page 632.

Combimaster



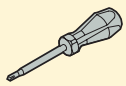
Arbor



EDP No.	Part No.	Dimensions in inch							lbs	Type of mounting	Max rpm	Insert
		D_c	D_{c2}	D_{5m}	l_1	M	a_p					
60020	R217.43 -01.00-16RE-05.2A	1.00	1.32	1.18	1.57	M16	0.138	2	0.9	Combimaster*	17200	OF..05
60021	-01.25-16RE-05.3A	1.25	1.57	1.18	1.57	M16	0.138	3	0.9	Combimaster*	14800	OF..05
60023	-01.50-16RE-05.3A	1.50	1.82	1.18	1.57	M16	0.138	3	0.9	Combimaster*	13200	OF..05
86837	R220.43 -01.50-05	1.57	2.05	1.38	1.57	–	0.138	3	0.9	Arbor	13200	OF..05
86838	-02.00-05	1.97	2.44	1.85	1.57	–	0.138	4	1.1	Arbor	11900	OF..05
86839	-02.50-05	2.48	2.95	1.85	1.57	–	0.138	5	1.3	Arbor	10600	OF..05
86840	-03.00-05	3.15	3.62	2.44	1.97	–	0.138	6	2.9	Arbor	9400	OF..05
86841	-04.00-05	3.94	4.29	3.54	1.97	–	0.138	7	4.2	Arbor	8400	OF..05

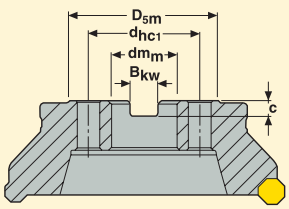
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.43-..	–	T15P-3	C04008-T15P
R220.43-1.50	UC6S1/4UNFX1SHCS	T15P-3	C04008-T15P
R220.43-02.00 / 02.50	UC6S3/8UNFX1	T15P-3	C04008-T15P
R220.43-03.00 / 04.00	–	T15P-3	C04008-T15P

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.43-01.50	0.50	1.38	0.26	0.16
R220.43-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.43-03.00	1.00	2.44	0.38	0.22
R220.43-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R220.43-05 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	OFEX05T305TN-M08 F40M	0.080	0.0065	0.0070	0.011
P2	OFEX05T305TN-ME07 F40M	0.080	0.0060	0.0065	0.0095
P3	OFEX05T305TN-ME07 F40M	0.080	0.0055	0.0060	0.0095
P4	OFEX05T305TN-M08 F40M	0.080	0.0065	0.0065	0.010
P5	OFEX05T305TN-M08 F40M	0.080	0.0060	0.0065	0.010
P6	OFEX05T305TN-M08 F40M	0.080	0.0060	0.0065	0.010
P7	OFEX05T305TN-M08 MP2500	0.080	0.0060	0.0065	0.010
P8	OFEX05T305TN-M08 MP2500	0.080	0.0065	0.0065	0.010
P11	OFEX05T305TN-M08 MP2500	0.080	0.0060	0.0065	0.010
M1	OFEX05T305TN-ME07 T350M	0.080	0.0060	0.0065	0.0095
M2	OFEX05T305TN-ME07 T350M	0.080	0.0050	0.0060	0.0085
M3	OFEX05T305TN-ME07 T350M	0.065	0.0044	0.0048	0.0070
M4	OFEX05T305TN-ME07 T350M	0.050	0.0038	0.0040	0.0065
M5	OFEX05T305TN-ME07 T350M	0.050	0.0038	0.0040	0.0065
K1	OFEX05T305TN-M08 MK1500	0.080	0.0065	0.0070	0.011
K2	OFEX05T305TN-M08 MK1500	0.080	0.0060	0.0065	0.010
K3	OFEX05T305TN-M08 MK1500	0.080	0.0060	0.0065	0.010
K4	OFEX05T305TN-M08 MK1500	0.080	0.0060	0.0065	0.010
K5	OFEX05T305TN-D09 MP1500	0.080	0.0060	0.0065	0.010
K6	OFEX05T305TN-D09 MP1500	0.080	0.0065	0.0075	0.011
K7	OFEX05T305TN-D09 MP1500	0.080	0.0060	0.0065	0.010
N1	OFEX05T305N-E04 H15	0.080	0.0044	0.0048	0.0070
N2	OFEX05T305N-E04 H15	0.080	0.0044	0.0048	0.0070
N3	OFEX05T305N-E04 F15M	0.080	0.0044	0.0048	0.0070
N11	OFEX05T305N-E04 F15M	0.080	0.0044	0.0048	0.0070
S1	OFEX05T305TN-ME07 F40M	0.050	0.0038	0.0040	0.0065
S2	OFEX05T305TN-ME07 F40M	0.050	0.0038	0.0040	0.0065
S3	OFEX05T305TN-ME07 F40M	0.050	0.0034	0.0038	0.0055
S11	OFEX05T305TN-ME07 F40M	0.055	0.0044	0.0048	0.0070
S12	OFEX05T305TN-ME07 F40M	0.055	0.0044	0.0048	0.0070
S13	OFEX05T305TN-ME07 F40M	0.050	0.0038	0.0040	0.0065
H5	OFEX05T305TN-D09 MP1500	0.065	0.0048	0.0050	0.0075
H8	OFEX05T305TN-D09 MP1500	0.055	0.0036	0.0038	0.0060
H11	OFEX05T305TN-D09 MP1500	0.065	0.0048	0.0050	0.0075
H12	OFEX05T305TN-D09 MP1500	0.065	0.0048	0.0050	0.0075
H21	OFEX05T305TN-D09 MP1500	0.055	0.0036	0.0038	0.0060

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

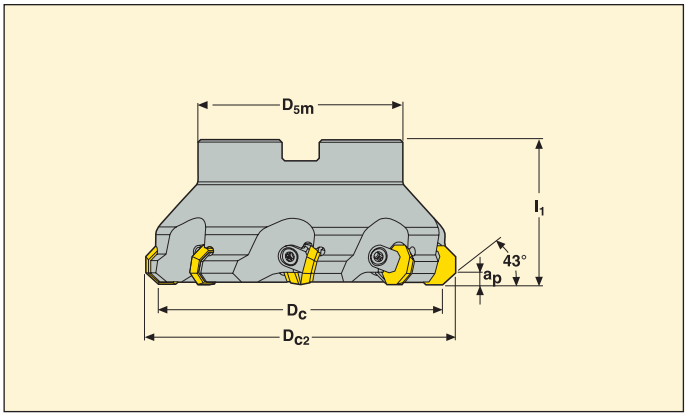
R220.43-05 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MK1500			F15M			T350M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1075	1450	1725	1000	1325	1575	—	—	—	1225	1625	1900	870	1150	1375	880	1175	1375
P2	1050	1425	1650	960	1300	1525	—	—	—	1175	1575	1850	840	1125	1325	850	1125	1350
P3	920	1225	1450	840	1125	1325	—	—	—	1025	1375	1600	730	980	1175	740	990	1150
P4	820	1100	1275	740	990	1175	—	—	—	910	1200	1425	640	870	1025	650	870	1050
P5	780	1050	1250	720	950	1125	—	—	—	880	1150	1350	630	830	980	640	830	1000
P6	880	1175	1400	810	1075	1250	—	—	—	980	1300	1525	700	940	1100	710	950	1125
P7	830	1100	1325	760	1025	1200	—	—	—	930	1225	1425	660	890	1025	670	900	1050
P8	770	1050	1225	710	950	1125	—	—	—	860	1150	1350	620	830	980	620	830	970
P11	810	1075	1275	740	990	1150	—	—	—	900	1200	1400	640	860	1000	650	870	1025
M1	—	—	—	690	930	1100	—	—	—	950	1275	1500	640	870	1025	680	910	1075
M2	—	—	—	580	760	900	—	—	—	790	1025	1225	540	710	840	570	750	900
M3	—	—	—	465	620	730	—	—	—	630	830	970	435	580	680	455	600	710
M4	—	—	—	355	475	560	—	—	—	480	630	740	335	440	520	350	470	550
M5	—	—	—	295	395	470	—	—	—	400	520	620	275	365	435	295	390	460
K1	830	1125	1325	760	1025	1200	1075	1450	1700	930	1250	1450	660	890	1050	670	900	1075
K2	740	990	1175	680	900	1075	970	1275	1500	830	1100	1275	590	780	930	600	790	950
K3	630	830	1000	580	760	900	820	1075	1275	700	920	1100	500	660	790	510	670	800
K4	600	800	950	550	730	860	780	1025	1225	670	880	1050	480	630	750	485	640	760
K5	370	490	580	335	445	530	475	630	760	405	540	640	290	390	465	295	395	465
K6	530	700	840	485	640	760	690	910	1075	590	780	920	425	560	660	430	560	670
K7	475	630	740	425	570	680	610	810	970	520	690	820	370	500	600	380	500	590
N1	—	—	—	2800	3750	4450	—	—	—	3475	4625	5500	—	—	—	2475	3350	3925
N2	—	—	—	2250	3025	3600	—	—	—	2825	3725	4425	—	—	—	2000	2700	3175
N3	—	—	—	1500	2025	2400	—	—	—	1875	2500	2950	—	—	—	1350	1800	2125
N11	—	—	—	1725	2300	2750	—	—	—	2150	2850	3375	—	—	—	1525	2050	2425
S1	—	—	—	175	230	275	—	—	—	225	295	345	155	205	245	165	220	255
S2	—	—	—	140	185	220	—	—	—	180	235	280	125	165	195	130	175	205
S3	—	—	—	125	165	195	—	—	—	160	205	245	110	145	170	115	155	185
S11	—	—	—	245	325	385	—	—	—	315	420	495	220	290	345	230	305	360
S12	—	—	—	140	190	225	—	—	—	185	240	285	125	170	200	130	175	210
S13	—	—	—	110	150	175	—	—	—	145	190	225	100	135	160	105	140	165
H5	175	230	275	145	195	225	—	—	—	190	250	295	140	185	220	140	185	220
H8	185	245	290	155	205	240	—	—	—	200	260	305	145	195	230	145	195	230
H11	220	295	350	185	245	290	—	—	—	245	320	375	180	235	275	180	235	280
H12	335	445	530	280	370	435	—	—	—	365	480	570	270	355	420	270	355	420
H21	185	245	290	155	205	240	—	—	—	200	260	305	145	195	230	145	195	230

Octomill® R220.43-07W

First choice

- For insert selection and cutting data recommendations, see pages 136-138.
- For complete insert program, see page 567, 607.



Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Normal										
	03262	R220.43 -02.50-07W	1.97	2.44	1.57	0.197	4	1.5	6000	OF..07
	03266	-03.00-07W	2.48	2.95	1.97	0.197	5	3.5	5000	OF..07
	03268	-04.00-07W	3.94	4.41	1.97	0.197	6	5.1	4400	OF..07

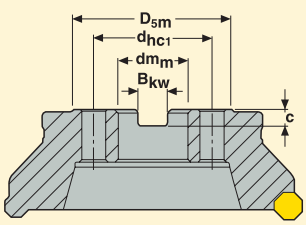
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert wedge	Wedge key	Wedge screw
R220.43-02.50	UF6S3/8UNFX1-1/2	CW0810	T25P-4	LD8018-T25P
R220.43-03.00	UF6S1/2UNFX1-1/2	CW0810	T25P-4	LD8018-T25P
R220.43-04.00	UF6S3/4UNFX2	CW0810	T25P-4	LD8020-T25P

In first generation milling cutters without W in the designation (R220.43-04.00-07), the insert is locked by means of screw SL68023T instead of wedge and wedge screw.

Wedge screw torque value 53.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.43-02.50	0.75	1.85	0.32	0.19
R220.43-03.00	1.00	2.44	0.38	0.22
R220.43-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R220.43-07 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	OFMR070405TR-ME13 MP2500	0.12	0.010	0.012	0.017
P2	OFMR070405TR-ME13 MP2500	0.12	0.011	0.012	0.018
P3	OFMR070405TR-ME13 MP2500	0.12	0.010	0.011	0.017
P4	OFMR070405TR-M15 MP2500	0.12	0.012	0.013	0.019
P5	OFMR070405TR-M15 MP2500	0.12	0.011	0.013	0.019
P6	OFMR070405TR-M15 MP2500	0.12	0.011	0.012	0.019
P7	OFMR070405TR-M15 T350M	0.12	0.011	0.012	0.019
P8	OFMR070405TR-M15 T350M	0.12	0.012	0.013	0.020
P11	OFMR070405TR-M15 T350M	0.12	0.011	0.012	0.019
M1	OFMR070405TR-ME13 MP2500	0.12	0.011	0.012	0.018
M2	OFMR070405TR-ME13 MP2500	0.12	0.0095	0.011	0.017
M3	OFMR070405TR-ME13 MP2500	0.10	0.0080	0.0085	0.013
M4	OFMR070405TR-ME13 T350M	0.070	0.0065	0.0075	0.011
M5	OFER070405TN-M16 MM4500	0.070	0.0080	0.0085	0.013
K1	OFER070405TN-M16 MK2050	0.12	0.013	0.013	0.022
K2	OFER070405TN-M16 MK2050	0.12	0.011	0.013	0.019
K3	OFER070405TN-M16 MK2050	0.12	0.011	0.013	0.019
K4	OFER070405TN-M16 MK2050	0.12	0.011	0.013	0.019
K5	OFMR070405TR-M15 MK1500	0.12	0.010	0.011	0.017
K6	OFMR070405TR-M15 MK1500	0.12	0.011	0.013	0.019
K7	OFMR070405TR-M15 MK1500	0.12	0.010	0.011	0.017
N1	OFER070405N-E07 H15	0.12	0.0075	0.0080	0.013
N2	OFER070405N-E07 H15	0.12	0.0075	0.0080	0.013
N3	OFER070405N-E07 F15M	0.12	0.0075	0.0080	0.013
N11	OFER070405N-E07 F15M	0.12	0.0075	0.0080	0.013
S1	OFMR070405TR-ME13 T350M	0.070	0.0065	0.0075	0.011
S2	OFMR070405TR-ME13 T350M	0.070	0.0065	0.0075	0.011
S3	OFMR070405TR-ME13 T350M	0.070	0.0065	0.0070	0.010
S11	OFMR070405TR-ME13 F40M	0.080	0.0080	0.0085	0.013
S12	OFMR070405TR-ME13 F40M	0.080	0.0080	0.0085	0.013
S13	OFMR070405TR-ME13 F40M	0.070	0.0065	0.0075	0.011
H5	OFEN070405TN-D18 MP1500	0.10	0.0085	0.0095	0.014
H8	OFEN070405TN-D18 MP1500	0.080	0.0065	0.0070	0.011
H11	OFEN070405TN-D18 MP1500	0.10	0.0085	0.0095	0.014
H12	OFEN070405TN-D18 MP1500	0.10	0.0085	0.0095	0.014
H21	OFEN070405TN-D18 MP1500	0.080	0.0065	0.0070	0.011

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

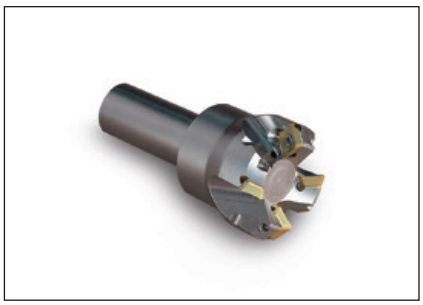
R220.43-07 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			F15M			F40M			MK1500		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	940	1250	1500	830	1100	1325	890	1200	1425	1075	1425	1700	630	840	1000	—	—	—
P2	900	1225	1425	790	1075	1275	870	1175	1350	1025	1375	1650	600	820	960	—	—	—
P3	790	1075	1275	700	950	1125	750	1000	1175	900	1200	1425	530	720	850	—	—	—
P4	690	940	1125	610	830	1000	670	880	1050	790	1075	1275	465	630	760	—	—	—
P5	680	900	1075	600	800	950	640	860	1025	770	1025	1225	455	600	720	—	—	—
P6	760	1025	1200	670	910	1075	720	970	1125	870	1175	1375	510	690	810	—	—	—
P7	720	970	1150	640	860	1000	680	920	1075	820	1100	1300	480	650	760	—	—	—
P8	660	900	1050	590	800	940	630	840	1000	760	1025	1200	445	600	710	—	—	—
P11	700	940	1100	620	840	980	660	890	1050	800	1075	1250	470	630	740	—	—	—
M1	—	—	—	570	780	910	650	870	1025	830	1125	1325	485	660	770	—	—	—
M2	—	—	—	485	640	770	530	720	850	700	920	1100	410	540	650	—	—	—
M3	—	—	—	395	530	630	435	570	680	550	730	870	335	450	530	—	—	—
M4	—	—	—	305	405	485	335	440	530	430	570	670	260	345	410	—	—	—
M5	—	—	—	255	340	405	280	370	445	355	475	560	215	285	340	—	—	—
K1	710	970	1125	630	860	1000	690	920	1075	820	1100	1300	475	650	760	890	1200	1425
K2	640	850	1025	570	760	900	610	820	960	730	970	1150	430	570	680	810	1075	1275
K3	540	720	860	480	640	760	510	690	810	620	820	980	365	485	580	680	910	1075
K4	520	690	820	460	610	730	490	660	780	590	780	930	350	460	550	650	860	1025
K5	315	425	500	280	380	445	300	400	480	360	480	570	210	285	340	395	540	630
K6	455	610	730	405	540	640	430	580	680	520	690	820	305	405	485	570	760	910
K7	405	550	640	360	485	570	385	510	610	460	620	730	270	365	435	510	690	810
N1	—	—	—	2300	3100	3750	2525	3325	4000	3025	4100	4800	1750	2350	2850	—	—	—
N2	—	—	—	1875	2525	3025	2025	2700	3250	2450	3300	3875	1425	1900	2300	—	—	—
N3	—	—	—	1250	1675	2025	1350	1800	2150	1625	2200	2575	940	1275	1525	—	—	—
N11	—	—	—	1425	1925	2300	1550	2050	2475	1850	2525	2950	1075	1450	1750	—	—	—
S1	—	—	—	150	200	235	155	205	250	200	265	315	120	160	190	—	—	—
S2	—	—	—	120	160	190	125	165	200	160	215	255	95	130	155	—	—	—
S3	—	—	—	105	140	165	110	145	175	140	185	225	85	115	135	—	—	—
S11	—	—	—	210	280	330	220	290	345	280	370	440	170	225	270	—	—	—
S12	—	—	—	120	160	190	125	165	200	160	215	255	100	130	155	—	—	—
S13	—	—	—	95	130	150	100	135	160	130	170	205	80	105	125	—	—	—
H5	155	200	245	125	165	195	135	180	210	170	225	265	105	135	165	—	—	—
H8	165	220	260	130	175	210	140	190	225	180	240	280	110	145	175	—	—	—
H11	195	255	310	155	205	250	170	225	270	215	285	340	130	170	210	—	—	—
H12	295	390	470	235	315	375	255	345	405	325	430	510	200	260	315	—	—	—
H21	165	220	260	130	175	210	140	190	225	180	240	280	110	145	175	—	—	—

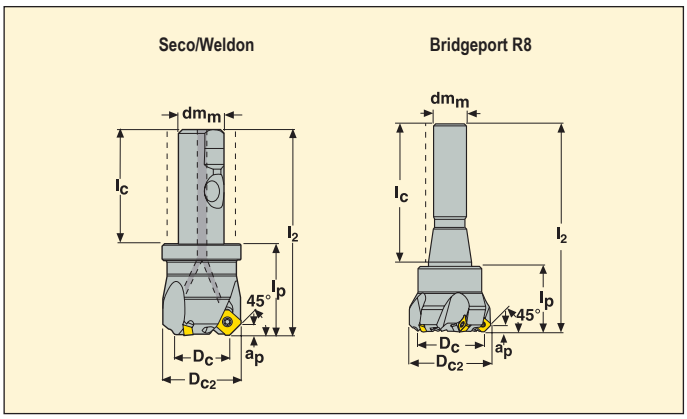
R220.43-07 – Cutting data v_c = (sf/min)

	MK2050			MM4500			H15			MP1020		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	820	1100	1325	510	680	820	—	—	—	790	1000	1225
P2	780	1075	1250	490	660	780	—	—	—	700	980	1100
P3	690	930	1100	430	580	690	—	—	—	660	900	1025
P4	610	820	980	375	510	610	—	—	—	580	800	940
P5	590	780	940	370	490	580	—	—	—	610	760	900
P6	660	900	1050	415	560	660	—	—	—	680	910	1000
P7	630	850	990	390	530	620	—	—	—	640	860	960
P8	580	780	930	360	490	580	—	—	—	560	760	870
P11	610	820	970	380	510	600	—	—	—	620	830	930
M1	—	—	—	420	570	670	—	—	—	—	—	—
M2	—	—	—	355	470	560	—	—	—	—	—	—
M3	—	—	—	290	390	455	—	—	—	—	—	—
M4	—	—	—	225	295	355	—	—	—	—	—	—
M5	—	—	—	185	250	295	—	—	—	—	—	—
K1	840	1150	1350	—	—	—	—	—	—	—	—	—
K2	760	1025	1200	—	—	—	—	—	—	—	—	—
K3	650	860	1025	—	—	—	—	—	—	—	—	—
K4	620	820	980	—	—	—	—	—	—	—	—	—
K5	375	510	600	—	—	—	—	—	—	—	—	—
K6	540	720	860	—	—	—	—	—	—	—	—	—
K7	480	650	770	—	—	—	—	—	—	—	—	—
N1	—	—	—	—	—	—	2400	3250	3800	—	—	—
N2	—	—	—	—	—	—	1925	2625	3075	—	—	—
N3	—	—	—	—	—	—	1300	1750	2050	—	—	—
N11	—	—	—	—	—	—	1475	2000	2325	—	—	—
S1	—	—	—	70	90	110	—	—	—	—	—	—
S2	—	—	—	55	75	85	—	—	—	—	—	—
S3	—	—	—	48	65	75	—	—	—	—	—	—
S11	—	—	—	95	130	150	—	—	—	—	—	—
S12	—	—	—	75	100	115	—	—	—	—	—	—
S13	—	—	—	60	80	95	—	—	—	—	—	—
H3	—	—	—	—	—	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—
H7	—	—	—	—	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—
H21	—	—	—	—	—	—	—	—	—	—	—	—
H31	—	—	—	—	—	—	—	—	—	—	—	—

QuattroMill® R217.53-09

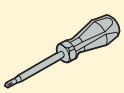


- For insert selection and cutting data recommendations, see pages 141–142.
- For complete insert program, see page 576, 610, 615.



EDP No.	Part No.	Dimensions in inch								lbs	Type of mounting	Max rpm	Insert
		D_c	D_{c2}	dm_m	l_2	l_p	l_c	a_p					
04117	R217.53 -00.750-3S-09-2A	0.787	1.181	0.75	3.54	1.57	1.97	0.177	2	0.9	Seco/Weldon	25100	SE..09
04121	-01.00-3S-09-3A	0.984	1.378	0.75	3.54	1.57	1.97	0.177	3	0.9	Seco/Weldon	22400	SE..09
04122	-01.25-3S-09-4A	1.260	1.654	0.75	3.54	1.57	1.97	0.177	4	0.9	Seco/Weldon	19800	SE..09
04123	R217.53 -02.00-R8-09-5	1.575	1.969	0.95	6.02	1.89	4.00	0.177	5	2.4	Bridgeport R8	15800	SE..09

Spare Parts, included in delivery.

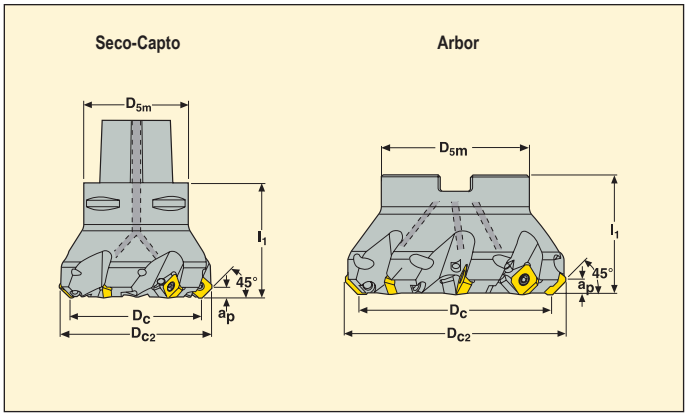
For cutter	Insert key	Insert screw
		
R217.53-..	T09P-3	C03008-T09P

Please check availability in current price and stock-list.

Torque value 17.7 in/lbs.
Torque keys available, see page 643.

QuattroMill® R217/220.53-09

- For insert selection and cutting data recommendations, see pages 141–142.
- For complete insert program, see page 576, 610, 615.



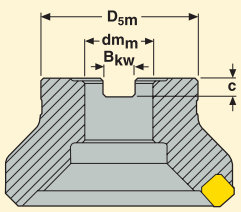
EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	D_{5m}	l_1	a_p		lbs	Type of mounting	Max rpm	Insert
65279	C5-R217.53 -040-09-4A	1.57	1.97	1.97	2.17	0.177	4	1.8	Seco-Capto	17700	SE..09
65280	-050-09-5A	1.97	2.36	1.97	2.17	0.177	5	2.0	Seco-Capto	15800	SE..09
65281	-063-09-6A	2.48	2.87	1.97	2.17	0.177	6	2.4	Seco-Capto	14100	SE..09
65282	-080-09-6A	3.15	3.54	1.97	2.17	0.177	6	2.9	Seco-Capto	12500	SE..09
04119	R220.53 -01.50-09-4A	1.57	1.97	1.85	1.57	0.177	4	1.1	Arbor	17700	SE..09
04114	-02.00-09-5A	1.97	2.36	1.85	1.57	0.177	5	1.3	Arbor	15800	SE..09
04115	-02.50-09-6A	2.48	2.87	1.85	1.57	0.177	6	1.5	Arbor	14100	SE..09
04116	-03.00-09-6A	3.15	3.54	2.44	1.97	0.177	6	3.5	Arbor	12500	SE..09
04120	-04.00-09-7A	3.94	4.33	3.54	1.97	0.177	7	5.1	Arbor	11200	SE..09

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
C5-R217.53-..	–	T09P-3	C03008-T09P
R220.53-01.50 - 2.50	UC6S1/4UNFX1SHCS	T09P-2D	C03008-T09P
R220.53-03.00	UC6S1/2UNFX1-1/4	T09P-3	C03008-T09P
R220.53-04.00	UF6S3/4UNFX1-3/4	T09P-3	C03008-T09P

Insert screw torque value 17.7 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c

Please check availability in current price and stock-list.

R220.53-09 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	SEMX09T3AFTN-ME06 MP2500	0.10	0.0048	0.0050	0.0080
P2	SEMX09T3AFTN-ME06 MP2500	0.10	0.0048	0.0050	0.0080
P3	SEMX09T3AFTN-ME06 MP2500	0.10	0.0044	0.0050	0.0075
P4	SEMX09T3AFTN-ME06 MP2500	0.10	0.0044	0.0048	0.0075
P5	SEMX09T3AFTN-ME06 MP2500	0.10	0.0044	0.0048	0.0070
P6	SEMX09T3AFTN-M08 MP2500	0.10	0.0060	0.0065	0.0095
P7	SEMX09T3AFTN-M08 MP2500	0.10	0.0060	0.0065	0.0095
P8	SEEX09T3AFTN-D09 MP1500	0.10	0.0065	0.0075	0.011
P11	SEEX09T3AFTN-D09 MP1500	0.10	0.0065	0.0070	0.011
M1	SEEX09T3AFTN-ME07 MP2500	0.10	0.0055	0.0060	0.0095
M2	SEEX09T3AFTN-ME07 MP2500	0.10	0.0050	0.0055	0.0085
M3	SEMX09T3AFTN-M08 T350M	0.080	0.0048	0.0050	0.0080
M4	SEMX09T3AFTN-M08 T350M	0.065	0.0040	0.0044	0.0065
M5	SEMX09T3AFTN-M08 MM4500	0.065	0.0040	0.0044	0.0065
K1	SEEX09T3AFTN-M08 MK1500	0.10	0.0065	0.0070	0.011
K2	SEEX09T3AFTN-M08 MK1500	0.10	0.0060	0.0065	0.0095
K3	SEEX09T3AFTN-M08 MK2050	0.10	0.0060	0.0065	0.0095
K4	SEEX09T3AFTN-M08 MK2050	0.10	0.0060	0.0065	0.0095
K5	SEEX09T3AFTN-M08 MK2050	0.10	0.0050	0.0055	0.0085
K6	SEEX09T3AFTN-M08 MK2050	0.10	0.0060	0.0065	0.0095
K7	SEEX09T3AFTN-M08 MK2050	0.10	0.0050	0.0055	0.0085
N1	SEEX09T3AFN-E04 H15	0.10	0.0040	0.0044	0.0065
N2	SEEX09T3AFN-E04 H15	0.10	0.0040	0.0044	0.0065
N3	SEEX09T3AFN-E04 F40M	0.10	0.0040	0.0044	0.0065
N11	SEEX09T3AFN-E04 F40M	0.10	0.0040	0.0044	0.0065
S1	SEEX09T3AFTN-ME07 T350M	0.065	0.0036	0.0040	0.0060
S2	SEEX09T3AFTN-ME07 T350M	0.065	0.0036	0.0040	0.0060
S3	SEEX09T3AFTN-ME07 T350M	0.065	0.0034	0.0036	0.0055
S11	SEEX09T3AFN-M05 MS2050	0.075	0.0030	0.0032	0.0048
S12	SEEX09T3AFN-M05 MS2050	0.075	0.0030	0.0032	0.0048
S13	SEEX09T3AFN-M05 MS2050	0.065	0.0026	0.0028	0.0044

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

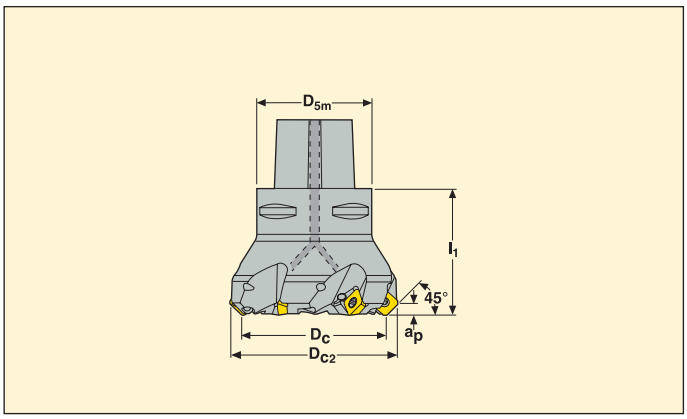
R220.53-09 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F15M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	1100	1475	1750	1000	1350	1600	1075	1425	1675	1050	1400	1650	1275	1700	2000	760	1025	1225
P2	1075	1425	1700	970	1300	1525	1050	1400	1625	1025	1375	1600	1225	1625	1925	740	980	1150
P3	930	1250	1500	850	1125	1350	910	1225	1425	890	1175	1400	1075	1425	1675	650	860	1025
P4	820	1100	1300	750	1025	1175	800	1075	1250	780	1050	1250	950	1275	1475	570	770	900
P5	780	1050	1250	720	970	1150	770	1025	1225	750	1000	1175	910	1225	1425	540	730	870
P6	890	1200	1400	800	1075	1300	870	1150	1375	840	1125	1325	1025	1350	1600	610	820	980
P7	840	1125	1325	760	1025	1225	820	1075	1275	790	1075	1250	960	1275	1525	580	780	920
P8	780	1050	1250	720	950	1125	760	1025	1200	750	990	1175	910	1200	1400	540	720	860
P11	820	1100	1275	740	1000	1175	790	1050	1250	770	1050	1225	930	1250	1475	560	760	900
M1	—	—	—	700	940	1100	780	1050	1225	780	1050	1225	1000	1325	1550	590	790	940
M2	—	—	—	580	780	930	640	860	1025	640	870	1025	820	1100	1300	490	660	790
M3	—	—	—	465	620	740	510	680	810	520	700	820	650	860	1025	395	530	630
M4	—	—	—	365	480	570	390	520	620	400	530	630	500	660	780	310	410	485
M5	—	—	—	305	400	480	325	435	510	335	440	530	420	550	650	255	340	405
K1	840	1125	1350	770	1025	1225	820	1100	1300	800	1075	1275	980	1300	1525	580	780	920
K2	740	1000	1175	680	920	1100	730	970	1150	710	960	1125	860	1150	1350	520	700	830
K3	630	850	1000	580	780	930	620	820	980	600	810	950	730	970	1150	435	590	700
K4	600	810	960	550	740	880	590	790	930	570	770	910	690	930	1100	415	560	670
K5	370	500	590	340	455	540	355	480	560	350	470	560	425	570	660	255	345	405
K6	530	720	840	485	650	780	520	690	820	510	680	800	610	820	970	365	495	590
K7	470	640	760	435	590	690	455	610	720	445	600	720	540	730	850	330	445	520
N1	—	—	—	2875	3850	4550	3050	4100	4825	—	—	—	3675	4900	5775	2175	2925	3450
N2	—	—	—	2325	3100	3675	2475	3325	3900	—	—	—	2975	3975	4675	1750	2350	2800
N3	—	—	—	1550	2075	2450	1650	2225	2600	—	—	—	1975	2650	3125	1175	1575	1850
N11	—	—	—	1750	2375	2800	1875	2525	2975	—	—	—	2275	3025	3550	1325	1800	2125
S1	—	—	—	175	235	280	185	245	285	185	250	295	235	310	365	145	190	225
S2	—	—	—	140	190	225	145	195	230	150	200	240	190	250	295	115	155	185
S3	—	—	—	125	165	195	130	170	205	130	175	210	165	220	255	100	135	160
S11	—	—	—	245	325	390	255	345	410	265	350	415	325	435	510	200	265	315
S12	—	—	—	140	190	225	150	200	235	150	205	240	190	250	295	115	155	180
S13	—	—	—	115	150	180	120	155	185	120	160	190	150	200	235	95	125	145
H5	175	235	275	145	195	230	155	205	250	165	220	260	195	260	305	120	160	190
H8	185	245	295	155	205	240	165	220	255	175	230	275	205	270	320	130	170	200
H11	225	300	355	185	245	290	200	265	315	210	280	330	250	330	390	155	205	245
H12	340	450	530	280	370	440	300	400	475	315	425	500	380	500	590	235	310	365
H21	185	245	295	155	205	240	165	220	255	175	230	275	205	270	320	130	170	200

R220.53-09 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MM4500			MS2050		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	980	1325	1575	610	830	980	790	870	910
P2	—	—	—	960	1275	1500	600	800	940	770	850	890
P3	—	—	—	840	1125	1325	520	700	820	640	680	730
P4	—	—	—	740	1000	1175	460	620	730	570	600	640
P5	—	—	—	710	950	1125	440	590	710	530	580	580
P6	—	—	—	790	1075	1275	495	670	790	590	650	650
P7	—	—	—	750	1000	1200	465	630	750	560	610	620
P8	—	—	—	710	940	1100	440	590	690	540	580	610
P11	—	—	—	730	980	1175	455	610	730	540	590	600
M1	—	—	—	—	—	—	510	680	810	670	740	780
M2	—	—	—	—	—	—	420	570	680	510	560	570
M3	—	—	—	—	—	—	340	455	540	345	355	350
M4	—	—	—	—	—	—	265	355	420	230	235	240
M5	—	—	—	—	—	—	220	295	350	190	195	200
K1	1100	1450	1725	1025	1375	1625	—	—	—	770	860	900
K2	960	1300	1550	910	1225	1475	—	—	—	640	700	700
K3	820	1100	1300	770	1050	1250	—	—	—	540	590	600
K4	780	1050	1250	740	1000	1175	—	—	—	510	560	570
K5	480	650	760	455	610	720	—	—	—	295	310	320
K6	690	930	1100	650	880	1050	—	—	—	455	495	500
K7	620	830	970	580	780	920	—	—	—	380	395	410
S1	—	—	—	—	—	—	80	110	130	190	230	260
S2	—	—	—	—	—	—	65	85	105	150	185	210
S3	—	—	—	—	—	—	55	75	90	135	165	185
S11	—	—	—	—	—	—	110	150	180	260	325	370
S12	—	—	—	—	—	—	85	115	135	200	250	285
S13	—	—	—	—	—	—	70	95	110	160	200	225

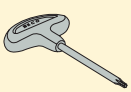
QuattroMill® R217.53-12



- For insert selection and cutting data recommendations, see pages 149-150.
- For complete insert program, see page 577, 610.

EDP No.	Part No.	Dimensions in inch						lbs	Type of mounting	Max rpm	Insert
		D_c	D_{c2}	D_{5m}	l_1	a_p					
65283	C5-R217.53 -040-12-3A	1.57	2.05	1.97	2.17	0.236	3	1.8	Seco-Capto	16500	SE..1204
65284	-050-12-4A	1.97	2.44	1.97	2.17	0.236	4	2.0	Seco-Capto	14800	SE..1204
65285	-063-12-5A	2.48	2.95	1.97	2.17	0.236	5	2.4	Seco-Capto	13200	SE..1204
65286	-080-12-6A	3.15	3.62	1.97	2.17	0.236	6	2.6	Seco-Capto	11700	SE..1204
65287	C6-R217.53 -040-12-3A	1.57	2.05	2.48	2.48	0.236	3	2.9	Seco-Capto	16500	SE..1204
65288	-050-12-4A	1.97	2.44	2.48	2.48	0.236	4	2.9	Seco-Capto	14800	SE..1204
65289	-063-12-5A	2.48	2.95	2.48	2.48	0.236	5	3.5	Seco-Capto	13200	SE..1204
65290	-080-12-6A	3.15	3.62	2.48	2.48	0.236	6	4.2	Seco-Capto	11700	SE..1204

Spare Parts, included in delivery.

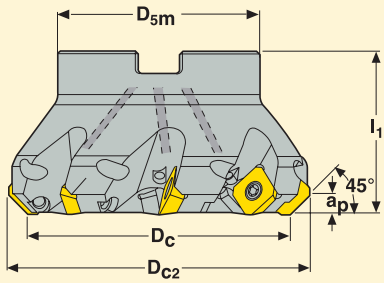
For cutter	Insert key	Insert screw
		
R217.53-..	T15P-4	C04011-T15P

Please check availability in current price and stock-list.

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

QuattroMill® R220.53-12

- For insert selection and cutting data recommendations, see pages 149-150.
- For complete insert program, see page 577, 610.



Through coolant available up to 5.00" dia

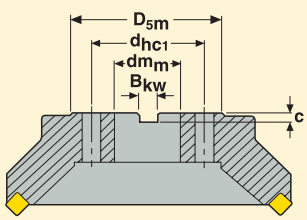
Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Normal										
	03921	R220.53 -01.50-12-3A	1.57	2.05	1.57	0.236	3	1.1	16500	SE..1204
	03923	-02.00-12-4A	1.97	2.44	1.57	0.236	4	1.3	14800	SE..1204
	03928	-02.50-12-5A	2.48	2.95	1.57	0.236	5	1.3	13200	SE..1204
	03929	-03.00-12-6A	3.15	3.62	1.97	0.236	6	3.3	11700	SE..1204
	03932	-04.00-12-7A	3.94	4.41	1.97	0.236	7	4.9	10500	SE..1204
	03941	-05.00-12-8A	4.92	5.39	2.48	0.236	8	8.4	9400	SE..1204
	03942	-06.00-12-10	6.30	6.77	2.48	0.236	10	10.8	8300	SE..1204
	03936	-808.00-12-12	7.87	8.35	2.48	0.236	12	17.6	7400	SE..1204

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.53-01.50 - 02.50	220.17-695	T15P-4	C04011-T15P
R220.53-03.00	UC6S1/2UNFX1-1/4	T15P-4	C04011-T15P
R220.53-04.00	UF6S3/4UNFX1-3/4	T15P-4	C04011-T15P
R220.53-05.00	UF6S3/4UNFX2	T15P-4	C04011-T15P
R220.53-06.00 / 808.00	–	T15P-4	C04011-T15P

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

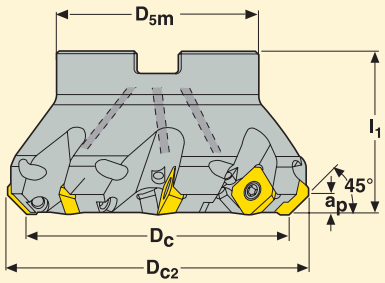


For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	d_{hc1}
R220.53-01.50 - 02.50	0.75	1.85	0.32	0.16	–
R220.53-03.00	1.00	2.44	0.38	0.22	–
R220.53-04.00 / 05.00	1.50	3.54	0.63	0.38	–
R220.53-06.00	2.00	3.54	0.76	0.44	–
R220.53-808.00	2.50	5.12	1.01	0.56	4.00

Please check availability in current price and stock-list.

QuattroMill® R220.53-12

- For insert selection and cutting data recommendations, see pages 149-150.
- For complete insert program, see page 577, 610.



Through coolant available up to 5.00" dia

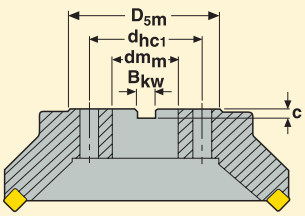
Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Coarse										
	18839	R220.53 -04.00-12-5A	3.94	4.41	1.97	0.236	5	4.9	10500	SE..1204
	18840	-05.00-12-6A	4.92	5.39	2.48	0.236	6	8.4	9400	SE..1204
	18841	-06.00-12-7	6.30	6.77	2.48	0.236	7	10.8	8300	SE..1204

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.53-04.00	UF6S3/4UNFX1-3/4	T15P-4	C04011-T15P
R220.53-05.00	UF6S3/4UNFX2	T15P-4	C04011-T15P
R220.53-06.00	–	T15P-4	C04011-T15P

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

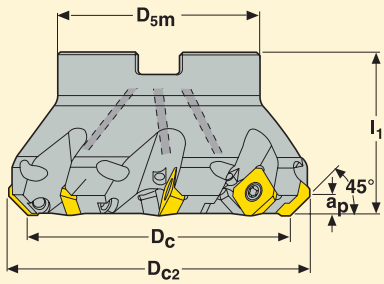


For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.53-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.53-06.00	2.00	3.54	0.76	0.44

Please check availability in current price and stock-list.

QuattroMill® R220.53-12

- For insert selection and cutting data recommendations, see pages 149-150.
- For complete insert program, see page 577, 610.



Through coolant available up to 5.00" dia

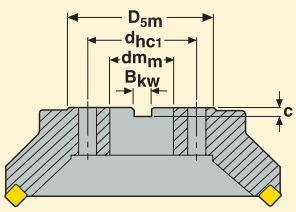
Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Close										
	03922	R220.53 -01.50-12-4A	1.57	2.05	1.57	0.236	4	1.1	16500	SE..1204
	03937	-02.00-12-5A	1.97	2.44	1.57	0.236	5	1.3	14800	SE..1204
	03940	-02.50-12-6A	2.48	2.95	1.57	0.236	6	1.3	13200	SE..1204
	03931	-03.00-12-8A	3.15	3.62	1.97	0.236	8	3.3	11700	SE..1204
	03934	-04.00-12-10A	3.94	4.41	1.97	0.236	10	4.9	10500	SE..1204
	03935	-05.00-12-12A	4.92	5.39	2.48	0.236	12	8.2	9400	SE..1204
	18842	-06.00-12-16	6.30	6.77	2.48	0.236	16	10.6	8300	SE..1204

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.53-01.50 - 02.50	220.17-695	T15P-4	C04011-T15P
R220.53-03.00	UC6S1/2UNFX1-1/4	T15P-4	C04011-T15P
R220.53-04.00	UF6S3/4UNFX1-3/4	T15P-4	C04011-T15P
R220.53-05.00	UF6S3/4UNFX2	T15P-4	C04011-T15P
R220.53-06.00	–	T15P-4	C04011-T15P

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

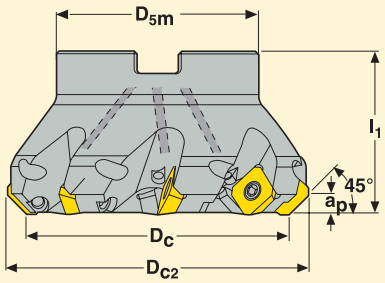


For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.53-01.50 - 02.50	0.75	1.85	0.32	0.16
R220.53-03.00	1.00	2.44	0.38	0.22
R220.53-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.53-06.00	2.00	3.54	0.76	0.44

Please check availability in current price and stock-list.

QuattroMill® R220.53-12

- For insert selection and cutting data recommendations, see pages 149-150.
- For complete insert program, see page 577.



Through coolant available up to 5.00" dia

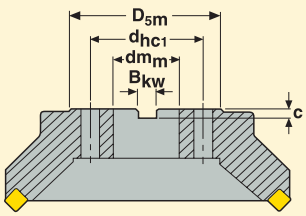
Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Super close	24483	R220.53 -03.00-12-11A	3.15	3.62	1.97	0.236	11	2.6	11700	SE..1204
	24484	-04.00-12-12A	3.94	4.41	1.97	0.236	12	3.7	10500	SE..1204
	24501	-05.00-12-14A	4.92	5.39	2.48	0.236	14	7.5	9400	SE..1204
	24502	-06.00-12-17	6.30	6.77	2.48	0.236	17	11.5	8300	SE..1204
	18845	-808.00-12-20	7.87	8.35	2.48	0.236	20	4.6	7400	SE..1204

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
R220.53-03.00 - 5.00	H6B-H3.0	C04008-H3
R220.53-06.00 / 808.00	H6B-H3.0	C04008-H3

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

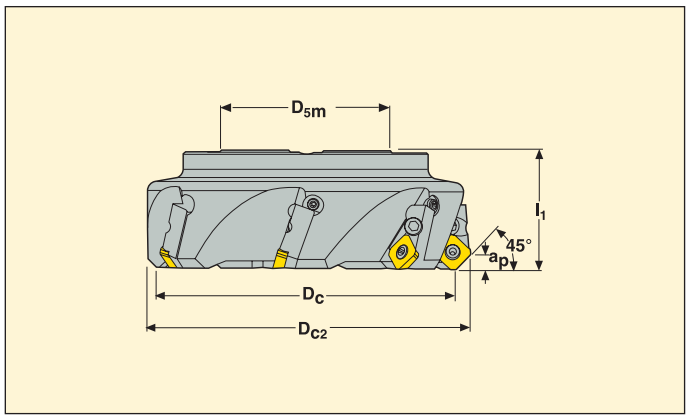


For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.53-03.00	1.00	2.44	0.38	0.22
R220.53-04.00	1.50	3.03	0.57	0.38
R220.53-05.00	1.50	3.54	0.63	0.38
R220.53-06.00	2.00	5.12	0.76	0.44
R220.53-808.00	2.50	5.12	1.01	0.56

Please check availability in current price and stock-list.

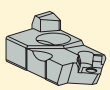
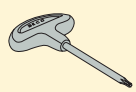
QuattroMill® R220.53-12C

- For insert selection and cutting data recommendations, see pages 149-150.
- For complete insert program, see page 577, 610.
- Quick response items, call for delivery.



Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Normal										
	28393	R220.53 -06.00-12-10C	6.30	6.77	2.48	0.236	10	14.6	5200	SE..1204
	28394	-808.00-12-12C	7.87	8.35	2.48	0.236	12	37.7	4700	SE..1204

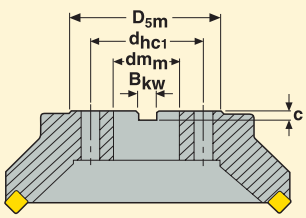
Spare Parts, included in delivery.

For cutter	Cassette	Cassette screw	Insert key	Insert screw	Setting gauge
					
R220.53-06.00 / 808.00	SE12AR-53	FS96018	T15P-4	C04011-T15P	AU1114T-T15P

Key T15P-3 for setting gauge and key H05-4 for cassette screw ordered separately.

Insert screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	dhc1
R220.53-06.00	2.00	3.54	0.76	0.44	–
R220.53-808.00	2.50	5.12	1.01	0.56	4.00

Please check availability in current price and stock-list.

R220.53-12 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	SEMX1204AFTN-M15 MP2500	0.14	0.012	0.013	0.020
P2	SEMX1204AFTN-M15 MP2500	0.14	0.012	0.013	0.020
P3	SEMX1204AFTN-M15 MP2500	0.14	0.011	0.013	0.019
P4	SEMX1204AFTN-M15 MP2500	0.14	0.011	0.012	0.019
P5	SEMX1204AFTN-M15 MP2500	0.14	0.011	0.012	0.018
P6	SEMX1204AFTN-M15 MP2500	0.14	0.011	0.012	0.018
P7	SEMX1204AFTN-M15 T350M	0.14	0.011	0.012	0.018
P8	SEMX1204AFTN-M15 T350M	0.14	0.011	0.013	0.019
P11	SEMX1204AFTN-M15 T350M	0.14	0.011	0.012	0.018
M1	SEEX1204AFN-M10 MS2050	0.14	0.0080	0.0085	0.013
M2	SEEX1204AFN-M10 MS2050	0.14	0.0070	0.0080	0.012
M3	SEEX1204AFN-M10 MS2050	0.12	0.0060	0.0065	0.0095
M4	SEEX1204AFN-M10 T350M	0.080	0.0050	0.0055	0.0085
M5	SEEX1204AFTN-M14 MM4500	0.080	0.0070	0.0080	0.012
K1	SEMX1204AFTN-M15 MK2050	0.14	0.012	0.013	0.020
K2	SEMX1204AFTN-M15 MK2050	0.14	0.011	0.012	0.018
K3	SEMX1204AFTN-M15 MK2050	0.14	0.011	0.012	0.018
K4	SEMX1204AFTN-M15 MK2050	0.14	0.011	0.012	0.018
K5	SEMX1204AFTN-M15 MK2050	0.14	0.0095	0.011	0.017
K6	SEMX1204AFTN-M15 MK2050	0.14	0.011	0.012	0.018
K7	SEMX1204AFTN-M15 T350M	0.14	0.0095	0.011	0.017
N1	SEEX1204AFN-E08 H25	0.14	0.0080	0.0085	0.013
N2	SEEX1204AFN-E08 H25	0.14	0.0080	0.0085	0.013
N3	SEEX1204AFN-E08 F40M	0.14	0.0080	0.0085	0.013
N11	SEEX1204AFN-E08 H25	0.14	0.0080	0.0085	0.013
S1	SEEX1204AFTN-ME11 T350M	0.080	0.0055	0.0060	0.0095
S2	SEEX1204AFTN-ME11 T350M	0.080	0.0055	0.0060	0.0095
S3	SEEX1204AFTN-ME11 T350M	0.080	0.0050	0.0055	0.0085
S11	SEEX1204AFN-M10 MS2050	0.10	0.0060	0.0065	0.0095
S12	SEEX1204AFN-M10 MS2050	0.10	0.0060	0.0065	0.0095
S13	SEEX1204AFN-M10 MS2050	0.080	0.0050	0.0055	0.0085
H5	SEMX1204AFTN-MD19 MP1500	0.12	0.0085	0.0095	0.015
H8	SEMX1204AFTN-MD19 MP1500	0.10	0.0065	0.0075	0.011
H11	SEMX1204AFTN-MD19 MP1500	0.12	0.0085	0.0095	0.015
H12	SEMX1204AFTN-MD19 MP1500	0.12	0.0085	0.0095	0.015
H21	SEMX1204AFTN-MD19 MP1500	0.10	0.0065	0.0075	0.011

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R220.53-12 – Cutting data v_c = (sf/min)

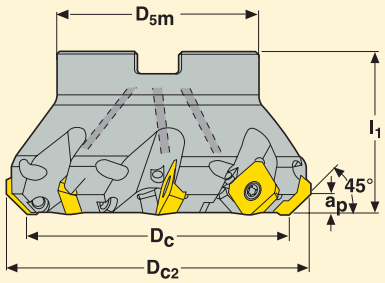
	MP1020			MP1500			MP2500			MP3000			T350M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	740	1025	1175	980	1350	1575	870	1175	1400	740	1000	1200	760	1025	1225	660	900	1075
P2	720	990	1100	950	1275	1550	850	1125	1375	720	970	1175	740	990	1200	640	860	1025
P3	680	850	1025	840	1125	1350	740	990	1200	630	850	1000	650	870	1025	560	750	900
P4	600	800	900	740	1000	1175	650	890	1050	550	760	910	570	780	910	495	680	790
P5	570	770	860	710	960	1150	630	850	1025	530	730	870	540	740	880	475	650	770
P6	640	860	1000	790	1075	1275	700	960	1125	610	820	970	610	830	990	530	730	860
P7	610	810	950	750	1025	1200	660	900	1075	570	770	920	580	790	940	500	680	810
P8	570	720	860	710	940	1125	630	840	1000	530	710	840	540	730	870	475	630	760
P11	590	790	920	730	990	1175	640	880	1050	560	750	890	560	760	910	485	660	790
M1	—	—	—	—	—	—	610	820	980	540	730	870	570	760	920	520	690	830
M2	—	—	—	—	—	—	500	690	820	440	610	720	470	640	760	425	580	690
M3	—	—	—	—	—	—	410	560	670	365	500	590	385	520	620	350	470	570
M4	—	—	—	—	—	—	320	425	520	280	380	460	300	395	480	275	360	440
M5	—	—	—	—	—	—	270	355	430	235	315	385	250	330	400	225	300	365
K1	—	—	—	760	1025	1225	670	900	1075	570	770	920	580	780	940	510	680	820
K2	—	—	—	670	910	1075	590	810	960	500	690	820	520	710	840	450	610	730
K3	—	—	—	570	770	920	500	680	810	425	580	690	435	600	710	380	520	620
K4	—	—	—	540	740	880	480	650	780	405	560	660	420	570	680	365	495	590
K5	—	—	—	340	450	540	300	395	475	250	345	405	260	345	415	225	300	360
K6	—	—	—	475	650	770	420	580	680	355	490	580	370	500	600	320	435	520
K7	—	—	—	435	570	690	385	510	610	320	440	520	335	445	530	290	385	460
N1	—	—	—	—	—	—	2450	3325	3925	2075	2825	3300	—	—	—	1850	2500	2975
N2	—	—	—	—	—	—	1975	2675	3175	1675	2275	2675	—	—	—	1500	2025	2400
N3	—	—	—	—	—	—	1325	1775	2125	1100	1525	1775	—	—	—	1000	1350	1600
N11	—	—	—	—	—	—	1500	2050	2425	1275	1725	2050	—	—	—	1150	1550	1825
S1	—	—	—	—	—	—	155	205	250	130	175	215	140	185	225	125	170	205
S2	—	—	—	—	—	—	125	165	205	105	140	175	115	150	180	105	135	165
S3	—	—	—	—	—	—	110	145	180	95	125	150	100	130	160	90	120	145
S11	—	—	—	—	—	—	215	290	350	185	250	300	195	260	315	175	235	285
S12	—	—	—	—	—	—	125	170	205	105	145	170	110	150	180	100	135	165
S13	—	—	—	—	—	—	100	135	160	85	115	140	90	120	145	80	110	130
H5	—	—	—	160	220	255	130	175	205	115	155	185	125	170	200	105	145	170
H8	—	—	—	175	230	275	140	185	220	125	165	200	135	175	215	115	155	185
H11	—	—	—	205	275	325	165	225	260	145	195	230	155	215	250	135	185	220
H12	—	—	—	305	420	490	250	335	395	220	295	350	235	325	380	205	280	330
H21	—	—	—	175	230	275	140	185	220	125	165	200	135	175	215	115	155	185

R220.53-12 – Cutting data v_c = (sf/min)

	MM4500			MK1500			MK2050			H25		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	530	730	860	—	—	—	850	1175	1375	—	—	—
P2	520	700	840	—	—	—	830	1125	1350	—	—	—
P3	455	610	730	—	—	—	730	980	1175	—	—	—
P4	400	550	640	—	—	—	640	880	1025	—	—	—
P5	385	520	620	—	—	—	620	840	1000	—	—	—
P6	430	590	700	—	—	—	690	940	1125	—	—	—
P7	405	550	660	—	—	—	650	890	1050	—	—	—
P8	385	510	610	—	—	—	620	820	990	—	—	—
P11	395	540	640	—	—	—	630	860	1025	—	—	—
M1	445	600	720	—	—	—	—	—	—	—	—	—
M2	370	500	600	—	—	—	—	—	—	—	—	—
M3	300	405	490	—	—	—	—	—	—	—	—	—
M4	235	310	380	—	—	—	—	—	—	—	—	—
M5	195	260	315	—	—	—	—	—	—	—	—	—
K1	—	—	—	950	1275	1525	900	1200	1450	—	—	—
K2	—	—	—	840	1150	1350	800	1075	1300	—	—	—
K3	—	—	—	710	970	1150	670	920	1100	—	—	—
K4	—	—	—	680	930	1100	640	880	1050	—	—	—
K5	—	—	—	425	560	670	400	530	640	—	—	—
K6	—	—	—	600	820	970	570	770	920	—	—	—
K7	—	—	—	540	720	860	510	680	820	—	—	—
N1	—	—	—	—	—	—	—	—	—	2425	3275	3875
N2	—	—	—	—	—	—	—	—	—	1950	2650	3125
N3	—	—	—	—	—	—	—	—	—	1300	1750	2075
N11	—	—	—	—	—	—	—	—	—	1500	2000	2375
S1	70	95	115	—	—	—	—	—	—	—	—	—
S2	60	75	95	—	—	—	—	—	—	—	—	—
S3	50	70	80	—	—	—	—	—	—	—	—	—
S11	100	135	160	—	—	—	—	—	—	140	190	225
S12	75	105	125	—	—	—	—	—	—	110	145	175
S13	60	80	100	—	—	—	—	—	—	—	—	—

QuattroMill® R220.53-15

- For insert selection and cutting data recommendations, see pages 152-153.
- For complete insert program, see page 578.



Through coolant available up to 5.00" dia

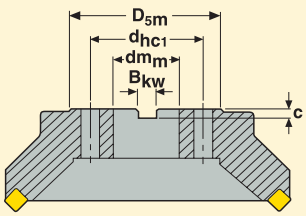
Pitch	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
Normal										
	21880	R220.53 -03.00-15-6A	3.15	3.74	1.97	0.295	6	3.3	7400	SE..15
	21883	-04.00-15-7A	3.94	4.53	1.97	0.295	7	5.1	6600	SE..15
	21889	-06.00-15-10	6.30	6.89	2.48	0.295	10	10.8	5200	SE..15
	21892	-808.00-15-12	7.87	8.46	2.48	0.295	12	18.1	4700	SE..15

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.53-03.00	UC6S1/2UNFX1-1/4	T20P-4	C05013-T20P
R220.53-04.00	UF6S3/4UNFX1-3/4	T20P-4	C05013-T20P
R220.53-06.00 / 808.00	–	T20P-4	C05013-T20P

Insert screw torque value 44.3 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	dhc1
R220.53-03.00	1.00	2.44	0.38	0.22	–
R220.53-04.00	1.50	3.54	0.63	0.38	–
R220.53-06.00	2.00	3.54	0.76	0.44	–
R220.53-808.00	2.50	5.12	1.01	0.56	4.00

Please check availability in current price and stock-list.

R220.53-15 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	SEMX1505AFTN-M18 MP2500	0.18	0.013	0.014	0.022
P2	SEMX1505AFTN-M18 MP2500	0.18	0.013	0.015	0.024
P3	SEMX1505AFTN-M18 MP2500	0.18	0.013	0.014	0.022
P4	SEMX1505AFTN-M18 MP2500	0.18	0.013	0.013	0.022
P5	SEMX1505AFTN-M18 MP2500	0.18	0.013	0.013	0.020
P6	SEMX1505AFTN-M18 MP2500	0.18	0.012	0.013	0.020
P7	SEMX1505AFTN-M18 T350M	0.18	0.012	0.013	0.020
P8	SEMX1505AFTN-M18 T350M	0.18	0.013	0.014	0.022
P11	SEMX1505AFTN-M18 T350M	0.18	0.012	0.013	0.020
M1	SEEX1505AFN-M12 MS2050	0.18	0.0095	0.010	0.016
M2	SEEX1505AFN-M12 MS2050	0.18	0.0085	0.0095	0.014
M3	SEEX1505AFTN-M17 MP2500	0.14	0.0095	0.010	0.016
M4	SEEX1505AFTN-M17 T350M	0.10	0.0080	0.0085	0.013
M5	SEEX1505AFTN-M17 T350M	0.10	0.0080	0.0085	0.013
K1	SEMX1505AFTN-M18 MK2050	0.18	0.013	0.015	0.024
K2	SEMX1505AFTN-M18 MK2050	0.18	0.013	0.013	0.020
K3	SEMX1505AFTN-M18 MK2050	0.18	0.013	0.013	0.020
K4	SEMX1505AFTN-M18 MK2050	0.18	0.013	0.013	0.020
K5	SEMX1505AFTN-M18 MK2050	0.18	0.011	0.012	0.019
K6	SEMX1505AFTN-M18 MK2050	0.18	0.013	0.013	0.020
K7	SEMX1505AFTN-M18 MK2050	0.18	0.011	0.012	0.019
N1	SEEX1505AFN-E10 H25	0.18	0.010	0.011	0.017
N2	SEEX1505AFN-E10 H25	0.18	0.010	0.011	0.017
N3	SEEX1505AFN-E10 H25	0.18	0.010	0.011	0.017
N11	SEEX1505AFN-E10 H25	0.18	0.010	0.011	0.017
S1	SEEX1505AFN-M12 T350M	0.10	0.0060	0.0065	0.010
S2	SEEX1505AFN-M12 T350M	0.10	0.0060	0.0065	0.010
S3	SEEX1505AFN-M12 T350M	0.10	0.0055	0.0065	0.0095
S11	SEEX1505AFN-M12 MS2050	0.12	0.0070	0.0075	0.012
S12	SEEX1505AFN-M12 MS2050	0.12	0.0070	0.0075	0.012
S13	SEEX1505AFN-M12 MS2050	0.10	0.0060	0.0065	0.010
H5	SEMX1505AFTN-MD20 MP1500	0.14	0.0095	0.010	0.016
H8	SEMX1505AFTN-MD20 MP1500	0.12	0.0070	0.0080	0.012
H11	SEMX1505AFTN-MD20 MP1500	0.14	0.0095	0.010	0.016
H12	SEMX1505AFTN-MD20 MP1500	0.14	0.0095	0.010	0.016
H21	SEMX1505AFTN-MD20 MP1500	0.12	0.0070	0.0080	0.012

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R220.53-15 – Cutting data v_c = (sf/min)

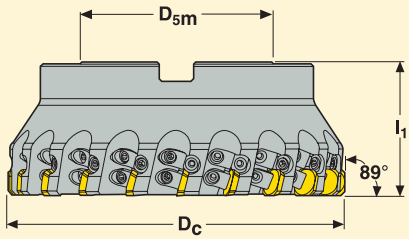
	MP1500			MP2500			MP3000			T350M			F40M			MK1500		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	920	1250	1500	810	1125	1325	720	970	1150	710	970	1150	620	850	1000	—	—	—
P2	890	1200	1425	790	1075	1250	700	940	1125	690	930	1100	600	810	950	—	—	—
P3	780	1050	1250	690	930	1125	610	830	990	610	810	970	530	710	840	—	—	—
P4	690	950	1100	610	840	980	540	740	870	530	730	850	465	640	740	—	—	—
P5	660	900	1100	580	800	960	520	710	830	510	700	840	440	610	730	—	—	—
P6	760	1025	1225	670	900	1075	590	790	930	580	780	940	510	680	820	—	—	—
P7	710	960	1150	630	850	1025	550	750	880	550	740	890	480	640	770	—	—	—
P8	660	890	1050	580	790	940	510	690	830	510	680	820	440	600	710	—	—	—
P11	690	930	1125	610	820	990	540	730	860	530	720	870	465	620	750	—	—	—
M1	—	—	—	570	770	910	520	710	840	530	720	850	485	650	770	—	—	—
M2	—	—	—	470	640	780	435	590	700	440	600	720	400	550	660	—	—	—
M3	—	—	—	380	520	620	355	480	580	355	485	580	325	440	530	—	—	—
M4	—	—	—	300	405	490	280	375	450	280	375	455	255	340	415	—	—	—
M5	—	—	—	250	335	405	230	310	375	235	315	380	210	285	345	—	—	—
K1	710	950	1125	630	850	1000	550	750	890	550	740	870	475	640	760	890	1200	1425
K2	630	860	1025	550	760	920	495	670	790	485	660	800	420	580	690	790	1075	1300
K3	530	730	870	470	640	770	420	570	670	410	560	680	355	485	590	660	910	1100
K4	510	690	830	450	610	740	400	540	640	390	530	640	340	465	560	630	870	1050
K5	315	430	500	280	380	445	245	335	390	245	330	390	210	290	340	395	540	630
K6	445	610	740	395	540	650	355	475	560	345	470	570	300	410	495	560	770	920
K7	400	550	640	355	485	570	310	430	500	310	425	495	270	370	430	500	690	810
N1	—	—	—	2275	3100	3650	2000	2700	3275	—	—	—	1725	2350	2775	—	—	—
N2	—	—	—	1825	2500	2950	1625	2175	2650	—	—	—	1375	1900	2250	—	—	—
N3	—	—	—	1225	1675	1975	1075	1450	1775	—	—	—	920	1250	1500	—	—	—
N11	—	—	—	1400	1900	2250	1225	1650	2025	—	—	—	1050	1450	1700	—	—	—
S1	—	—	—	145	195	240	130	175	210	130	175	215	120	160	195	—	—	—
S2	—	—	—	120	160	190	105	140	170	105	140	170	95	130	155	—	—	—
S3	—	—	—	105	140	170	95	125	150	95	125	150	85	115	135	—	—	—
S11	—	—	—	200	270	330	180	240	290	180	245	295	165	220	265	—	—	—
S12	—	—	—	115	155	190	105	140	170	105	140	170	95	125	155	—	—	—
S13	—	—	—	95	125	155	85	115	135	85	115	135	75	105	125	—	—	—
H5	150	200	240	120	160	195	110	150	180	115	155	185	100	135	160	—	—	—
H8	165	215	260	130	175	210	120	160	195	125	170	200	110	145	175	—	—	—
H11	190	255	310	155	205	250	140	190	225	145	200	240	130	170	205	—	—	—
H12	285	385	465	230	310	375	210	285	340	220	300	360	195	260	310	—	—	—
H21	165	215	260	130	175	210	120	160	195	125	170	200	110	145	175	—	—	—

R220.53-15 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MS2050			H25		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	800	1100	1300	830	1050	1200	—	—	—
P2	—	—	—	780	1050	1250	800	1025	1175	—	—	—
P3	—	—	—	680	920	1100	710	890	1000	—	—	—
P4	—	—	—	600	830	970	630	790	890	—	—	—
P5	—	—	—	570	790	950	600	760	850	—	—	—
P6	—	—	—	660	890	1075	670	850	960	—	—	—
P7	—	—	—	620	840	1000	640	800	900	—	—	—
P8	—	—	—	570	770	920	600	750	850	—	—	—
P11	—	—	—	600	810	980	620	780	880	—	—	—
M1	—	—	—	—	—	—	700	900	1025	—	—	—
M2	—	—	—	—	—	—	590	740	830	—	—	—
M3	—	—	—	—	—	—	465	560	630	—	—	—
M4	—	—	—	—	—	—	350	415	455	—	—	—
M5	—	—	—	—	—	—	290	345	380	—	—	—
K1	890	1200	1425	840	1125	1325	810	1050	1175	—	—	—
K2	790	1075	1300	740	1025	1225	730	920	1025	—	—	—
K3	660	910	1100	630	860	1050	610	770	870	—	—	—
K4	630	870	1050	600	820	990	590	740	830	—	—	—
K5	395	540	630	375	510	600	360	445	495	—	—	—
K6	560	770	920	530	730	870	520	650	730	—	—	—
K7	500	690	810	480	650	770	460	570	630	—	—	—
N1	—	—	—	—	—	—	—	—	—	2225	3025	3550
N2	—	—	—	—	—	—	—	—	—	1800	2425	2875
N3	—	—	—	—	—	—	—	—	—	1200	1625	1925
N11	—	—	—	—	—	—	—	—	—	1350	1850	2175
S1	—	—	—	—	—	—	125	165	195	—	—	—
S2	—	—	—	—	—	—	100	130	160	—	—	—
S3	—	—	—	—	—	—	90	120	145	—	—	—
S11	—	—	—	—	—	—	160	220	260	130	180	215
S12	—	—	—	—	—	—	120	170	200	100	135	165
S13	—	—	—	—	—	—	110	140	170	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—
H21	—	—	—	—	—	—	—	—	—	—	—	—

R220.30-12ST

For finishing operations in short chipping materials



- For insert selection and cutting data recommendations, see pages 155.
- For complete insert program, see pages 575, 579-580.

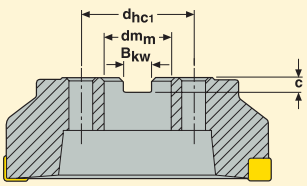
Pitch	EDP No.	Part No.	Dimensions in inch D_c	l_1	a_p		lbs	Max rpm	Insert
Super close									
	96192	R220.30 -03.00-12ST	3.15	2.37	0.039	9	3.7	4800	SE..1203
	96193	-04.00-12ST	4.00	2.37	0.039	12	5.7	4300	SE..1203
	96194	-05.00-12ST	5.00	2.37	0.039	15	6.8	3800	SE..1203
	96195	-06.00-12ST	6.30	2.37	0.039	20	11.7	3300	SE..1203
	96196	-808.00-12ST	7.87	2.37	0.039	25	16.8	3000	SE..1203

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert wedge	Setting gauge	Setting screw	Wedge screw
R220.30-03.00	UC6S1/2UNFX1-1/2	T15P-4ST	CW0608	AS6011	LD6019-T15P	LD6018T-T15P
R220.30-04.00	UC6S3/4UNFX1-1/4	T15P-4ST	CW0608	AS6011	LD6019-T15P	LD6018T-T15P
R220.30-05.00 - 808.00	–	T15P-4ST	CW0608	AS6011	LD6019-T15P	LD6018T-T15P

Wedge screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	dhc1
R220.30-03.00	1.00	2.44	0.38	0.22	–
R220.30-04.00 / 05.00	1.50	3.54	0.63	0.38	–
R220.30-06.00	2.00	4.33	0.76	0.44	–
R220.30-808.00	2.50	5.12	1.00	0.56	4.00

Please check availability in current price and stock-list.

R220.30-12 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	30%	10%
P1	SEEX1203AFTN-M13 T350M	0.024	0.0070	0.0080	0.012
P2	SEEX1203AFTN-M13 T350M	0.024	0.0075	0.0080	0.013
P3	SEEX1203AFTN-M13 T350M	0.024	0.0070	0.0075	0.012
P4	SEEX1203AFTN-M13 T350M	0.024	0.0065	0.0075	0.011
P5	SEEX1203AFTN-M13 T350M	0.024	0.0065	0.0070	0.011
P6	SEEX1203AFTN-M13 T350M	0.024	0.0065	0.0070	0.011
P7	SEEX1203AFTN-M13 T350M	0.024	0.0065	0.0070	0.011
P8	SEEX1203AFTN-MD14 F15M	0.024	0.0075	0.0080	0.013
P11	SEEX1203AFTN-MD14 F15M	0.024	0.0070	0.0080	0.012
M1	SEEX1203AFTN-M13 T350M	0.024	0.0075	0.0080	0.013
M2	SEEX1203AFTN-M13 T350M	0.024	0.0065	0.0070	0.011
M3	SEEX1203AFTN-M13 T350M	0.019	0.0055	0.0060	0.0085
M4	SEEX1203AFTN-M13 T350M	0.014	0.0048	0.0050	0.0080
M5	SEEX1203AFTN-M13 T350M	0.014	0.0048	0.0050	0.0080
K1	SEEX1203AFTN-MD14 MH1000	0.024	0.0080	0.0085	0.013
K2	SEEX1203AFTN-MD14 MH1000	0.024	0.0070	0.0080	0.012
K3	SEEX1203AFTN-MD14 MH1000	0.024	0.0070	0.0080	0.012
K4	SEEX1203AFTN-MD14 MH1000	0.024	0.0070	0.0080	0.012
K5	SEEX1203AFTN-MD14 MH1000	0.024	0.0065	0.0070	0.011
K6	SEEX1203AFTN-MD14 MH1000	0.024	0.0070	0.0080	0.012
K7	SEEX1203AFTN-MD14 MH1000	0.024	0.0065	0.0070	0.011
H5	SEEX1203AFTN-MD14 F15M	0.019	0.0048	0.0055	0.0080
H8	SEEX1203AFTN-MD14 F15M	0.017	0.0038	0.0040	0.0065
H11	SEEX1203AFTN-MD14 F15M	0.019	0.0048	0.0055	0.0080
H12	SEEX1203AFTN-MD14 F15M	0.019	0.0048	0.0055	0.0080
H21	SEEX1203AFTN-MD14 F15M	0.017	0.0038	0.0040	0.0065

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
a_p = inch
v_c = sf/min
a_e/D_c = %
All cutting data are start values

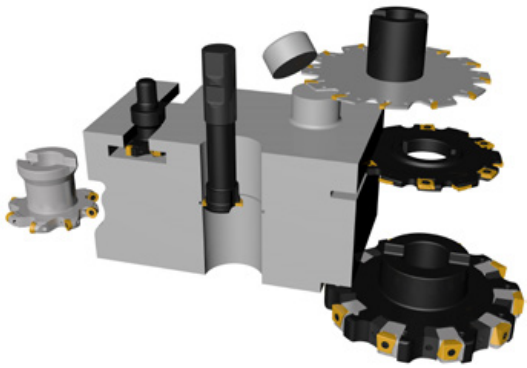
R220.30-12 – Cutting data v_c = (sf/min)

SMG	T350M			F15M			MK1500			MH1000			H15		
	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	690	910	1075	700	920	1100	—	—	—	840	1125	1350	—	—	—
P2	660	890	1025	680	900	1075	—	—	—	820	1075	1275	—	—	—
P3	580	770	910	590	790	930	—	—	—	720	960	1125	—	—	—
P4	520	680	810	520	700	820	—	—	—	630	850	990	—	—	—
P5	495	660	780	510	670	800	—	—	—	610	810	960	—	—	—
P6	550	740	870	570	750	890	—	—	—	690	910	1075	—	—	—
P7	520	700	820	540	710	840	—	—	—	650	860	1025	—	—	—
P8	485	650	760	500	670	780	—	—	—	600	810	950	—	—	—
P11	510	680	800	520	690	820	—	—	—	630	830	990	—	—	—
M1	510	680	800	550	720	860	—	—	—	—	—	—	—	—	—
M2	425	570	670	455	600	720	—	—	—	—	—	—	—	—	—
M3	345	455	540	365	490	580	—	—	—	—	—	—	—	—	—
M4	270	355	420	290	380	445	—	—	—	—	—	—	—	—	—
M5	225	295	350	240	320	370	—	—	—	—	—	—	—	—	—
K1	520	700	820	540	710	840	840	1100	1325	650	860	1025	—	—	—
K2	470	630	740	480	630	760	750	990	1175	580	770	910	—	—	—
K3	395	530	620	405	540	640	630	840	1000	490	650	770	—	—	—
K4	380	510	600	390	510	610	600	800	950	470	620	740	—	—	—
K5	235	305	360	240	315	370	370	490	580	290	380	450	—	—	—
K6	335	445	530	340	450	540	530	700	840	415	550	650	—	—	—
K7	300	390	465	305	400	475	475	630	740	370	485	570	—	—	—
H5	110	145	175	115	150	180	—	—	—	140	180	215	—	—	—
H8	120	155	185	120	160	190	—	—	—	145	195	230	—	—	—
H11	145	185	220	145	190	230	—	—	—	175	230	275	—	—	—
H12	215	280	335	220	285	345	—	—	—	265	345	415	—	—	—
H21	120	155	185	120	160	190	—	—	—	145	195	230	—	—	—

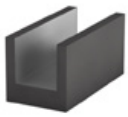
Disc milling

A full range of cutters for all kinds of disc Milling operations

Seco's disc mills, available from .043" to 1.25" in width of cut, offer a wide range of cutter diameters and connection types suitable for all relevant machine tools and disc milling applications.



The core of the range consists of 4 main cutter families



Min **Max**

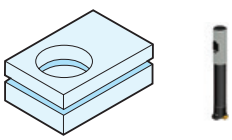
335.10 for narrow slotting and sawing
Width .089"-.161"
Page: 169-170

335.19 for small width of cut and sawing
Fixed pockets
Width .156"-.500"
Page: 175-177

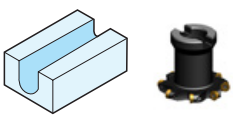
335.18 for medium width of cut
Fixed and adjustable width
Width .312"-.750"
Page: 181-198

335.25 for large width of cut
Fixed and adjustable width
Width .53"-1.02"
Page: 184-197

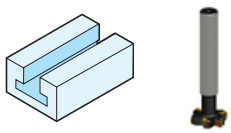
And 3 other families dedicated to specific disc milling operation



335.15 for circlips groove and narrow slotting
Width of cut .043"-.203"
Page: 166



335.29 equipped with round insert - full radius profile and copy milling
Width of cut .236"-.394"
Page: 187



395.19 for T-slots
Width of cut .390"-.827"
Page: 228

Full side and face - fixed pocket design

System	Insert	a_p	Application	Diameters available and max depth of cut* (inch)											Max no. cutting edges	Radii range r_ε (inch)	Page
				1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	8.00	10.00			
335.15	335.15	.043-.104	Circlip grooves	0.12		0.12		0.12							2	–	166
		.124-.203						0.22									
335.10	150.10	.089-.098						0.60	0.73	1.06	1.36	1.41			1	.006 .012	169-170
		0.122						0.60	0.73	1.06	1.36	1.41					
		0.161						0.60	0.73	1.06	1.36	1.41					
335.19	SNHQ / 335.19	0.156				0.45	0.56	0.56	0.81	0.99	1.37	1.87			4	.008 / .016 .031 / .047 .063 / .079 .094 / .118 .122 / .138 .157 / .197 .236	175-177
		0.187				0.45	0.56	0.56	0.81	1.04	1.41	1.91					
		0.250					0.56	0.56	0.81	1.07	1.45	1.95	2.51	3.39			
		0.313						0.56	0.81	1.07	1.45	1.95	2.51	3.39			
		0.375						0.56	0.81	1.11	1.49	2.02	2.55	3.43			
		0.500								1.13	1.52	2.00	2.57	3.45			
335.18 LNK	LNKT	0.312			0.35	0.41	0.61	0.63	0.71	1.16	1.38				4	.016 / .031 .063 / .079 .094 / .122 .157	181-182
		0.375			0.35	0.41	0.61	0.63	0.71	1.16	1.38						
		0.500					0.59	0.60	0.71	1.14	1.38	1.81					
		0.625							0.71	1.06	1.38	1.89					
		0.750							0.71	1.06	1.38	1.89					
335.25	XNHQ	0.750									1.33	1.83	2.48		4	.031 / .047 .063 / .079 .094 / .122 .157 / .197 .236	184
		1.00									1.35	1.85	2.43	3.43			

Full radius profile – fixed pocket design

System	Insert	a_p	Application	Diameters available and max depth of cut* (inch)											Max no. cutting edges	Radii range r_ε (inch)	Page
				1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	8.00	10.00			
335.19	SNHQ / 335.19	0.156	Full radius			0.45	0.56	0.56	0.81	0.91	1.37	1.87			4	.079 .118 .138 .157 .197 .236	175-177
		0.187				0.45	0.56	0.56	0.81	1.04	1.41	1.91					
		.250 / .313					0.56	0.56	0.81	1.07	1.45	1.95	2.51	3.39			
		0.375						0.56	0.81	1.11	1.49	2.02	2.55	3.43			
		0.500								1.13	1.52	2.00	2.57	3.45			
335.29	Round insert	0.236				0.30	0.41								4	.098 .118 .157 .197 .236	187
		0.315					0.41	0.60									
		0.394						0.60	0.72								

*** Not all mounting types reach max depth of cut,** see product pages for exact data and cutting recommendations.

X — Basic choice (X indicates the maximum radial depth of cut "a_r" in slotting in inch)

X — Alternative choice (X indicates the maximum radial depth of cut "a_r" in slotting in inch)


Circlip groove and shallow slotting


Sawing


Full side and face


Full radius profile

Full side and and face - adjustable in width

System	Insert	a_p	Applica-tion	Diameters (inch) available and max depth of cut* (inch)						Max no. of cutting edges	Radii range (inch)	Page
				4.00	5.00	6.00	8.00	10.00	12.00			
335.18 LNK	LNK	.315 - .394					2.42	3.39	4.39	4	.0157 / .031 .063 / .079 .094 / .122 .157	183
		.394 - .472		1.06	1.38	1.81	2.42	3.39	4.39			
		.472 - .591		1.05	1.37	1.83	2.42	3.39	4.39			
		.630 - .728			1.32	1.81	2.44	3.44	4.44			
335.25	XNHQ	.53 - .67		1.01	1.33	1.80	2.42	3.42	4.46	4	.016 / .031 .063 / .079 .094 / .122 .157 / .197 .236	185-186
		.67 - .83		1.01	1.33	1.80	2.42	3.42	4.46			
		.83 - 1.02			1.33	1.79	2.41	3.41	4.41			
		1.02 - 1.26				1.79	2.41	3.41	4.41			
335.18	Round insert	.315 - .394	Full radius				2.42	3.39	4.39	4	.157	188-189
		.394 - .472		1.06	1.38	1.81	2.42	3.39	4.39		.197	
		.472 - .591		1.05	1.37	1.83	2.42	3.39	4.39		.236	
		.630 - .728			1.32	1.81	2.44	3.44	4.44		.315	

Half side and face

System	Insert	a_p	Applica-tion	Diameters available and max depth of cut* (inch)						Max no. of cutting edges	Radii range r_ε (inch)	Page
				4.00	5.00	6.00	8.00	10.00	12.00			
335.18 LNK	LNK	≤0.197		1.10	1.30	1.77	2.42	3.39	4.39	2+2	.016 / .031 .063 / .079 .094 / .122 .157	190, 195
		≤0.236		1.01	1.33	1.77	2.42	3.39	4.39			
		≤0.295		1.01	1.33	1.79	2.42	3.39	4.39			
335.25	XNHQ	≤0.354		1.01	1.33	1.80	2.42	3.42	4.46	2+2	.016 / .031 .063 / .079 .094 / .122 .157 / .197 .236	191-192, 196-197
		≤0.437		1.01	1.33	1.80	2.42	3.42	4.46			
		≤0.512			1.33	1.79	2.41	3.41	4.41			
		≤0.630				1.79	2.41	3.41	4.41			
335.18	Round insert	≤0.197	Full radius				2.42	3.39	4.39	4	.157	193-194, 198
		≤0.236		1.05	1.37	1.83	2.42	3.39	4.39		.197	
		≤0.315			1.31	1.81	2.44	3.44	4.44		.315	

*** Not all mounting types reach max depth of cut and a_p,** see product pages for exact data and cutting recommendations.

X — Basic choice (X indicates the maximum radial depth of cut "a_r" in slotting in inch)

X — Alternative choice (X indicates the maximum radial depth of cut "a_r" in slotting in inch)

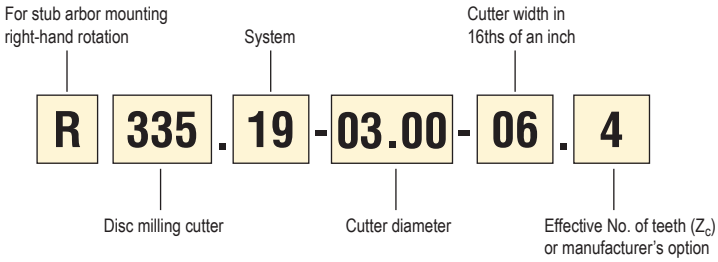

Full side and face

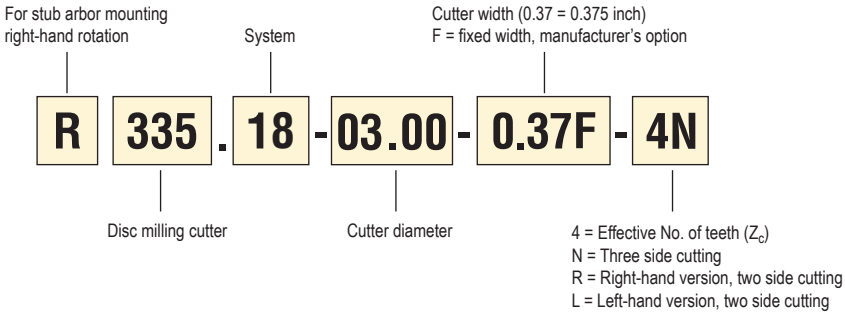

Full radius profile


Half side and face

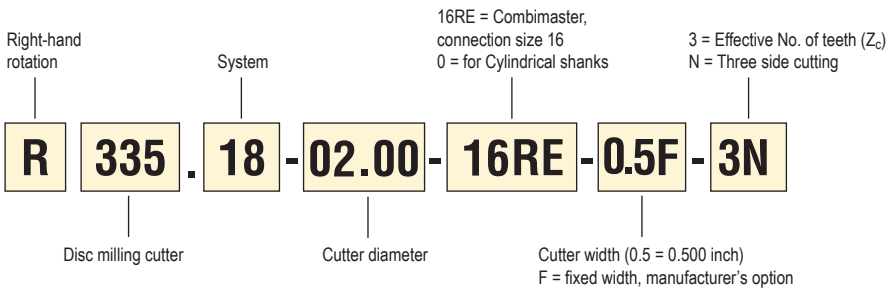

Half radius profile

Fixed pocket disc milling cutters

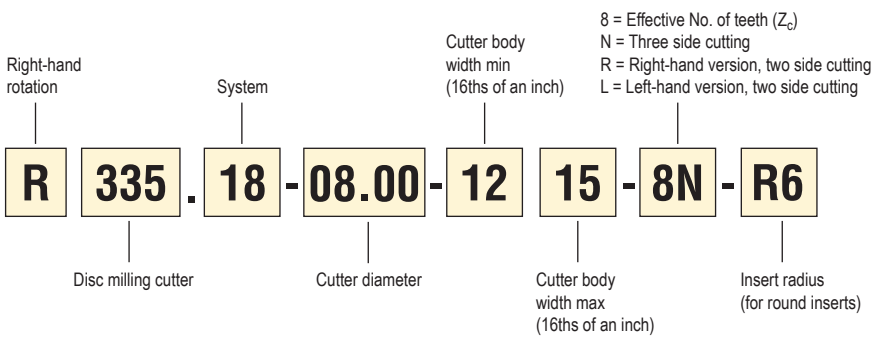




Shank type fixed pocket (Cylindrical or Combimaster type)

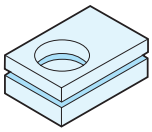


Adjustable cassette disc milling cutters



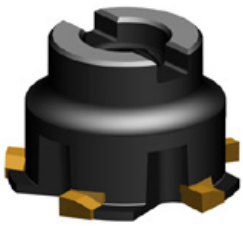
335.15... First choice for circlip grooves and narrow slotting

Width of cut .043”-.203”



Grooving

Cylindrical:
1.00” / 1.25”



B Type:
2.50”

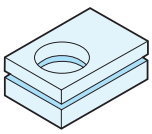
Product pages: 166
Insert page: 606
Cutting data: 167

Insert designation:
R335.15-13
R335.15-18

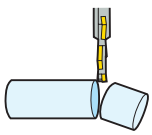
Basic choice for grooving.
Dia 1.00”-2.50”
2 cutting edges per insert.
a_p = .043”-.203”
Edge form: Chamfer

335.10... First choice for cutting-off and slim slotting

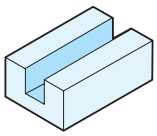
Width of cut .089”-.161”



Grooving



Cut-off



Slotting

Cylindrical:
2.50”-3.00”

A Type:
3.00”-12.00”

B Type:
2.50”-6.00”

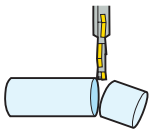
Product pages: 169-170
Insert page: 599
Cutting data: 173
Add. information: 171-172

Insert designation:
150.10

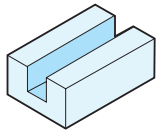
Basic choice for grooving, sawing, full side and face.
Dia 2.50”-12.00”
1 cutting edge per insert.
a_p = .089”-.161”
Edge form: Corner radius .006”/.008”

335.19... Fixed pocket

Small width of cut .156”-.500”

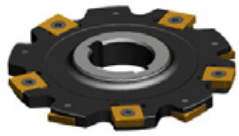


Cut-off



Slotting

Combimaster:
1.50”-2.50”



A Type:
2.50”-10.00”

B Type:
2.50”-6.00”

Note: In full side and face operation, use left and right hand inserts.

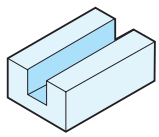
Product pages:	175-177
Insert page:	582-586, 602
Cutting data:	179
Add. information:	178

Insert designation:
SNHQ inserts are the first choice.
335.19 inserts are alternative choice.

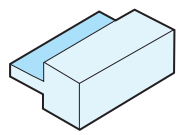
Basic choice for sawing and slotting
Can be used for full radius profile with radii inserts.
Dia 1.50”-10.00”
2 or 4 cutting edges per insert depending on radii.
a_p = .157”-.472”
Edge form: Corner radii .008”-.236”

335.18 LNK...Fixed pocket and adjustable design

Medium width of cut .312”-.750”



Slotting

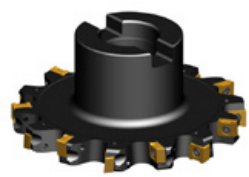


Half side and face

Combimaster:
2.00”
Fixed pocket

Cylindrical:
1.25”-3.00”
Fixed pocket

A Type:
3.00”-12.00”
Fixed and adjustable pocket



B Type:
2.50”-10.00”
Fixed and adjustable pocket

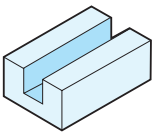
Product pages:	181-195
Insert page:	560-561
Cutting data:	206
Add. information:	199-203

Insert designation:
LNK.05
LNK.06
LNK.08

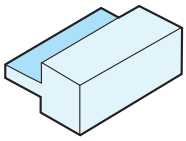
Fixed pocket and adjustable version
For full side and half side and face
Dia 1.25”-12.00”
1 to 4 cutting edges per insert, depending on radii.
a_p = .315”-.787”
Edge form: Corner radii .016”-.157”

335.25 Fixed pocket and adjustable design

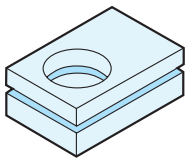
Large width of cut .83”-1.26”



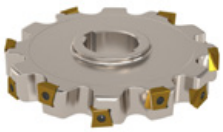
Slotting



Half side and face



Grooving



A type:
5.00”-12.00”
Fixed pocket and adjustable

B type:
4.00”-12.00”
Fixed pocket and adjustable

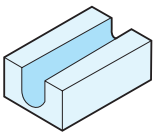
Fixed pocket and adjustable version for full side and half side and face.
Dia 4.00”-12.00”
4 cutting edges per insert, depending on radii.
a_p = .531-1.260”
Edge form: Corner radii .015”-.236”

Product pages:	184-197
Insert page:	562, 593
Cutting data:	224
Add. information:	199-204

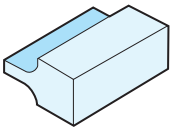
Insert designation:
XNHQ and LNHQ

335.29/335.18 Equipped with round inserts

Width of cut .236”-.728”

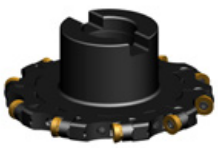


Full radius

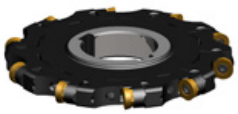


Half radius

Combimaster:
1.50”-2.00”
Fixed pocket



B Type:
2.50”-10.00”
Fixed and adjustable pocket



A Type:
5.00”-12.00”
Adjustable pocket

Product pages:	187-198
Insert page:	570-572
Cutting data:	208
Add. information:	199-205

Insert designation:
RD..06
RD..08
RD..10
RP..12
RP..16

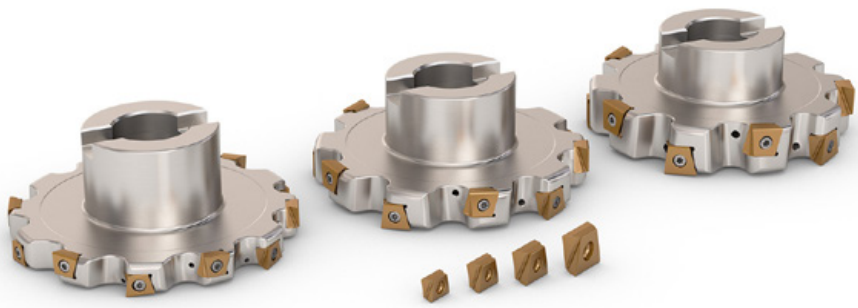
Basic choice for full radius profiling, half radius profile and grooving.
Dia 1.50”-12.00”
a_p = .236”-.630”
Edge form: Corner radii .118”-.315”

Disc milling

The 335.25 disc milling cutter has been expanded to include two new insert sizes to cover width of cut from 0.53” to 1.26”

To complement the 335.19 and 335.18 LNK, the 335.25 has been developed for a larger width of slot.

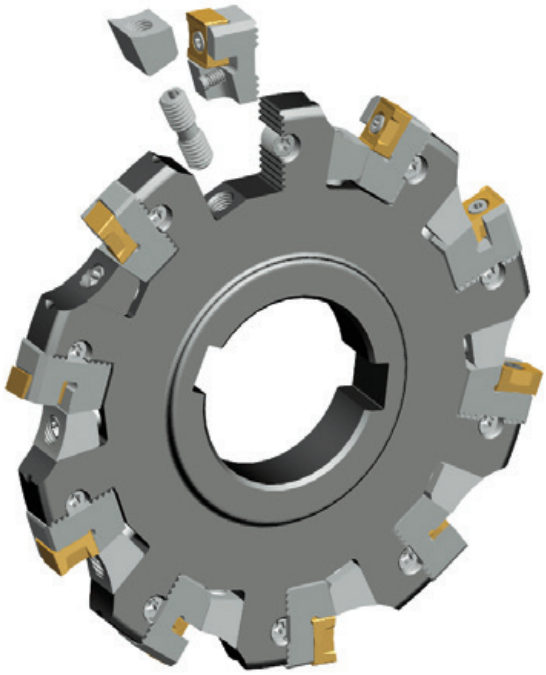
The innovative design brings features that increase productivity and reduce costs per part:
- An optimum cutting geometry reducing cutting forces and noise level
- Maximum stability even with long overhang
- Strong, reliable and secure locked connection between insert and cutter body
- 4 cutting edges available whatever the corner radius value (from 0.015” to 0.236”)
- Excellent surface finish thanks to built-in wiper flat

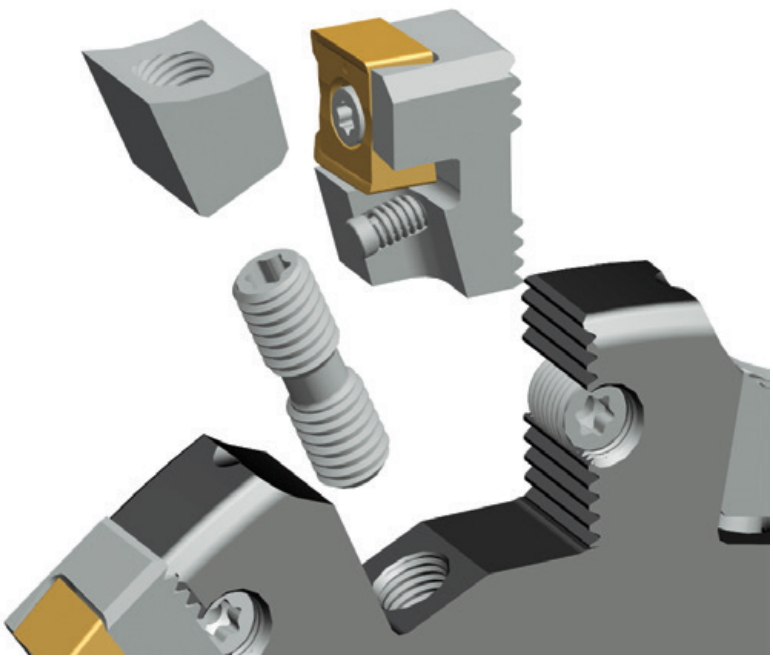


4 sizes of inserts are now available to cover width of cut from 0.53” to 1.26”

Each insert size is available with a broad range of corner radii to cover all industry applications, from radius 0.015” to 0.236”

335.18 and 335.25 - Adjustable disc milling cutter in width - Cassette version

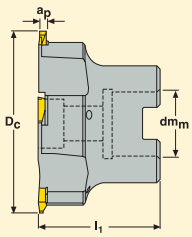




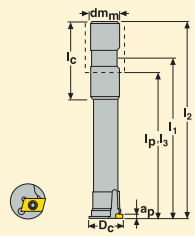
R335.15 For milling circlip snap ring grooves

Width 0.063-0.203”

Shell mill



Cyl/Weldon



- For insert selection and cutting data recommendations, see pages 167-168.
- For complete insert program, see pages 604-605.

Dimensions in inch	EDP No.	Part No.	Dimensions in inch							lbs	Type of mounting	Max rpm	Insert
a_{p*}			D_c	dm_m	l_1	l_2	l_p	l_c					
0.063 - 0.104	72162	**R335.15 -01.00-13-3**	1.00	0.75	4.10	5.12	3.15	2.00	1	0.2	Cyl/Weldon	28200	R335.15-13
0.063 - 0.104	72196	**-01.50-13-3**	1.50	1.00	3.98	5.12	2.91	2.26	2	1.3	Cyl/Weldon	23600	R335.15-13
0.063 - 0.104	72160	**R335.15 -02.50-13**	2.50	0.75	1.57	–	–	–	5	1.3	Shell mill	17300	R335.15-13
0.124 - 0.203	72222	**-02.50-18**	2.50	0.75	1.57	–	–	–	5	1.1	Shell mill	17300	R335.15-18

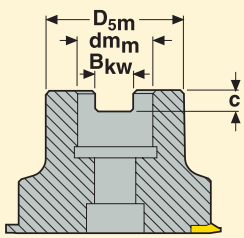
* Depends on insert width, for groove depths (a_r) greater than 0.087” toolholder must be modified. for groove depth (a_r), see insert page 604-605.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R335.15-01.00 / 01.50	–	T15P-2	C03509-T15P
R335.15-02.50-..	UC6S3/8UNFX1-1/4	T15P-2	C03509-T15P

Insert screw torque value 26.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch		
	D_{5m}	B_{kw}	c
R335.15-02.50-..	1.57	0.32	0.19

Please check availability in current price and stock-list.

335.15 - Insert selection

SMG			f_z		
			10%	5%	2%
P1	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0075	0.010	0.016
P2	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0075	0.010	0.017
P3	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0070	0.0095	0.016
P4	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0070	0.0095	0.015
P5	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
P6	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
P7	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
P8	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0070	0.0095	0.016
P11	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
M1	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0075	0.010	0.017
M2	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
M3	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0055	0.0075	0.012
M4	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0048	0.0065	0.010
M5	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0048	0.0065	0.010
K1	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0075	0.010	0.017
K2	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
K3	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
K4	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
K5	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0085	0.013
K6	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0095	0.015
K7	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0065	0.0085	0.013
N1	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0095	0.013	0.022
N2	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0095	0.013	0.022
N3	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0095	0.013	0.022
N11	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0095	0.013	0.022
S1	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0048	0.0065	0.010
S2	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0048	0.0065	0.010
S3	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0044	0.0065	0.0095
S11	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0055	0.0075	0.012
S12	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0055	0.0075	0.012
S13	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0048	0.0065	0.010
H5	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0048	0.0065	0.010
H8	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0036	0.0048	0.0080
H11	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0048	0.0065	0.010
H12	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0048	0.0065	0.010
H21	R335.15-13..FG-E08 F40M	R335.15-18..FG-M12 F40M	0.0036	0.0048	0.0080

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_r/D_c = %
All cutting data are start values

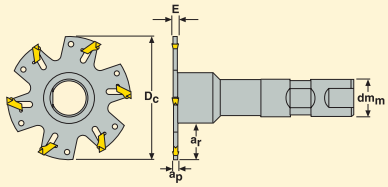
335.15 - Cutting data v_c = (sf/min)

SMG	F40M		
	10%	5%	2%
P1	840	930	1050
P2	820	900	1000
P3	720	790	880
P4	630	700	780
P5	610	670	750
P6	690	750	840
P7	650	710	790
P8	600	670	740
P11	630	690	770
M1	660	730	810
M2	550	600	670
M3	440	485	540
M4	340	375	420
M5	285	310	350
K1	650	720	800
K2	580	630	710
K3	490	540	600
K4	470	510	570
K5	285	310	350
K6	415	450	510
K7	365	400	450
N1	2425	2625	2925
N2	1950	2125	2375
N3	1300	1425	1575
N11	1475	1625	1800
S1	160	175	195
S2	130	140	160
S3	115	120	140
S11	220	245	275
S12	155	170	195
S13	125	135	155
H5	135	150	165
H8	140	155	175
H11	170	190	210
H12	260	285	315
H21	140	155	175

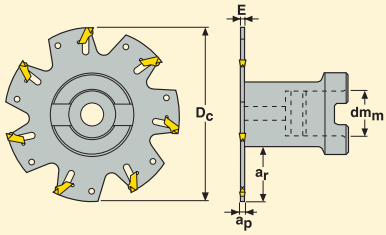
Cutter 335.10/R335.10 – Insert 150.10

Width 0.089-0.122" – Full side

Cyl/Weldon shank (B_1)



Shell mill holder (B_2)



- For insert selection and cutting data recommendations, see pages 173-174.
- For complete insert program, see page 599.
- For spare parts, see pages 171-172.

Drawings for type A and B_3, see page 170.

Type	Dimensions in inch		EDP No.	Part No.	Dimensions in inch					lbs	Max rpm	Insert 150.10-..
	a_p	a_r			D_c	dm_m	D_{5m}	E				
B_1	.089/.098	0.60	54664	R335.10 -02.50-3-2	2.50	1.00	1.25	0.075	5	0.4	4000	2.25N/2.5N
B_2	.089/.098	0.60	54670	R335.10 -02.50-2B	2.50	0.75	1.57	0.075	5	1.1	4000	2.25N/2.5N
A**	.089/.098	0.67	54743	335.10 -03.00-2	3.00	1.00	–	0.075	6	0.4	3500	2.25N/2.5N
B_2	.089/.098	0.69	54671	R335.10 -03.00-2B	3.00	0.75	1.57	0.075	6	2.0	3500	2.25N/2.5N
B_1	.089/.098	0.73	54665	R335.10 -03.00-3-2	3.00	1.25	1.50	0.075	6	2.4	3500	2.25N/2.5N
B_3	.089/.098	1.04	54680	R335.10 -04.00-2B	4.00	1.00	1.89	0.075	7	1.5	3200	2.25N/2.5N
A**	.089/.098	1.16	54744	335.10 -04.00-2	4.00	1.00	–	0.075	7	0.7	3200	2.25N/2.5N
B_3	.089/.098	1.34	54681	R335.10 -05.00-2B	5.00	1.25	2.28	0.075	9	3.1	2800	2.25N/2.5N
A**	.089/.098	1.40	54745	335.10 -05.00-2	5.00	1.25	–	0.075	9	0.9	2800	2.25N/2.5N
B_1	.122	0.60	54666	R335.10 -02.50-3-3	2.50	1.00	1.25	0.094	5	1.5	4000	3N
B_2	.122	0.60	54672	R335.10 -02.50-3B	2.50	0.75	1.57	0.094	5	1.3	4000	3N
A**	.122	0.67	70139	335.10 -03.00-3	3.00	1.00	–	0.094	6	0.2	3500	3N
B_2	.122	0.69	54673	R335.10 -03.00-3B	3.00	0.75	1.57	0.094	6	2.0	3500	3N
B_1	.122	0.73	54667	R335.10 -03.00-3-3	3.00	1.25	1.50	0.094	6	2.6	3500	3N
B_3	.122	1.04	54683	R335.10 -04.00-3B	4.00	1.00	1.89	0.094	7	2.0	3200	3N
A**	.122	1.16	70141	335.10 -04.00-3	4.00	1.00	–	0.094	7	0.4	3200	3N
B_3	.122	1.34	54684	R335.10 -05.00-3B	5.00	1.25	2.28	0.094	9	3.3	2800	3N
A**	.122	1.40	14458	335.10 -05.00-3	5.00	1.25	–	0.094	9	0.7	2800	3N
B_3	.122	1.41	54685	R335.10 -06.00-3B	6.00	1.50	3.15	0.094	12	5.5	2400	3N
A**	.122	1.56	70145	335.10 -06.00-3	6.00	1.25	–	0.094	12	0.9	2400	3N

Please check availability in current price and stock-list.

Note: for B_1, B_2, and B_3, the blade is assembled on the holder in the delivery.

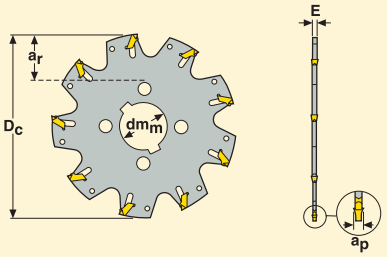
* For A type cutters, no drive holes for cutter dia 3-4". For cutter dia > 4", please use Seco drive rings, see page 171.

** For 0.089" a_p use insert 150.10-2.25N. for 0.098" a_p use insert 2.5N.

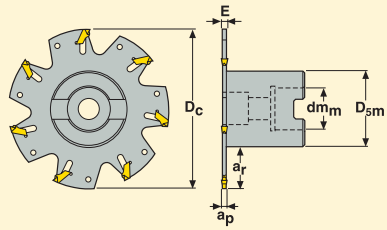
335.10/R335.10 - Insert 150.10

Width 0.161" – Full side – Fixed

Milling arbor (A)



Shell mill holder (B_3)



- For insert selection and cutting data recommendations, see pages 173-174.
- For complete insert program, see page 599.
- For spare parts, see pages 171-172.

Drawings for Type B_1 and B_2, see page 169.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	Dimensions in inch dm_m	Dimensions in inch D_{5m}	Dimensions in inch E		lbs	Max rpm	Insert 150.10-..
B_2	0.161	0.60	54674	**R335.10 -02.50-4B**	2.50	0.75	1.57	0.134	5	1.8	4000	4N
B_1	0.161	0.60	54668	**R335.10 -02.50-3-4**	2.50	1.00	1.25	0.134	5	2.2	4000	4N
B_2	0.161	0.69	54675	**R335.10 -03.00-4B**	3.00	0.75	1.57	0.134	6	2.0	3500	4N
B_1	0.161	0.73	54669	**R335.10 -03.00-3-4**	3.00	1.25	1.50	0.134	6	3.3	3500	4N
B_3	0.161	1.04	54686	**R335.10 -04.00-4B**	4.00	1.00	1.89	0.134	7	2.0	3200	4N
A*	0.161	1.16	14457	**335.10 -04.00-4**	4.00	1.00	–	0.134	7	0.7	3200	4N
B_3	0.161	1.34	54687	**R335.10 -05.00-4B**	5.00	1.25	2.28	0.134	9	3.3	2800	4N
A*	0.161	1.40	14459	**335.10 -05.00-4**	5.00	1.25	–	0.134	9	0.9	2800	4N
B_3	0.161	1.41	54688	**R335.10 -06.00-4B**	6.00	1.50	3.15	0.134	12	6.8	2400	4N
A*	0.161	1.56	14461	**335.10 -06.00-4**	6.00	1.25	–	0.134	12	0.2	2400	4N

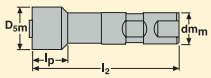
Please check availability in current price and stock-list.

Note: for B_1, B_2, and B_3, the blade is assembled on the holder in the delivery.

* For A type cutters, no drive holes for cutter dia 3-4". For cutter dia > 4", please use Seco drive rings, see page 171.

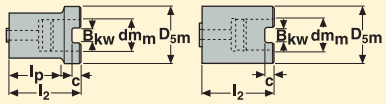
Disc milling cutters 335.10 – Spare parts

Holder for B_1



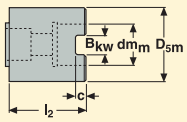
Part No.	dm_m	D_{5m}	l_2	l_p
335.10-01.00-3-A	1.00	1.25	4.17	1.00
335.10-01.25-3-A	1.25	1.50	5.90	1.18

Holder for B_2



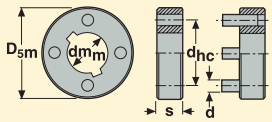
Part No.	dm_m	D_{5m}	l_2	l_p	B_{kw}	c
335.10-00.75-1.25B-A	0.75	1.26	1.969	1.50	0.32	0.20
335.10-00.75-1.50B-A	0.75	1.58	1.969	–	0.32	0.20

Holder for B_3



Part No.	dm_m	D_{5m}	l_2	B_{kw}	c
335.10-01.00-1.89B-A	1.00	1.89	1.969	0.38	0.23
335.10-01.25-2.28B-A	1.25	2.28	2.480	0.51	0.28
335.10-01.50-3.15B-A	1.50	3.15	2.480	0.63	0.38

Drive rings for type A



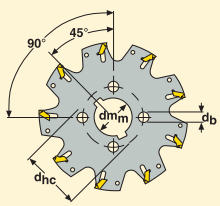
Part No.	D_{5m}	dm_m	D_{hc}	d	s
335.10-14531	2.16	1.25	1.77	0.22	0.39
335.10-15531	2.83	1.25	2.16	0.42	0.47
335.10-17451	3.50	2.00	2.91	0.42	0.47

Note: assembly screws delivered with holder B1, B2 and B3

Spare parts

For cutter	Insert removal key
R335.10-..	150.10-150

Mounting dimensions



For cutter	Dimensions in inch				
	dm_m	d_{hc}	d_b	Keyway width	Keyway depth
335.10-03.00	1.00	–	–	0.250	0.094
335.10-04.00	1.00	–	–	0.250	0.094
335.10-05.00	1.25	1.77	0.24	0.312	0.125
335.10-06.00	1.25	2.16	0.43	0.312	0.125
335.10-08.00	2.00	2.91	0.43	0.500	0.187
335.10-10.00	2.00	2.91	0.43	0.500	0.187
335.10-12.00	2.00	2.91	0.43	0.500	0.187

Please check availability in current price and stock-list.

Disc milling cutters 335.10 – Spare parts

Assembly components/Standard parts for type B_1

Assembly Part No.	Standard parts	
	Cutter body Part No.	Holder Part no.
R335.10-02.50-3-2	R335.10-02.50-2	335.10-01.00-3-A
R335.10-02.50-3-3	R335.10-02.50-3	
R335.10-02.50-3-4	R335.10-02.50-4	
R335.10-03.00-3-2	R335.10-03.00-2	335.10-01.25-3-A
R335.10-03.00-3-3	R335.10-03.00-3	

Spare parts

Assembly screw	Key/Torque value	
		
335.10-0516-T15P(3X)	T15P-3 / 57.5 in/lbs	

Key ordered separately.

Assembly components/Standard parts for type B_2

Assembly Part No.	Standard parts	
	Cutter body Part No.	Holder Part no.
R335.10-02.50-2B	R335.10-02.50-2	335.10-00.75-1.25B-A
R335.10-02.50-3B	R335.10-02.50-3	
R335.10-02.50-4B	R335.10-02.50-4	
R335.10-03.00-2B	R335.10-03.00-2	335.10-00.75-1.50B-A
R335.10-03.00-3B	R335.10-03.00-3	
R335.10-03.00-4B	R335.10-03.00-4	

Spare parts

Assembly screw	Key/Torque value	Arbor screw
		
335.10-0516-T15P(3X)	T15P-3 / 57.5 in/lbs	220.17-696

Key ordered separately.

Assembly components/Standard parts for type B_3

Assembly Part No.	Standard parts	
	Cutter body Part No.	Holder Part no.
R335.10-04.00-2B	R335.10-04.00-2	335.10-01.00-1.89B-A
R335.10-04.00-3B	R335.10-04.00-3	
R335.10-04.00-4B	R335.10-04.00-4	
R335.10-05.00-2B	R335.10-05.00-2	335.10-01.25-2.28B-A
R335.10-05.00-3B	R335.10-05.00-3	
R335.10-05.00-4B	R335.10-05.00-4	
R335.10-06.00-2B	R335.10-06.00-2	335.10-01.50-3.15B-A
R335.10-06.00-3B	R335.10-06.00-3	
R335.10-06.00-4B	R335.10-06.00-4	

Please check availability in current price and stock-list.

Spare parts

Assembly screw	Key/Torque value	Arbor screw
		
335.10-0516-T15P(4X)	T15P-3 / 57.5 in/lbs	UC6S1/2UNFX1-1/2
		UC6S5/8UNFX1-1/2
335.10-1030-T30P(4X)	T30P-4 / 70.8 in/lbs	UC6S3/4UNFX1-1/4

Key ordered separately.

335.10 - Insert selection

SMG					f_z		
					30%	20%	10%
P1	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0044	0.0048	0.0065
P2	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0044	0.0050	0.0065
P3	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0040	0.0048	0.0065
P4	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0040	0.0048	0.0065
P5	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0040	0.0044	0.0060
P6	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0040	0.0044	0.0060
P7	150.10-2.25N-14 CP500	150.10-2.5N-14 CP500	150.10-3N-14 CP500	150.10-4N-14 CP500	0.0040	0.0044	0.0060
P8	150.10-2.25N-14 CP500	150.10-2.5N-14 CP500	150.10-3N-14 CP500	150.10-4N-14 CP500	0.0040	0.0048	0.0065
P11	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0040	0.0044	0.0060
M1	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0044	0.0050	0.0065
M2	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0040	0.0044	0.0060
M3	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0032	0.0036	0.0048
M4	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0028	0.0032	0.0044
M5	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0028	0.0032	0.0044
K1	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0044	0.0050	0.0065
K2	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0040	0.0044	0.0060
K3	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0040	0.0044	0.0060
K4	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0040	0.0044	0.0060
K5	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0036	0.0040	0.0055
K6	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0040	0.0044	0.0060
K7	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0036	0.0040	0.0055
N1	150.10-2.25N-14 CP500	150.10-2.5N-12 CP500	150.10-3N-12 CP500	150.10-4N-12 CP500	0.0048	0.0055	0.0070
N2	150.10-2.25N-14 CP500	150.10-2.5N-12 CP500	150.10-3N-12 CP500	150.10-4N-12 CP500	0.0048	0.0055	0.0070
N3	150.10-2.25N-14 CP500	150.10-2.5N-12 CP500	150.10-3N-12 CP500	150.10-4N-12 CP500	0.0048	0.0055	0.0070
N11	150.10-2.25N-14 CP500	150.10-2.5N-12 CP500	150.10-3N-12 CP500	150.10-4N-12 CP500	0.0048	0.0055	0.0070
S1	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0028	0.0032	0.0044
S2	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0028	0.0032	0.0044
S3	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0026	0.0030	0.0040
S11	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0032	0.0036	0.0048
S12	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0032	0.0036	0.0048
S13	150.10-2.25N-14 CP600	150.10-2.5N-14 CP600	150.10-3N-14 CP600	150.10-4N-14 CP600	0.0028	0.0032	0.0044
H5	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0028	0.0030	0.0040
H8	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0020	0.0024	0.0032
H11	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0028	0.0030	0.0040
H12	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0028	0.0030	0.0040
H21	150.10-2.25N-14 TGP45	150.10-2.5N-14 TGP45	150.10-3N-14 TGP45	150.10-4N-14 TGP45	0.0020	0.0024	0.0032

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_r/D_c = %
All cutting data are start values

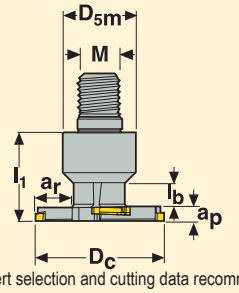
335.10 - Cutting data v_c = (sf/min)

	TGP45			T350M			CP500			CP600		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	840	900	990	730	770	850	800	850	930	640	680	750
P2	800	870	960	710	750	830	760	830	910	610	660	730
P3	700	750	840	610	650	720	670	710	790	530	570	640
P4	620	670	740	530	580	640	590	640	700	470	510	560
P5	610	640	710	520	550	620	570	610	680	460	485	540
P6	680	720	800	590	620	690	640	680	760	520	550	610
P7	640	680	760	550	590	650	610	640	720	485	520	570
P8	590	630	700	510	540	610	560	600	670	450	480	530
P11	620	660	740	540	570	630	590	630	700	470	500	560
M1	580	630	690	540	580	640	570	620	680	490	530	590
M2	485	520	580	450	475	530	480	510	570	415	440	485
M3	390	420	460	360	390	425	385	415	450	330	355	390
M4	300	320	355	275	300	330	295	315	350	255	275	300
M5	250	270	295	230	250	275	245	265	290	210	230	250
K1	640	690	760	560	600	660	600	650	720	480	520	580
K2	570	610	680	495	530	590	540	580	640	435	460	510
K3	485	520	570	420	445	495	460	490	540	370	390	435
K4	465	495	550	400	425	475	440	465	520	350	375	415
K5	285	300	330	245	260	285	270	285	315	215	225	250
K6	410	435	485	355	375	415	385	410	455	310	330	365
K7	360	385	425	310	330	365	345	365	400	275	290	320
N1	2375	2550	2825	—	—	—	2250	2425	2675	1800	1925	2150
N2	1925	2075	2275	—	—	—	1825	1950	2175	1450	1575	1725
N3	1275	1375	1525	—	—	—	1200	1300	1450	970	1050	1150
N11	1450	1575	1750	—	—	—	1375	1500	1650	1100	1200	1325
S1	145	155	175	130	140	155	140	150	165	120	125	140
S2	120	125	140	105	110	125	110	120	130	95	105	115
S3	105	110	125	90	100	110	95	105	115	85	90	100
S11	205	220	240	180	195	215	195	210	230	165	180	195
S12	145	155	170	125	135	150	135	145	160	115	125	140
S13	115	125	135	100	110	120	110	115	130	95	100	110
H5	120	130	140	115	120	135	120	125	140	100	105	120
H8	125	135	150	120	130	145	125	130	145	105	115	125
H11	155	165	180	145	155	170	150	160	175	130	135	150
H12	235	245	275	220	235	260	230	240	265	195	205	225
H21	125	135	150	120	130	145	125	130	145	105	115	125

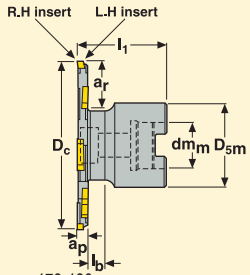
335.19/R335.19 – Insert SNHQ

Width 0.156-0.250" – Full side – Fixed

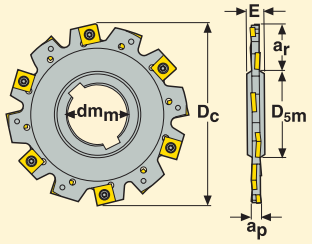
Combimaster (RE)



Shell mill holder (B)



Milling arbor (A)



- For insert selection and cutting data recommendations, see pages 179-180.
- For complete insert program, see page 582-583.
- For spare parts, see page 178.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	D_c	M dm_m	D_{5m}	E	l_1	l_b		Z_c*	lbs	Max rpm	SNHQ... () = No. of inserts: Inserts right hand	Inserts left hand
RE**	.156	0.45	84101	R335.19 -01.50-10RE-0.15-2	1.50	M10	0.73	–	0.91	0.32	4	2	0.2	22000	1102R (2)	1102L (2)
RE**	.156	0.56	84157	-02.00-16RE-0.15-2	2.00	M16	1.18	–	1.38	0.44	4	2	0.4	19100	1102R (2)	1102L (2)
B	.156	0.56	84172	-02.50-0.15-4	2.50	0.75	1.57	–	2.00	0.44	8	4	0.9	17100	1102R (4)	1102L (4)
B	.156	0.81	84180	-03.00-0.15-5	3.00	0.75	1.57	–	2.00	0.44	10	5	0.9	15200	1102R (5)	1102L (5)
B	.156	0.91	82029	R335.19 -04.00-0.15-6	4.00	1.00	1.88	–	2.00	–	12	6	1.5	13500	1102R (6)	1102L (6)
A	.156	0.99	81986	335.19 -04.00-0.15-6	4.00	1.00	1.62	0.50	–	–	12	6	0.4	13500	1102R (6)	1102L (6)
A	.156	1.37	81988	335.19 -05.00-0.15-7	5.00	1.25	1.87	0.50	–	–	14	7	0.9	12200	1102R (7)	1102L (7)
A	.156	1.87	81990	-06.00-0.15-9	6.00	1.25	1.87	0.50	–	–	18	9	1.1	10700	1102R (9)	1102L (9)
RE**	.187	0.45	84156	R335.19 -01.50-10RE-0.18-2	1.50	M10	0.73	–	0.91	0.29	4	2	0.2	19100	1103R (2)	1103L (2)
RE**	.187	0.56	84158	-02.00-16RE-0.18-2	2.00	M16	1.18	–	1.38	0.41	4	2	0.4	16800	1103R (2)	1103L (2)
B	.187	0.56	84173	-02.50-0.18-4	2.50	0.75	1.57	–	2.00	0.41	8	4	0.9	14900	1103R (4)	1103L (4)
B	.187	0.81	84181	-03.00-0.18-5	3.00	0.75	1.57	–	2.00	0.41	10	5	1.1	13200	1103R (5)	1103L (5)
B	.187	0.91	82030	R335.19 -04.00-0.18-6	4.00	1.00	1.88	–	2.00	–	12	6	1.5	11800	1103R (6)	1103L (6)
A	.187	1.04	81992	335.19 -04.00-0.18-6	4.00	1.00	1.62	0.50	–	–	12	6	0.7	11800	1103R (6)	1103L (6)
A	.187	1.41	81994	335.19 -05.00-0.18-7	5.00	1.25	1.87	0.50	–	–	14	7	0.9	10700	1103R (7)	1103L (7)
A	.187	1.91	81996	-06.00-0.18-9	6.00	1.25	1.87	0.50	–	–	18	9	1.3	9300	1103R (9)	1103L (9)
RE**	.250	0.56	84159	R335.19 -02.00-16RE-0.25-2	2.00	M16	1.18	–	1.38	0.35	4	2	0.7	12300	1204R (2)	1204L (2)
B	.250	0.56	84174	-02.50-0.25-3	2.50	0.75	1.57	–	2.00	0.35	6	3	0.9	9400	1204R (3)	1204L (3)
B	.250	0.81	84182	-03.00-0.25-4	3.00	0.75	1.57	–	2.00	0.35	8	4	1.1	8400	1204R (4)	1204L (4)
B	.250	0.91	82031	R335.19 -04.00-0.25-5	4.00	1.00	1.88	–	2.00	–	10	5	1.8	7500	1204R (5)	1204L (5)
A	.250	1.07	81998	335.19 -04.00-0.25-5	4.00	1.00	1.62	0.50	–	–	10	5	0.7	7500	1204R (5)	1204L (5)
B	.250	1.22	82032	R335.19 -05.00-0.25-6	5.00	1.25	2.25	–	2.00	–	12	6	2.4	6700	1204R (6)	1204L (6)
A	.250	1.45	82000	335.19 -05.00-0.25-6	5.00	1.25	1.87	0.50	–	–	12	6	1.1	6700	1204R (6)	1204L (6)
B	.250	1.22	82034	R335.19 -06.00-0.25-7	6.00	1.50	2.75	–	2.00	–	14	7	3.5	5900	1204R (7)	1204L (7)
A	.250	1.95	82002	335.19 -06.00-0.25-7	6.00	1.25	1.87	0.50	–	–	14	7	1.5	5900	1204R (7)	1204L (7)
A	.250	2.51	82004	335.19 -08.00-0.25-9	8.00	1.50	2.75	0.50	–	–	18	9	0.9	5200	1204R (9)	1204L (9)
A	.250	3.39	82006	-10.00-0.25-12	10.00	2.00	3.00	0.50	–	–	24	12	4.4	4700	1204R (12)	1204L (12)

Please check availability in current price and stock-list.

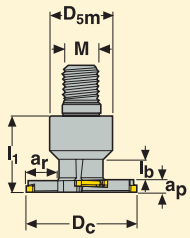
* Effective number of teeth.

** For Combimaster holders and adapters, see page 534.

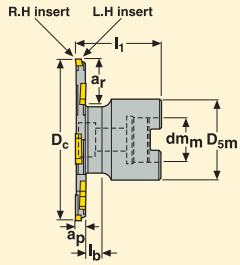
335.19/R335.19 – Insert SNHQ

Width 0.313-0.375" – Full side – Fixed

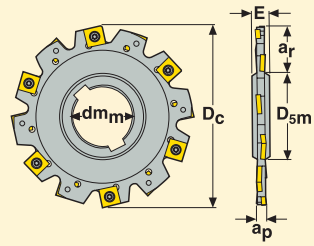
Combimaster (RE)



Shell mill holder (B)



Milling arbor (A)



- For insert selection and cutting data recommendations, see pages 179-180.
- For complete insert program, see pages 583-585.
- For spare parts, see page 178.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	Dimensions in inch M dm_m	Dimensions in inch D_{5m}	Dimensions in inch E	Dimensions in inch l_1	Dimensions in inch l_b		Z_c*	lbs	Max rpm	SNHQ... () = No. of inserts Inserts right hand	SNHQ... () = No. of inserts Inserts left hand
B	.313	0.56	84175	**R335.19 -02.50-0.31-3**	2.50	0.75	1.57	–	2.00	0.29	6	3	1.1	9400	12045R (3)	12045L (3)
B	.313	0.81	84183	**R335.19 -03.00-0.31-4**	3.00	0.75	1.57	–	2.00	0.29	8	4	1.1	8400	12045R (4)	12045L (4)
B	.313	0.91	82035	**R335.19 -04.00-0.31-5**	4.00	1.00	1.88	–	2.00	–	10	5	1.8	7500	12045R (5)	12045L (5)
A	.313	1.07	82008	**335.19 -04.00-0.31-5**	4.00	1.00	1.62	0.50	–	–	10	5	0.9	7500	12045R (5)	12045L (5)
B	.313	1.22	82036	**R335.19 -05.00-0.31-6**	5.00	1.25	2.25	–	2.00	–	12	6	2.6	6700	12045R (6)	12045L (6)
A	.313	1.45	82010	**335.19 -05.00-0.31-6**	5.00	1.25	1.87	0.50	–	–	12	6	1.3	6700	12045R (6)	12045L (6)
B	.313	1.22	82037	**R335.19 -06.00-0.31-7**	6.00	1.50	2.75	–	2.00	–	14	7	4.0	5900	12045R (7)	12045L (7)
A	.313	1.95	82012	**335.19 -06.00-0.31-7**	6.00	1.25	1.87	0.50	–	–	14	7	2.0	5900	12045R (7)	12045L (7)
A	.313	2.51	82014	**335.19 -08.00-0.31-9**	8.00	1.50	2.75	0.50	–	–	18	9	3.7	4700	12045R (9)	12045L (9)
A	.313	3.39	82016	**335.19 -10.00-0.31-12**	10.00	2.00	3.00	0.50	–	–	24	12	5.5	4700	12045R (12)	12045L (12)
B	.375	0.56	84176	**R335.19 -02.50-0.37-3**	2.50	0.75	1.57	–	2.00	0.22	6	3	1.1	8400	1205R (3)	1205L (3)
B	.375	0.81	84184	**R335.19 -03.00-0.37-4**	3.00	0.75	1.57	–	2.00	0.22	8	4	1.1	8400	1205R (4)	1205L (4)
B	.375	0.91	82038	**R335.19 -04.00-0.37-5**	4.00	1.00	1.88	–	2.00	–	10	5	2.0	6600	1205R (5)	1205L (5)
A	.375	1.11	82018	**335.19 -04.00-0.37-5**	4.00	1.00	1.62	0.50	–	–	10	5	0.9	6600	1205R (5)	1205L (5)
B	.375	1.22	82039	**R335.19 -05.00-0.37-6**	5.00	1.25	2.25	–	2.00	–	12	6	2.6	6000	1205R (6)	1205L (6)
A	.375	1.49	82019	**335.19 -05.00-0.37-6**	5.00	1.25	1.87	0.50	–	–	12	6	1.3	6000	1205R (6)	1205L (6)
B	.375	1.22	82040	**R335.19 -06.00-0.37-7**	6.00	1.50	2.75	–	2.00	–	14	7	4.0	5200	1205R (7)	1205L (7)
A	.375	2.02	82020	**335.19 -06.00-0.37-7**	6.00	1.25	1.87	0.50	–	–	14	7	2.2	5200	1205R (7)	1205L (7)
A	.375	2.55	82021	**335.19 -08.00-0.37-9**	8.00	1.50	2.75	0.50	–	–	18	9	4.2	4700	1205R (9)	1205L (9)
A	.375	3.43	82022	**335.19 -10.00-0.37-12**	10.00	2.00	3.00	0.50	–	–	24	12	6.6	4200	1205R (12)	1205L (12)

Please check availability in current price and stock-list.

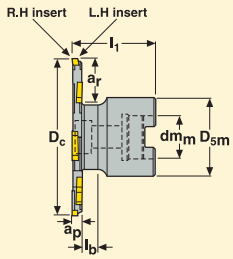
* Effective number of teeth.

** For Combimaster holders and adapters, see page 534.

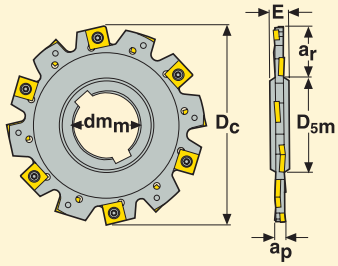
335.19/R335.19 – Insert SNHQ

Width 0.500" – Full side – Fixed

Shell mill holder (B)



Milling arbor (A)



- For insert selection and cutting data recommendations, see pages 179-180.
- For complete insert program, see pages 586.
- For spare parts, see page 178.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	E	l_1	l_b		Z_c*	lbs	Max rpm	SNHQ... () = No of inserts Inserts right hand	Inserts left hand
B	.500	0.91	82042	R335.19 -04.00-0.50-5	4.00	1.00	1.88	–	2.00	–	10	5	2.2	6000	1207R (5)	1207L (5)
A	.500	1.13	82023	335.19 -04.00-0.50-5	4.00	1.00	1.62	0.50	–	–	10	5	1.1	6000	1207R (5)	1207L (5)
B	.500	1.22	82043	R335.19 -05.00-0.50-6	5.00	1.25	2.25	–	2.00	–	12	6	3.1	5300	1207R (6)	1207L (6)
A	.500	1.52	82024	335.19 -05.00-0.50-6	5.00	1.25	1.87	0.50	–	–	12	6	1.8	5300	1207R (6)	1207L (6)
B	.500	1.22	82044	R335.19 -06.00-0.50-7	6.00	1.50	2.75	–	2.00	–	14	7	4.6	4700	1207R (7)	1207L (7)
A	.500	2.00	82025	335.19 -06.00-0.50-7	6.00	1.25	1.87	0.50	–	–	14	7	2.9	4700	1207R (7)	1207L (7)
A	.500	2.57	82026	335.19 -08.00-0.50-9	8.00	1.50	2.75	0.50	–	–	18	9	5.5	4200	1207R (9)	1207L (9)
A	.500	3.45	82027	335.19 -10.00-0.50-12	10.00	2.00	3.00	0.50	–	–	24	12	8.8	3700	1207R (12)	1207L (12)

Please check availability in current price and stock-list.

* Effective number of teeth.

SNHQ insert choice: Width of cut and corner radius.

Inserts	a_p	Corner radius (R) .008	.016	.031	.039	.047	.063	.079	.094	.118	.122	.138	.157	.197	.236
SNHQ 1102	.156	■	■	■		■	■	■							
SNHQ 1103	.187	■	■	■		■	■	■							
SNHQ 1204	.250	■	■	■		■	■	■	x		x	o			
SNHQ 12045	.313	■	■	■		■	■	■	x		x		o		
SNHQ 1205	.375	■	■	■	■	■	■	■	x		x		x	o	
SNHQ 1207	.500	■	■	■		■	■	■	x		x		x	x	o

■ = SNHQ 4 edges
x = SNHQ 2 edges
o = Full radius possibilities

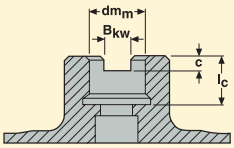
Disc milling cutters 335.19 – Spare parts

Locking screw/Key

For a_p	Assembly screw 	Key 	Torque value in/lbs*
0.156	C93504-T09P	T09P-3	17.7
0.187	C93505-T09P	T09P-3	17.7
0.250	C94055-T15P	T15P-3	31.0
0.312	C94006-T15P	T15P-3	31.0
0.375	C94008-T15P	T15P-3	31.0
0.500	C94010-T15P	T15P-3	31.0

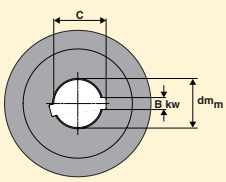
* Torque keys available, see page 643.

Mounting dimensions and arbor screw for Type B



For cutter	Dimension in inch dm_m	B_{kw}	c	l_c	Assembly screw 
R335.19-02.50	0.75	0.32	0.19	0.787	UC6S3/8UNFX1-3/4
R335.19-03.00	0.75	0.32	0.19	0.787	UC6S3/8UNFX1-3/4
R335.19-04.00	1.00	0.38	0.22	0.866	UC6S1/2UNFX1-1/2
R335.19-05.00	1.25	0.51	0.28	1.18	UC6S5/8UNFX11/2
R335.19-06.00	1.50	0.63	0.38	1.18	ULC6S3/4UNFX11/2

Mounting dimensions – Keyway for Type A



Dimension in inch dm_m	B_{kw}	c
1.00	0.250	1.110
1.25	0.312	1.393
1.50	0.375	1.673
2.00	0.500	2.198

SNHQ – Insert selection

SMG		f_z		
		30%	20%	10%
P1	SNHQ...-M07 F40M	0.0048	0.0055	0.0075
P2	SNHQ...-M07 F40M	0.0050	0.0055	0.0075
P3	SNHQ...-M07 F40M	0.0048	0.0055	0.0070
P4	SNHQ...-M07 F40M	0.0048	0.0050	0.0070
P5	SNHQ...-M07 F40M	0.0044	0.0050	0.0065
P6	SNHQ...-M07 F40M	—	0.0050	0.0065
P7	SNHQ...-M07 MP2500	0.0044	0.0050	0.0065
P8	SNHQ...-M07 MP2500	0.0048	0.0055	0.0070
P11	SNHQ...-M07 F40M	0.0044	0.0050	0.0065
M1	SNHQ...-M07 F40M	0.0050	0.0055	0.0075
M2	SNHQ...-M07 F40M	0.0044	0.0050	0.0065
M3	SNHQ...-M07 F40M	0.0036	0.0040	0.0055
M4	SNHQ...-M07 F40M	0.0032	0.0036	0.0048
M5	SNHQ...-M07 F40M	0.0032	0.0036	0.0048
K1	SNHQ...-M07 MP2500	0.0050	0.0055	0.0075
K2	SNHQ...-M07 MP2500	0.0044	0.0050	0.0065
K3	SNHQ...-M07 MP2500	0.0044	0.0050	0.0065
K4	SNHQ...-M07 MP2500	0.0044	0.0050	0.0065
K5	SNHQ...-M07 MP2500	0.0040	0.0048	0.0065
K6	SNHQ...-M07 MP2500	0.0044	0.0050	0.0065
K7	SNHQ...-M07 MP2500	0.0040	0.0048	0.0065
N1	SNHQ...-E05 H25	0.0055	0.0065	0.0085
N2	SNHQ...-E05 H25	0.0055	0.0065	0.0085
N3	SNHQ...-E05 H25	0.0055	0.0065	0.0085
N11	SNHQ...-E05 H25	0.0055	0.0065	0.0085
S1	SNHQ...-M07 F40M	0.0032	0.0036	0.0048
S2	SNHQ...-M07 F40M	0.0032	0.0036	0.0048
S3	SNHQ...-M07 F40M	0.0030	0.0034	0.0044
S11	SNHQ...-M07 F40M	0.0036	0.0040	0.0055
S12	SNHQ...-M07 F40M	0.0036	0.0040	0.0055
S13	SNHQ...-M07 F40M	0.0032	0.0036	0.0048
H5	SNHQ...-M07 MP2500	0.0030	0.0036	0.0048
H8	SNHQ...-M07 MP2500	0.0024	0.0028	0.0036
H11	SNHQ...-M07 MP2500	0.0030	0.0036	0.0048
H12	SNHQ...-M07 MP2500	0.0030	0.0036	0.0048
H21	SNHQ...-M07 MP2500	0.0024	0.0028	0.0036

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_r/D_c = %
All cutting data are start values

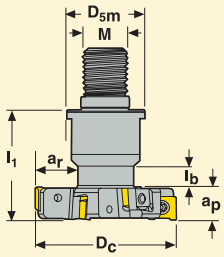
SNHQ – Cutting data v_c = (sf/min)

	MP2500			F30M			F40M			MM4500			H25		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	860	910	1000	680	730	800	650	690	760	530	560	620	—	—	—
P2	820	890	980	650	710	780	620	670	740	500	550	600	—	—	—
P3	720	770	850	570	610	680	540	580	650	440	470	520	—	—	—
P4	630	690	750	500	550	600	480	520	570	390	420	460	—	—	—
P5	620	660	730	490	520	580	470	495	550	380	400	450	—	—	—
P6	690	740	820	550	590	650	530	560	620	425	450	500	—	—	—
P7	650	690	770	520	550	610	495	530	590	400	425	475	—	—	—
P8	600	640	720	480	510	570	460	485	540	370	395	440	—	—	—
P11	640	670	750	510	540	600	480	510	570	390	415	460	—	—	—
M1	590	640	710	520	570	630	500	540	600	430	470	520	—	—	—
M2	495	530	590	440	470	520	420	445	495	365	385	430	—	—	—
M3	395	430	470	355	380	415	335	365	395	290	315	340	—	—	—
M4	305	330	365	270	290	325	260	280	310	225	240	265	—	—	—
M5	255	275	305	225	245	270	215	230	255	185	200	220	—	—	—
K1	650	700	780	520	560	620	490	530	590	—	—	—	—	—	—
K2	590	620	690	465	495	550	445	470	520	—	—	—	—	—	—
K3	495	530	590	395	420	465	375	400	445	—	—	—	—	—	—
K4	475	500	560	375	400	445	360	380	425	—	—	—	—	—	—
K5	290	305	340	230	245	270	220	230	255	—	—	—	—	—	—
K6	415	445	490	330	350	390	315	335	375	—	—	—	—	—	—
K7	370	390	430	295	310	345	280	295	325	—	—	—	—	—	—
N1	2425	2600	2900	1925	2075	2300	1825	1975	2200	—	—	—	1800	1925	2100
N2	1950	2100	2325	1550	1675	1850	1475	1600	1775	—	—	—	1450	1550	1700
N3	1300	1400	1550	1050	1125	1225	990	1075	1175	—	—	—	970	1025	1125
N11	1500	1600	1775	1175	1275	1425	1125	1225	1350	—	—	—	1100	1175	1300
S1	150	160	175	125	135	150	120	130	145	70	75	80	—	—	—
S2	120	130	140	100	110	120	100	105	115	55	60	65	—	—	—
S3	105	110	125	90	95	105	85	90	100	48	50	55	—	—	—
S11	210	225	245	180	190	210	170	185	200	95	105	115	—	—	—
S12	145	160	175	125	135	145	120	130	140	75	80	85	—	—	—
S13	115	125	140	100	105	120	95	100	115	60	65	70	—	—	—
H5	125	130	145	110	115	125	105	110	120	—	—	—	—	—	—
H8	130	140	155	115	120	135	110	115	130	—	—	—	—	—	—
H11	160	165	185	140	145	160	130	140	155	—	—	—	—	—	—
H12	240	250	280	210	220	245	200	210	230	—	—	—	—	—	—
H21	130	140	155	115	120	135	110	115	130	—	—	—	—	—	—

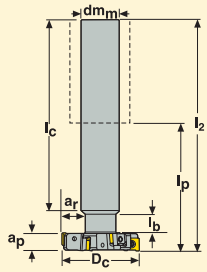
335.18/R335.18 – Insert LNK

Width 0.312-0.375" – Full side – Fixed

Combimaster (RE)



Cylindrical (Cyl)



- For insert selection and cutting data recommendations, see pages 206-207.
- For complete insert program, see pages 560-561.
- For spare parts and technical pages, see pages 199-205.

Drawings for type A and B, see page 182.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	D_c	M dm_m	D_{5m}	l_1	l_2	l_3	l_c	l_b		Z_c*	lbs	Max rpm	Insert
Cyl	.312	.350	29096	**R335.18 -01.25-0-0.31F-1N**	1.25	0.62	–	–	5.50	0.75	4.40	0.75	2	1	0.7	17300	LNK.05
Cyl	.312	.409	29097	**R335.18 -01.50-0-0.31F-2N**	1.50	0.75	–	–	5.50	0.75	4.40	0.75	4	2	0.9	15400	LNK.05
Cyl	.312	.591	29098	**R335.18 -02.00-0-0.31F-3N**	2.00	1.00	–	–	6.00	1.20	4.40	1.20	6	3	1.5	13800	LNK.05
RE**	.312	.606	29094	**R335.18 -02.00-16RE-0.31F-3N**	2.00	M16	1.10	1.40	–	0.49	–	0.49	6	3	0.7	13800	LNK.05
B	.312	.598	29085	**R335.18 -02.50-0.31F-3N**	2.50	0.75	1.58	2.00	–	–	–	1.21	6	3	0.9	12300	LNK.05
Cyl	.312	.626	29101	**R335.18 -02.50-0-0.31F-3N**	2.50	1.25	–	–	6.75	–	6.44	–	6	3	2.6	12300	LNK.05
B	.312	.713	29086	**R335.18 -03.00-0.31F-4N**	3.00	1.00	1.88	2.00	–	–	–	1.15	8	4	1.3	10900	LNK.05
A	.312	.713	29048	**335.18 -03.00-0.31F-4N**	3.00	1.00	1.63	–	–	–	–	–	8	4	0.7	10900	LNK.05
B	.312	1.059	29087	**R335.18 -04.00-0.31F-5N**	4.00	1.00	1.88	2.00	–	–	–	–	10	5	2.0	9700	LNK.05
A	.312	1.161	29073	**335.18 -04.00-0.31F-5N**	4.00	1.00	1.63	–	–	–	–	–	10	5	0.9	9700	LNK.05
A	.312	1.311	29077	**335.18 -05.00-0.31F-6N**	5.00	1.50	2.25	–	–	–	–	–	12	6	1.3	8400	LNK.05
B	.312	1.378	29088	**R335.18 -05.00-0.31F-6N**	5.00	1.25	2.25	2.00	–	–	–	–	12	6	2.2	8400	LNK.05
Cyl	.375	.350	29102	**R335.18 -01.25-0-0.37F-1N**	1.25	0.62	–	–	5.50	0.69	4.40	0.69	2	1	0.7	17300	LNK.05
Cyl	.375	.413	29105	**R335.18 -01.50-0-0.37F-2N**	1.50	0.75	–	–	5.50	0.69	4.40	0.69	4	2	0.9	15400	LNK.05
Cyl	.375	.591	29106	**R335.18 -02.00-0-0.37F-3N**	2.00	1.00	–	–	6.00	1.13	4.40	1.13	6	3	1.5	13800	LNK.05
RE**	.375	.606	29095	**R335.18 -02.00-16RE-0.37F-3N**	2.00	M16	1.10	1.40	–	0.43	–	0.43	6	3	0.7	13800	LNK.05
B	.375	.598	29089	**R335.18 -02.50-0.37F-3N**	2.50	0.75	1.58	2.00	–	–	–	1.15	6	3	0.9	12300	LNK.05
Cyl	.375	.626	29107	**R335.18 -02.50-0-0.37F-3N**	2.50	1.25	–	–	6.75	–	6.44	–	6	3	2.6	12300	LNK.05
B	.375	.713	29091	**R335.18 -03.00-0.37F-4N**	3.00	1.00	1.88	2.00	–	–	–	1.09	8	4	1.3	10900	LNK.05
A	.375	.713	29082	**335.18 -03.00-0.37F-4N**	3.00	1.00	1.63	–	–	–	–	–	8	4	0.7	10900	LNK.05
B	.375	1.059	29092	**R335.18 -04.00-0.37F-5N**	4.00	1.00	1.88	2.00	–	–	–	–	10	5	2.2	9700	LNK.05
A	.375	1.161	29083	**335.18 -04.00-0.37F-5N**	4.00	1.00	1.63	–	–	–	–	–	10	5	1.1	9700	LNK.05
A	.375	1.311	29084	**335.18 -05.00-0.37F-6N**	5.00	1.50	2.25	–	–	–	–	–	12	6	1.5	8400	LNK.05
B	.375	1.378	29093	**R335.18 -05.00-0.37F-6N**	5.00	1.25	2.25	2.00	–	–	–	–	12	6	2.2	8400	LNK.05

Please check availability in current price and stock-list.

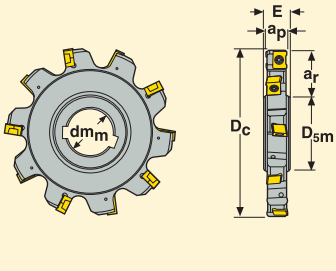
* Effective number of teeth.

** For Combimaster holders and adapters, see page 534.

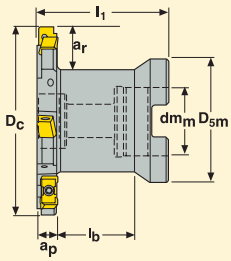
335.18/R335.18 – Insert LNK

Width 0.500-0.750" – Full side – Fixed

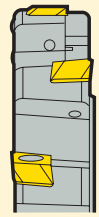
Milling arbor (A)



Shell mill holder (B)



a_p 0.625", 0.750"



- For insert selection and cutting data recommendations, see pages 206-207.
- For complete insert program, see pages 560-561.
- For spare parts and technical pages, see pages 199-205.

Drawings for type RE and Cyl, see page 181.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	E	l_1	l_b		Z_c*	lbs	Max rpm	Insert
Cyl	0.500	0.59	21524	**R335.18 -02.00-0-0.50F-3N**	2.00	1.00	–	–	–	1.01	6	3	1.5	13400	LNK.08
B	0.500	0.60	21514	**R335.18 -02.50-0.50F-3N**	2.50	0.75	1.58	–	2.00	1.02	6	3	1.1	12300	LNK.08
Cyl	0.500	0.63	21525	**-02.50-0-0.50F-3N**	2.50	1.25	–	–	–	–	6	3	2.9	11900	LNK.08
B	0.500	0.71	21515	**R335.18 -03.00-0.50F-4N**	3.00	1.00	1.88	–	2.00	0.96	8	4	1.5	10500	LNK.08
A	0.500	0.71	21508	**335.18 -03.00-0.50F-4N**	3.00	1.00	1.63	0.625	–	–	8	4	0.7	10900	LNK.08
Cyl	0.500	0.87	21526	**R335.18 -03.00-0-0.50F-4N**	3.00	1.25	–	–	–	–	8	4	2.9	10500	LNK.08
B	0.500	1.06	21516	**R335.18 -04.00-0.50F-5N**	4.00	1.00	1.88	–	2.00	–	10	5	2.2	9400	LNK.08
A	0.500	1.14	21509	**335.18 -04.00-0.50F-5N**	4.00	1.00	1.63	0.625	–	–	10	5	1.3	9400	LNK.08
A	0.500	1.30	21510	**335.18 -05.00-0.50F-6N**	5.00	1.50	2.25	0.625	–	–	12	6	2.0	8400	LNK.08
B	0.500	1.38	21517	**R335.18 -05.00-0.50F-6N**	5.00	1.25	2.25	–	2.00	–	12	6	2.6	8400	LNK.08
A	0.500	1.81	21512	**335.18 -06.00-0.50F-7N**	6.00	1.50	2.25	0.625	–	–	14	7	2.9	7500	LNK.08
B	0.625	0.71	21518	**R335.18 -03.00-0.62F-3N**	3.00	1.00	1.88	–	2.00	0.83	9	3	1.5	10500	LNK.06
B	0.625	1.06	21519	**R335.18 -04.00-0.62F-3N**	4.00	1.00	1.88	–	2.00	–	9	3	2.6	9400	LNK.06
B	0.625	1.38	21520	**R335.18 -05.00-0.62F-4N**	5.00	1.25	2.25	–	2.00	–	12	4	3.1	8400	LNK.06
A	0.625	1.38	23020	**335.18 -05.00-0.62F-4N**	5.00	1.50	2.25	0.625	–	–	12	4	2.4	8400	LNK.06
A	0.625	1.89	23021	**335.18 -06.00-0.62F-5N**	6.00	1.50	2.25	0.625	–	–	15	5	3.5	7500	LNK.06
B	0.750	0.71	21521	**R335.18 -03.00-0.75F-3N**	3.00	1.00	1.88	–	2.00	0.71	9	3	1.8	10500	LNK.08
B	0.750	1.06	21522	**R335.18 -04.00-0.75F-3N**	4.00	1.00	1.88	–	2.00	–	9	3	2.9	9400	LNK.08
B	0.750	1.38	21523	**R335.18 -05.00-0.75F-4N**	5.00	1.25	2.25	–	2.00	–	12	4	3.5	8400	LNK.08
A	0.750	1.38	23022	**335.18 -05.00-0.75F-4N**	5.00	1.50	2.25	0.750	–	–	12	4	2.9	8400	LNK.08
A	0.750	1.89	23023	**335.18 -06.00-0.75F-5N**	6.00	1.50	2.25	0.750	–	–	15	5	4.2	7500	LNK.08

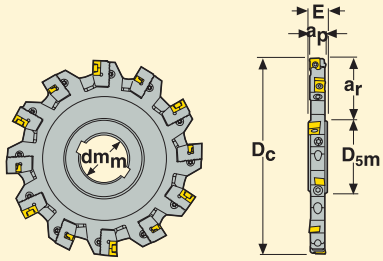
Please check availability in current price and stock-list.

* Effective number of teeth.

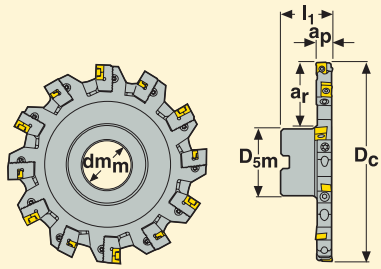
335.18/R335.18 – Inserts LNK

Width 0.313-0.591" – Full side – Adjustable

Type A for milling arbor



Type B for shell mill holder



- For insert selection and cutting data recommendations, see pages 206-207.
- For complete insert program, see pages 560-561.
- For spare parts and technical pages, see pages 199-205.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	E	l_1		Z_c*	lbs	Max rpm	Insert
B	.313-.394	1.02	16742	R335.18 -04.00-0506N	4.00	1.00	1.88	–	2.00	8	4	1.8	9400	LNK.05
A	.313-.394	1.10	11678	335.18 -04.00-0506N	4.00	1.00	1.55	0.625	–	8	4	0.9	9400	LNK.05
A	.313-.394	1.30	11698	335.18 -05.00-0506N	5.00	1.50	2.25	0.625	–	10	5	1.3	8400	LNK.05
B	.313-.394	1.34	16746	R335.18 -05.00-0506N	5.00	1.25	2.25	–	2.00	10	5	2.6	8400	LNK.05
B	.313-.394	1.57	16748	R335.18 -06.00-0506N	6.00	1.50	2.75	–	2.00	12	6	3.3	7500	LNK.05
A	.313-.394	1.77	16602	335.18 -06.00-0506N	6.00	1.50	2.25	0.625	–	12	6	2.0	7500	LNK.05
B	.313-.394	2.22	64772	R335.18 -08.00-XL0506N	8.00	1.50	3.50	–	2.00	14	7	6.2	6700	LNK.05
A	.313-.394	2.42	64645	335.18 -08.00-XL0506N	8.00	2.00	3.00	0.625	–	14	7	3.3	6700	LNK.05
B	.313-.394	3.21	64942	R335.18 -10.00-XL0506N	10.00	1.50	3.50	–	2.00	18	9	8.2	6000	LNK.05
A	.313-.394	3.39	64684	335.18 -10.00-XL0506N	10.00	2.00	3.00	0.625	–	18	9	5.5	6000	LNK.05
A	.313-.394	4.39	15922	335.18 -12.00-XL0506N	12.00	2.00	3.00	0.625	–	22	11	7.9	5300	LNK.05
B	.394-.472	1.01	79782	R335.18 -04.00-0708N	4.00	1.00	1.88	–	2.00	8	4	2.2	9400	LNK.06
A	.394-.472	1.26	79701	335.18 -05.00-0708N	5.00	1.50	2.25	0.625	–	10	5	1.8	8400	LNK.06
B	.394-.472	1.33	79783	R335.18 -05.00-0708N	5.00	1.25	2.25	–	2.00	10	5	3.1	8400	LNK.06
B	.472-.394	1.53	79784	R335.18 -06.00-0708N	6.00	1.50	2.75	–	2.00	12	6	3.7	7500	LNK.06
A	.394-.472	1.77	79702	335.18 -06.00-0708N	6.00	1.50	2.25	0.625	–	12	6	2.4	7500	LNK.06
B	.394-.472	2.22	64773	R335.18 -08.00-XL0708N	8.00	1.50	3.50	–	2.00	14	7	6.8	6700	LNK.06
A	.394-.472	2.42	64646	335.18 -08.00-XL0708N	8.00	2.00	3.00	0.625	–	14	7	4.0	6700	LNK.06
B	.394-.472	3.21	64950	R335.18 -10.00-XL0708N	10.00	1.50	3.50	–	2.00	18	9	9.3	6000	LNK.06
A	.394-.472	3.39	64685	335.18 -10.00-XL0708N	10.00	2.00	3.00	0.625	–	18	9	6.6	6000	LNK.06
A	.394-.472	4.39	64754	335.18 -12.00-XL0708N	12.00	2.00	3.00	0.625	–	22	11	9.7	5300	LNK.06
B	.472-.591	1.01	79963	R335.18 -04.00-0809N	4.00	1.00	1.88	–	2.00	8	4	2.4	9400	LNK.08
A	.472-.591	1.29	79932	335.18 -05.00-0809N	5.00	1.50	2.25	0.625	–	10	5	2.0	8400	LNK.08
B	.472-.591	1.33	79964	R335.18 -05.00-0809N	5.00	1.25	2.25	–	2.00	10	5	3.5	8400	LNK.08
B	.591-.472	1.58	79965	R335.18 -06.00-0809N	6.00	1.50	2.75	–	2.00	12	6	4.2	7500	LNK.08
A	.472-.591	1.79	79933	335.18 -06.00-0809N	6.00	1.50	2.25	0.625	–	12	6	2.9	7500	LNK.08
B	.472-.591	2.22	64774	R335.18 -08.00-XL0809N	8.00	1.50	3.50	–	2.00	14	7	7.7	6700	LNK.08
A	.472-.591	2.42	64647	335.18 -08.00-XL0809N	8.00	2.00	3.00	0.625	–	14	7	4.9	6700	LNK.08
B	.472-.591	3.21	64960	R335.18 -10.00-XL0809N	10.00	1.50	3.50	–	2.00	18	9	10.8	6000	LNK.08
A	.472-.591	3.39	64686	335.18 -10.00-XL0809N	10.00	2.00	3.00	0.625	–	18	9	7.9	6000	LNK.08
A	.472-.591	4.39	64755	335.18 -12.00-XL0809N	12.00	2.00	3.00	0.625	–	22	11	11.9	5300	LNK.08

Please check availability in current price and stock-list.

* Effective number of teeth.

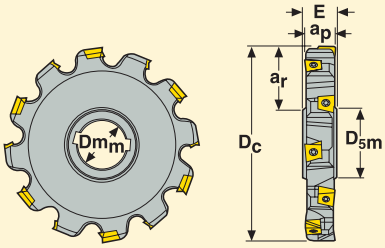
A cutter may be ordered set to any cutting width within its range. See pages 200, 201 for more information.

All adjustable cutters are set to the minimum cutter width, +/-0.001".

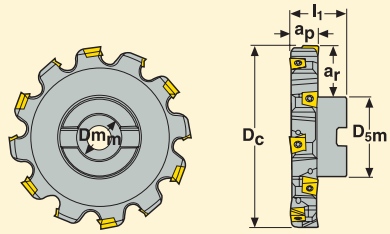
335.25/R335.25 – Insert XNHQ and LNHQ

Width 0.75" and 1.00" – Full side – Fixed

Type A for milling arbor – fixed pockets (AFP)



Type B for shell mill holder – fixed pockets (BFP)



- For insert selection and cutting data recommendations, see pages 222-227.
- For complete insert program, see pages 562, 593.
- For spare parts and technical pages, see pages 199-204.

With coolant through for B type 5.00-6.00" dia.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	D_c	dm_m	D_{5m}	l_1	E		Z_c*	lbs	Max rpm	Insert: First choice	Insert: Alternative choice
B FP	0.75	1.33	04881	R335.25 -05.00-0.75-5NA	5.00	1.25	2.28	2.00	–	10	5	4.2	6500	XNHQ12	–
B FP	0.75	1.59	04882	-06.00-0.75-6NA	6.00	1.50	2.76	2.00	–	12	6	6.0	5700	XNHQ12	–
A FP	0.75	1.83	04883	335.25 -06.00-0.75-6N	6.00	1.50	2.25	–	0.75	12	6	4.2	5600	XNHQ12	–
A FP	0.75	2.48	04884	-08.00-0.75-7N	8.00	2.00	3.00	–	0.75	14	7	7.7	5100	XNHQ12	–
B FP	1.00	1.35	10154	R335.25 -05.00-1.000-5NA	5.00	1.25	2.25	2.00	–	10	5	4.2	4900	XNHQ14	LNHQ14
B FP	1.00	1.60	10155	R335.25 -06.00-1.000-6NA	6.00	1.50	2.75	2.00	–	12	6	6.4	4400	XNHQ14	LNHQ14
A FP	1.00	1.85	14284	335.25 -06.00-1.000-6N	6.00	1.50	2.25	–	1.25	12	6	6.4	4400	XNHQ14	LNHQ14
B FP	1.00	2.22	10152	R335.25 -08.00-1.000-7N	8.00	1.50	3.50	2.00	–	14	7	11.7	3900	XNHQ14	LNHQ14
A FP	1.00	2.43	14360	335.25 -08.00-1.000-7N	8.00	2.00	3.00	–	1.25	14	7	10.1	3900	XNHQ14	LNHQ14
B FP	1.00	2.42	10153	R335.25 -10.00-1.000-9N	10.00	2.50	5.12	2.00	–	18	9	18.7	3500	XNHQ14	LNHQ14
A FP	1.00	3.43	14361	335.25 -10.00-1.000-9N	10.00	2.00	3.00	–	1.25	18	9	16.5	3500	XNHQ14	LNHQ14

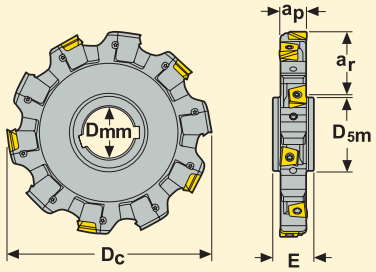
Please check availability in current price and stock-list.

* Effective number of teeth.

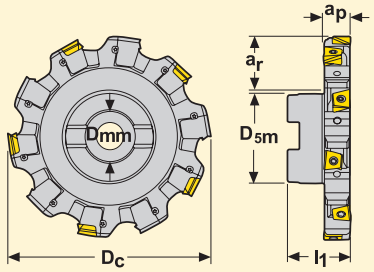
335.25/R335.25 – Insert XNHQ09/12

Width 0.53-0.83" – Full side – Adjustable

Type A for milling arbor – adjustable (A adj.)



Type B for shell mill holder – adjustable (B adj.)



- For insert selection and cutting data recommendations, see pages 220-223.
- For complete insert program, see pages 593.
- For spare parts and technical pages, see pages 199-204.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	l_1	E		Z_c*	lbs	Max rpm	Inserts
B	0.53-0.67	1.01	07765	R335.25 -04.00-0911N	4.0	1.00	1.88	2.00	–	6	3	2.2	9200	XNHQ09
B	0.53-0.67	1.33	07773	R335.25 -05.00-0911N	5.0	1.25	2.25	2.00	–	8	4	3.3	8200	XNHQ09
A	0.53-0.67	1.29	07956	335.25 -05.00-0911N	5.0	1.50	2.25	–	0.75	8	4	2.2	8200	XNHQ09
B	0.53-0.67	1.58	07793	R335.25 -06.00-0911N	6.0	1.50	2.75	2.00	–	10	5	4.9	7200	XNHQ09
A	0.53-0.67	1.80	07966	335.25 -06.00-0911N	6.0	1.50	2.25	–	0.75	10	5	3.1	7200	XNHQ09
B	0.53-0.67	2.21	07826	R335.25 -08.00-0911N	8.0	1.50	3.50	2.00	–	14	7	8.2	6500	XNHQ09
A	0.53-0.67	2.42	07972	335.25 -08.00-0911N	8.0	2.00	3.00	–	0.75	14	7	5.7	6500	XNHQ09
B	0.53-0.67	2.40	07931	R335.25 -10.00-XL0911N	10.0	2.50	5.12	2.00	–	16	8	13.4	5800	XNHQ09
A	0.53-0.67	3.42	08121	335.25 -10.00-XL0911N	10.0	2.00	3.00	–	0.75	16	8	9.0	5800	XNHQ09
B	0.53-0.67	3.40	07939	R335.25 -12.00-XL0911N	12.0	2.50	5.12	2.00	–	20	10	17.9	5200	XNHQ09
A	0.53-0.67	4.46	08126	335.25 -12.00-XL0911N	12.0	2.00	3.00	–	0.75	20	10	13.4	5200	XNHQ09
B	0.67-0.83	1.01	07357	R335.25 -04.00-1113N	4.0	1.00	1.88	2.00	–	6	3	2.4	7200	XNHQ12
B	0.67-0.83	1.33	07366	R335.25 -05.00-1113N	5.0	1.25	2.25	2.00	–	8	4	3.7	6500	XNHQ12
A	0.67-0.83	1.29	07509	335.25 -05.00-1113N	5.0	1.50	2.25	–	1.00	8	4	2.6	6500	XNHQ12
B	0.67-0.83	1.58	07383	R335.25 -06.00-1113N	6.0	1.50	2.75	2.00	–	10	5	5.5	5700	XNHQ12
A	0.67-0.83	1.80	07539	335.25 -06.00-1113N	6.0	1.50	2.25	–	1.00	10	5	4.0	5700	XNHQ12
B	0.67-0.83	2.21	07390	R335.25 -08.00-1113N	8.0	1.50	3.50	2.00	–	12	6	9.7	5100	XNHQ12
A	0.67-0.83	2.42	07575	335.25 -08.00-1113N	8.0	2.00	3.00	–	1.00	12	6	7.5	5100	XNHQ12
B	0.67-0.83	2.40	07396	R335.25 -10.00-XL1113N	10.0	2.50	5.12	2.00	–	16	8	15.2	4600	XNHQ12
A	0.67-0.83	3.42	07611	335.25 -10.00-XL1113N	10.0	2.00	3.00	–	1.00	16	8	11.5	4600	XNHQ12
B	0.67-0.83	3.40	07428	R335.25 -12.00-XL1113N	12.0	2.50	5.12	2.00	–	20	10	20.7	4100	XNHQ12
A	0.67-0.83	4.42	07622	335.25 -12.00-XL1113N	12.0	2.00	3.00	–	1.00	20	10	17.0	4100	XNHQ12

Please check availability in current price and stock-list.

* Effective number of teeth.

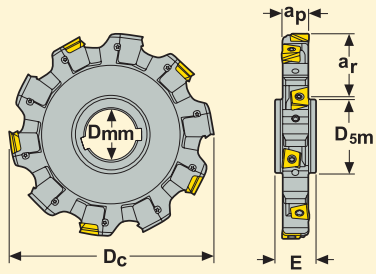
A cutter may be ordered set to any cutting width within its range. See pages 200, 201 for more information.

All adjustable cutters are set to the minimum cutter width, +/-0.001".

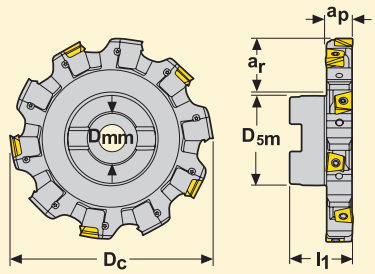
335.25/R335.25 – Insert XNHQ14/17 and LNHQ14/17

Width 0.83-1.26" – Full side – Adjustable

Type A for milling arbor – adjustable (A adj.)



Type B for shell mill holder – adjustable (B adj.)



- For insert selection and cutting data recommendations, see pages 224-227.
- For complete insert program, see pages 562, 593.
- For spare parts and technical pages, see pages 199-204.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	l_1	E		Z_c*	lbs	Max rpm	Insert: First choice	Insert: Alternative choice
A adj.	0.83-1.02	1.29	79165	**335.25 -05.00-1316N**	5.0	1.50	2.25	–	1.25	8	4	3.1	4900	XNHQ14	LNHQ14
B adj.	0.83-1.02	1.33	79126	**R335.25 -05.00-1316N**	5.0	1.25	2.25	2.00	–	8	4	4.0	4900	XNHQ14	LNHQ14
B adj.	0.83-1.02	1.58	79130	**R335.25 -06.00-1316N**	6.0	1.50	2.75	2.00	–	10	5	6.0	4500	XNHQ14	LNHQ14
A adj.	0.83-1.02	1.79	79168	**335.25 -06.00-1316N**	6.0	1.50	2.25	–	1.25	10	5	4.6	4500	XNHQ14	LNHQ14
B adj.	0.83-1.02	2.21	79133	**R335.25 -08.00-1316N**	8.0	1.50	3.50	2.00	–	12	6	10.8	3900	XNHQ14	LNHQ14
A adj.	0.83-1.02	2.41	79171	**335.25 -08.00-1316N**	8.0	2.00	3.00	–	1.25	12	6	9.0	3900	XNHQ14	LNHQ14
B adj.	0.83-1.02	2.40	79136	**R335.25 -10.00-XL1316N**	10.0	2.50	5.12	2.00	–	14	7	16.5	3500	XNHQ14	LNHQ14
A adj.	0.83-1.02	3.41	79174	**335.25 -10.00-XL1316N**	10.0	2.00	3.00	–	1.25	14	7	13.9	3500	XNHQ14	LNHQ14
B adj.	0.83-1.02	3.40	79161	**R335.25 -12.00-XL1316N**	12.0	2.50	5.12	2.00	–	18	9	23.1	3200	XNHQ14	LNHQ14
A adj.	0.83-1.02	4.41	79177	**335.25 -12.00-XL1316N**	12.0	2.00	3.00	–	1.25	18	9	20.5	3200	XNHQ14	LNHQ14
B adj.	1.02-1.26	1.58	16209	**R335.25 -06.00-1620N**	6.0	1.50	2.75	2.00	–	10	5	6.8	4700	XNHQ17	LNHQ17
A adj.	1.02-1.26	1.79	16385	**335.25 -06.00-1620N**	6.0	1.50	2.25	–	1.25	10	5	5.7	4700	XNHQ17	LNHQ17
B adj.	1.02-1.26	2.21	16358	**R335.25 -08.00-1620N**	8.0	1.50	3.50	2.00	–	12	6	12.6	4100	XNHQ17	LNHQ17
A adj.	1.02-1.26	2.41	16392	**335.25 -08.00-1620N**	8.0	2.00	3.00	–	1.25	12	6	11.0	4100	XNHQ17	LNHQ17
B adj.	1.02-1.26	2.40	16370	**R335.25 -10.00-XL1620N**	10.0	2.50	5.12	2.00	–	14	7	19.0	3600	XNHQ17	LNHQ17
A adj.	1.02-1.26	3.41	16413	**335.25 -10.00-XL1620N**	10.0	2.00	3.00	–	1.25	14	7	17.0	3600	XNHQ17	LNHQ17
B adj.	1.02-1.26	3.40	16380	**R335.25 -12.00-XL1620N**	12.0	2.50	5.12	2.00	–	18	9	27.1	3300	XNHQ17	LNHQ17
A adj.	1.02-1.26	4.41	84966	**335.25 -12.00-XL1620N**	12.0	2.00	3.00	–	1.25	18	9	25.4	3300	XNHQ17	LNHQ17

Please check availability in current price and stock-list.

* Effective number of teeth.

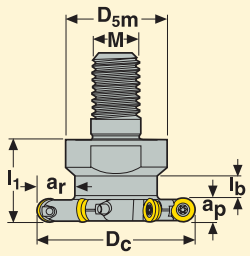
A cutter may be ordered set to any cutting width within its range. See pages 200, 201 for more information.

All adjustable cutters are set to the minimum cutter width, +/-0.001".

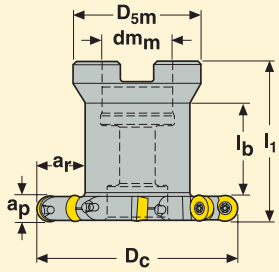
R335.29 – Round inserts

Width 0.236-0.394" – Full radius – Fixed

Combimaster (RE)



Shell mill holder (B)



- For insert selection and cutting data recommendations, see pages 210-215.
- For complete insert program, see page 570.
- For spare parts and technical pages, see pages 199-202.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	D_c	dm_m	D_{5m}	M	l_1	l_b		Z_c*	lbs	Max rpm	Insert
RE	0.236	0.297	21489	R335.29 -01.50-12RE-6N-R3	1.50	–	0.91	M12	1.10	–	6	6	0.2	33700	RD..06
RE	0.236	0.409	21490	-02.00-16RE-8N-R3	2.00	–	1.18	M16	1.10	–	8	8	0.7	30200	RD..06
RE	0.315	0.409	21491	-02.00-16RE-6N-R4	2.00	–	1.18	M16	1.10	–	6	6	0.7	20200	RD..08
B	0.315	0.598	21492	-02.50-8N-R4	2.50	0.75	1.57	–	2.00	1.20	8	8	0.9	17000	RD..08
B	0.394	0.598	21493	-02.50-6N-R5	2.50	0.75	1.57	–	2.00	1.09	6	3	1.1	13500	RD..10
B	0.394	0.717	21494	-03.00-8N-R5	3.00	1.00	1.88	–	2.00	1.06	8	4	1.3	12000	RD..10

Please check availability in current price and stock-list.

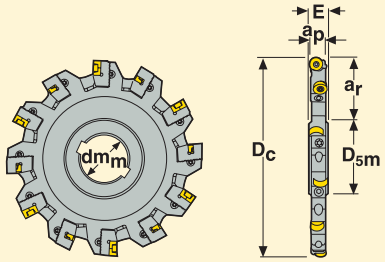
* Effective number of teeth.

** For Combimaster holders and adapters, see page 534.

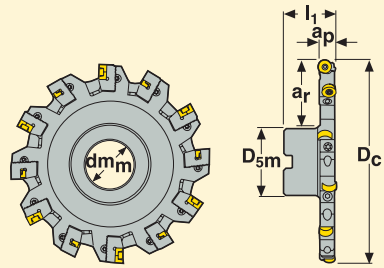
335.18/R335.18 – Round inserts

Width 0.315-0.472" – Full radius – Adjustable

Type A for milling arbor



Type B for shell mill holder



- For insert selection and cutting data recommendations, see pages 212-215.
- For complete insert program, see page 570, 608.
- For spare parts and technical pages, see pages 199-205.

Type	Dimensions in inch		EDP No.	Part No.	Dimensions in inch						Zc*	lbs	Max rpm	Insert
	a_p	a_r			D_c	dm_m	D_{5m}	E	l_1					
B	.315-.394	1.06	16852	R335.18 -04.00-0506N-R4	4.08	1.00	1.88	–	2.00	8	4	1.8	9400	RD..08
A	.315-.394	1.14	16710	335.18 -04.00-0506N-R4	4.08	1.00	1.55	0.625	–	8	4	0.9	9400	RD..08
A	.315-.394	1.30	16720	335.18 -05.00-0506N-R4	5.08	1.50	2.25	0.625	–	10	5	1.3	8400	RD..08
B	.315-.394	1.38	16853	R335.18 -05.00-0506N-R4	5.08	1.25	2.25	–	2.00	10	5	2.6	8400	RD..08
B	.315-.394	1.61	16861	R335.18 -06.00-0506N-R4	6.08	1.50	2.75	–	2.00	12	6	3.3	7500	RD..08
A	.315-.394	1.77	16721	335.18 -06.00-0506N-R4	6.08	1.50	2.25	0.625	–	12	6	2.0	7500	RD..08
B	.315-.394	2.22	64775	R335.18 -08.00-XL0506N-R4	8.00	1.50	3.50	–	2.00	14	7	6.2	6700	RD..08
A	.315-.394	2.42	64648	335.18 -08.00-XL0506N-R4	8.00	2.00	3.00	0.625	–	14	14	3.3	6700	RD..08
B	.315-.394	3.21	64961	R335.18 -10.00-XL0506N-R4	10.00	1.50	3.50	–	2.00	18	9	8.2	6000	RD..08
A	.315-.394	3.39	64687	335.18 -10.00-XL0506N-R4	10.00	2.00	3.00	0.625	–	18	9	5.5	6000	RD..08
A	.315-.394	4.39	64757	335.18 -12.00-XL0506N-R4	12.00	2.00	3.00	0.625	–	22	11	7.9	5300	RD..08
B	.394-.472	1.06	79997	R335.18 -04.00-0708N-R5	4.08	1.00	1.88	–	2.00	8	4	2.2	9400	RD..10
A	.394-.472	1.30	79978	335.18 -05.00-0708N-R5	5.08	1.50	2.25	0.625	–	10	5	1.8	8400	RD..10
B	.394-.472	1.38	79998	R335.18 -05.00-0708N-R5	5.08	1.25	2.25	–	2.00	10	5	3.1	8400	RD..10
B	.394-.472	1.61	79999	R335.18 -06.00-0708N-R5	6.08	1.50	2.75	–	2.00	12	6	3.7	7500	RD..10
A	.394-.472	1.81	79979	335.18 -06.00-0708N-R5	6.08	1.50	2.25	0.625	–	12	6	2.4	7500	RD..10
B	.394-.472	2.22	64776	R335.18 -08.00-XL0708N-R5	8.00	1.50	3.50	–	2.00	14	7	6.8	6700	RD..10
A	.394-.472	2.42	64649	335.18 -08.00-XL0708N-R5	8.00	2.00	3.00	0.625	–	14	7	4.0	6700	RD..10
B	.394-.472	3.21	64969	R335.18 -10.00-XL0708N-R5	10.00	1.50	3.50	–	2.00	18	9	9.3	6000	RD..10
A	.394-.472	3.39	64688	335.18 -10.00-XL0708N-R5	10.00	2.00	3.00	0.625	–	18	9	6.6	6000	RD..10
A	.394-.472	4.39	64760	335.18 -12.00-XL0708N-R5	12.00	2.00	3.00	0.625	–	22	11	9.7	5300	RD..10

Please check availability in current price and stock-list.

* Effective number of teeth.

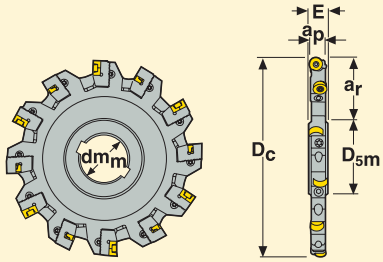
A cutter may be ordered set to any cutting width within its range. See pages 200, 201 for more information.

All adjustable cutters are set to the minimum cutter width, +/-0.001".

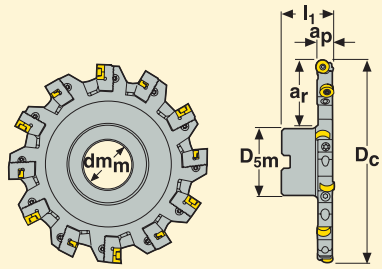
335.18/R335.18 – Round inserts

Width 0.472-0.728" – Full radius – Adjustable

Type A for milling arbor



Type B for shell mill holder



- For insert selection and cutting data recommendations, see pages 216-219.
- For complete insert program, see page 571-572.
- For spare parts and technical pages, see pages 199-205.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	Dimensions in inch dm_m	Dimensions in inch D_{5m}	Dimensions in inch E	Dimensions in inch l_1		Z_c*	lbs	Max rpm	Insert
B	.472-.591	1.05	80158	R335.18 -04.00-0809N-R6	4.08	1.00	1.88	–	2.00	8	4	2.4	9400	RP..12
A	.472-.591	1.34	80035	335.18 -05.00-0809N-R6	5.08	1.50	2.25	0.625	–	10	5	2.0	8400	RP..12
B	.472-.591	1.37	80160	R335.18 -05.00-0809N-R6	5.08	1.25	2.25	–	2.00	10	5	3.5	8400	RP..12
B	.472-.591	1.62	80181	R335.18 -06.0-0809N-R6	6.08	1.50	2.75	–	2.00	12	6	4.2	7500	RP..12
A	.472-.591	1.83	80045	335.18 -06.00-0809N-R6	6.08	1.50	2.25	0.625	–	12	6	2.9	7500	RP..12
B	.472-.591	2.22	64778	R335.18 -08.00-XL0809N-R6	8.00	1.50	3.50	–	2.00	14	7	7.7	6700	RP..12
A	.472-.591	2.42	64650	335.18 -08.00-XL0809N-R6	8.00	2.00	3.00	0.625	–	14	7	4.9	6700	RP..12
B	.472-.591	3.21	64970	R335.18 -10.00-XL0809N-R6	10.00	1.50	3.50	–	2.00	18	9	10.8	6000	RP..12
A	.472-.591	3.39	64689	335.18 -10.00-XL0809N-R6	10.00	2.00	3.00	0.625	–	18	9	7.9	6000	RP..12
A	.472-.591	4.39	64761	335.18 -12.00-XL0809N-R6	12.00	2.00	3.00	0.625	–	22	11	11.9	5300	RP..12
B	.630-.728	1.07	39295	R335.18 -05.00-0911N-R8	5.20	1.50	2.75	–	2.04	8	4	3.5	7800	RP..16
A	.630-.728	1.32	39300	335.18 -05.00-0911N-R8	5.20	1.50	2.25	0.750	–	8	4	2.6	7800	RP..16
B	.630-.728	1.57	39296	R335.18 -06.00-0911N-R8	6.20	1.50	2.75	–	2.00	10	5	5.7	6900	RP..16
A	.630-.728	1.81	39301	335.18 -06.00-0911N-R8	6.20	1.50	2.25	0.750	–	10	5	3.3	6900	RP..16
B	.630-.728	2.19	39297	R335.18 -08.00-0911N-R8	8.20	1.50	3.50	–	2.04	14	7	9.9	6100	RP..16
A	.630-.728	2.44	39302	335.18 -08.00-0911N-R8	8.20	2.00	3.00	0.750	–	14	7	6.6	6100	RP..16
B	.630-.728	2.38	39298	R335.18 -10.00-0911N-R8	10.20	2.50	5.12	–	2.04	18	9	14.3	5500	RP..16
A	.630-.728	3.44	39303	335.18 -10.00-0911N-R8	10.20	2.00	3.00	0.750	–	18	9	9.9	5500	RP..16
B	.630-.728	3.38	39299	R335.18 -12.00-0911N-R8	12.20	2.50	5.12	–	2.00	22	11	18.7	4900	RP..16
A	.630-.728	4.44	39304	335.18 -12.00-0911N-R8	12.20	2.00	3.00	0.750	–	22	11	14.3	4900	RP..16

Please check availability in current price and stock-list.

* Effective number of teeth.

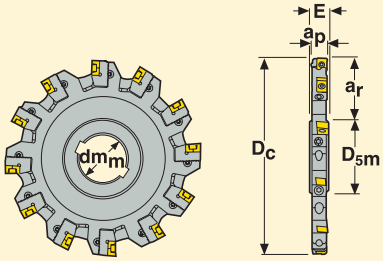
A cutter may be ordered set to any cutting width within its range. See pages 200, 201 for more information.

All adjustable cutters are set to the minimum cutter width, +/-0.001".

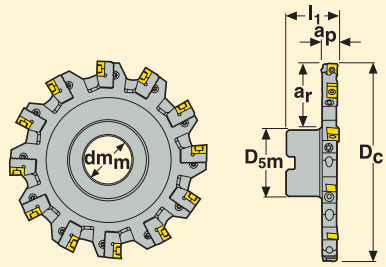
335.18/R335.18 – Inserts LNK

Width max. 0.295" – Half side – Right hand with cassettes

Type A for milling arbor



Type B for shell mill holder



- For insert selection and cutting data recommendations, see pages 206-207.
- For complete insert program, see pages 560-561.
- For spare parts and technical pages, see pages 199-205.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	Dimensions in inch dm_m	Dimensions in inch D_{5m}	Dimensions in inch E	Dimensions in inch l_1		Z_c*	lbs	Max rpm	Insert
B	0.197	1.02	16755	R335.18 -04.00-0506R	4.00	1.00	1.88	–	2.00	8	8	1.8	9400	LNK.05
A	0.197	1.10	16644	335.18 -04.00-0506R	4.00	1.00	1.55	0.625	–	8	8	0.9	9400	LNK.05
A	0.197	1.30	16651	335.18 -05.00-0506R	5.00	1.50	2.25	0.625	–	10	10	1.3	8400	LNK.05
B	0.197	1.34	16765	R335.18 -05.00-0506R	5.00	1.25	2.25	–	2.00	10	10	2.6	8400	LNK.05
B	0.197	1.57	16769	R335.18 -06.00-0506R	6.00	1.50	2.75	–	2.00	12	12	3.3	7500	LNK.05
A	0.197	1.77	16652	335.18 -06.00-0506R	6.00	1.50	2.25	0.625	–	12	12	2.0	7500	LNK.05
B	0.197	2.22	64780	R335.18 -08.00-XL0506R	8.00	1.50	3.50	–	2.00	14	14	6.2	6700	LNK.05
A	0.197	2.42	64651	335.18 -08.00-XL0506R	8.00	2.00	3.00	0.625	–	14	14	3.3	6700	LNK.05
B	0.197	3.21	64971	R335.18 -10.00-XL0506R	10.00	1.50	3.50	–	2.00	18	18	8.2	6000	LNK.05
A	0.197	3.39	64690	335.18 -10.00-XL0506R	10.00	2.00	3.00	0.625	–	18	18	5.5	6000	LNK.05
A	0.197	4.39	64762	335.18 -12.00-XL0506R	12.00	2.00	3.00	0.625	–	22	22	7.9	5300	LNK.05
B	0.236	1.01	21715	R335.18 -04.00-0708R	4.00	1.00	1.88	–	2.00	8	8	2.2	9400	LNK.06
A	0.236	1.26	79766	335.18 -05.00-0708R	5.00	1.50	2.25	0.625	–	10	10	1.8	8400	LNK.06
B	0.236	1.33	79832	R335.18 -05.00-0708R	5.00	1.25	2.25	–	2.00	10	10	3.1	8400	LNK.06
B	0.236	1.53	79833	R335.18 -06.00-0708R	6.00	1.50	2.75	–	2.00	12	12	3.7	7500	LNK.06
A	0.236	1.77	79767	335.18 -06.00-0708R	6.00	1.50	2.25	0.625	–	12	12	2.4	7500	LNK.06
B	0.236	2.22	64781	R335.18 -08.00-XL0708R	8.00	1.50	3.50	–	2.00	14	14	6.8	6700	LNK.06
A	0.236	2.42	64652	335.18 -08.00-XL0708R	8.00	2.00	3.00	0.625	–	14	14	4.0	6700	LNK.06
B	0.236	3.21	64974	R335.18 -10.00-XL0708R	10.00	1.50	3.50	–	2.00	18	18	9.3	6000	LNK.06
A	0.236	3.39	64691	335.18 -10.00-XL0708R	10.00	2.00	3.00	0.625	–	18	18	6.6	6000	LNK.06
A	0.236	4.39	64763	335.18 -12.00-XL0708R	12.00	2.00	3.00	0.625	–	22	22	9.7	5300	LNK.06
B	0.295	1.01	79968	R335.18 -04.00-0809R	4.00	1.00	1.88	–	2.00	8	8	2.4	9400	LNK.08
A	0.295	1.29	79951	335.18 -05.00-0809R	5.00	1.50	2.25	0.625	–	10	10	2.0	8400	LNK.08
B	0.295	1.33	79969	R335.18 -05.00-0809R	5.00	1.25	2.25	–	2.00	10	10	3.5	8400	LNK.08
B	0.295	1.58	79970	R335.18 -06.00-0809R	6.00	1.50	2.75	–	2.00	12	12	4.2	7500	LNK.08
A	0.295	1.79	79952	335.18 -06.00-0809R	6.00	1.50	2.25	0.625	–	12	12	2.9	7500	LNK.08
B	0.295	2.22	64790	R335.18 -08.00-XL0809R	8.00	1.50	3.50	–	2.00	14	14	7.7	6700	LNK.08
A	0.295	2.42	64653	335.18 -08.00-XL0809R	8.00	2.00	3.00	0.625	–	14	14	4.9	6700	LNK.08
B	0.295	3.21	64975	R335.18 -10.00-XL0809R	10.00	1.50	3.50	–	2.00	18	18	10.8	6000	LNK.08
A	0.295	3.39	64692	335.18 -10.00-XL0809R	10.00	2.00	3.00	0.625	–	18	18	7.9	6000	LNK.08
A	0.295	4.39	64764	335.18 -12.00-XL0809R	12.00	2.00	3.00	0.625	–	22	22	11.9	5300	LNK.08

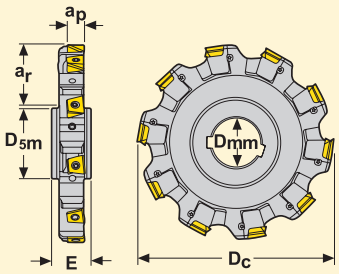
Please check availability in current price and stock-list.

* Effective number of teeth.

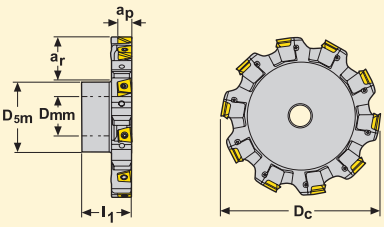
335.25/R335.25 – Insert XNHQ09/12

Width max. 0.44" – Half side – Right hand with cassettes

Type A for milling arbor – adjustable (A adj.)



Type B for shell mill holder – adjustable (B adj.)



- For insert selection and cutting data recommendations, see pages 220-223.
- For complete insert program, see pages 593.
- For spare parts and technical pages, see pages 199-204.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	l_1	E		Z_c*	lbs	Max rpm	Inserts
B	0.35	1.01	07767	R335.25 -04.00-0911R	4.0	1.00	1.88	2.00	–	6	6	2.2	9200	XNHQ09
B	0.35	1.33	07791	R335.25 -05.00-0911R	5.0	1.25	2.25	2.00	–	8	8	3.3	8200	XNHQ09
A	0.35	1.29	07962	335.25 05.00-0911R	5.0	1.50	2.25	–	0.75	8	8	2.2	8200	XNHQ09
B	0.35	1.58	07808	R335.25 -06.00-0911R	6.0	1.50	2.75	2.00	–	10	10	4.9	7200	XNHQ09
A	0.35	1.80	07970	335.25 06.00-0911R	6.0	1.50	2.25	–	0.75	10	10	3.1	7200	XNHQ09
B	0.35	2.21	07882	R335.25 -08.00-0911R	8.0	1.50	3.50	2.00	–	14	14	8.2	6500	XNHQ09
A	0.35	2.42	07999	335.25 08.00-0911R	8.0	2.00	3.00	–	0.75	14	14	5.7	6500	XNHQ09
B	0.35	2.40	07934	R335.25 -10.00-XL0911R	10.0	2.50	5.12	2.00	–	16	16	13.4	5800	XNHQ09
A	0.35	3.42	08123	335.25 10.00-XL0911R	10.0	2.00	3.00	–	0.75	16	16	9.0	5800	XNHQ09
B	0.35	3.40	07951	R335.25 -12.00-XL0911R	12.0	2.50	5.12	2.00	–	20	20	17.9	5200	XNHQ09
A	0.35	4.46	08128	335.25 12.00-XL0911R	12.0	2.00	3.00	–	0.75	20	20	13.4	5200	XNHQ09
B	0.44	1.01	07359	R335.25 -04.00-1113R	4.0	1.00	1.88	2.00	–	6	6	2.4	7200	XNHQ12
B	0.44	1.33	07371	R335.25 -05.00-1113R	5.0	1.25	2.25	2.00	–	8	8	3.7	6500	XNHQ12
A	0.44	1.29	07533	335.25 05.00-1113R	5.0	1.50	2.25	–	1.00	8	8	2.6	6500	XNHQ12
B	0.44	1.58	07388	R335.25 -06.00-1113R	6.0	1.50	2.75	2.00	–	10	10	5.5	5700	XNHQ12
A	0.44	1.80	07551	335.25 06.00-1113R	6.0	1.50	2.25	–	1.00	10	10	4.0	5700	XNHQ12
B	0.44	2.21	07392	R335.25 -08.00-1113R	8.0	1.50	3.50	2.00	–	12	12	9.7	5100	XNHQ12
A	0.44	2.42	07591	335.25 08.00-1113R	8.0	2.00	3.00	–	1.00	12	12	7.5	5100	XNHQ12
B	0.44	2.40	07406	R335.25 -10.00-XL1113R	10.0	2.50	5.12	2.00	–	16	16	15.2	4600	XNHQ12
A	0.44	3.42	07615	335.25 10.00-XL1113R	10.0	2.00	3.00	–	1.00	16	16	11.5	4600	XNHQ12
B	0.44	3.40	07444	R335.25 -12.00-XL1113R	12.0	2.50	5.12	2.00	–	20	20	20.7	4100	XNHQ12
A	0.44	4.42	07624	335.25 12.00-XL1113R	12.0	2.00	3.00	–	1.00	20	20	17.0	4100	XNHQ12

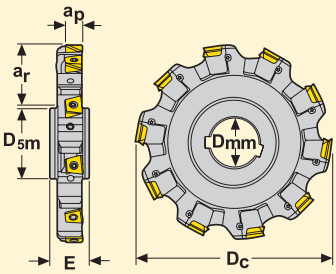
Please check availability in current price and stock-list.

* Effective number of teeth.

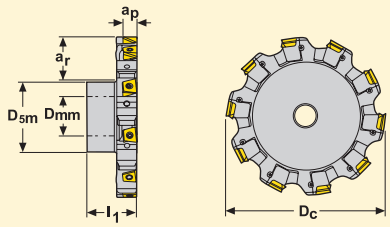
335.25/R335.25 – Insert XNHQ14/17 and LNHQ14/17

Width max. 0.63" – Half side – Right hand with cassettes

Type A for milling arbor – adjustable (A adj.)



Type B for shell mill holder – adjustable (B adj.)



- For insert selection and cutting data recommendations, see pages 224-227.
- For complete insert program, see pages 562, 593.
- For spare parts and technical pages, see pages 199-204.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	l_1	E	Z	Z_c*	lbs	Max rpm	Insert: First choice	Insert: Alternative choice
A adj.	0.51	1.29	79166	**335.25 -05.00-1316R**	5.0	1.50	2.25	–	1.25	8	8	3.1	4900	XNHQ14	LNHQ14
B adj.	0.51	1.33	79127	**R335.25 -05.00-1316R**	5.0	1.25	2.25	2.00	–	8	8	4.0	4900	XNHQ14	LNHQ14
B adj.	0.51	1.58	79131	**R335.25 -06.00-1316R**	6.0	1.50	2.75	2.00	–	10	10	6.0	4500	XNHQ14	LNHQ14
A adj.	0.51	1.79	79169	**335.25 -06.00-1316R**	6.0	1.50	2.25	–	1.25	10	10	4.9	4500	XNHQ14	LNHQ14
B adj.	0.51	2.21	79134	**R335.25 -08.00-1316R**	8.0	1.50	3.50	2.00	–	12	12	10.8	3900	XNHQ14	LNHQ14
A adj.	0.51	2.41	79172	**335.25 -08.00-1316R**	8.0	2.00	3.00	–	1.25	12	12	9.0	3900	XNHQ14	LNHQ14
B adj.	0.51	2.40	79137	**R335.25 -10.00-XL1316R**	10.0	2.50	5.12	2.00	–	14	14	16.5	3500	XNHQ14	LNHQ14
A adj.	0.51	3.41	79175	**335.25 -10.00-XL1316R**	10.0	2.00	3.00	–	1.25	14	14	13.9	3500	XNHQ14	LNHQ14
B adj.	0.51	3.40	79162	**R335.25 -12.00-XL1316R**	12.0	2.50	5.12	2.00	–	18	18	23.1	3200	XNHQ14	LNHQ14
A adj.	0.51	4.41	79178	**335.25 -12.00-XL1316R**	12.0	2.00	3.00	–	1.25	18	18	20.7	3200	XNHQ14	LNHQ14
B adj.	0.63	1.58	16214	**R335.25 -06.00-1620R**	6.0	1.50	2.75	2.00	–	10	10	6.8	4700	XNHQ17	LNHQ17
A adj.	0.63	1.79	16388	**335.25 -06.00-1620R**	6.0	1.50	2.25	–	1.25	10	10	5.7	4700	XNHQ17	LNHQ17
B adj.	0.63	2.21	16365	**R335.25 -08.00-1620R**	8.0	1.50	3.50	2.00	–	12	12	12.6	4100	XNHQ17	LNHQ17
A adj.	0.63	2.41	16395	**335.25 -08.00-1620R**	8.0	2.00	3.00	–	1.25	12	12	11.0	4100	XNHQ17	LNHQ17
B adj.	0.63	2.40	16374	**R335.25 -10.00-XL1620R**	10.0	2.50	5.12	2.00	–	14	14	18.7	3600	XNHQ17	LNHQ17
A adj.	0.63	3.41	16424	**335.25 -10.00-XL1620R**	10.0	2.00	3.00	–	1.25	14	14	17.0	3600	XNHQ17	LNHQ17
B adj.	0.63	3.40	16382	**R335.25 -12.00-XL1620R**	12.0	2.50	5.12	2.00	–	18	18	27.3	3300	XNHQ17	LNHQ17
A adj.	0.63	4.41	84968	**335.25 -12.00-XL1620R**	12.0	2.00	3.00	–	1.25	18	18	25.4	3300	XNHQ17	LNHQ17

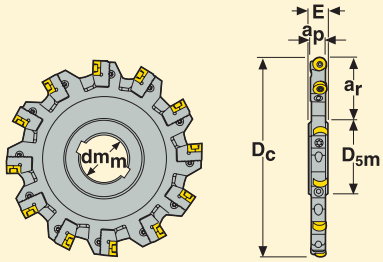
Please check availability in current price and stock-list.

* Effective number of teeth.

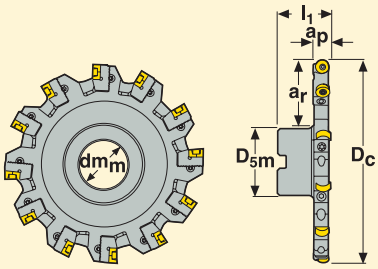
335.18/R335.18 – Round inserts

Width max. 0.236" – Half side – Right hand with cassettes

Type A for milling arbor



Type B for shell mill holder



- For insert selection and cutting data recommendations, see pages 214-217.
- For complete insert program, see pages 570-571, 608.
- For spare parts and technical pages, see pages 199-205.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	Dimensions in inch dm_m	Dimensions in inch D_{5m}	Dimensions in inch E	Dimensions in inch l_1		Z_c*	lbs	Max rpm	Insert
B	0.197	2.26	64791	R335.18 -08.00-XL0708R-R5	8.00	1.50	3.50	–	2.00	14	14	6.8	6700	RD..10
A	0.197	2.42	64654	335.18 -08.00-XL0708R-R5	8.00	2.00	3.00	0.625	–	14	14	4.0	6700	RD..10
B	0.197	3.25	64976	R335.18 -10.00-XL0708R-R5	10.00	1.50	3.50	–	2.00	18	18	9.3	6000	RD..10
A	0.197	3.39	64693	335.18 -10.00-XL0708R-R5	10.00	2.00	3.00	0.625	–	18	18	6.6	6000	RD..10
A	0.197	4.39	64765	335.18 -12.00-XL0708R-R5	12.00	2.00	3.00	0.625	–	22	22	9.7	5300	RD..10
B	0.236	1.05	36047	R335.18 -04.00-0809R-R6	4.08	1.00	1.88	–	2.00	8	8	2.4	9400	RP..12
A	0.236	1.32	36056	335.18 -05.00-0809R-R6	5.08	1.50	2.25	0.625	–	10	10	2.0	8400	RP..12
B	0.236	1.37	36048	R335.18 -05.00-0809R-R6	5.08	1.25	2.25	–	2.00	10	10	3.5	8400	RP..12
B	0.236	1.62	36049	R335.18 -06.00-0809R-R6	6.08	1.50	2.75	–	2.00	12	12	4.2	7500	RP..12
A	0.236	1.83	36057	335.18 -06.00-0809R-R6	6.08	1.50	2.25	0.625	–	12	12	2.9	7500	RP..12
B	0.236	2.26	64792	R335.18 -08.00-XL0809R-R6	8.00	1.50	3.50	–	2.00	14	14	7.7	6700	RP..12
A	0.236	2.42	64655	335.18 -08.00-XL0809R-R6	8.00	2.00	3.00	0.625	–	14	14	4.9	6700	RP..12
B	0.236	3.25	64977	R335.18 -10.00-XL0809R-R6	10.00	1.50	3.50	–	2.00	18	18	10.8	6000	RP..12
A	0.236	3.39	64694	335.18 -10.00-XL0809R-R6	10.00	2.00	3.00	0.625	–	18	18	7.9	6000	RP..12
A	0.236	4.39	64766	335.18 -12.00-XL0809R-R6	12.00	2.00	3.00	0.625	–	22	22	11.9	5300	RP..12

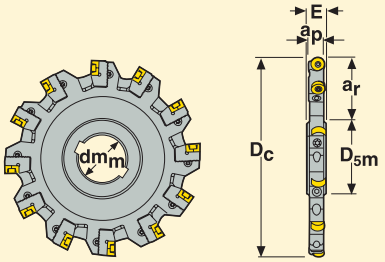
Please check availability in current price and stock-list.

* Effective number of teeth.

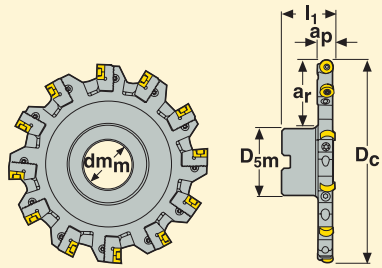
335.18/R335.18 – Round inserts

Width max. 0.315" – Half side – Right hand with cassettes

Type A for milling arbor



Type B for shell mill holder



- For insert selection and cutting data recommendations, see pages 218-219.
- For complete insert program, see pages 572.
- For spare parts and technical pages, see pages 199-205.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	Dimensions in inch dm_m	Dimensions in inch D_{5m}	Dimensions in inch E	Dimensions in inch l_1		Z_c*	lbs	Max rpm	Insert
B	0.315	1.07	39305	**R335.18 -05.00-0911R-R8**	5.20	1.50	2.75	–	2.04	8	8	3.5	7800	RP..16
A	0.315	1.31	39310	**335.18 -05.00-0911R-R8**	5.20	1.50	2.25	0.75	–	8	8	2.6	7800	RP..16
B	0.315	1.57	39306	**R335.18 -06.00-0911R-R8**	6.20	1.50	2.75	–	2.04	10	10	5.7	6900	RP..16
A	0.315	1.81	39311	**335.18 -06.00-0911R-R8**	6.20	1.50	2.25	0.75	–	10	10	3.3	6900	RP..16
B	0.315	2.19	39307	**R335.18 -08.00-0911R-R8**	8.20	1.50	3.50	–	2.04	14	14	9.9	6100	RP..16
A	0.315	2.44	39312	**335.18 -08.00-0911R-R8**	8.20	2.00	3.00	0.75	–	14	14	6.2	6100	RP..16
B	0.315	2.38	39308	**R335.18 -10.00-0911R-R8**	10.20	2.50	5.12	–	2.04	18	18	14.3	5500	RP..16
A	0.315	3.44	39313	**335.18 -10.00-0911R-R8**	10.20	2.00	3.00	0.75	–	18	18	9.9	5500	RP..16
B	0.315	3.38	39309	**R335.18 -12.00-0911R-R8**	12.00	2.50	5.12	–	2.04	22	22	18.7	4900	RP..16
A	0.315	4.44	39314	**335.18 -12.00-0911R-R8**	12.20	2.00	3.00	0.75	–	22	22	14.3	4900	RP..16

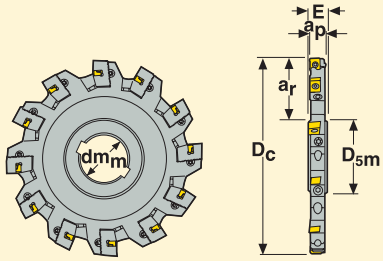
Please check availability in current price and stock-list.

* Effective number of teeth.

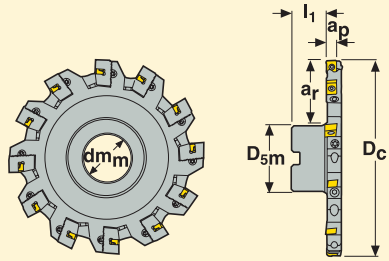
335.18/R335.18 – Inserts LNK

Width max. 0.295" – Half side – Left hand with cassettes

Type A for milling arbor



Type B for shell mill holder



- For insert selection and cutting data recommendations, see pages 206-207.
- For complete insert program, see pages 560-561.
- For spare parts and technical pages, see pages 199-205.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	E	l_1		Z_c*	lbs	Max rpm	Insert
B	0.197	1.02	16787	R335.18 -04.00-0506L	4.00	1.00	1.88	–	1.69	8	8	1.8	9400	LNK.05
A	0.197	1.10	16682	335.18 -04.00-0506L	4.00	1.00	1.55	0.625	–	8	8	0.9	9400	LNK.05
A	0.197	1.30	16699	335.18 -05.00-0506L	5.00	1.50	2.25	0.625	–	10	10	1.3	8400	LNK.05
B	0.197	1.34	16809	R335.18 -05.00-0506L	5.00	1.25	2.25	–	1.69	10	10	2.6	8400	LNK.05
B	0.197	1.57	16848	R335.18 -06.00-0506L	6.00	1.50	2.75	–	1.69	12	12	3.3	7500	LNK.05
A	0.197	1.77	16707	335.18 -06.00-0506L	6.00	1.50	2.25	0.625	–	12	12	2.0	7500	LNK.05
B	0.197	2.22	64800	R335.18 -08.00-XL0506L	8.00	1.50	3.50	–	1.69	14	14	6.2	6700	LNK.05
A	0.197	2.42	64656	335.18 -08.00-XL0506L	8.00	2.00	3.00	0.625	–	14	14	3.3	6700	LNK.05
B	0.197	3.21	64979	R335.18 -10.00-XL0506L	10.00	1.50	3.50	–	1.69	18	18	8.2	6000	LNK.05
A	0.197	3.39	64695	335.18 -10.00-XL0506L	10.00	2.00	3.00	0.625	–	18	18	5.5	6000	LNK.05
A	0.197	4.39	64767	335.18 -12.00-XL0506L	12.00	2.00	3.00	0.625	–	22	22	7.9	5300	LNK.05
B	0.236	1.01	79837	R335.18 -04.00-0708L	4.00	1.00	1.88	–	1.61	8	8	2.2	9400	LNK.06
A	0.236	1.26	79776	335.18 -05.00-0708L	5.00	1.50	2.25	0.625	–	10	10	1.8	8400	LNK.06
B	0.236	1.33	79838	R335.18 -05.00-0708L	5.00	1.25	2.25	–	1.61	10	10	3.1	8400	LNK.06
B	0.236	1.53	79839	R335.18 -06.00-0708L	6.00	1.50	2.75	–	1.61	12	12	3.7	7500	LNK.06
A	0.236	1.77	79777	335.18 -06.00-0708L	6.00	1.50	2.25	0.625	–	12	12	2.4	7500	LNK.06
B	0.236	2.22	64803	R335.18 -08.00-XL0708L	8.00	1.50	3.50	–	1.61	14	14	6.8	6700	LNK.06
A	0.236	2.42	64657	335.18 -08.00-XL0708L	8.00	2.00	3.00	0.625	–	14	14	4.0	6700	LNK.06
B	0.236	3.21	64980	R335.18 -10.00-XL0708L	10.00	1.50	3.50	–	1.61	18	18	9.3	6000	LNK.06
A	0.236	3.39	64696	335.18 -10.00-XL0708L	10.00	2.00	3.00	0.625	–	18	18	6.6	6000	LNK.06
A	0.236	4.39	64768	335.18 -12.00-XL0708L	12.00	2.00	3.00	0.625	–	22	22	9.7	5300	LNK.06
B	0.295	1.01	79973	R335.18 -04.00-0809L	4.00	1.00	1.88	–	1.53	8	8	2.4	9400	LNK.08
A	0.295	1.29	79957	335.18 -05.00-0809L	5.00	1.50	2.25	0.625	–	10	10	2.0	8400	LNK.08
B	0.295	1.33	79974	R335.18 -05.00-0809L	5.00	1.25	2.25	–	1.53	10	10	3.5	8400	LNK.08
B	0.295	1.58	79975	R335.18 -06.00-0809L	6.00	1.50	2.75	–	1.53	12	12	4.2	7500	LNK.08
A	0.295	1.79	79958	335.18 -06.00-0809L	6.00	1.50	2.25	0.625	–	12	12	2.9	7500	LNK.08
B	0.295	2.22	64804	R335.18 -08.00-XL0809L	8.00	1.50	3.50	–	1.53	14	14	7.7	6700	LNK.08
A	0.295	2.42	64658	335.18 -08.00-XL0809L	8.00	2.00	3.00	0.625	–	14	14	4.9	6700	LNK.08
B	0.295	3.21	64982	R335.18 -10.00-XL0809L	10.00	1.50	3.50	–	1.53	18	18	10.8	6000	LNK.08
A	0.295	3.39	64697	335.18 -10.00-XL0809L	10.00	2.00	3.00	0.625	–	18	18	7.9	6000	LNK.08
A	0.295	4.39	64769	335.18 -12.00-XL0809L	12.00	2.00	3.00	0.625	–	22	22	11.9	5300	LNK.08

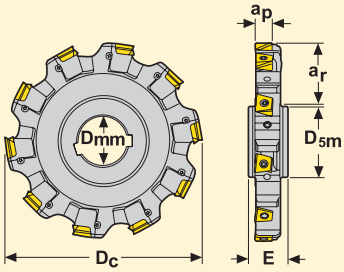
Please check availability in current price and stock-list.

* Effective number of teeth.

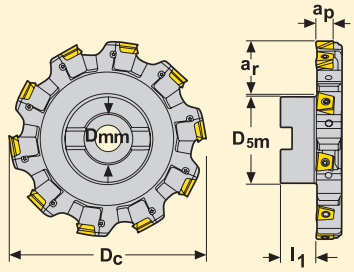
335.25/R335.25 – Insert XNHQ09/12

Width max. 0.44" – Half side – Left hand with cassettes

Type A for milling arbor – adjustable (A adj.)



Type B for shell mill holder – adjustable (B adj.)



- For insert selection and cutting data recommendations, see pages 220-223.
- For complete insert program, see pages 593.
- For spare parts and technical pages, see pages 199-204.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	dm_m	D_{5m}	l_1	E		Z_c*	lbs	Max rpm	Inserts
B	0.35	1.01	07768	R335.25 -04.00-0911L	4.0	1.00	1.88	2.00	–	6	6	2.2	9200	XNHQ09
B	0.35	1.33	07792	R335.25 -05.00-0911L	5.0	1.25	2.25	2.00	–	8	8	3.3	8200	XNHQ09
A	0.35	1.29	07965	335.25 05.00-0911L	5.0	1.50	2.25	–	0.75	8	8	2.2	8200	XNHQ09
B	0.35	1.58	07812	R335.25 -06.00-0911L	6.0	1.50	2.75	2.00	–	10	10	4.9	7200	XNHQ09
A	0.35	1.80	07971	335.25 06.00-0911L	6.0	1.50	2.25	–	0.75	10	10	3.1	7200	XNHQ09
B	0.35	2.21	07929	R335.25 -08.00-0911L	8.0	1.50	3.50	2.00	–	14	14	8.2	6500	XNHQ09
A	0.35	2.42	08120	335.25 08.00-0911L	8.0	2.00	3.00	–	0.75	14	14	5.7	6500	XNHQ09
B	0.35	2.40	07935	R335.25 -10.00-XL0911L	10.0	2.50	5.12	2.00	–	16	16	13.4	5800	XNHQ09
A	0.35	3.42	08125	335.25 10.00-XL0911L	10.0	2.00	3.00	–	0.75	16	16	9.0	5800	XNHQ09
B	0.35	3.40	07954	R335.25 -12.00-XL0911L	12.0	2.50	5.12	2.00	–	20	20	17.9	5200	XNHQ09
A	0.35	4.46	08129	335.25 12.00-XL0911L	12.0	2.00	3.00	–	0.75	20	20	13.4	5200	XNHQ09
B	0.44	1.01	07363	R335.25 -04.00-1113L	4.0	1.00	1.88	2.00	–	6	6	2.4	7200	XNHQ12
B	0.44	1.33	07374	R335.25 -05.00-1113L	5.0	1.25	2.25	2.00	–	8	8	3.7	6500	XNHQ12
A	0.44	1.29	07534	335.25 05.00-1113L	5.0	1.50	2.25	–	1.00	8	8	2.6	6500	XNHQ12
B	0.44	1.58	07389	R335.25 -06.00-1113L	6.0	1.50	2.75	2.00	–	10	10	5.5	5700	XNHQ12
A	0.44	1.80	07572	335.25 06.00-1113L	6.0	1.50	2.25	–	1.00	10	10	4.0	5700	XNHQ12
B	0.44	2.21	07393	R335.25 -08.00-1113L	8.0	1.50	3.50	2.00	–	12	12	9.7	5100	XNHQ12
A	0.44	2.42	07609	335.25 08.00-1113L	8.0	2.00	3.00	–	1.00	12	12	7.5	5100	XNHQ12
B	0.44	2.40	07407	R335.25 -10.00-XL1113L	10.0	2.50	5.12	2.00	–	16	16	15.2	4600	XNHQ12
A	0.44	3.42	07616	335.25 10.00-XL1113L	10.0	2.00	3.00	–	1.00	16	16	11.5	4600	XNHQ12
B	0.44	3.40	07445	R335.25 -12.00-XL1113L	12.0	2.50	5.12	2.00	–	20	20	20.7	4100	XNHQ12
A	0.44	4.42	07672	335.25 12.00-XL1113L	12.0	2.00	3.00	–	1.00	20	20	17.0	4100	XNHQ12

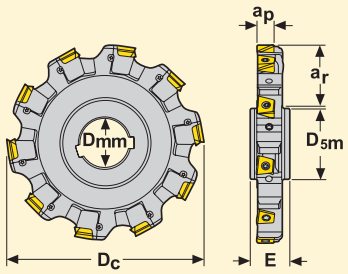
Please check availability in current price and stock-list.

* Effective number of teeth.

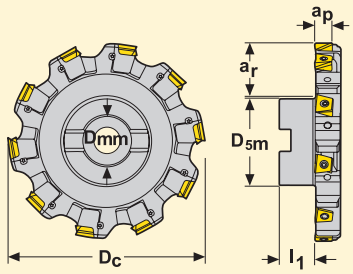
335.25/R335.25 – Insert XNHQ14/17 and LNHQ14/17

Width max. 0.63" – Half side – Left hand with cassettes

Type A for milling arbor – adjustable (A adj.)



Type B for shell mill holder – adjustable (B adj.)



- For insert selection and cutting data recommendations, see pages 224-227.
- For complete insert program, see pages 562, 593.
- For spare parts and technical pages, see pages 199-204.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	Dimensions in inch dm_m	Dimensions in inch D_{5m}	Dimensions in inch l_1	Dimensions in inch E		Z_c*	lbs	Max rpm	Insert: First choice	Insert: Alternative choice
A adj.	0.51	1.29	79167	**335.25 -05.00-1316L**	5.0	1.50	2.25	–	1.25	8	8	3.1	4900	XNHQ14	LNHQ14
B adj.	0.51	1.33	79128	**R335.25 -05.00-1316L**	5.0	1.25	2.25	1.17	–	8	8	4.0	4900	XNHQ14	LNHQ14
B adj.	0.51	1.58	79132	**R335.25 -06.00-1316L**	6.0	1.50	2.75	1.17	–	10	10	6.0	4500	XNHQ14	LNHQ14
A adj.	0.51	1.79	79170	**335.25 -06.00-1316L**	6.0	1.50	2.25	–	1.25	10	10	4.9	4500	XNHQ14	LNHQ14
B adj.	0.51	2.21	79135	**R335.25 -08.00-1316L**	8.0	1.50	3.50	1.17	–	12	12	10.8	3900	XNHQ14	LNHQ14
A adj.	0.51	2.41	79173	**335.25 -08.00-1316L**	8.0	2.00	3.00	–	1.25	12	12	9.0	3900	XNHQ14	LNHQ14
B adj.	0.51	2.40	79125	**R335.25 -10.00-XL1316L**	10.0	2.50	5.12	1.17	–	14	14	16.5	3500	XNHQ14	LNHQ14
A adj.	0.51	3.41	79176	**335.25 -10.00-XL1316L**	10.0	2.00	3.00	–	1.25	14	14	13.9	3500	XNHQ14	LNHQ14
B adj.	0.51	3.40	79163	**R335.25 -12.00-XL1316L**	12.0	2.50	5.12	1.17	–	18	18	23.1	3200	XNHQ14	LNHQ14
A adj.	0.51	4.41	79179	**335.25 -12.00-XL1316L**	12.0	2.00	3.00	–	1.25	18	18	20.7	3200	XNHQ14	LNHQ14
B adj.	0.63	1.58	16350	**R335.25 -06.00-1620L**	6.0	1.50	2.75	0.98	–	10	10	6.8	4700	XNHQ17	LNHQ17
A adj.	0.63	1.79	16391	**335.25 -06.00-1620L**	6.0	1.50	2.25	–	1.25	10	10	5.7	4700	XNHQ17	LNHQ17
B adj.	0.63	2.21	16367	**R335.25 -08.00-1620L**	8.0	1.50	3.50	0.98	–	12	12	12.6	4100	XNHQ17	LNHQ17
A adj.	0.63	2.41	16398	**335.25 -08.00-1620L**	8.0	2.00	3.00	–	1.25	12	12	11.0	4100	XNHQ17	LNHQ17
B adj.	0.63	2.40	16375	**R335.25 -10.00-XL1620L**	10.0	2.50	5.12	0.98	–	14	14	18.7	3600	XNHQ17	LNHQ17
A adj.	0.63	3.41	84965	**335.25 -10.00-XL1620L**	10.0	2.00	3.00	–	1.25	14	14	17.0	3600	XNHQ17	LNHQ17
B adj.	0.63	3.40	16383	**R335.25 -12.00-XL1620L**	12.0	2.50	5.12	0.98	–	18	18	27.3	3300	XNHQ17	LNHQ17
A adj.	0.63	4.41	84969	**335.25 -12.00-XL1620L**	12.0	2.00	3.00	–	1.25	18	18	25.4	3300	XNHQ17	LNHQ17

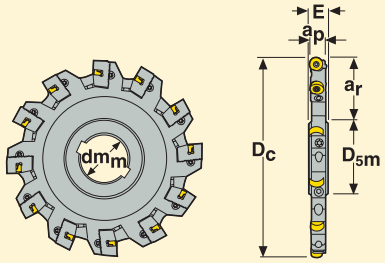
Please check availability in current price and stock-list.

* Effective number of teeth.

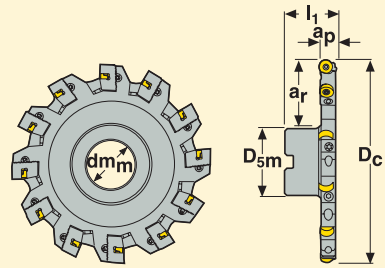
335.18/R335.18 – Round inserts

Width max. 0.315" – Half side – Left hand with cassettes

Type A for milling arbor



Type B for shell mill holder



- For insert selection and cutting data recommendations, see pages 214-219.
- For complete insert program, see pages 570-572, 608.
- For spare parts and technical pages, see pages 199-205.

Type	Dimensions in inch a_p	Dimensions in inch a_r	EDP No.	Part No.	Dimensions in inch D_c	Dimensions in inch dm_m	Dimensions in inch D_{5m}	Dimensions in inch E	Dimensions in inch l_1		Z_c*	lbs	Max rpm	Insert
B	0.197	2.22	64805	R335.18 -08.00-XL0708L-R5	8.00	1.50	3.50	–	1.61	14	14	6.8	6700	RD..10
A	0.197	2.42	64659	335.18 -08.00-XL0708L-R5	8.00	2.00	3.00	0.625	–	14	14	4.0	6700	RD..10
B	0.197	3.25	64983	R335.18 -10.00-XL0708L-R5	10.00	1.50	3.50	–	1.61	18	18	9.3	6000	RD..10
A	0.197	3.39	64698	335.18 -10.00-XL0708L-R5	10.00	2.00	3.00	0.625	–	18	18	6.6	6000	RD..10
A	0.197	4.39	64770	335.18 -12.00-XL0708L-R5	12.00	2.00	3.00	0.625	–	22	22	9.7	5300	RD..10
B	0.236	1.06	36052	R335.18 -04.00-0809L-R6	4.08	1.00	1.88	–	1.53	8	4	2.4	9400	RP..12
A	0.236	1.32	36060	335.18 -05.00-0809L-R6	5.08	1.50	2.25	0.625	–	10	10	2.0	8400	RP..12
B	0.236	1.37	36053	R335.18 -05.00-0809L-R6	5.08	1.25	2.25	–	1.53	10	10	3.5	8400	RP..12
B	0.236	1.62	36054	R335.18 -06.00-0809L-R6	6.08	1.50	2.75	–	1.53	12	12	4.2	7500	RP..12
A	0.236	1.83	36061	335.18 -06.00-0809L-R6	6.08	1.50	2.25	0.625	–	12	12	2.9	7500	RP..12
B	0.236	2.22	64806	R335.18 -08.00-XL0809L-R6	8.00	1.50	3.50	–	1.53	14	14	7.7	6700	RP..12
A	0.236	2.42	64660	335.18 -08.00-XL0809L-R6	8.00	2.00	3.00	0.625	–	14	14	4.9	6700	RP..12
B	0.236	3.25	64984	R335.18 -10.00-XL0809L-R6	10.00	1.50	3.50	–	1.53	18	18	10.8	6000	RP..12
A	0.236	3.39	64699	335.18 -10.00-XL0809L-R6	10.00	2.00	3.00	0.625	–	18	18	7.9	6000	RP..12
A	0.236	4.39	64771	335.18 -12.00-XL0809L-R6	12.00	2.00	3.00	0.625	–	22	22	11.9	5300	RP..12
A	0.315	1.31	39323	335.18 -05.00-0911L-R8	5.20	1.50	2.25	0.750	–	8	8	2.6	7800	RP..16
B	0.315	1.07	39317	R335.18 -05.00-0911L-R8	5.20	1.50	2.75	–	1.41	8	8	3.5	7800	RP..16
B	0.315	1.57	39319	R335.18 -06.00-0911L-R8	6.20	1.50	2.75	–	1.41	10	10	5.7	6900	RP..16
A	0.315	1.81	39324	335.18 -06.00-0911L-R8	6.20	1.50	2.25	0.750	–	10	10	3.3	6900	RP..16
B	0.315	2.19	39320	R335.18 -08.00-0911L-R8	8.20	1.50	3.50	–	1.41	14	14	9.9	6100	RP..16
A	0.315	2.44	39325	335.18 -08.00-0911L-R8	8.20	2.00	3.00	0.750	–	14	14	6.2	6100	RP..16
B	0.315	2.38	39321	R335.18 -10.00-0911L-R8	10.20	2.50	5.12	–	1.41	18	18	14.3	5500	RP..16
A	0.315	3.44	39326	335.18 -10.00-0911L-R8	10.20	2.00	3.00	0.750	–	18	18	9.9	5500	RP..16
B	0.315	3.38	39322	R335.18 -12.00-0911L-R8	12.20	2.50	5.12	–	1.41	22	22	18.7	4900	RP..16
A	0.315	4.44	39327	335.18 -12.00-0911L-R8	12.20	2.00	3.00	0.750	–	22	22	14.3	4900	RP..16

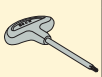
Please check availability in current price and stock-list.

* Effective number of teeth.

Spare parts for (R)335.18/(R)335.25/(R)335.29 – Fixed pocket

Cutter family	Width of cut	Insert type	Insert locking screw (in/lbs) 	Key for insert locking screw 
(R)335.18	0.312, 0.375	LNK.05	C02508-T08P 10.6 in/lbs	T08P-3
	0.625	LNK.06	C73007-T09P 17.7 in/lbs	T09P-3
	0.500, 0.750	LNK.08	C73007-T09P 17.7 in/lbs	T09P-3
(R)335.25	0.750	XNHQ12	C03511-T10P	T10P-3
	1.000	XNHQ14 LNHQ14	C04013-T15P 44 in/lbs	T15P-4
(R)335.29	0.236	RD..06	C02205-T07P 8.0 in/lbs	T07P-3
	0.315	RD..08	C02506-T08P 10.6 in/lbs	T08P-3
	0.394	RD..10	C03007-T09P 17.7 in/lbs	T09P-3

Spare parts for (R)335.18 – Adjustable design

For cutter (R)335.18-xxx-	Insert type	Insert locking screw (in/lbs) 	Key for insert locking screw 	Wedge 	Wedge screw 	Key for wedge screw 	Adjusting screw 	Key for adjusting screw 	Cassettes	
									Right R335.18-...	Left L335.18-...
0506	LNK.05	C02508-T08P 10.6 in/lbs	T08P-3	335.18-607	LD5018F-T15P	T15P-3	SH6004-T08P	T08P-3	...0810-05	...0810-05
XL0506				335.18-XL607					...0810XL-05	...0810XL-05
0506	RD..08	C02506-T08P 10.6 in/lbs	T08P-3	335.18-607	LD5018F-T15P	T15P-3	SH6004-T08P		N335.18-08-R4	
XL0506				335.18-XL607					N335.18-08XL-R4	
0708	LNK.06	C73007-T09P 17.7 in/lbs	T09P-3	335.18-609	LD6018F-T20P	T20P-4	SH6005-T09P	T09P-3	...1012-06	...1012-06
XL0708				335.18-XL609					...1012XL-06	...1012XL-06
0708	RD..10	C03007-T09P 17.7 in/lbs	T09P-3	335.18-609	LD6018F-T20P	T20P-4	SH6005-T09P		...10-R5	...10-R5
XL0708				335.18-XL609					...10XL-R5	...10XL-R5
0809	LNK.08	C73007-T09P 17.7 in/lbs	T09P-3	335.18-611	LD6018F-T20P	T20P-4	SH6005-T09P	T09P-3	...1215-08	...1215-08
XL0809				335.18-XL611					...1215XL-08	...1215XL-08
0809	RP..12	C03508-T15P 26.6 in/lbs	T15P-3	335.18-611	LD6018F-T20P	T20P-4	SH6005-T09P		...12-R6	...12-R6
XL0809				335.18-XL611					...12XL-R6	...12XL-R6
0911	RP..16	C05010-T20P 44.3 in/lbs	T20P-4	335.18-613F	LD6018F-T20P	T20P-3	SH6005-T09P	T09P-3	...16-R8-D5	...16-R8-D5

For 335.18 adjustable 1416 & 1418 series: please use wedge 335.18- 613M and wedge screw LD6018 for old cutter bodies with tapped wedge screw holes with standard pitch of 0.039". Torque keys available, see page 643.

Disc milling cutters 335.18/335.25/335.29 – Spare parts

Spare parts for (R)335.25 - Adjustable design

For adjustable cutter	Insert type	Insert locking screw/ in/lbs	Key for insert locking screw	Wedge	Wedge screw	Key for wedge screw	Adjusting screw	Key for adjusting screw	Cassettes	
									Right R335.25-...	Left L335.25-...
0911	XNHQ09	C03509-T10P/26.5	T10P-3	335.25-612	LD6018F-T20P	T20P-4	SH6005-T09P	T09P-3	...1317-09	...1317-09
XL0911									...1317XL-09	...1317XL-09
1113	XNHQ12	C03511-T10P/26.5	T10P-3	335.25-616	LD6018F-T20P	T20P-4	SH6005-T09P	T09P-3	...1721-12	...1721-12
XL1113									...1721XL-12	...1721XL-12
1316	XNHQ14 LNHQ14	C04013-T15P/44	T15P-4	335.25-620	LD6018F-T20P	T20P-4	SH6005-T09P	T09P-3	...2126-14*	...2126-14*
XL1316									...2126XL-14	...2126XL-14
1620	XNHQ17 LNHQ17	C05013-T20P/44	T20P-4	335.25-625	LD6018F-T20P	T20P-4	SH6005-T09P	T09P-3	...2632-17**	...2632-17**
XL1620									...2632XL-17	...2632XL-17

* Cassette compatible with adjustable disc milling cutter x335.18-xxx-2530 series. Generates width of cut from 0.957" to 1.024", with nominal diameter (D_c).
** Cassette compatible with adjustable disc milling cutter x335.18-xxx-2530 series. Generates width of cut from 1.024" to 1.201", with nominal diameter (D_c).
Torque keys available, see page 643.

Cassettes for wiper insert

For slot width (a_p)	Cassette right	Cassette left	Wiper insert
	Part No.	Part No.	Part No.
.550" - .669"	R335.18-1418F	L335.18-1418F	335.18-1005ZZ
.550" - .728"	R335.18-1418F	L335.18-1418F	335.18-1005ZZ
.728" - .826"	R335.18-1924F	L335.18-1924F	335.18-1005ZZ
.728" - .957"	R335.18-1924F	L335.18-1924F	335.18-1005ZZ
.957" - 1.20"	R335.18-2530F	L335.18-2530F	335.18-1005ZZ

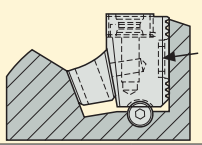
When high surface finish is required it is possible to use wiper inserts, type 335.18-1005ZZ.

For full side and face version use one right hand and one left hand cassette mounted at 180°. The cassette must be adjusted .002" outside the other cassettes.

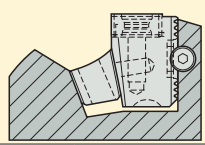
Spare parts for previous generation of (R)335.18 - Adjustable design

Body	Width 0910 and 0911		Width 1213 and 1215		Width 1619	
	Old design	New design	Old design	New design	Old design	New design
Adjusting screw	SH6007	SH6005-T09P	SH6007	SH6005-T09P	SH8012	SH6005-T09P
Key for adjusting screw	3SMS795	T09P-3	3SMS795	T09P-3	4SMS795	T09P-3

Old design



New design



Disc milling cutters 335.18/335.25/335.29 – Spare parts

Retaining screw B type: R335.18 / R335.25 / R335.29 (supplied with the cutter in the delivery)

For cutter dia	Cutter 335.18 - fixed pocket	Cutter 335.25 - fixed pocket	Cutter 335.25 - adj.	Cutter 335.29
2.50	–	–	–	UC6S3/8UNFX1-3/4
3.00	UC6S1/2UNFX1-1/2	–	–	UC6S1/2UNFX1-1/2
4.00	UC6S1/2UNFX1-1/2	–	UC6S1/2UNFX1-1/2	–
5.00	–	ULC6S5/8UNFX1-1/2	ULC6S5/8UNFX11/2	–
6.00	–	ULC6S3/4UNFX1-1/2	ULC6S3/4UNFX1-1/2	–

Note: For disc cutters not mentioned in the table above, please use cross head retaining screws, supplied with the Seco-EPB shell mill holder.

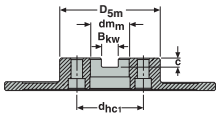
To order a standard adjustable disc milling cutter set at a specific width

To obtain an adjustable disc mill set to your required dimension, add "/ADJ" at the end of the reference and specify your required width, which will be set with a tolerance of +/- .001". Without specification the standard disc mill is set to the minimum cutting width.

Ordering example: R335.18 -06.00-1924N-16C/ADJ and specify on your order your cutting width to any value within its range (.875", for example). The disc mill will be set to .875" +/- .001".

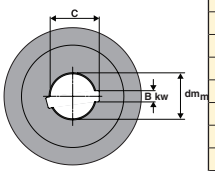
The delivery time is approx. 3 days for a set adjustable disc mill.

Mounting dimensions B type - R335.18 / R335.25 / R335.29



Dimensions in inch				
dm_m	D_{5m}	d_{hc1}	B_{kw}	c
0.75	1.58	–	0.32	0.19
1.00	1.88	–	0.38	0.22
1.25	2.25	–	0.51	0.29
1.50	3.50	–	0.63	0.38
2.50	5.12	4.00	0.99	0.55

Mounting dimensions A type -Keyway dimension - 335.18 / 335.25



Dimensions in inch		
dm_m	B_{kw}	c
1.00	0.256	1.106
1.50	0.386	1.669
2.00	0.512	2.200

LNK 05/06/08 inserts

LNK.05
For width .312"-.375"

LNK.06
For width .625"

LNK.08
For width 500"-.750"

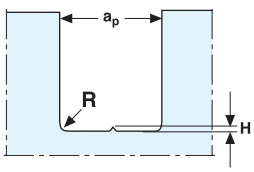
LNK.06 and LNK.08 have the same size, but LNK.06 have a reduced cutting length (.250") to decrease cutting forces for a_p = .394"-.472".
LNK.08 have a cutting length = .295" for width .500"-.750".

Radius possibilities/Number of cutting edges

		R	Fixed pocket version: a_p =				Adjustable version: a_p =			
			0.312/0.375	0.500	0.625	0.750	0.313	0.394	0.472	0.591
4 cutting edges										
	LNK.050404	.016	x				x	x		
	LNK.050408	.031	x				x	x		
	LNK.050416	.063	x				x	x		
	LNK.050420	.079	x				x	x		
	LNK.060504	.016			x			x	x	
	LNK.060508	.031			x			x	x	
	LNK.060516	.063			x			x	x	
	LNK.080504	.016		x	o	x		o	o	x
	LNK.080508	.031		x	o	x		o	o	x
	LNK.080516	.063		x	o	x		o	o	x
	LNK.080520	.079		x	x	x		x	x	x
	LNK.080524	.094		x	x	x		x	x	x
2 cutting edges										
	LNK.050424	.094	x				x	x		
	LNK.060531	.122			x			x	x	
	LNK.080531	.122		x	o	x			o	x
1 cutting edge (L and R insert)										
	LNK.050431	.122	x				x	x		
	LNK.060540	.157			x			x	x	
	LNK.080540	.157		x	o	x			o	x

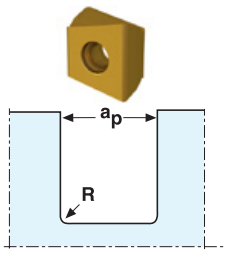
x = First choice o = Alternative choice

Width and profile generated with LNK.06/08 radii R.063/R.079 and R.094



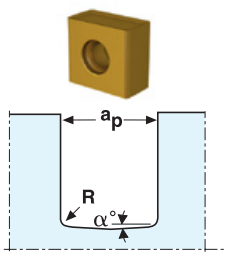
ap (in)	H (in)	
	Radius .063	Radii .079 and .095
.518	–	0
.551	–	.001
.559	0	.003
.570	.0004	.005
.591	.004	.012

Width and profile generated by XNHQ insert with fixed pocket cutter a_p = 0.75”, 1.00”



Insert corner radius	a_p = 0.75”	a_p = 1.00”
0.016	0.75	1.00
0.032	0.75	1.00
0.047	0.75	1.00
0.063	0.75	1.00
0.079	0.75	1.00
0.094	0.75	1.00
0.122	0.75	1.00
0.157	0.741	1.00
0.197	0.729	0.989
0.236	–	0.979

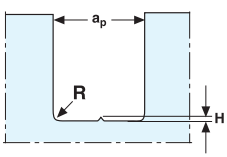
Width and profile generated by LNHQ* insert with fixed pocket cutter a_p = 1.00”



Insert corner radius	a_p generated	angle α°
0.0315	1.007	2
0.122	1.001	2
0.157	0.997	2
0.197	0.992	2
0.236	0.986	2

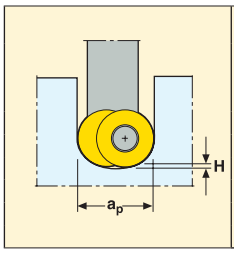
* LNHQ is an insert intended for roughing in difficult conditions (this will not generate a flat bottom).

Width and profile generated with XNHQ14/17 insert radii 0.197” and 0.236” with adjustable cutter 0.83”-1.02” and 1.02”-1.26”



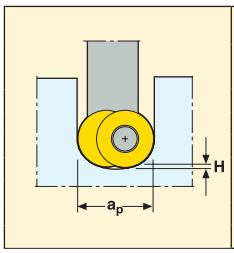
Width cutter	a_p	H (inch)	
		Radius 0.197”	Radius 0.236”
0.83-1.02	1.004	0	0
0.83-1.02	1.016	0	.0004
0.83-1.02	1.024	.0004	.0011
1.02-1.26	1.248	0	0
1.02-1.26	1.260	0	.0004

Profile machined with adjustable 335.18 cutter equipped with round inserts



Round 8	
a_p inch	Profile height H inch
.316	0
.335	0
.354	.001
.374	.003
.394	.005
Recom. min setting width is .316 inch	

Round 10	
a_p inch	Profile height H inch
.406	0
.413	0
.433	.001
.453	.002
.472	.004
Recom. min setting width is .406 inch	



Round 12	
a_p inch	Profile height H inch
.474	0
.492	.0004
.512	.001
.551	.002
.591	.007
Recom. min setting width is .474 inch	

Round 16	
a_p inch	Profile height H inch
.631	0
.650	0
.669	.001
.709	.002
.728	.004
Recom. min setting width is .631 inch	

335.18 LNK. - Insert selection

SMG				f_z		
				30%	20%	10%
P1	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0048	0.0055	0.0075
P2	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0050	0.0055	0.0075
P3	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0048	0.0055	0.0070
P4	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0048	0.0050	0.0070
P5	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0044	0.0050	0.0065
P6	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0044	0.0050	0.0065
P7	LNKT05...-M06 MP3000	LNKT06...-M06 MP2500	LNKT08...-M06 MP2500	0.0044	0.0050	0.0065
P8	LNKT05...-M06 MP3000	LNKT06...-M06 MP2500	LNKT08...-M06 MP2500	0.0048	0.0055	0.0070
P11	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0044	0.0050	0.0065
M1	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0050	0.0055	0.0075
M2	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0044	0.0050	0.0065
M3	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0036	0.0040	0.0055
M4	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0032	0.0036	0.0048
M5	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0032	0.0036	0.0048
K1	LNKT05...-M06 MP3000	LNKT06...-M06 MK2050	LNKT08...-M06 MK2050	0.0050	0.0055	0.0075
K2	LNKT05...-M06 MP3000	LNKT06...-M06 MK2050	LNKT08...-M06 MK2050	0.0044	0.0050	0.0065
K3	LNKT05...-M06 MP3000	LNKT06...-M06 MK2050	LNKT08...-M06 MK2050	0.0044	0.0050	0.0065
K4	LNKT05...-M06 MP3000	LNKT06...-M06 MK2050	LNKT08...-M06 MK2050	0.0044	0.0050	0.0065
K5	LNKT05...-M06 MP3000	LNKT06...-M06 MK2050	LNKT08...-M06 MK2050	0.0040	0.0048	0.0065
K6	LNKT05...-M06 MP3000	LNKT06...-M06 MK2050	LNKT08...-M06 MK2050	0.0044	0.0050	0.0065
K7	LNKT05...-M06 MP3000	LNKT06...-M06 MK2050	LNKT08...-M06 MK2050	0.0040	0.0048	0.0065
N1	LNKT05...-E05 H25	LNKT06...-E05 H25	LNKT08...-E05 H25	0.0055	0.0065	0.0085
N2	LNKT05...-E05 H25	LNKT06...-E05 H25	LNKT08...-E05 H25	0.0055	0.0065	0.0085
N3	LNKT05...-E05 H25	LNKT06...-E05 H25	LNKT08...-E05 H25	0.0055	0.0065	0.0085
N11	LNKT05...-E05 H25	LNKT06...-E05 H25	LNKT08...-E05 H25	0.0055	0.0065	0.0085
S1	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0032	0.0036	0.0048
S2	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0032	0.0036	0.0048
S3	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0030	0.0034	0.0044
S11	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0036	0.0040	0.0055
S12	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0036	0.0040	0.0055
S13	LNKT05...-M06 F40M	LNKT06...-M06 F40M	LNKT08...-M06 F40M	0.0032	0.0036	0.0048
H5	LNKT05...-M06 MP3000	LNKT06...-M06 MP2500	LNKT08...-M06 MP2500	0.0030	0.0036	0.0048
H8	LNKT05...-M06 MP3000	LNKT06...-M06 MP2500	LNKT08...-M06 MP2500	0.0024	0.0028	0.0036
H11	LNKT05...-M06 MP3000	LNKT06...-M06 MP2500	LNKT08...-M06 MP2500	0.0030	0.0036	0.0048
H12	LNKT05...-M06 MP3000	LNKT06...-M06 MP2500	LNKT08...-M06 MP2500	0.0030	0.0036	0.0048
H21	LNKT05...-M06 MP3000	LNKT06...-M06 MP2500	LNKT08...-M06 MP2500	0.0024	0.0028	0.0036

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.18 LNK.- Cutting data v_c = (sf/min)

	MP2500			MP3000			T350M			F40M			MK1500			MK2050		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	840	900	990	800	850	930	730	780	860	640	680	750	—	—	—	830	880	970
P2	800	870	960	760	830	910	700	760	840	610	660	730	—	—	—	790	860	950
P3	700	750	840	670	710	790	610	650	730	530	570	640	—	—	—	690	740	830
P4	620	670	740	590	640	700	540	590	640	470	510	560	—	—	—	610	660	730
P5	610	640	710	570	610	680	530	560	620	460	485	540	—	—	—	600	630	700
P6	680	720	800	640	680	760	590	630	700	520	550	610	—	—	—	670	710	790
P7	640	680	760	610	640	720	560	590	660	485	520	570	—	—	—	630	670	750
P8	590	630	700	560	600	670	520	550	610	450	480	530	—	—	—	580	620	690
P11	620	660	740	590	630	700	540	580	640	470	500	560	—	—	—	610	650	720
M1	580	630	690	570	620	680	540	590	650	490	530	590	—	—	—	—	—	—
M2	485	520	580	480	510	570	455	480	540	415	440	485	—	—	—	—	—	—
M3	390	420	460	385	415	450	365	390	430	330	355	390	—	—	—	—	—	—
M4	300	320	355	295	315	350	280	300	330	255	275	300	—	—	—	—	—	—
M5	250	270	295	245	265	290	235	250	275	210	230	250	—	—	—	—	—	—
K1	640	690	760	600	650	720	550	600	660	480	520	580	900	980	1075	850	930	1025
K2	570	610	680	540	580	640	500	530	590	435	460	510	810	860	960	770	820	910
K3	485	520	570	460	490	540	425	450	500	370	390	435	690	730	810	650	690	770
K4	465	495	550	440	465	520	405	430	475	350	375	415	660	700	780	620	660	730
K5	285	300	330	270	285	315	245	260	290	215	225	250	400	425	470	380	400	445
K6	410	435	485	385	410	455	355	380	420	310	330	365	580	610	680	550	580	650
K7	360	385	425	345	365	400	315	335	370	275	290	320	510	540	600	485	510	570
N1	2375	2550	2825	2250	2425	2675	—	—	—	1800	1925	2150	—	—	—	—	—	—
N2	1925	2075	2275	1825	1950	2175	—	—	—	1450	1575	1725	—	—	—	—	—	—
N3	1275	1375	1525	1200	1300	1450	—	—	—	970	1050	1150	—	—	—	—	—	—
N11	1450	1575	1750	1375	1500	1650	—	—	—	1100	1200	1325	—	—	—	—	—	—
S1	145	155	175	140	150	165	130	140	155	120	125	140	—	—	—	—	—	—
S2	120	125	140	110	120	130	105	115	125	95	105	115	—	—	—	—	—	—
S3	105	110	125	95	105	115	90	100	110	85	90	100	—	—	—	—	—	—
S11	205	220	240	195	210	230	185	200	215	165	180	195	—	—	—	—	—	—
S12	145	155	170	135	145	160	130	140	150	115	125	140	—	—	—	—	—	—
S13	115	125	135	110	115	130	100	110	120	95	100	110	—	—	—	—	—	—
H5	120	130	140	120	125	140	115	125	135	100	105	120	—	—	—	—	—	—
H8	125	135	150	125	130	145	120	130	145	105	115	125	—	—	—	—	—	—
H11	155	165	180	150	160	175	150	155	175	130	135	150	—	—	—	—	—	—
H12	235	245	275	230	240	265	225	235	260	195	205	225	—	—	—	—	—	—
H21	125	135	150	125	130	145	120	130	145	105	115	125	—	—	—	—	—	—

335.18 LNK.- Cutting data v_c = (sf/min)

	MM4500			H25		
SMG	30%	20%	10%	30%	20%	10%
P1	520	550	610	—	—	—
P2	490	540	590	—	—	—
P3	435	460	510	—	—	—
P4	380	415	455	—	—	—
P5	370	395	440	—	—	—
P6	415	445	495	—	—	—
P7	395	420	465	—	—	—
P8	365	385	435	—	—	—
P11	385	405	450	—	—	—
M1	420	460	510	—	—	—
M2	355	380	420	—	—	—
M3	285	305	335	—	—	—
M4	220	235	260	—	—	—
M5	185	195	215	—	—	—
K1	—	—	—	—	—	—
K2	—	—	—	—	—	—
K3	—	—	—	—	—	—
K4	—	—	—	—	—	—
K5	—	—	—	—	—	—
K6	—	—	—	—	—	—
K7	—	—	—	—	—	—
N1	—	—	—	1850	2000	2175
N2	—	—	—	1500	1600	1775
N3	—	—	—	1000	1075	1175
N11	—	—	—	1150	1225	1350
S1	65	70	80	—	—	—
S2	55	60	65	—	—	—
S3	47	50	55	—	—	—
S11	95	100	110	—	—	—
S12	75	80	85	—	—	—
S13	60	60	70	—	—	—
H5	—	—	—	—	—	—
H8	—	—	—	—	—	—
H11	—	—	—	—	—	—
H12	—	—	—	—	—	—
H21	—	—	—	—	—	—

335.18 Round 05 – Insert selection

SMG		f_z		
		30%	20%	10%
P1	RDHW0501M0-MD01 F40M	0.0020	0.0024	0.0032
P2	RDHW0501M0-MD01 F40M	0.0020	0.0024	0.0032
P3	RDHW0501M0-MD01 F40M	0.0020	0.0022	0.0030
P4	RDHW0501M0-MD01 F40M	0.0019	0.0022	0.0030
P5	RDHW0501M0-MD01 F40M	0.0019	0.0022	0.0030
P6	RDHW0501M0-MD01 F40M	0.0019	0.0022	0.0028
P7	RDHW0501M0-MD01 MP3000	0.0019	0.0022	0.0028
P8	RDHW0501M0-MD01 MP3000	0.0020	0.0022	0.0030
P11	RDHW0501M0-MD01 F40M	0.0019	0.0022	0.0028
M1	RDHW0501M0-MD01 F40M	0.0020	0.0024	0.0032
M2	RDHW0501M0-MD01 F40M	0.0019	0.0022	0.0030
M3	RDHW0501M0-MD01 F40M	0.0015	0.0017	0.0024
M4	RDHW0501M0-MD01 F40M	0.0013	0.0015	0.0020
M5	RDHW0501M0-MD01 F40M	0.0013	0.0015	0.0020
K1	RDHW0501M0-MD01 MP3000	0.0020	0.0024	0.0032
K2	RDHW0501M0-MD01 MP3000	0.0019	0.0022	0.0030
K3	RDHW0501M0-MD01 MP3000	0.0019	0.0022	0.0030
K4	RDHW0501M0-MD01 MP3000	0.0019	0.0022	0.0030
K5	RDHW0501M0-MD01 MP3000	0.0017	0.0020	0.0026
K6	RDHW0501M0-MD01 MP3000	0.0019	0.0022	0.0030
K7	RDHW0501M0-MD01 MP3000	0.0017	0.0020	0.0026
N1	RDHW0501M0-MD01 MP3000	0.0026	0.0030	0.0040
N2	RDHW0501M0-MD01 MP3000	0.0026	0.0030	0.0040
N3	RDHW0501M0-MD01 MP3000	0.0026	0.0030	0.0040
N11	RDHW0501M0-MD01 MP3000	0.0026	0.0030	0.0040
S1	RDHW0501M0-MD01 F40M	0.0013	0.0015	0.0020
S2	RDHW0501M0-MD01 F40M	0.0013	0.0015	0.0020
S3	RDHW0501M0-MD01 F40M	0.0012	0.0014	0.0019
S11	RDHW0501M0-MD01 F40M	0.0015	0.0017	0.0024
S12	RDHW0501M0-MD01 F40M	0.0015	0.0017	0.0024
S13	RDHW0501M0-MD01 F40M	0.0013	0.0015	0.0020
H5	RDHW0501M0-MD01 MP3000	0.0013	0.0015	0.0020
H8	RDHW0501M0-MD01 MP3000	0.00095	0.0011	0.0015
H11	RDHW0501M0-MD01 MP3000	0.0013	0.0015	0.0020
H12	RDHW0501M0-MD01 MP3000	0.0013	0.0015	0.0020
H21	RDHW0501M0-MD01 MP3000	0.00095	0.0011	0.0015

SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.18 Round 05 – Cutting data v_c = (sf/min)

	MP3000			F40M		
SMG	30%	20%	10%	30%	20%	10%
P1	1025	1100	1200	830	870	960
P2	1000	1075	1175	810	850	940
P3	870	930	1025	690	740	820
P4	770	820	900	610	650	720
P5	730	780	860	590	620	690
P6	820	880	970	660	700	780
P7	780	830	920	620	660	730
P8	730	780	860	580	620	690
P11	750	800	890	600	640	710
M1	750	800	880	650	690	760
M2	610	650	720	530	560	620
M3	480	510	560	415	440	485
M4	365	390	430	315	335	370
M5	305	325	360	265	280	310
K1	800	840	930	640	670	740
K2	700	740	810	560	590	650
K3	590	630	690	470	500	550
K4	560	600	660	450	480	530
K5	340	360	400	275	290	320
K6	495	530	580	395	420	465
K7	435	460	510	350	370	410
N1	3025	3225	3550	2425	2575	2850
N2	2450	2600	2875	1950	2075	2300
N3	1625	1725	1900	1300	1375	1525
N11	1850	1975	2175	1500	1575	1750
S1	170	180	200	145	155	175
S2	140	145	160	120	125	140
S3	120	125	140	105	110	120
S11	245	260	285	210	225	245
S12	170	180	200	145	155	170
S13	135	145	155	115	125	135
H5	145	155	170	125	130	145
H8	150	160	175	130	135	150
H11	185	195	215	160	170	185
H12	280	295	325	240	255	280
H21	150	160	175	130	135	150

335.18 Round 06 – Insert selection

SMG		f_z		
		30%	20%	10%
P1	RDHW06T1M0-MD02 F40M	0.0020	0.0024	0.0032
P2	RDHW06T1M0-MD02 F40M	0.0020	0.0024	0.0032
P3	RDHW06T1M0-MD02 F40M	0.0020	0.0022	0.0030
P4	RDHW06T1M0-MD02 F40M	0.0019	0.0022	0.0030
P5	RDHW06T1M0-MD02 F40M	0.0019	0.0022	0.0030
P6	RDHW06T1M0-MD02 F40M	0.0019	0.0022	0.0028
P7	RDHW06T1M0-MD02 MP3000	0.0019	0.0022	0.0028
P8	RDHW06T1M0-MD02 MP3000	0.0020	0.0022	0.0030
P11	RDHW06T1M0-MD02 F40M	0.0019	0.0022	0.0028
M1	RDHW06T1M0-MD02 F40M	0.0020	0.0024	0.0032
M2	RDHW06T1M0-MD02 F40M	0.0019	0.0022	0.0030
M3	RDHW06T1M0-MD02 F40M	0.0015	0.0017	0.0024
M4	RDHW06T1M0-MD02 F40M	0.0013	0.0015	0.0020
M5	RDHW06T1M0-MD02 F40M	0.0013	0.0015	0.0020
K1	RDHW06T1M0-MD02 MK2050	0.0020	0.0024	0.0032
K2	RDHW06T1M0-MD02 MK2050	0.0019	0.0022	0.0030
K3	RDHW06T1M0-MD02 MK2050	0.0019	0.0022	0.0030
K4	RDHW06T1M0-MD02 MK2050	0.0019	0.0022	0.0030
K5	RDHW06T1M0-MD02 MK2050	0.0017	0.0020	0.0026
K6	RDHW06T1M0-MD02 MK2050	0.0019	0.0022	0.0030
K7	RDHW06T1M0-MD02 MK2050	0.0017	0.0020	0.0026
N1	RDHT06T1M0-E02 H25	0.0017	0.0020	0.0028
N2	RDHT06T1M0-E02 H25	0.0017	0.0020	0.0028
N3	RDHT06T1M0-E02 H25	0.0017	0.0020	0.0028
N11	RDHT06T1M0-E02 H25	0.0017	0.0020	0.0028
S1	RDHW06T1M0-MD02 F40M	0.0013	0.0015	0.0020
S2	RDHW06T1M0-MD02 F40M	0.0013	0.0015	0.0020
S3	RDHW06T1M0-MD02 F40M	0.0012	0.0014	0.0019
S11	RDHW06T1M0-MD02 F40M	0.0015	0.0017	0.0024
S12	RDHW06T1M0-MD02 F40M	0.0015	0.0017	0.0024
S13	RDHW06T1M0-MD02 F40M	0.0013	0.0015	0.0020
H5	RDHW06T1M0-MD02 F15M	0.0013	0.0015	0.0020
H8	RDHW06T1M0-MD02 F15M	0.00095	0.0011	0.0015
H11	RDHW06T1M0-MD02 F15M	0.0013	0.0015	0.0020
H12	RDHW06T1M0-MD02 F15M	0.0013	0.0015	0.0020
H21	RDHW06T1M0-MD02 F15M	0.00095	0.0011	0.0015

SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.18 Round 06 – Cutting data v_c = (sf/min)

	MP3000			F15M			F30M			F40M			MK2050			H25		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	990	1050	1150	950	1000	1100	830	880	970	790	840	920	1025	1100	1200	—	—	—
P2	970	1025	1125	930	980	1075	810	860	950	770	820	900	1000	1050	1175	—	—	—
P3	830	890	980	800	850	940	700	750	820	660	710	780	860	930	1025	—	—	—
P4	740	780	860	710	750	830	620	660	720	590	630	690	770	810	900	—	—	—
P5	700	750	820	670	720	790	590	630	690	560	600	660	730	780	850	—	—	—
P6	790	840	930	760	810	890	660	710	780	630	670	750	820	870	970	—	—	—
P7	740	790	880	710	760	840	630	670	740	600	630	700	770	820	910	—	—	—
P8	700	750	820	670	720	790	590	630	690	560	600	660	730	780	850	—	—	—
P11	720	770	850	690	740	820	610	650	720	580	620	680	750	800	890	—	—	—
M1	720	760	840	750	790	870	650	690	760	620	660	730	—	—	—	—	—	—
M2	590	620	690	610	650	710	530	570	620	510	540	590	—	—	—	—	—	—
M3	460	490	540	480	510	560	420	445	490	400	425	465	—	—	—	—	—	—
M4	350	375	415	365	385	425	320	340	375	305	325	355	—	—	—	—	—	—
M5	295	310	345	305	325	355	265	280	310	250	270	295	—	—	—	—	—	—
K1	760	810	890	730	780	860	640	680	750	610	650	710	1075	1150	1275	—	—	—
K2	670	710	780	640	680	750	560	600	660	530	570	620	940	1000	1100	—	—	—
K3	560	600	660	540	580	630	475	500	550	450	480	530	800	850	930	—	—	—
K4	540	570	630	520	550	600	455	480	530	430	460	500	760	810	890	—	—	—
K5	325	345	380	315	330	365	275	290	320	260	275	305	465	490	540	—	—	—
K6	475	510	550	455	485	530	400	425	465	380	405	445	670	720	790	—	—	—
K7	420	445	490	400	425	470	350	370	410	335	355	390	590	630	690	—	—	—
N1	2900	3075	3400	2775	2975	3275	2425	2600	2850	2325	2475	2725	—	—	—	2675	2850	3125
N2	2350	2500	2750	2250	2400	2650	1975	2100	2300	1875	2000	2200	—	—	—	2150	2300	2525
N3	1550	1650	1825	1500	1600	1750	1300	1400	1550	1250	1325	1475	—	—	—	1450	1525	1675
N11	1775	1900	2100	1725	1825	2000	1500	1600	1750	1425	1525	1675	—	—	—	1650	1750	1925
S1	165	175	195	170	180	200	150	160	175	140	150	165	—	—	—	—	—	—
S2	130	140	155	135	145	160	120	125	140	115	120	135	—	—	—	—	—	—
S3	115	120	135	120	125	140	105	110	120	100	105	115	—	—	—	—	—	—
S11	235	250	270	240	255	280	210	225	245	200	215	235	—	—	—	—	—	—
S12	165	175	190	170	180	195	150	155	175	140	150	165	—	—	—	—	—	—
S13	130	135	150	135	140	155	115	125	135	110	120	130	—	—	—	—	—	—
H5	140	150	165	145	150	165	125	135	145	120	125	140	—	—	—	—	—	—
H8	145	155	165	150	155	170	130	135	150	125	130	145	—	—	—	—	—	—
H11	180	190	210	185	195	215	160	170	185	150	160	180	—	—	—	—	—	—
H12	270	285	315	275	290	320	240	255	280	230	245	270	—	—	—	—	—	—
H21	145	155	165	150	155	170	130	135	150	125	130	145	—	—	—	—	—	—

335.18 Round 08 – Insert selection

SMG		f_z		
		30%	20%	10%
P1	RDHW0803M0-MD03 F40M	0.0028	0.0032	0.0040
P2	RDHW0803M0-MD03 F40M	0.0028	0.0032	0.0044
P3	RDHW0803M0-MD03 F40M	0.0026	0.0030	0.0040
P4	RDKW0803M0T-MD05 F40M	0.0032	0.0038	0.0048
P5	RDKW0803M0T-MD05 F40M	0.0032	0.0036	0.0048
P6	RDKW0803M0T-MD05 F40M	0.0032	0.0036	0.0048
P7	RDKW0803M0T-MD05 MP2500	0.0032	0.0036	0.0048
P8	RDKW0803M0T-MD05 MP2500	0.0032	0.0038	0.0050
P11	RDKW0803M0T-MD05 F40M	0.0032	0.0036	0.0048
M1	RDHW0803M0-MD03 F40M	0.0028	0.0032	0.0044
M2	RDHW0803M0-MD03 F40M	0.0026	0.0030	0.0038
M3	RDHW0803M0-MD03 F40M	0.0020	0.0024	0.0032
M4	RDHW0803M0-MD03 F40M	0.0017	0.0020	0.0028
M5	RDHW0803M0-MD03 F40M	0.0017	0.0020	0.0028
K1	RDKW0803M0T-MD05 MK2050	0.0034	0.0040	0.0050
K2	RDKW0803M0T-MD05 MK2050	0.0032	0.0036	0.0048
K3	RDKW0803M0T-MD05 MK2050	0.0032	0.0036	0.0048
K4	RDKW0803M0T-MD05 MK2050	0.0032	0.0036	0.0048
K5	RDKW0803M0T-MD05 MK2050	0.0028	0.0032	0.0044
K6	RDKW0803M0T-MD05 MK2050	0.0032	0.0036	0.0048
K7	RDKW0803M0T-MD05 MK2050	0.0028	0.0032	0.0044
N1	RDHT0803M0-E03 H25	0.0026	0.0030	0.0040
N2	RDHT0803M0-E03 H25	0.0026	0.0030	0.0040
N3	RDHT0803M0-E03 H25	0.0026	0.0030	0.0040
N11	RDHT0803M0-E03 H25	0.0026	0.0030	0.0040
S1	RDHW0803M0-MD03 F40M	0.0017	0.0020	0.0028
S2	RDHW0803M0-MD03 F40M	0.0017	0.0020	0.0028
S3	RDHW0803M0-MD03 F40M	0.0017	0.0019	0.0026
S11	RDHW0803M0-MD03 F40M	0.0020	0.0024	0.0032
S12	RDHW0803M0-MD03 F40M	0.0020	0.0024	0.0032
S13	RDHW0803M0-MD03 F40M	0.0017	0.0020	0.0028
H5	RDKW0803M0T-MD05 F15M	0.0022	0.0024	0.0032
H8	RDKW0803M0T-MD05 F15M	0.0017	0.0019	0.0026
H11	RDKW0803M0T-MD05 F15M	0.0022	0.0024	0.0032
H12	RDKW0803M0T-MD05 F15M	0.0022	0.0024	0.0032
H21	RDKW0803M0T-MD05 F15M	0.0017	0.0019	0.0026

SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.18 Round 08 – Cutting data v_c = (sf/min)

	MP2500			MP3000			T350M			F15M			F25M			F30M		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	950	1025	1125	940	1000	1125	1050	1125	1225	870	920	1025	800	840	940	790	840	940
P2	930	990	1100	910	970	1075	1025	1075	1200	840	900	1000	770	820	910	770	820	900
P3	810	860	940	800	850	930	880	950	1050	740	780	860	670	710	780	670	710	790
P4	710	750	840	700	750	820	780	830	920	650	690	770	590	630	700	590	630	690
P5	680	730	800	670	710	790	750	800	870	620	660	730	570	610	670	560	600	670
P6	760	820	900	750	810	890	840	890	990	690	740	820	640	680	750	630	680	750
P7	720	770	850	710	760	840	790	840	930	660	700	770	600	640	710	600	640	710
P8	680	720	790	670	710	790	740	800	870	620	660	720	570	600	660	560	600	660
P11	700	750	830	690	740	820	770	820	910	640	680	750	580	620	690	580	620	690
M1	670	710	790	680	730	800	790	840	920	680	720	800	620	660	740	620	660	720
M2	550	590	650	560	590	660	640	680	750	560	600	660	510	550	600	510	540	600
M3	435	460	510	445	470	520	510	540	590	440	470	520	405	430	480	400	425	470
M4	335	355	390	340	360	395	385	410	450	340	360	400	310	330	365	305	325	360
M5	280	295	325	285	300	330	320	340	375	285	300	330	260	275	305	255	275	300
K1	740	780	870	720	770	850	810	860	950	670	710	790	610	650	720	610	650	710
K2	650	690	760	640	680	750	710	760	830	590	630	690	540	580	640	530	570	630
K3	550	580	650	540	570	640	600	640	700	495	530	590	455	485	540	450	480	530
K4	520	560	620	510	550	610	570	610	670	475	510	560	435	465	510	430	460	510
K5	320	340	370	315	335	370	350	370	405	290	310	340	265	285	310	265	280	310
K6	460	490	540	450	480	540	500	540	590	420	445	495	385	410	450	380	405	450
K7	405	435	475	400	425	470	445	470	520	370	395	435	340	360	395	340	360	395
N1	2750	2925	3250	2725	2925	3200	—	—	—	2500	2650	2950	2300	2450	2700	2300	2450	2700
N2	2225	2375	2625	2200	2375	2575	—	—	—	2025	2150	2375	1850	1975	2200	1850	1975	2175
N3	1475	1575	1750	1475	1575	1725	—	—	—	1350	1425	1600	1250	1325	1450	1225	1325	1450
N11	1700	1800	2000	1675	1800	1975	—	—	—	1550	1650	1825	1425	1500	1675	1400	1525	1650
S1	160	170	190	160	170	185	180	190	210	160	170	185	145	155	170	145	155	165
S2	130	140	155	130	135	150	145	155	170	130	135	150	115	125	135	115	125	135
S3	115	120	135	110	120	130	125	135	145	110	120	130	100	110	120	100	105	115
S11	230	245	270	225	240	260	255	270	300	225	235	265	205	215	240	205	215	235
S12	160	170	190	155	165	185	180	190	210	155	165	185	145	150	170	140	150	165
S13	125	135	150	125	130	145	140	150	165	125	130	145	115	120	135	110	120	130
H5	135	145	160	135	145	160	160	170	185	135	145	160	120	130	145	120	130	140
H8	140	150	160	140	150	165	165	175	190	140	150	160	125	135	150	125	135	145
H11	170	180	200	170	180	200	200	215	235	170	180	200	155	165	185	155	165	180
H12	255	275	305	260	275	305	305	325	355	255	275	305	235	250	280	230	245	275
H21	140	150	160	140	150	165	165	175	190	140	150	160	125	135	150	125	135	145

335.18 Round 08 – Cutting data v_c = (sf/min)

	F40M			MK2050			MS2050			MS2500			H25		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	750	800	890	940	1000	1100	325	315	295	1050	1100	1225	—	—	—
P2	730	780	850	920	970	1075	315	310	320	1025	1075	1200	—	—	—
P3	640	680	750	800	840	930	250	245	245	880	940	1025	—	—	—
P4	560	600	660	700	740	830	220	215	215	780	820	920	—	—	—
P5	540	570	630	670	720	790	210	205	190	740	790	880	—	—	—
P6	600	650	710	750	800	890	235	210	215	830	890	980	—	—	—
P7	570	610	670	710	760	840	220	200	205	790	840	930	—	—	—
P8	540	570	630	670	710	780	210	205	205	740	790	860	—	—	—
P11	550	590	650	690	740	810	215	195	200	760	820	900	—	—	—
M1	590	630	690	—	—	—	275	270	280	730	770	860	—	—	—
M2	480	510	570	—	—	—	205	200	190	590	640	700	—	—	—
M3	385	405	445	—	—	—	110	115	110	470	500	560	—	—	—
M4	295	310	340	—	—	—	65	65	70	360	385	425	—	—	—
M5	245	260	285	—	—	—	55	55	55	300	320	355	—	—	—
K1	580	620	680	990	1050	1175	320	310	325	800	850	950	—	—	—
K2	510	540	600	870	930	1025	250	250	235	700	750	830	—	—	—
K3	430	460	510	730	780	870	215	210	195	600	640	700	—	—	—
K4	410	435	485	700	750	830	205	200	190	570	610	670	—	—	—
K5	250	265	295	425	455	500	100	100	95	345	370	405	—	—	—
K6	360	385	430	620	660	730	180	175	165	500	540	590	—	—	—
K7	320	340	375	550	580	640	125	125	120	445	475	520	—	—	—
N1	2175	2350	2550	—	—	—	—	—	—	—	—	—	2550	2700	3000
N2	1750	1900	2075	—	—	—	—	—	—	—	—	—	2050	2200	2425
N3	1175	1250	1375	—	—	—	—	—	—	—	—	—	1375	1450	1600
N11	1350	1450	1575	—	—	—	—	—	—	—	—	—	1575	1675	1850
S1	135	145	160	—	—	—	175	180	190	175	190	210	—	—	—
S2	110	115	130	—	—	—	140	145	150	145	150	165	—	—	—
S3	95	100	110	—	—	—	120	125	130	125	130	145	—	—	—
S11	195	205	225	—	—	—	255	260	275	250	265	295	—	—	—
S12	135	145	160	—	—	—	195	200	210	175	185	205	—	—	—
S13	105	115	125	—	—	—	150	155	165	140	145	165	—	—	—
H5	115	120	135	—	—	—	—	—	—	145	155	170	—	—	—
H8	120	125	140	—	—	—	—	—	—	150	160	175	—	—	—
H11	145	155	170	—	—	—	—	—	—	185	195	215	—	—	—
H12	220	235	260	—	—	—	—	—	—	275	300	330	—	—	—
H21	120	125	140	—	—	—	—	—	—	150	160	175	—	—	—

335.18 Round 10 – Insert selection

SMG		f_z		
		30%	20%	10%
P1	RDHT10T3M0T-M05 F40M	0.0034	0.0038	0.0050
P2	RDHT10T3M0T-M05 F40M	0.0034	0.0038	0.0050
P3	RDHT10T3M0T-M05 F40M	0.0032	0.0036	0.0048
P4	RDHT10T3M0T-M05 F40M	0.0032	0.0036	0.0048
P5	RDHT10T3M0T-M05 F40M	0.0030	0.0036	0.0048
P6	RDHT10T3M0T-M05 F40M	0.0030	0.0034	0.0048
P7	RDKW10T3M0T-MD06 MP2500	0.0036	0.0040	0.0055
P8	RDKW10T3M0T-MD06 MP2500	0.0038	0.0044	0.0060
P11	RDHT10T3M0T-M07 F40M	0.0044	0.0048	0.0065
M1	RDHT10T3M0T-M05 F40M	0.0034	0.0038	0.0050
M2	RDHT10T3M0T-M05 F40M	0.0030	0.0036	0.0048
M3	RDHT10T3M0T-M05 F40M	0.0024	0.0028	0.0038
M4	RDHT10T3M0T-M05 F40M	0.0022	0.0024	0.0032
M5	RDHT10T3M0T-M05 F40M	0.0022	0.0024	0.0032
K1	RDKW10T3M0T-MD06 MK2050	0.0040	0.0048	0.0065
K2	RDKW10T3M0T-MD06 MK2050	0.0036	0.0044	0.0055
K3	RDKW10T3M0T-MD06 MK2050	0.0036	0.0044	0.0055
K4	RDKW10T3M0T-MD06 MK2050	0.0036	0.0044	0.0055
K5	RDKW10T3M0T-MD06 MK2050	0.0034	0.0038	0.0050
K6	RDKW10T3M0T-MD06 MK2050	0.0036	0.0044	0.0055
K7	RDKW10T3M0T-MD06 MK2050	0.0034	0.0038	0.0050
N1	RDHT10T3M0-E04 H25	0.0034	0.0040	0.0050
N2	RDHT10T3M0-E04 H25	0.0034	0.0040	0.0050
N3	RDHT10T3M0-E04 H25	0.0034	0.0040	0.0050
N11	RDHT10T3M0-E04 H25	0.0034	0.0040	0.0050
S1	RDHT10T3M0T-M05 F40M	0.0022	0.0024	0.0032
S2	RDHT10T3M0T-M05 F40M	0.0022	0.0024	0.0032
S3	RDHT10T3M0T-M05 F40M	0.0020	0.0022	0.0030
S11	RDHT10T3M0T-M05 F40M	0.0024	0.0028	0.0038
S12	RDHT10T3M0T-M05 F40M	0.0024	0.0028	0.0038
S13	RDHT10T3M0T-M05 F40M	0.0022	0.0024	0.0032
H5	RDKW10T3M0T-MD06 F15M	0.0026	0.0028	0.0038
H8	RDKW10T3M0T-MD06 F15M	0.0019	0.0022	0.0030
H11	RDKW10T3M0T-MD06 F15M	0.0026	0.0028	0.0038
H12	RDKW10T3M0T-MD06 F15M	0.0026	0.0028	0.0038
H21	RDKW10T3M0T-MD06 F15M	0.0019	0.0022	0.0030

SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.18 Round 10 – Cutting data v_c = (sf/min)

	MP1500			MP2500			T350M			F15M			F30M			F40M		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	1025	1100	1225	1050	1150	1250	920	990	1100	830	890	980	790	840	930	800	860	950
P2	1000	1050	1175	1025	1100	1225	900	970	1050	810	850	940	760	820	900	780	840	920
P3	870	930	1025	900	960	1075	780	840	930	700	750	820	660	700	780	680	730	810
P4	770	820	910	790	850	940	690	740	820	620	660	730	580	630	690	600	640	710
P5	740	780	870	770	810	890	670	710	780	600	630	700	560	600	660	580	610	680
P6	830	890	980	860	920	1000	750	800	870	670	720	790	630	670	740	650	700	760
P7	790	840	920	810	870	950	710	760	830	630	680	740	600	640	700	610	660	720
P8	730	780	860	760	810	890	660	710	780	590	630	690	560	590	650	570	610	680
P11	760	820	900	790	840	920	690	730	800	610	660	720	580	620	680	600	640	700
M1	—	—	—	740	800	880	690	740	820	650	690	760	610	660	730	630	680	740
M2	—	—	—	620	650	720	570	610	670	540	570	630	510	540	590	520	550	610
M3	—	—	—	490	520	570	455	485	530	425	455	500	400	425	470	415	440	485
M4	—	—	—	370	400	440	345	375	410	325	350	385	305	325	360	315	340	375
M5	—	—	—	310	335	365	290	310	340	275	290	320	255	270	300	265	280	310
K1	790	840	930	820	880	960	710	760	840	640	680	750	600	650	720	620	670	730
K2	700	740	830	730	770	850	630	670	740	570	600	670	540	570	630	550	580	640
K3	600	630	700	620	650	720	540	570	630	480	510	560	455	480	530	465	495	540
K4	570	600	670	590	620	690	510	540	600	460	480	540	435	460	510	445	470	520
K5	340	365	405	355	380	415	310	330	360	275	295	325	260	275	305	270	285	315
K6	500	530	590	520	550	600	450	475	530	405	425	475	380	405	445	390	415	460
K7	440	470	520	455	485	530	395	420	465	355	380	415	335	355	390	345	365	400
N1	—	—	—	3075	3300	3650	—	—	—	2375	2550	2825	2300	2425	2700	2325	2500	2775
N2	—	—	—	2475	2675	2950	—	—	—	1925	2050	2275	1850	1975	2175	1875	2025	2250
N3	—	—	—	1650	1775	1975	—	—	—	1275	1375	1525	1225	1300	1450	1250	1350	1500
N11	—	—	—	1875	2025	2250	—	—	—	1475	1575	1725	1400	1500	1650	1425	1550	1700
S1	—	—	—	180	195	215	160	175	190	155	165	180	140	150	170	145	160	175
S2	—	—	—	145	155	175	130	140	155	125	130	145	115	120	135	120	125	140
S3	—	—	—	130	135	150	115	120	135	110	115	125	100	105	120	105	110	120
S11	—	—	—	260	275	300	230	245	270	215	230	255	200	215	235	210	225	245
S12	—	—	—	180	190	210	160	170	190	150	160	180	140	150	165	145	155	170
S13	—	—	—	140	155	170	125	135	150	120	125	140	110	120	130	115	125	135
H5	160	170	190	150	160	175	145	155	170	130	140	150	120	130	140	125	135	145
H8	165	180	195	155	165	185	150	160	175	135	145	160	125	135	145	130	140	155
H11	205	220	240	190	205	225	185	195	215	165	175	195	155	165	180	160	170	185
H12	305	330	365	290	305	340	280	295	325	245	265	290	230	245	270	240	255	280
H21	165	180	195	155	165	185	150	160	175	135	145	160	125	135	145	130	140	155

335.18 Round 10 – Cutting data v_c = (sf/min)

	MK2050			MM4500			MS2050			MS2500			MH1000			H25		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	900	970	1075	650	700	770	475	460	480	1150	1250	1375	1000	1075	1175	—	—	—
P2	870	920	1025	630	680	750	460	445	465	1125	1200	1325	980	1025	1150	—	—	—
P3	760	810	890	550	590	650	375	365	370	980	1050	1150	850	900	990	—	—	—
P4	670	710	800	485	520	580	330	320	325	860	930	1025	750	800	890	—	—	—
P5	650	680	760	470	495	550	295	305	310	840	880	980	720	760	850	—	—	—
P6	730	780	850	530	560	620	330	325	350	940	1000	1100	810	870	950	—	—	—
P7	690	740	810	500	530	580	315	305	330	890	950	1025	760	820	900	—	—	—
P8	640	680	750	465	495	550	315	305	310	830	880	980	710	760	840	—	—	—
P11	670	720	780	485	520	570	305	295	320	860	920	1000	740	800	870	—	—	—
M1	—	—	—	540	580	640	405	390	410	810	870	950	—	—	—	—	—	—
M2	—	—	—	450	475	530	290	300	305	670	710	780	—	—	—	—	—	—
M3	—	—	—	360	380	420	170	170	175	530	560	620	—	—	—	—	—	—
M4	—	—	—	270	290	320	115	105	105	405	435	480	—	—	—	—	—	—
M5	—	—	—	225	245	270	95	85	85	335	360	400	—	—	—	—	—	—
K1	940	1000	1100	—	—	—	465	450	470	890	960	1050	770	820	900	—	—	—
K2	840	880	980	—	—	—	360	370	375	790	840	930	680	720	800	—	—	—
K3	710	750	830	—	—	—	305	315	320	670	710	780	580	610	680	—	—	—
K4	680	710	790	—	—	—	290	300	305	640	680	750	550	580	650	—	—	—
K5	405	435	480	—	—	—	160	155	165	385	410	450	335	355	395	—	—	—
K6	590	630	700	—	—	—	255	265	265	560	600	660	485	510	570	—	—	—
K7	520	560	610	—	—	—	205	200	210	495	530	580	425	455	500	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2400	2550	2825
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1925	2050	2275
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1300	1375	1525
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1475	1575	1725
S1	—	—	—	85	90	100	195	205	215	195	210	235	—	—	—	—	—	—
S2	—	—	—	65	70	80	160	165	175	160	170	190	—	—	—	—	—	—
S3	—	—	—	60	65	70	135	140	150	140	150	165	—	—	—	—	—	—
S11	—	—	—	120	125	140	280	290	310	280	300	330	—	—	—	—	—	—
S12	—	—	—	90	95	105	215	225	240	195	210	230	—	—	—	—	—	—
S13	—	—	—	70	75	85	170	175	185	155	165	185	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—	—	165	175	190	155	165	185	—	—	—
H8	—	—	—	—	—	—	—	—	—	170	180	200	165	175	190	—	—	—
H11	—	—	—	—	—	—	—	—	—	210	220	240	195	215	235	—	—	—
H12	—	—	—	—	—	—	—	—	—	315	330	365	300	320	355	—	—	—
H21	—	—	—	—	—	—	—	—	—	170	180	200	165	175	190	—	—	—

335.18 Round 12 – Insert selection

SMG		f_z		
		30%	20%	10%
P1	RPGT1204M0T-ME07 F40M	0.0048	0.0050	0.0070
P2	RPGT1204M0T-ME07 F40M	0.0048	0.0050	0.0070
P3	RPHT1204M0T-M08 F40M	0.0050	0.0060	0.0075
P4	RPHT1204M0T-M08 F40M	0.0048	0.0055	0.0075
P5	RPHT1204M0T-M08 F40M	0.0048	0.0055	0.0075
P6	RPHT1204M0T-M08 F40M	0.0048	0.0055	0.0075
P7	RPHT1204M0T-M08 MP2500	0.0048	0.0055	0.0075
P8	RPHT1204M0T-M08 MP2500	0.0050	0.0060	0.0075
P11	RPHT1204M0T-M08 F40M	0.0048	0.0055	0.0075
M1	RPHT1204M0T-ME07 F40M	0.0048	0.0050	0.0070
M2	RPHT1204M0T-ME07 F40M	0.0044	0.0048	0.0065
M3	RPHT1204M0T-M08 F40M	0.0040	0.0044	0.0060
M4	RPHT1204M0T-M08 F40M	0.0034	0.0040	0.0050
M5	RPHT1204M0T-M08 F40M	0.0034	0.0040	0.0050
K1	RPKW1204M0T-MD10 MK2050	0.0065	0.0075	0.010
K2	RPKW1204M0T-MD10 MK2050	0.0060	0.0070	0.0095
K3	RPKW1204M0T-MD10 MK2050	0.0060	0.0070	0.0095
K4	RPKW1204M0T-MD10 MK2050	0.0060	0.0070	0.0095
K5	RPKW1204M0T-MD10 MK2050	0.0055	0.0065	0.0085
K6	RPKW1204M0T-MD10 MK2050	0.0060	0.0070	0.0095
K7	RPKW1204M0T-MD10 MK2050	0.0055	0.0065	0.0085
N1	RPHT1204M0-E05 H25	0.0044	0.0048	0.0065
N2	RPHT1204M0-E05 H25	0.0044	0.0048	0.0065
N3	RPHT1204M0-E05 H25	0.0044	0.0048	0.0065
N11	RPHT1204M0-E05 H25	0.0044	0.0048	0.0065
S1	RPHT1204M0T-M08 F40M	0.0034	0.0040	0.0050
S2	RPHT1204M0T-M08 F40M	0.0034	0.0040	0.0050
S3	RPHT1204M0T-M08 F40M	0.0032	0.0036	0.0048
S11	RPGT1204M0T-ME07 F40M	0.0034	0.0040	0.0050
S12	RPGT1204M0T-ME07 F40M	0.0034	0.0040	0.0050
S13	RPHT1204M0T-M08 F40M	0.0034	0.0040	0.0050
H5	RPKW1204M0T-MD10 F15M	0.0040	0.0048	0.0065
H8	RPKW1204M0T-MD10 F15M	0.0032	0.0036	0.0048
H11	RPKW1204M0T-MD10 F15M	0.0040	0.0048	0.0065
H12	RPKW1204M0T-MD10 F15M	0.0040	0.0048	0.0065
H21	RPKW1204M0T-MD10 F15M	0.0032	0.0036	0.0048

SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.18 Round 12 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F15M			F40M		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	890	960	1050	950	1025	1125	880	940	1025	830	880	980	720	770	850	720	770	850
P2	870	930	1025	930	990	1100	850	920	1000	810	860	950	700	750	830	700	750	830
P3	760	810	900	800	850	950	740	800	880	690	740	830	610	660	730	600	640	720
P4	670	720	790	710	760	840	660	700	770	620	660	730	540	580	640	540	580	630
P5	650	680	760	680	730	800	630	670	740	590	630	700	520	550	610	520	550	610
P6	730	780	850	770	810	900	710	760	830	670	710	780	590	630	680	580	620	680
P7	690	740	800	720	770	850	670	720	780	630	670	740	550	590	650	550	580	640
P8	640	680	760	670	710	800	630	670	740	580	620	700	510	550	610	510	540	610
P11	670	710	780	700	750	820	650	700	760	610	650	720	540	580	630	530	570	620
M1	—	—	—	670	710	790	640	690	750	620	660	730	560	610	670	560	600	670
M2	—	—	—	550	580	640	530	560	620	510	540	600	470	495	550	465	495	550
M3	—	—	—	435	470	520	420	445	490	405	440	480	375	400	440	370	400	435
M4	—	—	—	340	360	400	320	345	380	315	335	370	290	310	345	285	305	340
M5	—	—	—	280	300	330	265	285	315	265	280	310	240	260	285	240	255	280
K1	690	740	810	730	780	870	680	730	800	640	680	750	550	600	650	560	590	660
K2	610	650	720	650	690	760	600	640	700	560	600	660	495	520	580	490	520	570
K3	520	550	610	550	580	640	510	540	590	475	510	560	420	445	490	415	440	485
K4	495	520	580	520	560	610	485	510	570	455	485	530	400	425	470	395	420	465
K5	300	320	355	320	335	375	295	315	345	275	295	325	240	260	285	240	255	285
K6	435	460	510	460	490	540	430	455	500	400	425	470	350	370	410	350	370	410
K7	385	410	450	405	430	480	375	400	440	355	375	415	310	330	365	310	325	365
N1	—	—	—	2700	2875	3200	2525	2725	3025	—	—	—	2025	2225	2450	2050	2175	2425
N2	—	—	—	2200	2325	2600	2050	2200	2450	—	—	—	1650	1775	1975	1650	1750	1975
N3	—	—	—	1450	1550	1725	1375	1475	1625	—	—	—	1100	1200	1325	1100	1175	1300
N11	—	—	—	1675	1775	1975	1550	1675	1850	—	—	—	1250	1350	1500	1275	1350	1500
S1	—	—	—	165	175	195	150	160	175	145	155	175	135	145	160	135	140	160
S2	—	—	—	135	140	155	120	130	140	120	125	140	110	115	130	110	115	125
S3	—	—	—	115	125	135	105	115	125	105	110	120	95	105	115	95	100	110
S11	—	—	—	230	245	270	210	225	250	205	220	245	190	205	225	185	200	220
S12	—	—	—	160	175	190	150	160	175	145	155	170	135	140	155	130	140	155
S13	—	—	—	130	135	150	115	125	140	115	120	135	105	115	125	105	110	125
H5	145	150	170	135	145	160	130	135	150	130	140	150	115	120	135	110	120	130
H8	150	160	180	140	150	170	135	140	155	135	145	160	120	130	145	120	125	140
H11	185	195	215	170	185	200	165	175	190	165	175	195	145	155	170	145	155	170
H12	275	290	325	260	280	305	245	260	290	250	265	295	220	235	260	215	230	255
H21	150	160	180	140	150	170	135	140	155	135	145	160	120	130	145	120	125	140

335.18 Round 12 – Cutting data v_c = (sf/min)

	MK2050			T25M			MM4500			MS2050			MH1000			H25		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	780	840	920	790	850	930	580	620	690	630	640	670	870	930	1025	—	—	—
P2	760	810	900	770	820	910	570	610	670	610	620	650	840	910	1000	—	—	—
P3	660	710	790	660	710	790	490	520	580	530	540	540	740	790	880	—	—	—
P4	580	630	690	600	630	700	440	465	510	445	455	475	650	700	770	—	—	—
P5	560	600	660	570	600	670	420	445	490	425	435	455	630	670	740	—	—	—
P6	630	680	740	640	680	750	470	500	550	475	485	510	710	760	830	—	—	—
P7	600	640	700	600	640	710	445	470	520	450	460	480	670	720	780	—	—	—
P8	560	600	660	560	600	670	410	440	490	440	450	455	620	670	740	—	—	—
P11	580	620	680	580	620	690	430	460	510	435	445	470	650	700	760	—	—	—
M1	—	—	—	620	660	730	485	520	580	530	540	570	—	—	—	—	—	—
M2	—	—	—	510	540	600	400	425	470	415	425	445	—	—	—	—	—	—
M3	—	—	—	405	440	480	320	345	375	280	275	285	—	—	—	—	—	—
M4	—	—	—	315	335	370	245	260	290	185	190	190	—	—	—	—	—	—
M5	—	—	—	265	280	310	205	220	245	155	155	155	—	—	—	—	—	—
K1	820	880	970	—	—	—	—	—	—	620	630	650	670	720	790	—	—	—
K2	730	770	850	—	—	—	—	—	—	510	520	550	600	630	700	—	—	—
K3	620	650	720	—	—	—	—	—	—	435	445	465	510	530	590	—	—	—
K4	590	620	690	—	—	—	—	—	—	415	425	445	485	510	570	—	—	—
K5	355	380	420	—	—	—	—	—	—	235	240	245	290	315	345	—	—	—
K6	520	550	610	—	—	—	—	—	—	365	375	390	425	450	500	—	—	—
K7	455	490	540	—	—	—	—	—	—	300	310	315	375	400	440	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2225	2400	2675
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1800	1950	2150
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1200	1300	1425
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1375	1475	1650
S1	—	—	—	145	155	175	75	80	90	180	185	200	—	—	—	—	—	—
S2	—	—	—	120	125	140	60	65	70	145	150	165	—	—	—	—	—	—
S3	—	—	—	105	110	120	55	55	65	125	135	145	—	—	—	—	—	—
S11	—	—	—	205	220	245	105	115	125	245	260	280	—	—	—	—	—	—
S12	—	—	—	145	155	170	80	85	95	190	200	215	—	—	—	—	—	—
S13	—	—	—	115	120	135	65	70	75	155	160	175	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	140	150	165	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	145	155	175	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	180	190	210	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	270	285	315	—	—	—
H21	—	—	—	—	—	—	—	—	—	—	—	—	145	155	175	—	—	—

335.18 Round 16 – Insert selection

SMG		f_z		
		30%	20%	10%
P1	RPHT1605M0T-ME11 F40M	0.0070	0.0085	0.011
P2	RPHT1605M0T-ME11 F40M	0.0075	0.0085	0.011
P3	RPHT1605M0T-ME11 F40M	0.0070	0.0080	0.011
P4	RPHT1605M0T-M12 F40M	0.0075	0.0085	0.012
P5	RPHT1605M0T-M12 F40M	0.0075	0.0085	0.011
P6	RPHT1605M0T-M12 F40M	0.0070	0.0085	0.011
P7	RPHT1605M0T-M12 MP2500	0.0070	0.0085	0.011
P8	RPHT1605M0T-M12 MP2500	0.0075	0.0085	0.012
P11	RPHT1605M0T-M12 F40M	0.0070	0.0085	0.011
M1	RPHT1605M0T-ME11 F40M	0.0075	0.0085	0.011
M2	RPHT1605M0T-ME11 F40M	0.0065	0.0080	0.010
M3	RPHT1605M0T-M12 F40M	0.0060	0.0065	0.0085
M4	RPHT1605M0T-M12 F40M	0.0050	0.0060	0.0080
M5	RPHT1605M0T-M12 F40M	0.0050	0.0060	0.0080
K1	RPHT1605M0T-M18 MK2050	0.010	0.012	0.016
K2	RPHT1605M0T-M18 MK2050	0.0095	0.010	0.014
K3	RPHT1605M0T-M18 MK2050	0.0095	0.010	0.014
K4	RPHT1605M0T-M18 MK2050	0.0095	0.010	0.014
K5	RPHT1605M0T-M18 MK2050	0.0080	0.0095	0.013
K6	RPHT1605M0T-M18 MK2050	0.0095	0.010	0.014
K7	RPHT1605M0T-M18 MK2050	0.0080	0.0095	0.013
N1	RPKT1605M0T-ME11 F40M	0.0095	0.011	0.014
N2	RPKT1605M0T-ME11 F40M	0.0095	0.011	0.014
N3	RPKT1605M0T-ME11 F40M	0.0095	0.011	0.014
N11	RPKT1605M0T-ME11 F40M	0.0095	0.011	0.014
S1	RPHT1605M0T-M12 F40M	0.0050	0.0060	0.0080
S2	RPHT1605M0T-M12 F40M	0.0050	0.0060	0.0080
S3	RPHT1605M0T-M12 F40M	0.0048	0.0055	0.0075
S11	RPHT1605M0T-ME11 F40M	0.0055	0.0065	0.0080
S12	RPHT1605M0T-ME11 F40M	0.0055	0.0065	0.0080
H5	RPKW1605M0T-MD20 F15M	0.0085	0.0095	0.013
H8	RPKW1605M0T-MD20 F15M	0.0065	0.0075	0.0095
H11	RPKW1605M0T-MD20 F15M	0.0085	0.0095	0.013
H12	RPKW1605M0T-MD20 F15M	0.0085	0.0095	0.013
H21	RPKW1605M0T-MD20 F15M	0.0065	0.0075	0.0095

SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.18 Round 16 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F15M			F25M		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	890	970	1075	850	900	1025	810	860	950	740	780	880	590	640	710	660	720	790
P2	870	930	1025	830	880	970	770	830	930	720	760	850	580	610	690	640	680	760
P3	760	810	900	720	770	850	680	720	800	630	670	740	510	540	600	560	600	660
P4	670	720	800	640	680	750	590	630	710	550	590	650	445	480	530	495	530	590
P5	640	700	770	610	650	730	580	620	680	530	570	630	425	460	510	475	520	570
P6	720	790	860	690	730	820	650	690	760	600	630	710	485	510	570	530	580	640
P7	680	740	810	650	690	770	610	650	720	570	600	670	460	485	540	500	550	600
P8	640	680	760	610	650	710	570	610	670	530	570	620	425	450	500	475	510	560
P11	660	720	790	630	670	750	600	630	700	550	580	650	445	470	520	490	530	580
M1	—	—	—	600	630	700	580	620	690	560	590	650	465	495	560	520	550	610
M2	—	—	—	490	520	590	485	510	570	455	485	550	380	415	460	425	465	510
M3	—	—	—	395	425	475	385	415	455	370	395	440	320	340	375	345	370	415
M4	—	—	—	310	330	365	300	315	350	285	305	340	245	265	290	270	290	325
M5	—	—	—	255	275	305	250	265	290	240	255	280	205	220	240	225	240	270
K1	690	740	810	660	690	770	610	650	730	570	600	670	455	485	550	510	540	600
K2	610	660	730	580	620	690	550	580	640	500	540	600	405	435	485	450	490	540
K3	520	560	620	490	520	580	465	495	540	425	455	510	340	370	410	380	415	455
K4	490	540	590	465	495	560	445	470	520	405	435	485	325	350	390	365	395	435
K5	310	325	360	285	310	340	270	285	315	250	270	295	200	215	240	230	240	265
K6	435	470	520	410	440	490	390	415	460	360	380	430	285	310	345	320	350	380
K7	395	420	465	365	395	435	345	365	405	320	345	375	260	280	310	290	310	340
N1	—	—	—	2400	2575	2850	2300	2450	2725	—	—	—	1650	1775	2000	1875	2000	2225
N2	—	—	—	1950	2075	2300	1850	1975	2200	—	—	—	1350	1450	1625	1525	1625	1800
N3	—	—	—	1300	1375	1550	1250	1325	1475	—	—	—	890	960	1075	1025	1075	1200
N11	—	—	—	1475	1575	1750	1425	1500	1675	—	—	—	1025	1100	1225	1150	1225	1375
S1	—	—	—	150	160	175	140	145	165	135	145	160	115	125	135	125	135	150
S2	—	—	—	120	130	140	110	120	130	110	115	125	90	100	110	100	110	120
S3	—	—	—	105	115	125	100	105	115	95	100	110	80	85	95	90	95	105
S11	—	—	—	210	225	250	195	210	230	185	200	225	160	170	190	175	185	210
S12	—	—	—	145	155	175	135	145	160	130	140	155	115	120	130	125	130	145
S13	—	—	—	115	125	140	110	115	130	105	110	125	90	95	105	100	105	120
H5	145	155	170	125	130	145	120	125	140	120	125	140	95	105	115	105	115	125
H8	155	165	180	130	140	155	125	130	145	125	135	150	105	110	125	115	120	135
H11	185	200	220	155	165	185	150	160	175	150	160	180	120	135	145	135	145	160
H12	280	300	330	235	250	280	225	245	265	225	240	270	185	200	220	205	220	245
H21	155	165	180	130	140	155	125	130	145	125	135	150	105	110	125	115	120	135

335.18 Round 16 – Cutting data v_c = (sf/min)

	F30M			F40M			MK2050			MM4500			MS2500			MH1000		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	680	720	800	640	680	770	780	850	940	520	550	620	930	980	1100	720	770	860
P2	650	690	780	630	660	740	760	810	900	510	540	600	900	960	1050	700	740	840
P3	570	610	670	550	580	640	670	710	780	445	475	520	790	840	930	610	650	720
P4	500	530	600	480	510	570	590	630	700	390	415	460	690	740	820	540	580	640
P5	485	520	570	460	490	550	560	610	670	375	400	445	660	710	790	510	550	610
P6	550	580	640	520	550	620	630	690	750	425	445	500	750	790	890	590	620	690
P7	510	550	600	495	520	580	590	650	710	400	420	475	710	750	840	560	590	650
P8	475	510	560	460	490	540	560	600	660	375	400	440	660	710	780	510	540	610
P11	500	530	590	480	510	570	580	630	690	390	410	460	690	730	820	540	570	630
M1	520	560	630	510	530	590	—	—	—	435	460	510	650	680	760	—	—	—
M2	435	465	510	415	440	495	—	—	—	355	380	430	530	570	630	—	—	—
M3	345	375	410	335	360	400	—	—	—	290	310	345	430	460	510	—	—	—
M4	270	285	315	260	280	310	—	—	—	225	240	265	335	355	395	—	—	—
M5	225	240	265	215	230	255	—	—	—	185	200	220	280	295	330	—	—	—
K1	510	550	620	495	530	580	820	870	970	—	—	—	720	760	840	550	590	660
K2	460	490	540	435	465	520	720	790	860	—	—	—	630	670	750	485	530	580
K3	390	415	460	370	395	440	610	670	730	—	—	—	530	570	640	410	445	495
K4	375	395	435	355	375	420	590	640	700	—	—	—	510	540	610	395	425	470
K5	225	240	265	215	235	255	365	390	430	—	—	—	310	335	370	245	260	290
K6	330	350	385	310	330	370	520	560	620	—	—	—	450	480	540	345	375	415
K7	290	305	340	275	300	330	470	495	550	—	—	—	400	430	470	315	335	375
N1	1925	2050	2300	1825	1950	2175	—	—	—	—	—	—	—	—	—	—	—	—
N2	1550	1650	1850	1475	1575	1750	—	—	—	—	—	—	—	—	—	—	—	—
N3	1050	1100	1225	980	1050	1175	—	—	—	—	—	—	—	—	—	—	—	—
N11	1200	1275	1400	1125	1200	1325	—	—	—	—	—	—	—	—	—	—	—	—
S1	125	135	150	120	130	145	—	—	—	70	75	80	165	175	190	—	—	—
S2	100	105	120	100	105	115	—	—	—	55	60	65	130	140	155	—	—	—
S3	90	95	105	85	90	100	—	—	—	49	50	55	115	125	135	—	—	—
S11	175	190	210	170	180	205	—	—	—	95	105	115	225	245	270	—	—	—
S12	125	130	145	120	130	140	—	—	—	75	80	90	160	170	190	—	—	—
S13	100	105	115	95	100	115	—	—	—	60	65	70	130	135	150	—	—	—
H5	105	115	125	100	110	120	—	—	—	—	—	—	135	140	160	115	125	140
H8	110	120	130	110	115	130	—	—	—	—	—	—	145	150	165	125	135	150
H11	135	145	160	130	140	155	—	—	—	—	—	—	170	180	200	145	160	175
H12	205	220	240	195	210	235	—	—	—	—	—	—	255	275	305	225	240	270
H21	110	120	130	110	115	130	—	—	—	—	—	—	145	150	165	125	135	150

335.25 XN09 - Insert selection

SMG		f_z		
		30%	20%	10%
P1	XNHQ090508TN4-M08 F40M	0.0055	0.0063	0.0087
P2	XNHQ090508TN4-M08 F40M	0.0055	0.0063	0.0087
P3	XNHQ090508TN4-M08 F40M	0.0051	0.0059	0.0079
P4	XNHQ090508TN4-M08 F40M	0.0051	0.0059	0.0079
P5	XNHQ090508TN4-M08 F40M	0.0051	0.0059	0.0079
P6	XNHQ090508TN4-M08 F40M	0.0051	0.0059	0.0075
P7	XNHQ090508TN4-M08 MP2500	0.0051	0.0059	0.0075
P8	XNHQ090508TN4-M08 MP2500	0.0051	0.0059	0.0079
P11	XNHQ090508TN4-M08 F40M	0.0051	0.0059	0.0075
M1	XNHQ090508TN4-M08 F40M	0.0055	0.0063	0.0087
M2	XNHQ090508TN4-M08 F40M	0.0051	0.0059	0.0079
M3	XNHQ090508TN4-M08 F40M	0.0039	0.0047	0.0063
M4	XNHQ090508TN4-M08 F40M	0.0035	0.0039	0.0055
M5	XNHQ090508TN4-M08 F40M	0.0035	0.0039	0.0055
K1	XNHQ090508TN4-M08 MK2050	0.0055	0.0063	0.0087
K2	XNHQ090508TN4-M08 MK2050	0.0051	0.0059	0.0079
K3	XNHQ090508TN4-M08 MK2050	0.0051	0.0059	0.0079
K4	XNHQ090508TN4-M08 MK2050	0.0051	0.0059	0.0079
K5	XNHQ090508TN4-M08 MK2050	0.0047	0.0051	0.0071
K6	XNHQ090508TN4-M08 MK2050	0.0051	0.0059	0.0079
K7	XNHQ090508TN4-M08 MK2050	0.0047	0.0051	0.0071
N1	XNHQ090508EN4-E07 F40M	0.0063	0.0071	0.0094
N2	XNHQ090508EN4-E07 F40M	0.0063	0.0071	0.0094
N3	XNHQ090508EN4-E07 F40M	0.0063	0.0071	0.0094
N11	XNHQ090508EN4-E07 F40M	0.0063	0.0071	0.0094
S1	XNHQ090508TN4-M08 F40M	0.0035	0.0039	0.0055
S2	XNHQ090508TN4-M08 F40M	0.0035	0.0039	0.0055
S3	XNHQ090508TN4-M08 F40M	0.0033	0.0037	0.0051
S11	XNHQ090508TN4-M08 F40M	0.0039	0.0047	0.0063
S12	XNHQ090508TN4-M08 F40M	0.0039	0.0047	0.0063
S13	XNHQ090508TN4-M08 F40M	0.0035	0.0039	0.0055
H5	XNHQ090508TN4-M08 MP2500	0.0033	0.0039	0.0051
H8	XNHQ090508TN4-M08 MP2500	0.0026	0.0030	0.0039
H11	XNHQ090508TN4-M08 F40M	0.0033	0.0039	0.0051
H12	XNHQ090508TN4-M08 F40M	0.0033	0.0039	0.0051
H21	XNHQ090508TN4-M08 MP2500	0.0026	0.0030	0.0039

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_r/D_c = %
All cutting data are start values

335.25 XN09 - Cutting data v_c = (sf/min)

SMG	F40M			MP2500			MK2050		
	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	600	650	710	800	850	940	780	840	920
P2	590	630	690	770	830	910	760	820	900
P3	510	550	610	680	730	800	670	720	790
P4	455	485	540	600	640	710	590	630	700
P5	435	460	510	570	610	680	560	600	670
P6	485	520	580	640	690	770	630	670	760
P7	460	490	550	610	650	730	600	640	710
P8	435	460	510	570	610	680	560	600	670
P11	445	475	530	590	630	700	580	620	690
M1	475	510	560	560	600	660	—	—	—
M2	390	415	460	460	490	540	—	—	—
M3	315	335	370	375	395	440	—	—	—
M4	245	265	285	290	310	340	—	—	—
M5	205	220	240	240	260	285	—	—	—
K1	465	500	550	610	660	720	820	880	970
K2	410	440	485	540	580	640	730	780	860
K3	350	370	410	460	490	540	620	660	730
K4	330	355	395	440	470	520	590	630	690
K5	200	220	240	265	290	315	355	390	425
K6	290	310	345	385	410	455	520	550	610
K7	260	280	305	340	370	405	455	495	540
N1	1700	1850	2025	—	—	—	—	—	—
N2	1375	1500	1625	—	—	—	—	—	—
N3	920	1000	1100	—	—	—	—	—	—
N11	1050	1150	1250	—	—	—	—	—	—
S1	115	125	135	—	—	—	—	—	—
S2	90	100	110	—	—	—	—	—	—
S3	80	85	95	—	—	—	—	—	—
S11	160	170	190	—	—	—	—	—	—
S12	110	120	130	—	—	—	—	—	—
S13	90	95	105	—	—	—	—	—	—
H5	95	105	115	115	125	140	—	—	—
H8	105	110	120	125	130	145	—	—	—
H11	125	130	145	150	155	175	—	—	—
H12	185	200	220	225	240	265	—	—	—
H21	105	110	120	125	130	145	—	—	—

335.25 XN12 - Insert selection

SMG		f_z		
		30%	20%	10%
P1	XNHQ120608TN4-M10 F40M	0.0067	0.0075	0.010
P2	XNHQ120608TN4-M10 F40M	0.0067	0.0079	0.010
P3	XNHQ120608TN4-M10 F40M	0.0063	0.0075	0.0094
P4	XNHQ120608TN4-M10 F40M	0.0063	0.0071	0.0094
P5	XNHQ120608TN4-M10 F40M	0.0063	0.0071	0.0094
P6	XNHQ120608TN4-M10 F40M	0.0059	0.0071	0.0094
P7	XNHQ120608TN4-M10 MP2500	0.0059	0.0071	0.0094
P8	XNHQ120608TN4-M10 MP2500	0.0063	0.0075	0.0094
P11	XNHQ120608TN4-M10 F40M	0.0059	0.0071	0.0094
M1	XNHQ120608TN4-M10 F40M	0.0067	0.0079	0.010
M2	XNHQ120608TN4-M10 F40M	0.0063	0.0071	0.0094
M3	XNHQ120608TN4-M10 F40M	0.0047	0.0055	0.0075
M4	XNHQ120608TN4-M10 F40M	0.0043	0.0051	0.0067
M5	XNHQ120608TN4-M10 F40M	0.0043	0.0051	0.0067
K1	XNHQ120608TN4-M10 MK2050	0.0067	0.0079	0.010
K2	XNHQ120608TN4-M10 MK2050	0.0063	0.0071	0.0094
K3	XNHQ120608TN4-M10 MK2050	0.0063	0.0071	0.0094
K4	XNHQ120608TN4-M10 MK2050	0.0063	0.0071	0.0094
K5	XNHQ120608TN4-M10 MK2050	0.0055	0.0063	0.0087
K6	XNHQ120608TN4-M10 MK2050	0.0063	0.0071	0.0094
K7	XNHQ120608TN4-M10 MK2050	0.0055	0.0063	0.0087
N1	XNHQ120608EN4-E09 F40M	0.0079	0.0087	0.012
N2	XNHQ120608EN4-E09 F40M	0.0079	0.0087	0.012
N3	XNHQ120608EN4-E09 F40M	0.0079	0.0087	0.012
N11	XNHQ120608EN4-E09 F40M	0.0079	0.0087	0.012
S1	XNHQ120608TN4-M10 F40M	0.0043	0.0051	0.0067
S2	XNHQ120608TN4-M10 F40M	0.0043	0.0051	0.0067
S3	XNHQ120608TN4-M10 F40M	0.0039	0.0047	0.0063
S11	XNHQ120608TN4-M10 F40M	0.0047	0.0055	0.0075
S12	XNHQ120608TN4-M10 F40M	0.0047	0.0055	0.0075
S13	XNHQ120608TN4-M10 F40M	0.0043	0.0051	0.0067
H5	XNHQ120608TN4-M10 MP2500	0.0043	0.0047	0.0063
H8	XNHQ120608TN4-M10 MP2500	0.0031	0.0037	0.0047
H11	XNHQ120608TN4-M10 F40M	0.0043	0.0047	0.0063
H12	XNHQ120608TN4-M10 F40M	0.0043	0.0047	0.0063
H21	XNHQ120608TN4-M10 MP2500	0.0031	0.0037	0.0047

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_r/D_c = %
All cutting data are start values

335.25 XN12 - Cutting data v_c = (sf/min)

SMG	F40M			MP2500			MK2050		
	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	580	630	690	770	830	910	750	810	900
P2	560	600	670	750	790	890	730	780	870
P3	495	520	590	650	690	780	640	680	770
P4	435	470	520	570	620	690	570	610	680
P5	415	450	495	550	590	660	540	580	650
P6	475	500	560	630	660	740	620	650	720
P7	450	475	530	590	630	690	580	620	680
P8	415	440	495	550	580	660	540	570	650
P11	435	460	510	580	610	670	570	600	660
M1	455	485	540	540	570	640	—	—	—
M2	375	405	445	440	475	530	—	—	—
M3	310	330	360	365	390	430	—	—	—
M4	235	250	280	280	295	330	—	—	—
M5	195	210	235	235	245	275	—	—	—
K1	450	475	530	590	630	700	790	840	940
K2	395	425	470	520	560	620	700	750	830
K3	335	360	400	440	475	530	590	640	710
K4	320	345	380	420	455	500	560	610	670
K5	195	210	230	260	280	305	350	375	410
K6	280	300	335	370	400	440	495	540	590
K7	250	270	295	335	355	390	445	480	530
N1	1625	1750	1950	—	—	—	—	—	—
N2	1325	1400	1575	—	—	—	—	—	—
N3	880	940	1050	—	—	—	—	—	—
N11	1000	1075	1200	—	—	—	—	—	—
S1	110	115	130	—	—	—	—	—	—
S2	90	95	105	—	—	—	—	—	—
S3	80	85	90	—	—	—	—	—	—
S11	155	165	185	—	—	—	—	—	—
S12	110	115	130	—	—	—	—	—	—
S13	85	90	100	—	—	—	—	—	—
H5	95	100	110	110	120	135	—	—	—
H8	100	105	120	120	130	145	—	—	—
H11	120	130	140	140	155	170	—	—	—
H12	180	195	215	215	230	255	—	—	—
H21	100	105	120	120	130	145	—	—	—

335.25 XN14/17 – Insert selection

First choice

SMG			f_z		
			30%	20%	10%
P1	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0080	0.0085	0.012
P2	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0080	0.0095	0.013
P3	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0075	0.0085	0.012
P4	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0075	0.0085	0.011
P5	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0070	0.0085	0.011
P6	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0070	0.0080	0.011
P7	XNHQ140708TN4-M11 MP2500	XNHQ170708TN4-M13 MP2500	0.0070	0.0080	0.011
P8	XNHQ140708TN4-M11 MP2500	XNHQ170708TN4-M13 MP2500	0.0075	0.0085	0.012
P11	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0070	0.0080	0.011
M1	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0080	0.0095	0.013
M2	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0070	0.0085	0.011
M3	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0060	0.0065	0.0085
M4	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
M5	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
K1	XNHQ140708TN4-M11 MK2050	XNHQ170708TN4-M13 MK2050	0.0080	0.0095	0.013
K2	XNHQ140708TN4-M11 MK2050	XNHQ170708TN4-M13 MK2050	0.0070	0.0085	0.011
K3	XNHQ140708TN4-M11 MK2050	XNHQ170708TN4-M13 MK2050	0.0070	0.0085	0.011
K4	XNHQ140708TN4-M11 MK2050	XNHQ170708TN4-M13 MK2050	0.0070	0.0085	0.011
K5	XNHQ140708TN4-M11 MK2050	XNHQ170708TN4-M13 MK2050	0.0065	0.0075	0.010
K6	XNHQ140708TN4-M11 MK2050	XNHQ170708TN4-M13 MK2050	0.0070	0.0085	0.011
K7	XNHQ140708TN4-M11 MK2050	XNHQ170708TN4-M13 MK2050	0.0065	0.0075	0.010
N1	XNHQ140708EN4-E10 H25	XNHQ170708EN4-E12 F40M	0.0095	0.011	0.014
N2	XNHQ140708EN4-E10 H25	XNHQ170708EN4-E12 F40M	0.0095	0.011	0.014
N3	XNHQ140708EN4-E10 H25	XNHQ170708EN4-E12 F40M	0.0095	0.011	0.014
N11	XNHQ140708EN4-E10 H25	XNHQ170708EN4-E12 F40M	0.0095	0.011	0.014
S1	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
S2	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
S3	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0048	0.0055	0.0070
S11	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0060	0.0065	0.0085
S12	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0060	0.0065	0.0085
S13	XNHQ140708TN4-M11 F40M	XNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
H5	XNHQ140708TN4-M11 MP2500	XNHQ170708TN4-M13 MP2500	0.0050	0.0055	0.0075
H8	XNHQ140708TN4-M11 MP2500	XNHQ170708TN4-M13 MP2500	0.0038	0.0044	0.0060
H11	XNHQ140708TN4-M11 MP2500	XNHQ170708TN4-M13 MP2500	0.0050	0.0055	0.0075
H12	XNHQ140708TN4-M11 MP2500	XNHQ170708TN4-M13 MP2500	0.0050	0.0055	0.0075
H21	XNHQ140708TN4-M11 MP2500	XNHQ170708TN4-M13 MP2500	0.0038	0.0044	0.0060

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.25 XN14/17 – Cutting data v_c = (sf/min)

	MP2500			F40M			MK2050			H25		
SMG	30%	20%	10%	30%	20%	10%	30%	20%	10%	30%	20%	10%
P1	750	820	900	570	620	680	740	810	890	—	—	—
P2	730	780	860	560	590	650	720	760	850	—	—	—
P3	640	680	750	485	520	570	630	670	740	—	—	—
P4	560	600	680	425	455	510	560	590	670	—	—	—
P5	550	580	650	415	435	490	540	570	640	—	—	—
P6	610	660	730	465	500	550	610	650	720	—	—	—
P7	580	630	690	440	475	520	570	620	680	—	—	—
P8	540	580	630	410	435	480	530	570	620	—	—	—
P11	560	610	670	425	460	500	560	600	660	—	—	—
M1	530	560	620	450	475	520	—	—	—	—	—	—
M2	440	465	520	375	395	440	—	—	—	—	—	—
M3	355	380	425	300	320	360	—	—	—	—	—	—
M4	275	295	325	235	250	275	—	—	—	—	—	—
M5	230	245	270	195	210	230	—	—	—	—	—	—
K1	580	610	680	440	465	520	780	820	910	—	—	—
K2	520	550	610	395	415	465	700	730	820	—	—	—
K3	440	460	520	335	350	395	590	620	700	—	—	—
K4	420	440	495	320	335	375	560	590	670	—	—	—
K5	255	275	300	195	210	230	340	370	405	—	—	—
K6	370	390	435	280	295	330	495	520	590	—	—	—
K7	325	350	385	245	265	295	435	470	520	—	—	—
N1	2125	2275	2525	1600	1725	1900	—	—	—	1625	1750	1950
N2	1700	1825	2025	1300	1375	1550	—	—	—	1325	1400	1575
N3	1150	1225	1350	860	920	1025	—	—	—	880	940	1050
N11	1300	1400	1550	990	1050	1175	—	—	—	1000	1075	1200
S1	135	145	160	110	115	130	—	—	—	—	—	—
S2	110	115	130	90	95	105	—	—	—	—	—	—
S3	95	100	115	75	85	90	—	—	—	—	—	—
S11	185	200	225	150	165	180	—	—	—	—	—	—
S12	130	140	155	105	115	125	—	—	—	—	—	—
S13	105	115	125	85	90	100	—	—	—	—	—	—
H5	110	120	130	90	100	110	—	—	—	—	—	—
H8	120	125	140	100	105	115	—	—	—	—	—	—
H11	140	155	170	115	125	140	—	—	—	—	—	—
H12	210	230	255	175	190	210	—	—	—	—	—	—
H21	120	125	140	100	105	115	—	—	—	—	—	—

335.25 LN14/17 – Insert selection

First choice

SMG			f_z		
			30%	20%	10%
P1	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0080	0.0085	0.012
P2	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0080	0.0095	0.013
P3	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0075	0.0085	0.012
P4	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0075	0.0085	0.011
P5	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0070	0.0085	0.011
P6	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0070	0.0080	0.011
P7	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0070	0.0080	0.011
P8	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0075	0.0085	0.012
P11	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0070	0.0080	0.011
M1	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0080	0.0095	0.013
M2	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0070	0.0085	0.011
M3	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0060	0.0065	0.0085
M4	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
M5	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
K1	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0080	0.0095	0.013
K2	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0070	0.0085	0.011
K3	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0070	0.0085	0.011
K4	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0070	0.0085	0.011
K5	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0065	0.0075	0.010
K6	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0070	0.0085	0.011
K7	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0065	0.0075	0.010
S1	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
S2	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
S3	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0048	0.0055	0.0070
S11	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0060	0.0065	0.0085
S12	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0060	0.0065	0.0085
S13	LNHQ140708TN4-M11 F40M	LNHQ170708TN4-M13 F40M	0.0050	0.0060	0.0080
H5	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0050	0.0055	0.0075
H8	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0038	0.0044	0.0060
H11	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0050	0.0055	0.0075
H12	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0050	0.0055	0.0075
H21	LNHQ140708TN4-M11 MP2500	LNHQ170708TN4-M13 F40M	0.0038	0.0044	0.0060

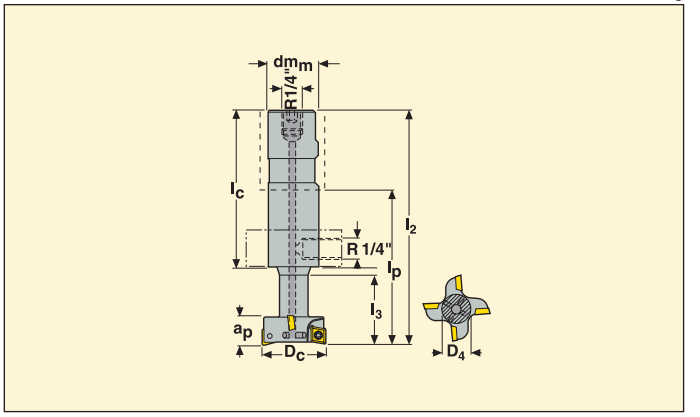
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_r/D_c = %
All cutting data are start values

335.25 LN14/17 – Cutting data v_c = (sf/min)

	MP2500			F40M		
SMG	30%	20%	10%	30%	20%	10%
P1	740	810	890	560	610	670
P2	720	760	850	550	580	640
P3	630	680	740	480	510	560
P4	560	590	670	420	450	510
P5	540	570	640	410	430	485
P6	610	660	720	460	495	540
P7	570	620	680	435	470	510
P8	530	570	630	405	430	475
P11	560	600	660	420	455	500
M1	520	550	610	440	465	520
M2	435	455	510	370	385	435
M3	350	375	420	295	320	355
M4	270	290	320	230	245	275
M5	225	245	270	190	205	230
K1	570	610	670	435	460	510
K2	510	540	610	390	410	460
K3	435	455	510	330	345	390
K4	415	435	490	315	330	370
K5	250	270	300	190	205	225
K6	365	385	430	275	290	325
K7	320	345	380	245	260	290
N1	2075	2225	2475	1575	1700	1875
N2	1675	1800	2000	1275	1375	1525
N3	1125	1200	1325	850	910	1000
N11	1275	1375	1525	970	1050	1150
S1	135	140	155	110	115	125
S2	105	115	125	85	95	105
S3	95	100	110	75	80	90
S11	185	200	220	150	160	180
S12	130	140	155	105	115	125
S13	105	110	125	85	90	100
H5	110	120	130	90	100	110
H8	120	125	140	100	105	115
H11	140	150	165	115	125	140
H12	210	225	250	175	190	210
H21	120	125	140	100	105	115

R395.19

T-slot milling



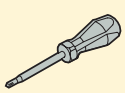
- For insert selection and cutting data recommendations, see pages 229-236.
- For complete insert program, see pages 558, 574.

EDP No.	Part No.	Dimensions in inch											Type of mounting	Max rpm	Insert**	
		a_p	D_c	D_4	dm_m	l_2	l_3	l_p	l_c		Z_c*	lbs			CCMX	SCET
02782	R395.19 -00.97-26-3A	.390	0.968	0.45	1.25	3.54	1.02	1.18	1.34	2	1	1.1	Cyl/Weldon	28400	060304	–
72226	-01.25-31-3A	.480	1.248	0.66	1.25	3.94	1.22	1.73	2.72	4	2	1.3	Cyl/Weldon	19800	08T308	–
02788	-01.47-41-3A	.630	1.468	0.75	1.25	4.33	1.61	1.97	2.72	4	2	1.3	Cyl/Weldon	14600	09T308T	–
02794	-01.84-57-3A	.827	1.843	1.00	1.25	4.72	2.24	2.36	2.48	4	2	1.8	Cyl/Weldon	9800	–	120612T

** Insert geometry ME should not be used in these cutters.

* Effective number of teeth.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R395.19-0.97	T07P-3	C02506-T07P
R395.19-1.25 / 1.47	T09P-3	C03007-T09P
R395.19-1.84	T20P-4	C45011-T20P

Please check availability in current price and stock-list.

Torque keys available, see page 643.

T-slot CCMX06 – Insert selection

SMG		f_z	
		100%	25%
P1	CCMX060304-E06 F40M	0.0034	0.0038
P2	CCMX060304-E06 F40M	0.0034	0.0040
P3	CCMX060304-E06 F40M	0.0032	0.0038
P4	CCMX060304T-M07 F40M	0.0038	0.0044
P5	CCMX060304T-M07 F40M	0.0036	0.0044
P6	CCMX060304T-M07 F40M	0.0036	0.0040
P7	CCMX060304T-M07 F40M	0.0036	0.0040
P8	CCMX060304T-M07 F40M	0.0038	0.0044
P11	CCMX060304T-M07 F40M	0.0036	0.0040
M1	CCMX060304-E06 F40M	0.0034	0.0040
M2	CCMX060304-E06 F40M	0.0032	0.0036
M3	CCMX060304T-M07 F40M	0.0030	0.0034
M4	CCMX060304T-M07 F40M	0.0026	0.0030
M5	CCMX060304T-M07 F40M	0.0026	0.0030
K1	CCMX060304-E06 HX	0.0034	0.0040
K2	CCMX060304-E06 HX	0.0032	0.0036
K3	CCMX060304-E06 HX	0.0032	0.0036
K4	CCMX060304-E06 HX	0.0032	0.0036
K5	CCMX060304-E06 HX	0.0028	0.0032
K6	CCMX060304-E06 HX	0.0032	0.0036
K7	CCMX060304-E06 HX	0.0028	0.0032
N1	CCMX060304-E06 HX	0.0044	0.0050
N2	CCMX060304-E06 HX	0.0044	0.0050
N3	CCMX060304-E06 HX	0.0044	0.0050
N11	CCMX060304-E06 HX	0.0044	0.0050
S1	CCMX060304T-M07 F40M	0.0026	0.0030
S2	CCMX060304T-M07 F40M	0.0026	0.0030
S3	CCMX060304T-M07 F40M	0.0024	0.0028
S11	CCMX060304-E06 F40M	0.0024	0.0028
S12	CCMX060304-E06 F40M	0.0024	0.0028
S13	CCMX060304-E06 F40M	0.0022	0.0026
H5	CCMX060304T-M07 F40M	0.0024	0.0028
H8	CCMX060304T-M07 F40M	0.0019	0.0022
H11	CCMX060304T-M07 F40M	0.0024	0.0028
H12	CCMX060304T-M07 F40M	0.0024	0.0028
H21	CCMX060304T-M07 F40M	0.0019	0.0022

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_e/D_c = %
All cutting data are start values

T-slot CCMX06 – Cutting data v_c = (sf/min)

SMG	F40M		HX	
	100%	25%	100%	25%
P1	590	810	470	650
P2	570	780	460	620
P3	500	680	400	540
P4	440	600	355	485
P5	420	580	335	460
P6	480	650	385	520
P7	455	610	365	490
P8	420	570	335	455
P11	440	590	350	475
M1	460	630	370	500
M2	380	520	305	415
M3	310	420	245	335
M4	235	320	190	255
M5	195	265	155	210
K1	455	620	430	590
K2	400	550	380	520
K3	340	465	320	440
K4	325	440	305	420
K5	200	270	190	255
K6	285	390	270	370
K7	255	345	240	330
N1	1675	2275	1600	2175
N2	1350	1850	1300	1750
N3	900	1225	860	1175
N11	1025	1400	980	1325
S1	110	150	—	—
S2	90	120	—	—
S3	80	105	—	—
S11	155	210	—	—
S12	110	150	—	—
S13	85	115	—	—
H5	95	125	75	100
H8	100	135	80	105
H11	120	160	95	130
H12	180	245	140	195
H21	100	135	80	105

T-slot CCMX08 – Insert selection

SMG		f_z	
		100%	25%
P1	CCMX08T308-E07 F40M	0.0040	0.0044
P2	CCMX08T308-E07 F40M	0.0040	0.0048
P3	CCMX08T308-E07 F40M	0.0038	0.0044
P4	CCMX08T308T-M08 F40M	0.0044	0.0048
P5	CCMX08T308T-M08 F40M	0.0040	0.0048
P6	CCMX08T308T-M08 F40M	0.0040	0.0048
P7	CCMX08T308T-M08 F40M	0.0040	0.0048
P8	CCMX08T308T-M08 F40M	0.0044	0.0050
P11	CCMX08T308T-M08 F40M	0.0040	0.0048
M1	CCMX08T308-E07 F40M	0.0040	0.0048
M2	CCMX08T308-E07 F40M	0.0036	0.0044
M3	CCMX08T308T-M08 F40M	0.0034	0.0038
M4	CCMX08T308T-M08 F40M	0.0030	0.0034
M5	CCMX08T308T-M08 F40M	0.0030	0.0034
K1	CCMX08T308-E07 HX	0.0040	0.0048
K2	CCMX08T308-E07 HX	0.0036	0.0044
K3	CCMX08T308-E07 HX	0.0036	0.0044
K4	CCMX08T308-E07 HX	0.0036	0.0044
K5	CCMX08T308-E07 HX	0.0032	0.0038
K6	CCMX08T308-E07 HX	0.0036	0.0044
K7	CCMX08T308-E07 HX	0.0032	0.0038
N1	CCMX08T308-E07 HX	0.0050	0.0060
N2	CCMX08T308-E07 HX	0.0050	0.0060
N3	CCMX08T308-E07 HX	0.0050	0.0060
N11	CCMX08T308-E07 HX	0.0050	0.0060
S1	CCMX08T308T-M08 T350M	0.0030	0.0034
S2	CCMX08T308T-M08 T350M	0.0030	0.0034
S3	CCMX08T308T-M08 T350M	0.0028	0.0032
S11	CCMX08T308-E07 F40M	0.0030	0.0034
S12	CCMX08T308-E07 F40M	0.0030	0.0034
S13	CCMX08T308-E07 F40M	0.0026	0.0030
H5	CCMX08T308T-M08 F40M	0.0028	0.0032
H8	CCMX08T308T-M08 F40M	0.0022	0.0026
H11	CCMX08T308T-M08 F40M	0.0028	0.0032
H12	CCMX08T308T-M08 F40M	0.0028	0.0032
H21	CCMX08T308T-M08 F40M	0.0022	0.0026

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_e/D_c = %
All cutting data are start values

T-slot CCMX08 – Cutting data v_c = (sf/min)

	T350M		F40M		HX	
SMG	100%	25%	100%	25%	100%	25%
P1	650	900	570	790	455	630
P2	640	860	550	750	445	600
P3	550	760	480	660	385	530
P4	490	670	425	580	340	465
P5	475	640	410	550	330	440
P6	530	730	460	640	370	510
P7	500	690	435	600	350	480
P8	465	640	405	550	325	440
P11	485	670	425	580	340	465
M1	490	660	445	600	355	480
M2	405	550	370	500	295	400
M3	325	445	295	405	235	320
M4	250	340	230	310	185	250
M5	210	285	190	260	150	205
K1	500	680	440	590	415	560
K2	450	600	390	520	370	500
K3	380	510	330	445	315	420
K4	365	490	315	425	300	405
K5	220	300	195	260	185	250
K6	320	430	280	375	265	355
K7	285	385	245	335	235	320
N1	—	—	1625	2200	1525	2100
N2	—	—	1300	1775	1250	1700
N3	—	—	870	1200	830	1125
N11	—	—	990	1350	940	1300
S1	115	160	105	145	—	—
S2	95	130	85	115	—	—
S3	85	110	75	100	—	—
S11	165	225	150	205	—	—
S12	115	155	105	145	—	—
S13	90	125	85	115	—	—
H5	105	140	90	125	75	100
H8	110	150	95	130	75	105
H11	135	180	115	155	95	125
H12	200	275	175	240	140	190
H21	110	150	95	130	75	105

T-slot CCMX09 – Insert selection

SMG		f_z	
		100%	25%
P1	CCMX09T308T-MD09 F40M	0.0050	0.0060
P2	CCMX09T308T-MD09 F40M	0.0050	0.0060
P3	CCMX09T308T-MD09 F40M	0.0048	0.0055
P4	CCMX09T308T-MD09 F40M	0.0048	0.0055
P5	CCMX09T308T-MD09 F40M	0.0048	0.0055
P6	CCMX09T308T-MD09 F40M	0.0048	0.0050
P7	CCMX09T308T-MD09 F40M	0.0048	0.0050
P8	CCMX09T308T-MD09 F40M	0.0048	0.0055
P11	CCMX09T308T-MD09 F40M	0.0048	0.0050
M1	CCMX09T308T-MD09 F40M	0.0050	0.0060
M2	CCMX09T308T-MD09 F40M	0.0048	0.0055
M3	CCMX09T308T-MD09 F40M	0.0038	0.0044
M4	CCMX09T308T-MD09 F40M	0.0032	0.0038
M5	CCMX09T308T-MD09 F40M	0.0032	0.0038
K1	CCMX09T308T-MD09 F40M	0.0050	0.0060
K2	CCMX09T308T-MD09 F40M	0.0048	0.0055
K3	CCMX09T308T-MD09 F40M	0.0048	0.0055
K4	CCMX09T308T-MD09 F40M	0.0048	0.0055
K5	CCMX09T308T-MD09 F40M	0.0044	0.0048
K6	CCMX09T308T-MD09 F40M	0.0048	0.0055
K7	CCMX09T308T-MD09 F40M	0.0044	0.0048
N1	CCMX09T308T-MD09 F40M	0.0065	0.0075
N2	CCMX09T308T-MD09 F40M	0.0065	0.0075
N3	CCMX09T308T-MD09 F40M	0.0065	0.0075
N11	CCMX09T308T-MD09 F40M	0.0065	0.0075
S1	CCMX09T308T-MD09 F40M	0.0032	0.0038
S2	CCMX09T308T-MD09 F40M	0.0032	0.0038
S3	CCMX09T308T-MD09 F40M	0.0030	0.0036
S11	CCMX09T308T-MD09 F40M	0.0038	0.0044
S12	CCMX09T308T-MD09 F40M	0.0038	0.0044
S13	CCMX09T308T-MD09 F40M	0.0032	0.0038
H5	CCMX09T308T-MD09 F40M	0.0032	0.0036
H8	CCMX09T308T-MD09 F40M	0.0024	0.0028
H11	CCMX09T308T-MD09 F40M	0.0032	0.0036
H12	CCMX09T308T-MD09 F40M	0.0032	0.0036
H21	CCMX09T308T-MD09 F40M	0.0024	0.0028

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_e/D_c = %
All cutting data are start values

T-slot CCMX09 – Cutting data v_c = (sf/min)

SMG	F40M	
	100%	25%
P1	460	630
P2	450	620
P3	395	540
P4	350	475
P5	335	455
P6	375	520
P7	350	490
P8	335	455
P11	340	475
M1	360	495
M2	300	410
M3	245	330
M4	190	255
M5	160	215
K1	355	490
K2	315	430
K3	265	365
K4	255	350
K5	155	215
K6	225	305
K7	200	275
N1	1325	1800
N2	1075	1450
N3	710	970
N11	820	1100
S1	90	120
S2	70	95
S3	65	85
S11	125	170
S12	85	115
S13	70	95
H5	75	100
H8	80	110
H11	95	130
H12	145	195
H21	80	110

T-slot SCET12 – Insert selection

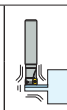
SMG		f_z	
		100%	25%
P1	SCET120612T-M11 F40M	0.0060	0.0070
P2	SCET120612T-M11 F40M	0.0065	0.0070
P3	SCET120612T-M11 F40M	0.0060	0.0065
P4	SCET120612T-M11 F40M	0.0060	0.0065
P5	SCET120612T-M11 F40M	0.0055	0.0065
P6	SCET120612T-M11 F40M	0.0055	0.0065
P7	SCET120612T-M11 MP2500	0.0055	0.0065
P8	SCET120612T-M11 MP2500	0.0060	0.0065
P11	SCET120612T-M11 F40M	0.0055	0.0065
M1	SCET120612T-M14 F40M	0.0080	0.0095
M2	SCET120612T-M14 F40M	0.0070	0.0085
M3	SCET120612T-M14 F40M	0.0060	0.0065
M4	SCET120612T-M14 F40M	0.0050	0.0060
M5	SCET120612T-M14 F40M	0.0050	0.0060
K1	SCET120612T-M11 MK1500	0.0065	0.0070
K2	SCET120612T-M11 MK1500	0.0055	0.0065
K3	SCET120612T-M11 MK1500	0.0055	0.0065
K4	SCET120612T-M11 MK1500	0.0055	0.0065
K5	SCET120612T-M11 MK1500	0.0050	0.0060
K6	SCET120612T-M11 MK1500	0.0055	0.0065
K7	SCET120612T-M11 MK1500	0.0050	0.0060
N1	SCET120612T-ME10 F40M	0.0070	0.0085
N2	SCET120612T-ME10 F40M	0.0070	0.0085
N3	SCET120612T-ME10 F40M	0.0070	0.0085
N11	SCET120612T-ME10 F40M	0.0070	0.0085
S1	SCET120612T-M14 F40M	0.0050	0.0060
S2	SCET120612T-M14 F40M	0.0050	0.0060
S3	SCET120612T-M14 F40M	0.0048	0.0055
S11	SCET120612T-ME10 F40M	0.0040	0.0048
S12	SCET120612T-ME10 F40M	0.0040	0.0048
S13	SCET120612T-ME10 F40M	0.0036	0.0044
H5	SCET120612T-MD15 MP1500	0.0050	0.0060
H8	SCET120612T-MD15 MP1500	0.0040	0.0048
H11	SCET120612T-MD15 MP1500	0.0050	0.0060
H12	SCET120612T-MD15 MP1500	0.0050	0.0060
H21	SCET120612T-MD15 MP1500	0.0040	0.0048

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_e/D_c = %
All cutting data are start values

T-slot SCET12 – Cutting data v_c = (sf/min)

	MP1500		MP2500		MP3000		T350M		F40M		MK1500		HX	
SMG	100%	25%	100%	25%	100%	25%	100%	25%	100%	25%	100%	25%	100%	25%
P1	720	820	680	780	650	750	620	720	580	680	—	—	495	590
P2	710	810	670	770	640	740	610	710	570	670	—	—	480	580
P3	660	770	620	730	600	700	570	670	520	630	—	—	435	540
P4	620	720	580	680	560	660	530	630	485	590	—	—	400	500
P5	610	710	570	670	540	640	510	620	470	570	—	—	385	485
P6	650	750	610	710	580	680	560	650	510	610	—	—	425	530
P7	630	730	590	690	570	660	540	640	490	590	—	—	405	510
P8	610	710	570	670	540	640	510	620	470	570	—	—	380	485
P11	620	720	580	680	560	650	530	630	485	580	—	—	395	500
M1	—	—	560	660	550	650	530	630	500	600	—	—	—	—
M2	—	—	500	600	480	580	465	570	435	540	—	—	—	—
M3	—	—	430	530	420	520	405	500	370	470	—	—	—	—
M4	—	—	350	450	340	435	325	415	295	385	—	—	—	—
M5	—	—	295	390	285	375	270	360	245	325	—	—	—	—
K1	630	730	590	690	570	660	540	640	490	590	700	810	460	560
K2	600	700	560	660	520	630	495	600	450	550	670	770	425	520
K3	540	640	500	600	470	570	440	540	395	500	620	720	370	470
K4	530	630	485	590	455	560	425	530	380	485	600	700	355	455
K5	365	465	325	425	295	395	275	370	235	325	435	540	220	295
K6	485	590	445	550	410	520	385	490	340	440	560	660	315	415
K7	445	540	405	500	375	475	350	450	305	405	520	620	280	375
N1	—	—	1025	1125	990	1100	—	—	920	1025	—	—	890	990
N2	—	—	950	1050	920	1025	—	—	850	950	—	—	820	920
N3	—	—	810	920	790	890	—	—	720	810	—	—	680	780
N11	—	—	860	960	830	930	—	—	760	860	—	—	730	830
S1	—	—	170	230	160	210	150	200	135	185	—	—	—	—
S2	—	—	140	185	130	170	120	160	110	145	—	—	—	—
S3	—	—	120	165	115	150	105	140	95	130	—	—	—	—
S11	—	—	235	325	220	300	210	285	190	260	—	—	—	—
S12	—	—	135	190	130	175	120	165	110	150	—	—	—	—
S13	—	—	110	150	105	135	95	130	90	120	—	—	—	—
H5	175	235	140	190	135	180	130	180	115	155	—	—	85	120
H8	185	250	150	205	145	195	140	190	125	165	—	—	95	130
H11	220	295	180	240	170	230	170	225	145	195	—	—	110	155
H12	335	430	270	360	260	345	255	340	220	295	—	—	170	235
H21	185	250	150	205	145	195	140	190	125	165	—	—	95	130

Plunge milling cutters

Insert	a_p max	Material suitability								
		P	M	K	N	S	H			
XO..10 	0.236	■	■	■	■	■	□	■	■	■
XO..12 	0.276	■	■	■	■	■	□	◩	■	■
SC..12 	0.433	■	■	■	■	■	□	–	■	◩

1st choice	■
Alternative choice	◩
Possible choice	□
Not recommended	–

High speed machine with low Power / Torque	
Strong stable machine with rigid connecion	
a_p max	Max depth of cut

Unstable condition suitability	

Plunge milling cutters

No. of cutting edges	Application	Cutter diameter available (inch) / number of teeth								Page
		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	
2		2								241
			3	4	5					
2					3	4				244
			2	3	4		5			
4				2	3	4	5	6	7	247

x — x indicates effective number of teeth

x — x indicates effective number of teeth

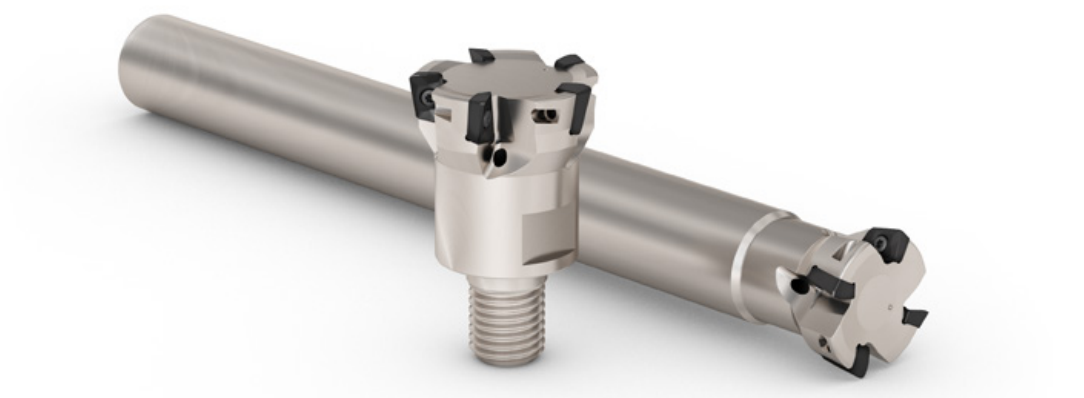
 Trouble shooter for unstable fixturing and/or machine

 First choice

Code key

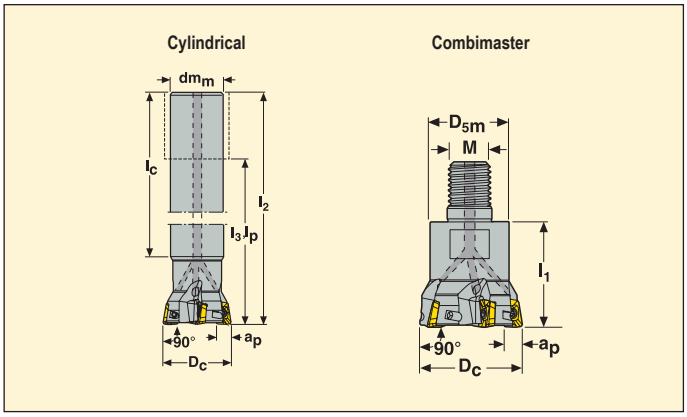
There is no ISO system available for cutters.
Parts of the code key vary for different cutter systems.

	217 = With shank 220 = For arbor		Cutter diameter			Insert size and description		A = Holes for internal coolant supply N = Nickel coated
R	217.79	-	01.50	-	3	- X010	- 5	A
Right-hand rotation		Cutter system			Shank type: 0 = Cylindrical 3 = Weldon RE = Combimaster		Effective no. of teeth	



Plunging cutter R217.79-10

- For insert selection and cutting data recommendations, see pages 242-243.
- For complete insert program, see page 595.
- Can also be used for up-copying.

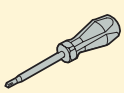


EDP No.	Part No.	Dimensions in inch										lbs	Type of mounting	Max rpm	Insert
		D_c	D_{5m}	dm_m	l_1	l_2	l_3/l_p	l_c	M	a_p**					
77201	R217.79 -00.750-0-XO10-2A	0.75	–	0.625	–	6.30	4.72	5.12	–	0.236	2	0.4	Cylindrical	29000	XO..10
77202	-01.00-0-XO10-3A	1.00	–	0.750	–	7.87	5.91	6.69	–	0.236	3	0.9	Cylindrical	15000	XO..10
77203	-01.25-0-XO10-4A	1.25	–	1.000	–	9.84	7.48	8.58	–	0.236	4	2.0	Cylindrical	26000	XO..10
77204	R217.79 -01.00-12RE-XO10-3A	1.00	0.886	–	1.18	–	–	–	M12	0.236	3	0.2	Combimaster*	150000	XO..10
77205	-01.25-16RE-XO10-4A	1.25	1.142	–	1.57	–	–	–	M16	0.236	4	0.4	Combimaster*	22900	XO..10
77206	-01.50-16RE-XO10-5A	1.51	1.181	–	1.57	–	–	–	M16	0.236	5	0.7	Combimaster*	15000	XO..10
05984	-01.50-20RE-XO10-5A	1.50	1.437	–	1.57	–	–	–	M20	0.236	5	0.9	Combimaster*	150000	XO..10

** a_p max of .040" on up-copying.
When using inserts with a radius > .122", the cutter body must be modified.

* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.79-..	T07P-3	C02506-T07P

Please check availability in current price and stock-list.

Insert screw torque value 10.6 in/lbs.
Torque keys available, see page 643.

R217.79-10– Insert selection

SMG		f_z	a_{so}			
			100%	70%	50%	30%
P1	XOMX10T308TR-ME07 F40M	0.0044	0.16	0.16	0.16	0.18
P2	XOMX10T308TR-ME07 F40M	0.0048	0.16	0.16	0.16	0.18
P3	XOMX10T308TR-ME07 MP2500	0.0044	0.16	0.16	0.16	0.18
P4	XOMX10T308TR-ME07 MP2500	0.0044	0.16	0.16	0.16	0.18
P5	XOMX10T308TR-ME07 MP2500	0.0044	0.16	0.16	0.16	0.18
P6	XOMX10T308TR-ME07 MP2500	0.0040	0.16	0.16	0.16	0.18
P7	XOMX10T308TR-M09 MP2500	0.0048	0.16	0.16	0.16	0.18
P8	XOMX10T308TR-M09 MP2500	0.0048	0.16	0.16	0.16	0.18
P11	XOMX10T308TR-M09 MP2500	0.0048	0.16	0.16	0.16	0.18
M1	XOMX10T308TR-ME07 MP2500	0.0048	0.16	0.16	0.16	0.18
M2	XOMX10T308TR-ME07 MP2500	0.0044	0.16	0.16	0.16	0.18
M3	XOMX10T308TR-ME07 MP2500	0.0034	0.14	0.14	0.14	0.16
M4	XOMX10T308TR-M09 T350M	0.0034	0.10	0.10	0.10	0.12
M5	XOMX10T308TR-M09 F40M	0.0034	0.10	0.10	0.10	0.12
K1	XOMX10T308TR-M09 MK1500	0.0050	0.16	0.16	0.16	0.18
K2	XOMX10T308TR-M09 MK1500	0.0048	0.16	0.16	0.16	0.18
K3	XOMX10T308TR-M09 MK1500	0.0048	0.16	0.16	0.16	0.18
K4	XOMX10T308TR-M09 MK1500	0.0048	0.16	0.16	0.16	0.18
K5	XOMX10T308TR-M09 MK1500	0.0044	0.16	0.16	0.16	0.18
K6	XOMX10T308TR-M09 MK1500	0.0048	0.16	0.16	0.16	0.18
K7	XOMX10T308TR-M09 MP1500	0.0044	0.16	0.16	0.16	0.18
N1	XOEX10T308FR-E05 H15	0.0044	0.16	0.16	0.16	0.18
N2	XOEX10T308FR-E05 F40M	0.0044	0.16	0.16	0.16	0.18
N3	XOEX10T308FR-E05 F40M	0.0044	0.16	0.16	0.16	0.18
N11	XOEX10T308FR-E05 F40M	0.0044	0.16	0.16	0.16	0.18
S1	XOMX10T308TR-ME07 T350M	0.0030	0.10	0.10	0.10	0.12
S2	XOMX10T308TR-ME07 T350M	0.0030	0.10	0.10	0.10	0.12
S3	XOMX10T308TR-M09 F40M	0.0032	0.10	0.10	0.10	0.12
S11	XOMX10T308TR-ME07 F40M	0.0034	0.12	0.12	0.12	0.14
S12	XOMX10T308TR-ME07 F40M	0.0034	0.12	0.12	0.12	0.14
S13	XOMX10T308TR-ME07 F40M	0.0030	0.10	0.10	0.10	0.12
H5	XOMX10T308TR-M09 MP1500	0.0032	0.14	0.14	0.14	0.16
H8	XOMX10T308TR-M09 MP1500	0.0026	0.12	0.12	0.12	0.14
H11	XOMX10T308TR-M09 MP1500	0.0032	0.14	0.14	0.14	0.16
H12	XOMX10T308TR-M09 MP1500	0.0032	0.14	0.14	0.14	0.16
H21	XOMX10T308TR-M09 MP1500	0.0026	0.12	0.12	0.12	0.14

SMG = Seco Material Group
f_z = in/tooth
a_{so} = step over
v_c= sf/min
a_e/D_c = %
All cutting data are start values

R217.79-10 – Cutting data v_c = (sf/min)

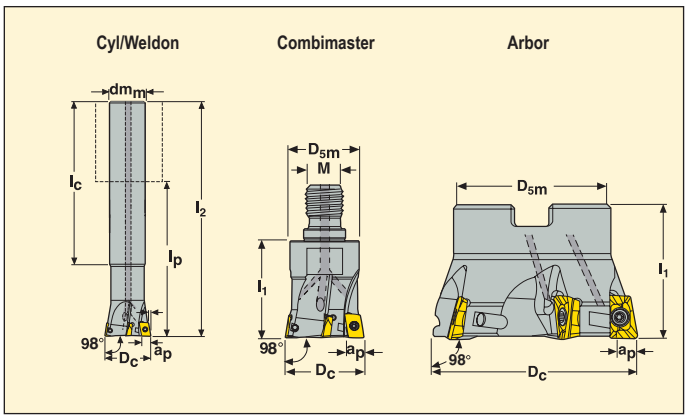
	MP1500				MP2500				MP3000				T350M				F40M			
SMG	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%
P1	990	1100	1175	1275	880	980	1050	1125	830	930	990	1075	850	950	1000	1100	670	740	790	860
P2	970	1075	1150	1250	860	960	1025	1100	810	910	970	1050	800	900	960	1025	650	720	770	840
P3	850	950	1025	1100	760	840	900	970	720	800	850	920	710	790	840	910	570	640	680	740
P4	750	840	890	970	670	740	790	860	630	700	750	810	620	700	740	810	500	560	600	650
P5	720	800	850	920	640	710	760	820	600	670	720	780	600	670	710	770	480	540	570	620
P6	810	900	960	1050	710	800	850	920	680	750	800	870	690	770	820	860	540	600	640	700
P7	760	850	900	980	670	750	800	870	640	710	760	820	650	730	770	810	510	570	610	660
P8	720	800	850	920	640	710	760	820	600	670	720	780	600	670	710	770	480	540	570	620
P11	740	820	880	950	650	730	780	840	620	690	740	800	630	710	750	790	495	550	590	640
M1	—	—	—	—	620	690	730	800	610	680	720	780	620	690	740	800	520	580	620	670
M2	—	—	—	—	510	570	610	660	500	560	600	650	510	570	610	660	435	485	520	560
M3	—	—	—	—	420	470	500	540	415	460	490	530	425	475	500	550	355	400	425	460
M4	—	—	—	—	335	370	395	425	325	365	390	420	335	375	400	430	280	315	335	360
M5	—	—	—	—	275	310	330	355	275	305	325	350	280	315	335	360	235	260	280	300
K1	770	860	910	990	680	760	810	880	640	720	760	830	640	710	760	820	510	570	610	660
K2	680	760	810	880	600	670	720	780	570	640	680	740	570	630	670	730	455	510	540	590
K3	580	640	690	740	510	570	610	660	485	540	570	620	480	530	570	620	385	430	460	500
K4	550	610	650	710	485	540	580	630	460	510	550	590	455	510	540	590	370	410	440	475
K5	335	375	400	435	300	330	355	385	280	315	335	365	285	315	340	365	225	250	270	290
K6	485	540	580	620	430	480	510	550	405	455	485	520	405	450	480	520	325	365	385	420
K7	430	480	510	550	380	425	455	490	360	405	430	465	365	405	430	470	290	320	345	370
N1	—	—	—	—	2475	2750	2925	3175	2325	2600	2775	3025	—	—	—	—	1875	2075	2225	2400
N2	—	—	—	—	2000	2225	2375	2575	1875	2100	2250	2425	—	—	—	—	1500	1675	1800	1950
N3	—	—	—	—	1325	1475	1575	1725	1250	1400	1500	1625	—	—	—	—	1000	1125	1200	1300
N11	—	—	—	—	1525	1700	1800	1950	1425	1600	1700	1850	—	—	—	—	1150	1275	1375	1475
S1	—	—	—	—	160	180	195	210	155	170	180	195	155	175	185	200	130	145	155	170
S2	—	—	—	—	130	145	155	165	125	135	145	160	125	140	150	160	105	120	125	135
S3	—	—	—	—	115	125	135	145	110	120	130	140	110	125	130	145	95	105	110	120
S11	—	—	—	—	225	250	265	290	210	235	250	270	215	240	260	280	180	205	215	235
S12	—	—	—	—	130	145	155	165	120	135	145	155	125	140	150	160	105	115	125	135
S13	—	—	—	—	105	115	125	135	100	110	115	125	100	115	120	130	85	95	100	110
H5	165	185	195	210	130	145	155	170	130	145	155	165	135	150	160	175	110	125	130	140
H8	175	195	205	225	140	155	165	180	135	155	165	175	145	165	175	190	115	130	140	150
H11	210	235	250	270	170	185	200	215	165	185	195	210	170	190	205	220	140	155	165	180
H12	315	350	375	405	255	285	300	325	245	275	295	320	260	290	310	335	210	235	250	270
H21	175	195	205	225	140	155	165	180	135	155	165	175	145	165	175	190	115	130	140	150

R217.79-10 – Cutting data v_c = (sf/min)

	MK1500				MK2050				MS2050				MS2500				H15			
SMG	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%
P1	—	—	—	—	870	970	1025	1125	870	950	990	1050	960	1075	1150	1250	—	—	—	—
P2	—	—	—	—	840	940	1000	1100	850	930	970	1025	940	1050	1100	1200	—	—	—	—
P3	—	—	—	—	740	830	890	960	730	800	830	880	820	920	980	1075	—	—	—	—
P4	—	—	—	—	660	730	780	850	640	700	730	770	730	810	860	940	—	—	—	—
P5	—	—	—	—	630	700	740	810	610	670	700	740	690	770	820	890	—	—	—	—
P6	—	—	—	—	700	780	840	910	690	750	780	830	780	870	930	1000	—	—	—	—
P7	—	—	—	—	660	740	790	850	650	710	740	780	730	820	870	950	—	—	—	—
P8	—	—	—	—	630	700	740	810	610	670	700	740	690	770	820	890	—	—	—	—
P11	—	—	—	—	640	720	770	830	630	690	720	760	710	800	850	920	—	—	—	—
M1	—	—	—	—	—	—	—	—	740	810	840	890	670	750	800	860	—	—	—	—
M2	—	—	—	—	—	—	—	—	600	650	680	720	550	620	660	710	—	—	—	—
M3	—	—	—	—	—	—	—	—	440	480	495	520	455	510	540	590	—	—	—	—
M4	—	—	—	—	—	—	—	—	300	330	340	355	360	405	430	465	—	—	—	—
M5	—	—	—	—	—	—	—	—	250	275	285	295	300	335	360	385	—	—	—	—
K1	960	1075	1150	1250	910	1025	1075	1175	860	930	970	1025	740	830	880	960	—	—	—	—
K2	850	950	1025	1100	810	900	960	1050	740	810	840	890	660	730	780	850	—	—	—	—
K3	720	810	860	930	680	760	810	880	630	680	710	750	560	620	660	720	—	—	—	—
K4	690	770	820	890	650	730	780	840	600	650	680	720	530	590	630	690	—	—	—	—
K5	420	470	500	540	400	445	475	510	350	385	400	420	325	360	385	420	—	—	—	—
K6	610	680	720	780	580	640	680	740	530	580	600	630	470	520	560	600	—	—	—	—
K7	540	600	640	700	510	570	610	660	450	490	510	540	415	465	495	540	—	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2125	2375	2525	2725
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1725	1900	2025	2200
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1150	1275	1350	1475
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1300	1450	1550	1675
S1	—	—	—	—	—	—	—	—	165	175	185	195	175	195	210	225	—	—	—	—
S2	—	—	—	—	—	—	—	—	130	140	150	160	140	160	170	180	—	—	—	—
S3	—	—	—	—	—	—	—	—	115	120	130	135	125	140	150	160	—	—	—	—
S11	—	—	—	—	—	—	—	—	210	230	240	255	245	270	290	315	—	—	—	—
S12	—	—	—	—	—	—	—	—	165	175	185	195	140	155	165	180	—	—	—	—
S13	—	—	—	—	—	—	—	—	140	150	160	170	115	125	135	145	—	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	145	160	170	185	—	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	150	170	180	195	—	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	180	205	215	235	—	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	275	305	325	355	—	—	—	—
H21	—	—	—	—	—	—	—	—	—	—	—	—	150	170	180	195	—	—	—	—

Plunging cutter R217/220.79-X0

- For insert selection and cutting data recommendations, see pages 245-246.
- For complete insert program, see page 596.



EDP No.	Part No.	Dimensions in inch										lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	D_{5m}	l_1	l_2	l_p	l_c	M	a_p*					
07257	R217.79 -01.00-3-XO12-2A	1.00	0.75	–	6.86	7.87	5.91	6.69	–	0.276	2	1.1	Cyl/Weldon	20800	XO..12
07258	-01.25-3-XO12-3A	1.25	1.00	–	6.73	7.87	5.67	6.69	–	0.276	3	1.8	Cyl/Weldon	18400	XO..12
07259	-01.50-3-XO12-4A	1.50	1.25	–	6.73	7.87	5.51	6.69	–	0.276	4	5.7	Cyl/Weldon	16400	XO..12
08812	R217.79 -01.00-10RE-XO12-2AN	1.00	–	0.73	1.57	–	–	–	M10	0.276	2	0.2	Combimaster**	20800	XO..12
08813	-01.25-12RE-XO12-3AN	1.25	–	0.91	1.57	–	–	–	M12	0.276	3	0.4	Combimaster**	18400	XO..12
08815	-01.50-16RE-XO12-3AN	1.50	–	1.18	1.57	–	–	–	M16	0.276	3	0.7	Combimaster**	16400	XO..12
06011	-01.50-20RE-XO12-3A	1.50	–	1.44	1.57	–	–	–	M20	0.276	3	0.9	Combimaster**	16400	XO..12
06054	-01.50-20RE-XO12-4A	1.50	–	1.44	1.57	–	–	–	M20	0.276	4	0.9	Combimaster**	16400	XO..12
07260	R220.79 -02.00-XO12-4A	2.00	0.50	1.38	1.50	–	–	–	–	0.276	4	0.9	Shell mill	9700	XO..12
07261	-02.50-XO12-5A	2.50	0.75	1.85	2.00	–	–	–	–	0.276	5	1.3	Shell mill	8600	XO..12

* a_p max of .060" on up-copying.

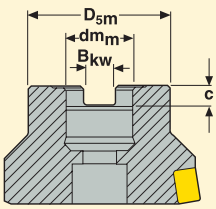
** For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.79-..	–	T10P-3	C03507-T10P
R220.79-02.00	UC6S1/4UNFX1SHCS	T10P-2D	C03509-T10P
R220.79-02.50	R220.79-02.00-XO12-4A	T10P-2D	C03509-T10P

Insert screw torque value 17.7 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.79-02.00	0.50	1.38	0.26	0.16
R220.79-02.50	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R217.79-XO12– Insert selection

SMG		f_z	a_{so}			
			100%	70%	50%	30%
P1	XOMX120408TR-ME08 F40M	0.0055	0.20	0.20	0.20	0.24
P2	XOMX120408TR-ME08 F40M	0.0055	0.20	0.20	0.20	0.24
P3	XOMX120408TR-ME08 MP2500	0.0055	0.20	0.20	0.20	0.24
P4	XOMX120408TR-ME08 MP2500	0.0050	0.20	0.20	0.20	0.24
P5	XOMX120408TR-ME08 MP2500	0.0050	0.20	0.20	0.20	0.24
P6	XOMX120408TR-ME08 MP2500	0.0050	0.20	0.20	0.20	0.24
P7	XOMX120408TR-M12 MP2500	0.0060	0.20	0.20	0.20	0.24
P8	XOMX120408TR-M12 MP2500	0.0065	0.20	0.20	0.20	0.24
P11	XOMX120408TR-M12 MP2500	0.0060	0.20	0.20	0.20	0.24
M1	XOMX120408TR-ME08 MP2500	0.0055	0.20	0.20	0.20	0.24
M2	XOMX120408TR-ME08 MP2500	0.0050	0.20	0.20	0.20	0.24
M3	XOMX120408TR-ME08 MP2500	0.0040	0.16	0.16	0.16	0.18
M4	XOEX120408R-M07 T350M	0.0030	0.12	0.12	0.12	0.14
M5	XOEX120408R-M07 T350M	0.0030	0.12	0.12	0.12	0.14
K1	XOMX120408TR-M12 MK1500	0.0065	0.20	0.20	0.20	0.24
K2	XOMX120408TR-M12 MK1500	0.0065	0.20	0.20	0.20	0.24
K3	XOMX120408TR-M12 MK1500	0.0065	0.20	0.20	0.20	0.24
K4	XOMX120408TR-M12 MK1500	0.0065	0.20	0.20	0.20	0.24
K5	XOMX120408TR-M12 MK1500	0.0055	0.20	0.20	0.20	0.24
K6	XOMX120408TR-M12 MK1500	0.0065	0.20	0.20	0.20	0.24
K7	XOMX120408TR-M12 MP1500	0.0055	0.20	0.20	0.20	0.24
N1	XOEX120408FR-E06 F15M	0.0050	0.20	0.20	0.20	0.24
N2	XOEX120408FR-E06 F40M	0.0050	0.20	0.20	0.20	0.24
N3	XOEX120408FR-E06 F40M	0.0050	0.20	0.20	0.20	0.24
N11	XOEX120408FR-E06 F40M	0.0050	0.20	0.20	0.20	0.24
S1	XOEX120408R-M07 T350M	0.0030	0.12	0.12	0.12	0.14
S2	XOEX120408R-M07 T350M	0.0030	0.12	0.12	0.12	0.14
S3	XOEX120408R-M07 F40M	0.0028	0.12	0.12	0.12	0.14
S11	XOEX120408R-M07 MS2050	0.0030	0.14	0.14	0.14	0.16
S12	XOEX120408R-M07 MS2050	0.0030	0.14	0.14	0.14	0.16
S13	XOEX120408R-M07 MS2050	0.0026	0.12	0.12	0.12	0.14
H5	XOMX120408TR-D14 MP1500	0.0048	0.16	0.16	0.16	0.18
H8	XOMX120408TR-D14 MP1500	0.0038	0.14	0.14	0.14	0.16
H11	XOMX120408TR-D14 MP1500	0.0048	0.16	0.16	0.16	0.18
H12	XOMX120408TR-D14 MP1500	0.0048	0.16	0.16	0.16	0.18
H21	XOMX120408TR-D14 MP1500	0.0038	0.14	0.14	0.14	0.16

SMG = Seco Material Group
f_z = in/tooth
a_{so} = step over
v_c= sf/min
a_e/D_c = %
All cutting data are start values

R217.79-XO12 – Cutting data v_c = (sf/min)

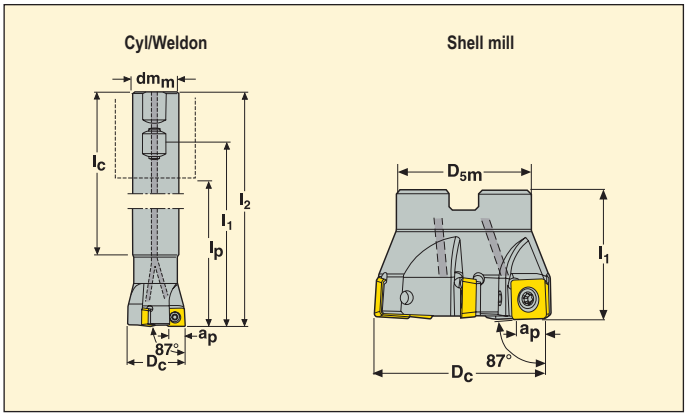
	MP1500				MP2500				MP3000				T350M				F40M			
SMG	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%
P1	860	960	1025	1100	760	850	900	970	720	800	850	920	820	910	970	1050	700	790	840	900
P2	830	930	990	1075	740	830	880	950	700	780	830	900	790	890	940	1025	680	760	810	880
P3	730	820	870	940	650	720	770	830	610	690	730	790	680	760	810	880	590	660	700	760
P4	640	720	770	830	570	640	680	730	540	600	640	690	600	670	720	770	530	590	630	680
P5	620	690	730	790	550	610	650	700	520	580	610	660	590	660	700	760	510	570	600	650
P6	710	790	840	910	630	700	740	800	590	660	700	760	660	740	790	850	570	640	680	730
P7	670	740	790	860	590	660	700	760	560	620	660	720	630	700	740	800	540	600	640	690
P8	620	690	730	790	550	610	650	700	520	580	610	660	570	640	680	740	495	550	590	630
P11	650	720	770	830	570	640	680	740	540	610	650	700	610	680	720	780	520	580	620	670
M1	—	—	—	—	530	590	630	680	520	580	620	670	610	680	730	790	550	620	660	710
M2	—	—	—	—	440	490	520	560	430	480	510	550	510	570	600	650	455	510	540	590
M3	—	—	—	—	360	405	430	465	355	395	425	460	410	460	490	530	380	425	450	485
M4	—	—	—	—	290	325	345	375	285	320	340	370	325	360	385	415	275	305	325	350
M5	—	—	—	—	240	270	290	310	240	265	285	305	270	300	320	345	225	255	270	290
K1	660	740	790	850	590	650	700	750	550	620	660	710	630	700	750	810	540	610	640	700
K2	580	650	690	750	520	580	620	660	490	550	580	630	560	630	670	720	480	540	570	620
K3	495	550	590	630	440	490	520	560	415	465	495	530	475	530	560	610	405	455	485	520
K4	470	530	560	610	420	465	495	540	395	440	470	510	455	510	540	580	390	435	460	500
K5	295	330	350	375	260	290	310	335	245	275	295	315	275	305	325	350	235	265	280	305
K6	415	465	495	530	370	410	440	475	350	390	415	450	400	445	475	510	340	385	405	440
K7	375	420	445	480	335	370	395	425	315	350	375	405	350	390	415	450	305	340	360	390
N1	—	—	—	—	2125	2375	2525	2725	2000	2250	2375	2575	—	—	—	—	1975	2200	2350	2525
N2	—	—	—	—	1700	1900	2025	2200	1625	1800	1925	2075	—	—	—	—	1600	1775	1900	2050
N3	—	—	—	—	1150	1275	1350	1475	1075	1200	1275	1400	—	—	—	—	1050	1175	1250	1375
N11	—	—	—	—	1300	1450	1550	1675	1225	1375	1475	1575	—	—	—	—	1225	1350	1450	1550
S1	—	—	—	—	140	160	170	180	135	150	160	170	150	170	180	195	125	140	150	165
S2	—	—	—	—	115	125	135	145	105	120	130	140	120	135	145	155	105	115	120	130
S3	—	—	—	—	100	115	120	130	95	105	115	125	105	120	125	135	90	100	105	115
S11	—	—	—	—	190	215	230	250	180	200	215	235	210	235	250	270	190	215	230	245
S12	—	—	—	—	110	125	130	145	105	115	125	135	120	135	145	155	110	125	130	145
S13	—	—	—	—	90	100	110	120	85	95	100	110	100	110	115	125	80	90	100	105
H5	140	160	170	180	115	125	135	145	110	125	130	145	135	150	160	170	115	130	135	150
H8	155	175	185	200	125	140	150	160	120	135	145	155	140	160	170	185	125	140	145	160
H11	180	200	215	230	145	160	170	185	140	160	170	180	170	190	200	220	145	165	175	190
H12	270	305	325	350	220	245	260	280	215	240	255	275	255	285	305	330	220	245	260	285
H21	155	175	185	200	125	140	150	160	120	135	145	155	140	160	170	185	125	140	145	160

R217.79-XO12 – Cutting data v_c = (sf/min)

	MK1500				MK2050				MS2050				MS2500				H15			
SMG	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%
P1	—	—	—	—	750	830	890	960	870	950	1000	1050	1025	1150	1225	1300	—	—	—	—
P2	—	—	—	—	730	810	870	930	850	930	970	1025	990	1100	1175	1275	—	—	—	—
P3	—	—	—	—	640	710	760	820	740	800	840	890	860	960	1025	1100	—	—	—	—
P4	—	—	—	—	560	630	670	720	650	710	740	780	750	840	900	970	—	—	—	—
P5	—	—	—	—	540	600	640	690	620	680	710	750	740	830	880	950	—	—	—	—
P6	—	—	—	—	620	690	730	790	700	760	800	840	830	930	990	1075	—	—	—	—
P7	—	—	—	—	580	650	690	750	660	720	750	800	780	880	930	1000	—	—	—	—
P8	—	—	—	—	540	600	640	690	620	670	710	750	720	800	860	920	—	—	—	—
P11	—	—	—	—	560	630	670	720	640	700	730	770	760	850	910	980	—	—	—	—
M1	—	—	—	—	—	—	—	—	740	810	850	900	710	800	850	910	—	—	—	—
M2	—	—	—	—	—	—	—	—	610	660	690	730	590	660	700	760	—	—	—	—
M3	—	—	—	—	—	—	—	—	465	500	530	550	475	530	570	610	—	—	—	—
M4	—	—	—	—	—	—	—	—	335	365	380	395	375	420	450	485	—	—	—	—
M5	—	—	—	—	—	—	—	—	280	305	315	330	315	350	375	405	—	—	—	—
K1	830	930	990	1075	790	880	930	1000	860	930	980	1025	790	880	940	1000	—	—	—	—
K2	730	820	870	940	690	780	830	890	750	820	860	910	700	780	830	900	—	—	—	—
K3	620	690	740	800	590	660	700	750	640	700	730	770	590	660	710	760	—	—	—	—
K4	590	660	700	760	560	630	670	720	610	660	690	730	570	630	670	730	—	—	—	—
K5	370	410	440	475	350	390	415	445	365	395	415	435	345	385	405	440	—	—	—	—
K6	520	580	620	670	495	550	590	630	540	580	610	650	500	560	590	640	—	—	—	—
K7	470	530	560	600	445	500	530	570	465	510	530	560	440	490	520	560	—	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2050	2300	2425	2625
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1650	1850	1975	2125
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1100	1225	1300	1425
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1250	1400	1500	1625
S1	—	—	—	—	—	—	—	—	150	160	170	180	185	205	220	235	—	—	—	—
S2	—	—	—	—	—	—	—	—	120	130	140	145	150	165	175	190	—	—	—	—
S3	—	—	—	—	—	—	—	—	110	115	125	130	130	145	155	165	—	—	—	—
S11	—	—	—	—	—	—	—	—	195	210	220	235	255	285	305	330	—	—	—	—
S12	—	—	—	—	—	—	—	—	150	160	170	185	145	165	175	190	—	—	—	—
S13	—	—	—	—	—	—	—	—	130	140	145	155	120	135	140	155	—	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	150	170	180	195	—	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	160	180	190	205	—	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	190	215	225	245	—	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	290	325	345	370	—	—	—	—
H21	—	—	—	—	—	—	—	—	—	—	—	—	160	180	190	205	—	—	—	—

Plunging cutter R217/R220.79-12

- For insert selection and cutting data recommendations, see pages 248-249.
- For complete insert program, see page 574.



EDP No.	Part No.	Dimensions in inch								lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_1	l_2	l_p	l_c	a_p					
57587	R217.79 -01.25-3-12A	1.25	1.00	7.87	7.87	5.67	5.91	0.433	2	2.0	Cyl/Weldon	12100	SC..12*
57588	-01.50-3-12A	1.50	1.25	6.76	7.87	5.51	5.91	0.433	3	2.9	Cyl/Weldon	10800	SC..12*
07838	R220.79 -02.00-12A	2.00	0.75	1.50	–	–	–	0.433	4	0.9	Shell mill	9700	SC..12*
07839	-02.50-12A	2.50	0.75	1.50	–	–	–	0.433	5	1.3	Shell mill	8600	SC..12*
07840	-03.00-12A	3.00	1.00	2.00	–	–	–	0.433	6	2.6	Shell mill	7600	SC..12*
07841	-04.00-12A	4.00	1.50	2.00	–	–	–	0.433	7	5.3	Shell mill	7000	SC..12*

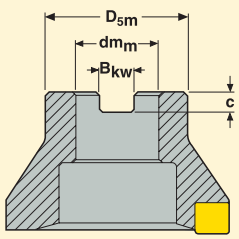
* If inserts with a corner radius larger than 0.118" are used the cutter body must be modified.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.79-01.25 / 01.50	–	T20P-4	C45011-T20P
R220.79-02.00 / 02.50	UC6S3/8UNFX1	T20P-4	C45011-T20P
R220.79-03.00 / 04.00	UC6S1/2UNFX1-1/4	T20P-4	C45011-T20P

Insert screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.79-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.79-03.00	1.00	2.44	0.38	0.22
R220.79-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217.79-12– Insert selection

SMG		f_z	a_{so}			
			100%	70%	50%	30%
P1	SCET120612T-M11 F40M	0.0065	0.32	0.32	0.32	0.36
P2	SCET120612T-M11 F40M	0.0065	0.32	0.32	0.32	0.36
P3	SCET120612T-M11 F40M	0.0060	0.32	0.32	0.32	0.36
P4	SCET120612T-M11 MP2500	0.0060	0.32	0.32	0.32	0.36
P5	SCET120612T-M11 MP2500	0.0060	0.32	0.32	0.32	0.36
P6	SCET120612T-M11 MP2500	0.0055	0.32	0.32	0.32	0.36
P7	SCET120612T-M11 MP2500	0.0055	0.32	0.32	0.32	0.36
P8	SCET120612T-M11 MP2500	0.0060	0.32	0.32	0.32	0.36
P11	SCET120612T-M11 MP2500	0.0055	0.32	0.32	0.32	0.36
M1	SCET120612T-M14 T350M	0.0080	0.32	0.32	0.32	0.36
M2	SCET120612T-M14 T350M	0.0075	0.32	0.32	0.32	0.36
M3	SCET120612T-M14 T350M	0.0060	0.24	0.24	0.24	0.28
M4	SCET120612T-M14 T350M	0.0050	0.18	0.18	0.18	0.20
M5	SCET120612T-M14 T350M	0.0050	0.18	0.18	0.18	0.20
K1	SCET120612T-M14 MK1500	0.0080	0.32	0.32	0.32	0.36
K2	SCET120612T-M14 MK1500	0.0075	0.32	0.32	0.32	0.36
K3	SCET120612T-M14 MK1500	0.0075	0.32	0.32	0.32	0.36
K4	SCET120612T-M14 MK1500	0.0075	0.32	0.32	0.32	0.36
K5	SCET120612T-M14 MK1500	0.0065	0.32	0.32	0.32	0.36
K6	SCET120612T-M14 MK1500	0.0075	0.32	0.32	0.32	0.36
K7	SCET120612T-MD15 MP1500	0.0070	0.32	0.32	0.32	0.36
N1	SCET120612T-M11 F40M	0.0080	0.32	0.32	0.32	0.36
N2	SCET120612T-M11 F40M	0.0080	0.32	0.32	0.32	0.36
N3	SCET120612T-M11 F40M	0.0080	0.32	0.32	0.32	0.36
N11	SCET120612T-M11 F40M	0.0080	0.32	0.32	0.32	0.36
S1	SCET120612T-M14 T350M	0.0050	0.18	0.18	0.18	0.20
S2	SCET120612T-M14 T350M	0.0050	0.18	0.18	0.18	0.20
S3	SCET120612T-M14 T350M	0.0048	0.18	0.18	0.18	0.20
S11	SCET120612T-M14 F40M	0.0060	0.20	0.20	0.20	0.24
S12	SCET120612T-M14 F40M	0.0060	0.20	0.20	0.20	0.24
S13	SCET120612T-M14 F40M	0.0050	0.18	0.18	0.18	0.20
H5	SCET120612T-MD15 MP1500	0.0055	0.24	0.24	0.24	0.28
H8	SCET120612T-MD15 MP1500	0.0044	0.20	0.20	0.20	0.24
H11	SCET120612T-MD15 MP1500	0.0055	0.24	0.24	0.24	0.28
H12	SCET120612T-MD15 MP1500	0.0055	0.24	0.24	0.24	0.28
H21	SCET120612T-MD15 MP1500	0.0044	0.20	0.20	0.20	0.24

SMG = Seco Material Group
f_z = in/tooth
a_{so} = step over
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R217.79-12 – Cutting data v_c = (sf/min)

	MP1500				MP2500				T350M				F40M				MK1500			
SMG	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%	100%	70%	50%	30%
P1	920	1025	1100	1175	810	910	960	1050	660	740	780	850	570	640	680	740	—	—	—	—
P2	890	1000	1050	1150	790	880	940	1025	640	720	760	830	560	620	660	720	—	—	—	—
P3	780	880	930	1000	690	780	830	890	560	630	670	720	490	550	580	630	—	—	—	—
P4	690	770	820	890	610	680	730	790	495	550	590	640	430	480	510	550	—	—	—	—
P5	660	740	780	850	580	650	690	750	475	530	560	610	410	460	490	530	—	—	—	—
P6	760	850	900	970	670	750	800	860	540	600	640	700	470	530	560	610	—	—	—	—
P7	710	800	850	920	630	710	750	810	510	570	610	660	445	495	530	570	—	—	—	—
P8	660	740	780	850	580	650	690	750	475	530	560	610	410	460	490	530	—	—	—	—
P11	690	770	820	890	610	690	730	790	495	550	590	640	430	480	510	560	—	—	—	—
M1	—	—	—	—	570	640	680	730	495	550	590	640	450	500	540	580	—	—	—	—
M2	—	—	—	—	470	520	560	600	405	455	485	520	370	415	440	475	—	—	—	—
M3	—	—	—	—	390	435	465	500	340	380	405	440	310	345	370	400	—	—	—	—
M4	—	—	—	—	315	350	370	405	270	305	325	350	245	275	295	320	—	—	—	—
M5	—	—	—	—	260	290	310	335	225	255	270	295	205	230	245	265	—	—	—	—
K1	710	790	840	910	630	700	740	810	510	570	600	660	440	495	530	570	830	920	980	1075
K2	630	700	740	810	550	620	660	710	450	500	530	580	390	435	465	500	730	810	870	940
K3	530	590	630	680	470	520	560	600	380	425	450	490	330	370	395	425	620	690	730	800
K4	510	560	600	650	445	500	530	580	360	405	430	465	315	350	375	405	590	660	700	760
K5	315	350	375	405	280	310	330	360	225	250	265	290	195	220	230	250	365	405	435	470
K6	445	495	530	570	395	440	470	510	320	355	380	410	280	310	330	360	520	580	620	670
K7	405	450	480	520	355	400	425	460	285	320	340	370	250	280	295	320	465	520	550	600
N1	—	—	—	—	2300	2550	2725	2950	—	—	—	—	1600	1775	1900	2050	—	—	—	—
N2	—	—	—	—	1850	2075	2200	2375	—	—	—	—	1275	1425	1525	1650	—	—	—	—
N3	—	—	—	—	1225	1375	1475	1600	—	—	—	—	860	960	1025	1100	—	—	—	—
N11	—	—	—	—	1400	1575	1675	1825	—	—	—	—	980	1100	1175	1275	—	—	—	—
S1	—	—	—	—	150	170	180	195	125	140	150	165	115	130	135	150	—	—	—	—
S2	—	—	—	—	125	135	145	160	100	115	120	130	95	105	110	120	—	—	—	—
S3	—	—	—	—	105	120	130	140	90	100	105	115	80	90	100	105	—	—	—	—
S11	—	—	—	—	205	230	245	265	175	195	205	225	160	175	190	205	—	—	—	—
S12	—	—	—	—	120	135	140	155	100	110	120	130	90	100	110	115	—	—	—	—
S13	—	—	—	—	100	110	115	125	80	90	95	105	75	85	90	95	—	—	—	—
H5	155	170	180	195	125	135	145	160	110	120	130	140	95	105	115	125	—	—	—	—
H8	165	185	200	215	135	150	160	170	120	135	140	155	105	115	125	135	—	—	—	—
H11	195	215	230	250	155	175	185	200	140	155	165	180	120	135	145	155	—	—	—	—
H12	295	330	350	375	235	265	280	305	210	235	250	270	185	205	220	235	—	—	—	—
H21	165	185	200	215	135	150	160	170	120	135	140	155	105	115	125	135	—	—	—	—

Ball nose cutters for copy milling - Selection Table

Cutter	Insert	Material suitability						Corner radius (inch)				No. of cutting edges	Cutter diameter available (inch)/max depth of cut							Pages
		P	M	K	N	S	H						0.50	0.625	0.75	1.00	1.25	1.50	2.00	
R218.20	218.20-0.250	■	■	–	◩	■	◩	0.250	■	◩	◩	2	0.433							275-276
	218.20-080	■	■	–	◩	■	◩	0.315	■	◩	◩	2		0.551						
	218.20-0.375	■	■	■	◩	■	◩	0.375	■	◩	◩	2			0.669					
	218.20-125	■	■	■	◩	■	◩	0.492	■	■	◩	2				0.866				
	218.20-160	■	■	■	◩	■	◩	0.630	◩	■	◩	2					1.102			
	218.20-0.750	■	■	–	◩	■	◩	0.750	◩	■	◩	2						1.339		
R218.20 long cutting edge	218.20-160 / SPMT10	■	■	■	◩	■	◩	0.630	◩	■	◩	2/4					2.126			
	218.20-0.750 / SC..12	■	■	■	◩	■	–	0.750	□	■	◩	2/4						2.362		
	218.20-250 / SC..12	■	■	■	◩	■	–	0.984	□	■	◩	2/4							2.756	

1st choice	■
Alternative choice	◩
Possible choice	□
Not recommended	–

High speed machine with low Power/torque	
Strong stable machine with rigid connection	
Unstable condition suitability	

x indicates the maximum depth of cut	x

Ball nose cutters for copy milling - Selection Table

Cutter	Insert	Material suitability						Corner radius (inch)				No. of cutting edges	Cutter diameter available (inch) / max depth of cut				Pages
		P	M	K	N	S	H						0.625	0.75	1.00	1.25	
R218.19	**218.19-080/SPMX06** 	■	◩	■	◩	■	◩	0.315	■	◩	■	3/4	0.685				255-258
	218.19-100/SPMX07 	■	◩	■	◩	■	◩	0.394	■	■	■	3/4		0.835 1.051			
	218.19-125/SPMX09 	■	■	■	◩	■	◩	0.492	■	■	■	3/4			1.063 1.575		
	218.19-160/SPMT10 	■	◩	■	◩	■	◩	0.630	◩	■	■	3/4				1.515	

1st choice	■
Alternative choice	◩
Possible choice	□
Not recommended	–

High speed machine with low Power / Torque	
Strong stable machine with rigid connection	
Unstable condition suitability	

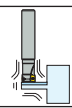
x indicates the maximum depth of cut	x

Round insert cutters

Insert	a_p max	a_p rec	Material suitability									
			P	M	K	N	S	H				
Round 6 	0.118	0.039	■	■	■	■	◩	■	■	◩	■	□
Round 8 	0.157	0.059	■	■	■	■	■	■	■	◩	■	◩
Round 10 	0.197	0.079	■	■	■	■	■	■	■	■	■	◩
Round 12 	0.236	0.118	■	■	■	■	■	■	□	■	■	◩
Round 16 	0.315	0.197	■	■	■	–	■	◩	–	■	■	◩
Round 20 	0.394	0.236	■	■	■	–	■	□	–	■	■	◩

1st choice	■
Alternative choice	◩
Possible choice	□
Not recommended	–

High speed machine with low Power/torque	
Strong stable machine with rigid connection	
a_p max	Max depth of cut

Unstable condition suitability	
Ramping ability	
Plunging ability	

Round insert cutters

Insert	Applica-tion	Cutter diameter available (inch) / number of teeth										Page
		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	
Round 6		4	5	6								304
Round 8		3	4									307
Round 10			2			4						310-311
			3	4	5	6						
Round 12					3	4		6	7	7	8	314-316
							6	7				
			2	3	4	5	7		9			
Round 16									6	6	7	319
						4	5	6				
Round 20								4	5			322
						3	4					

x — x indicates number of teeth (first choice)

x — x indicates number of teeth

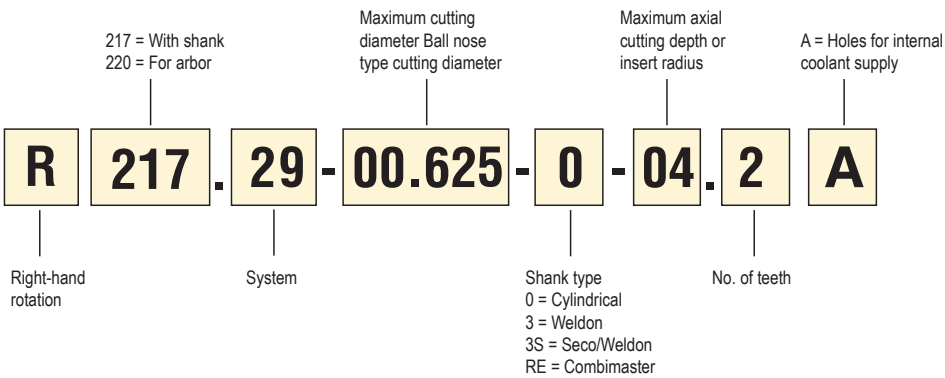
Troubleshooter for unstable conditions & long overhang

First choice

Productivity (ideal in steel and cast irons)

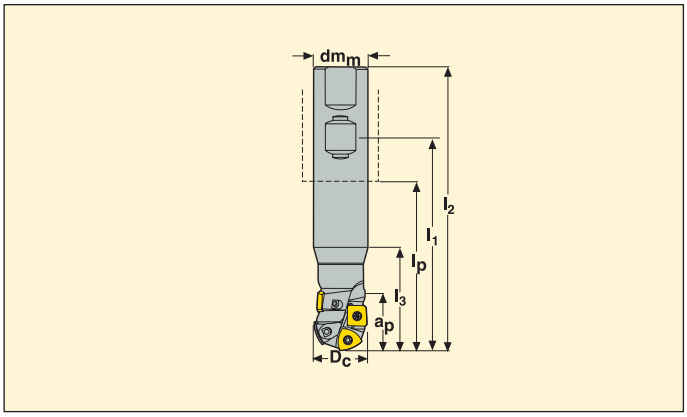
Code key

There is no ISO system available for cutters.
Parts of the code key vary for different cutter systems.



R218.19-.625/.750

90° ball nose cutters Ø 0.625" - 0.750"

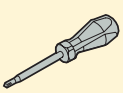


- For insert selection and cutting data recommendations, see pages 259-265.
- For complete insert program, see pages 590, 600, 613.

EDP No.	Part No.	Dimensions in inch								Zc*	lbs	Type of mounting	Max rpm	() = No of inserts	
		Dc	dmm	l1	l2	l3	lp	lc	ap					218.19	SPMX
87572	R218.19 -00.625-3-17M	0.62	0.62	2.95	3.91	1.59	1.97	2.30	0.685	1	0.4	Cyl/Weldon	41600	080 (2)	0602 (2)
87573	-00.750-3-21M	0.75	0.75	3.01	4.03	1.43	2.05	2.58	0.835	1	0.7	Cyl/Weldon	26200	100 (2)	0703 (2)
87574	-00.750-3F-27M	0.75	1.00	4.89	6.03	1.71	3.82	3.83	1.051	1	1.1	3 Flat Weldon	26200	100 (2)	0703 (2)

* Effective number of teeth.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R218.19-00.625	T07P-3	C02205-T07P
R218.19-00.750	T07P-3	C02506-T07P

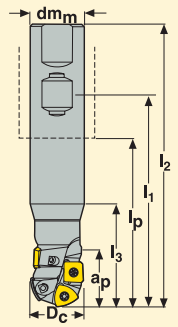
Please check availability in current price and stock-list.

Insert screw torque value 8.0 in/lbs.
Torque keys available, see page 643.

R218.19-1.00/1.25

90° ball nose cutters Ø 1.00" - 1.25"

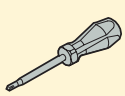
- For insert selection and cutting data recommendations, see pages 266-271.
- For complete insert program, see pages 590, 600.



EDP No.	Part No.	Dimensions in inch							Z_c*	lbs	Type of mounting	Max rpm	() = No of inserts		
		D_c	dm_m	l_1	l_2	l_3	l_p	a_p					218.19	SPMX	SPMT
87575	R218.19 -01.00-3-26H	1.00	1.00	3.89	5.03	2.17	2.83	1.063	1	1.1	Cyl/Weldon	21700	125 (2)	0903 (2)	–
87576	-01.00-3F-39H	1.00	1.25	5.14	6.28	2.26	3.94	1.575	1	2.0	3 Flat Weldon	21700	125 (2)	0903 (4)	–
87579	-01.25-3-36H	1.25	1.25	4.86	6.03	3.18	3.66	1.515	1	2.0	Cyl/Weldon	14800	160 (2)	–	1004 (3)

* Effective number of teeth.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw	Torque value in/lbs
			
Dia 01.00	T09P-3	C03006-T09P	17.7
Dia 01.25	T15P-3	C03509-T15P	26.5

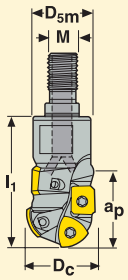
Please check availability in current price and stock-list.

Torque keys available, see page 643.

R218.19-1.00/1.25

90° ball nose cutters Ø 1.00" - 1.25"

- For insert selection and cutting data recommendations, see pages 266-271.
- For complete insert program, see pages 590, 600.

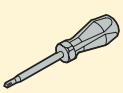


EDP No.	Part No.	Dimensions in inch					Zc*	lbs	Type of mounting	Max rpm	() = No of inserts	
		Dc	D5m	l1	M	ap					218.19	SPMX
87582	R218.19 -01.00-12RE-26HA	1.00	0.83	1.75	M12	1.063	1	0.2	Combimaster**	21700	125 (2)	0903 (2)
87583	-01.00-12RE-14HFA	1.00	0.83	1.60	M12	0.500	1	0.2	Combimaster**	21700	125 (3)	–
87585	-01.25-16RE-18HFA	1.25	1.10	1.60	M16	0.625	1	0.7	Combimaster**	14800	160 (3)	–

** For Combimaster holders and adapters, see page 534.

* Effective number of teeth.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw	Torque value in/lbs
			
Dia 01.00	T09P-3	C03006-T09P	17.7
Dia 01.25	T15P-3	C03508-T15P	26.5

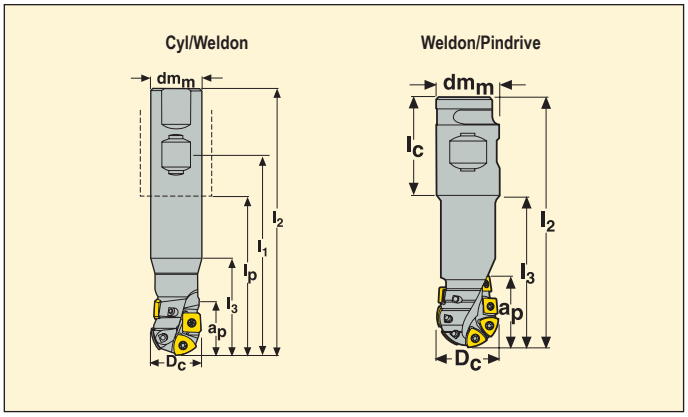
Please check availability in current price and stock-list.

Torque keys available, see page 643.

R218.19-1.50/2.00

90° ball nose cutters Ø 1.50" - 2.00"

- For insert selection and cutting data recommendations, see pages 272-274.
- For complete insert program, see pages 574, 600.



EDP No.	Part No.	Dimensions in inch								Z_c*	lbs	Type of mounting	Max rpm	() = No of inserts	
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p					218.19	SCE.
54824	R218.19 -01.50-3-47H	1.50	1.50	5.31	6.50	3.65	3.74	2.82	1.850	1	2.4	Cyl/Weldon	10400	200 (2)	12 (3)
87758	R218.19 -01.50-3P-56HL	1.50	2.00	6.28	8.00	4.19	4.72	3.24	2.205	1	4.9	Weldon/Pindrive	10400	200 (2)	12 (4)
87600	-02.00-3P-70HDS	2.00	2.00	6.03	7.75	4.48	4.60	3.25	2.752	1	5.7	Weldon/Pindrive	7000	250 (2)	12 (6)

* Effective number of teeth

Spare Parts, included in delivery.

For cutter	Floating wedge clamp	Insert key	Insert screw	Insert screw center	Insert screw periph
	–				
Dia 1.50-H/HL	–	T20P-7	C45011-T20P	–	–
Dia 2.00-HDS	179.10-638	T20P-4	–	C06013-T20P	C45011-T20P

Please check availability in current price and stock-list.

Torque value 44 in/lbs.
Torque keys available, see page 643.

R218.19-080 – Insert selection – Roughing

SMG			Recommended a_p**	f_z		
				100%	30%	15%
P1	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.28	0.0044	0.0048	0.0060
P2	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.28	0.0044	0.0048	0.0060
P3	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
P4	218.19-080T-MD04 MP2500	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
P5	218.19-080T-MD04 MP2500	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
P6	218.19-080T-MD04 MP2500	SPMX060204-75 F40M	0.28	0.0038	0.0044	0.0055
P7	218.19-080T-MD04 MP2500	SPMX060204-75 F40M	0.28	0.0038	0.0044	0.0055
P8	218.19-080T-MD04 MP2500	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
P11	218.19-080T-MD04 MP2500	SPMX060204-75 F40M	0.28	0.0038	0.0044	0.0055
M1	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.28	0.0044	0.0048	0.0060
M2	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
M3	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.24	0.0032	0.0034	0.0044
M4	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.18	0.0028	0.0030	0.0038
M5	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.18	0.0028	0.0030	0.0038
K1	218.19-080T-MD04 MS2500	SPMX060204-75 F40M	0.28	0.0044	0.0048	0.0060
K2	218.19-080T-MD04 MS2500	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
K3	218.19-080T-MD04 MS2500	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
K4	218.19-080T-MD04 MS2500	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
K5	218.19-080T-MD04 MS2500	SPMX060204-75 F40M	0.28	0.0036	0.0038	0.0048
K6	218.19-080T-MD04 MS2500	SPMX060204-75 F40M	0.28	0.0040	0.0044	0.0055
K7	218.19-080T-MD04 MS2500	SPMX060204-75 F40M	0.28	0.0036	0.0038	0.0048
N1	218.19-080-E04 H25	SPMX060204-75 F40M	0.28	0.0055	0.0060	0.0075
N2	218.19-080-E04 H25	SPMX060204-75 F40M	0.28	0.0055	0.0060	0.0075
N3	218.19-080-E04 H25	SPMX060204-75 F40M	0.28	0.0055	0.0060	0.0075
N11	218.19-080-E04 H25	SPMX060204-75 F40M	0.28	0.0055	0.0060	0.0075
S1	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.18	0.0028	0.0030	0.0038
S2	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.18	0.0028	0.0030	0.0038
S3	218.19-080T-M04 T350M	SPMX060204-75 F40M	0.18	0.0026	0.0028	0.0036
S11	218.19-080T-M04 F40M	SPMX060204-75 F40M	0.20	0.0032	0.0034	0.0044
S12	218.19-080T-M04 F40M	SPMX060204-75 F40M	0.20	0.0032	0.0034	0.0044
S13	218.19-080T-M04 F40M	SPMX060204-75 F40M	0.18	0.0028	0.0030	0.0038
H5	218.19-080T-MD04 F15M	SPMX060204-75 F40M	0.24	0.0026	0.0030	0.0038
H8	218.19-080T-MD04 F15M	SPMX060204-75 F40M	0.20	0.0020	0.0022	0.0028
H11	218.19-080T-MD04 F15M	SPMX060204-75 F40M	0.24	0.0026	0.0030	0.0038
H12	218.19-080T-MD04 F15M	SPMX060204-75 F40M	0.24	0.0026	0.0030	0.0038
H21	218.19-080T-MD04 F15M	SPMX060204-75 F40M	0.20	0.0020	0.0022	0.0028

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-080 – Insert selection – Semi-finishing

SMG		Recommended a_p**	f_z			
			15%	12%	10%	8%
P1	218.19-080T-M04 F40M	0.28	0.0060	0.0065	0.0070	0.0080
P2	218.19-080T-M04 F40M	0.28	0.0060	0.0065	0.0070	0.0080
P3	218.19-080T-M04 F40M	0.28	0.0055	0.0065	0.0065	0.0075
P4	218.19-080T-MD04 MP2500	0.28	0.0055	0.0065	0.0065	0.0075
P5	218.19-080T-MD04 MP2500	0.28	0.0055	0.0060	0.0065	0.0070
P6	218.19-080T-MD04 MP2500	0.28	0.0055	0.0060	0.0065	0.0070
P7	218.19-080T-MD04 MP2500	0.28	0.0055	0.0060	0.0065	0.0070
P8	218.19-080T-MD04 MP2500	0.28	0.0055	0.0065	0.0065	0.0075
P11	218.19-080T-MD04 MP2500	0.28	0.0055	0.0060	0.0065	0.0070
M1	218.19-080T-M04 F30M	0.28	0.0060	0.0065	0.0070	0.0080
M2	218.19-080T-M04 F30M	0.28	0.0055	0.0060	0.0065	0.0070
M3	218.19-080T-M04 F30M	0.24	0.0044	0.0048	0.0050	0.0060
M4	218.19-080T-M04 F30M	0.18	0.0038	0.0044	0.0048	0.0050
M5	218.19-080T-M04 F30M	0.18	0.0038	0.0044	0.0048	0.0050
K1	218.19-080T-MD04 F25M	0.28	0.0060	0.0065	0.0070	0.0080
K2	218.19-080T-MD04 F25M	0.28	0.0055	0.0060	0.0065	0.0070
K3	218.19-080T-MD04 F25M	0.28	0.0055	0.0060	0.0065	0.0070
K4	218.19-080T-MD04 F25M	0.28	0.0055	0.0060	0.0065	0.0070
K5	218.19-080T-MD04 F25M	0.28	0.0048	0.0055	0.0060	0.0065
K6	218.19-080T-MD04 F25M	0.28	0.0055	0.0060	0.0065	0.0070
K7	218.19-080T-MD04 F25M	0.28	0.0048	0.0055	0.0060	0.0065
N1	218.19-080-E04 H25	0.28	0.0075	0.0085	0.0095	0.010
N2	218.19-080-E04 H25	0.28	0.0075	0.0085	0.0095	0.010
N3	218.19-080-E04 H25	0.28	0.0075	0.0085	0.0095	0.010
N11	218.19-080-E04 H25	0.28	0.0075	0.0085	0.0095	0.010
S1	218.19-080T-M04 F40M	0.18	0.0038	0.0044	0.0048	0.0050
S2	218.19-080T-M04 F40M	0.18	0.0038	0.0044	0.0048	0.0050
S3	218.19-080T-M04 F40M	0.18	0.0036	0.0040	0.0044	0.0048
S11	218.19-080T-M04 F40M	0.20	0.0044	0.0048	0.0050	0.0060
S12	218.19-080T-M04 F40M	0.20	0.0044	0.0048	0.0050	0.0060
S13	218.19-080T-M04 F40M	0.18	0.0038	0.0044	0.0048	0.0050
H5	218.19-080T-MD04 F15M	0.24	0.0038	0.0040	0.0044	0.0048
H8	218.19-080T-MD04 F15M	0.20	0.0028	0.0032	0.0034	0.0038
H11	218.19-080T-MD04 F15M	0.24	0.0038	0.0040	0.0044	0.0048
H12	218.19-080T-MD04 F15M	0.24	0.0038	0.0040	0.0044	0.0048
H21	218.19-080T-MD04 F15M	0.20	0.0028	0.0032	0.0034	0.0038

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-080 – Cutting data v_c = (sf/min)

	MP2500			T350M			F15M			F25M			F40M			MS2500		
SMG	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%
P1	1525	1875	2100	1325	1625	1825	1325	1625	1825	1200	1475	1675	1150	1425	1600	1575	1950	2175
P2	1475	1825	2050	1300	1600	1775	1275	1575	1775	1175	1450	1625	1125	1375	1550	1525	1900	2125
P3	1300	1600	1775	1125	1400	1550	1125	1375	1550	1025	1275	1425	990	1200	1350	1350	1650	1850
P4	1150	1400	1575	1000	1225	1375	990	1225	1350	910	1125	1250	870	1075	1200	1200	1450	1625
P5	1100	1350	1500	960	1175	1300	950	1150	1300	870	1075	1200	830	1025	1150	1125	1400	1550
P6	1250	1500	1675	1075	1325	1475	1075	1300	1450	980	1200	1325	940	1150	1275	1300	1575	1750
P7	1175	1425	1600	1025	1250	1375	1025	1225	1375	930	1125	1250	890	1075	1200	1225	1475	1650
P8	1100	1350	1500	960	1175	1300	950	1150	1300	870	1075	1200	830	1025	1150	1125	1400	1550
P11	1150	1375	1550	990	1200	1350	990	1200	1325	900	1100	1225	860	1050	1175	1175	1425	1600
M1	1075	1325	1475	1000	1225	1375	1025	1275	1425	950	1150	1300	910	1125	1250	1100	1350	1525
M2	880	1075	1200	820	1000	1125	850	1050	1175	780	960	1075	750	920	1025	910	1125	1250
M3	730	890	970	680	830	900	700	860	930	640	790	860	610	750	820	750	920	1000
M4	580	700	750	540	660	700	560	680	720	520	620	660	495	600	630	600	730	770
M5	485	590	620	455	550	580	470	570	600	430	520	550	410	500	530	500	600	640
K1	1175	1450	1625	1025	1250	1400	1025	1250	1400	930	1150	1275	890	1100	1225	1225	1500	1675
K2	1050	1275	1425	910	1100	1250	900	1100	1225	820	1000	1125	790	970	1075	1075	1325	1475
K3	880	1075	1200	770	940	1050	760	930	1050	700	850	950	670	820	910	910	1125	1250
K4	840	1025	1150	730	900	1000	730	890	990	670	820	910	640	780	870	870	1075	1200
K5	510	630	710	445	550	620	440	550	610	405	500	560	390	480	540	530	660	730
K6	740	910	1025	650	790	880	640	780	880	590	720	800	560	690	770	770	940	1050
K7	660	810	910	570	710	790	570	700	780	520	640	720	495	610	690	680	840	940
N1	4400	5425	6075	—	—	—	3800	4675	5250	3475	4300	4800	3325	4100	4600	—	—	—
N2	3550	4375	4900	—	—	—	3075	3775	4225	2800	3475	3875	2700	3325	3725	—	—	—
N3	2375	2925	3275	—	—	—	2050	2525	2825	1875	2300	2575	1800	2200	2475	—	—	—
N11	2700	3325	3750	—	—	—	2325	2875	3225	2150	2650	2950	2050	2525	2825	—	—	—
S1	285	345	365	255	305	325	265	315	335	240	290	310	230	280	295	295	355	375
S2	230	275	290	205	245	260	210	255	270	195	235	250	185	225	240	235	285	300
S3	200	240	255	180	215	225	185	225	235	170	205	215	160	195	205	205	250	265
S11	395	480	510	355	430	455	365	445	470	335	410	435	320	390	415	410	495	530
S12	230	275	295	205	250	265	210	255	270	195	235	250	185	225	240	235	285	305
S13	185	220	235	165	200	210	170	205	215	155	190	200	150	180	190	190	230	240
H5	225	270	295	215	260	285	215	260	280	195	235	260	190	225	250	230	280	305
H8	240	290	315	230	280	300	230	275	295	210	255	270	200	245	260	245	300	320
H11	285	345	380	275	330	365	270	330	360	250	300	330	240	290	315	295	355	390
H12	435	520	570	415	500	550	410	495	540	375	455	495	360	435	475	445	540	590
H21	240	290	315	230	280	300	230	275	295	210	255	270	200	245	260	245	300	320

R218.19-100 – Insert selection – Semi-finishing

SMG		Recommended a_p**	f_z			
			15%	12%	10%	8%
P1	218.19-100T-M06 F40M	0.50	0.0070	0.0075	0.0085	0.0095
P2	218.19-100T-M06 F40M	0.50	0.0070	0.0080	0.0085	0.0095
P3	218.19-100T-M06 F40M	0.50	0.0065	0.0075	0.0080	0.0085
P4	218.19-100T-MD08 MP1500	0.50	0.0085	0.0095	0.010	0.012
P5	218.19-100T-MD08 MP1500	0.50	0.0085	0.0095	0.010	0.012
P6	218.19-100T-MD08 MP1500	0.50	0.0085	0.0095	0.010	0.011
P7	218.19-100T-MD08 MP1500	0.50	0.0085	0.0095	0.010	0.011
P8	218.19-100T-MD08 MP1500	0.50	0.0085	0.0095	0.011	0.012
P11	218.19-100T-MD08 MP1500	0.50	0.0085	0.0095	0.010	0.011
M1	218.19-100T-M06 F25M	0.50	0.0070	0.0080	0.0085	0.0095
M2	218.19-100T-M06 F25M	0.50	0.0065	0.0070	0.0075	0.0085
M3	218.19-100T-M06 F25M	0.40	0.0055	0.0065	0.0065	0.0075
M4	218.19-100T-M06 F25M	0.32	0.0050	0.0055	0.0060	0.0065
M5	218.19-100T-M06 F25M	0.32	0.0050	0.0055	0.0060	0.0065
K1	218.19-100T-MD08 F25M	0.50	0.0095	0.010	0.011	0.013
K2	218.19-100T-MD08 F25M	0.50	0.0085	0.0095	0.010	0.012
K3	218.19-100T-MD08 F25M	0.50	0.0085	0.0095	0.010	0.012
K4	218.19-100T-MD08 F25M	0.50	0.0085	0.0095	0.010	0.012
K5	218.19-100T-MD08 F25M	0.50	0.0080	0.0085	0.0095	0.010
K6	218.19-100T-MD08 F25M	0.50	0.0085	0.0095	0.010	0.012
K7	218.19-100T-MD08 F25M	0.50	0.0080	0.0085	0.0095	0.010
N1	218.19-100-E06 H25	0.50	0.0085	0.010	0.011	0.012
N2	218.19-100-E06 H25	0.50	0.0085	0.010	0.011	0.012
N3	218.19-100-E06 H25	0.50	0.0085	0.010	0.011	0.012
N11	218.19-100-E06 H25	0.50	0.0085	0.010	0.011	0.012
S1	218.19-100T-M06 F40M	0.32	0.0050	0.0055	0.0060	0.0065
S2	218.19-100T-M06 F40M	0.32	0.0050	0.0055	0.0060	0.0065
S3	218.19-100T-M06 F40M	0.32	0.0048	0.0050	0.0055	0.0065
S11	218.19-100T-M06 MS2050	0.36	0.0055	0.0065	0.0065	0.0075
S12	218.19-100T-M06 MS2050	0.36	0.0055	0.0065	0.0065	0.0075
S13	218.19-100T-M06 MS2050	0.32	0.0050	0.0055	0.0060	0.0065
H5	218.19-100T-MD08 F15M	0.40	0.0065	0.0070	0.0075	0.0085
H8	218.19-100T-MD08 F15M	0.36	0.0050	0.0055	0.0060	0.0065
H11	218.19-100T-MD08 F15M	0.40	0.0065	0.0070	0.0075	0.0085
H12	218.19-100T-MD08 F15M	0.40	0.0065	0.0070	0.0075	0.0085
H21	218.19-100T-MD08 F15M	0.36	0.0050	0.0055	0.0060	0.0065

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-100 – Cutting data v_c = (sf/min)

	MP1500			MP2500			T350M			F15M			F25M			F40M		
SMG	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%
P1	1350	1650	1875	1200	1475	1650	1200	1475	1625	1100	1325	1500	1150	1400	1550	1025	1275	1400
P2	1325	1625	1825	1175	1425	1600	1150	1400	1575	1050	1300	1450	1100	1350	1500	1000	1225	1375
P3	1150	1425	1550	1025	1275	1375	1025	1225	1400	930	1150	1250	970	1175	1325	880	1075	1200
P4	1025	1250	1400	900	1125	1250	890	1100	1225	820	1025	1125	860	1050	1175	780	960	1075
P5	980	1200	1350	870	1075	1175	850	1050	1175	790	970	1075	820	1000	1125	740	920	1025
P6	1100	1350	1500	980	1200	1325	960	1175	1325	890	1075	1200	920	1125	1275	830	1025	1150
P7	1050	1275	1425	920	1125	1250	900	1125	1250	840	1025	1150	870	1075	1200	790	970	1100
P8	970	1200	1300	860	1075	1150	850	1050	1175	780	970	1050	820	990	1125	740	900	1025
P11	1000	1225	1375	900	1100	1225	880	1075	1225	810	1000	1100	840	1050	1175	760	940	1050
M1	—	—	—	840	1025	1150	890	1100	1225	850	1050	1175	890	1100	1225	810	990	1100
M2	—	—	—	700	860	950	740	910	1025	710	870	970	740	910	1025	670	830	930
M3	—	—	—	590	730	780	630	770	810	600	740	790	630	770	810	570	700	740
M4	—	—	—	490	590	600	510	610	630	500	600	610	510	610	630	465	560	570
M5	—	—	—	410	495	500	425	510	520	415	500	510	425	510	520	390	465	475
K1	1050	1275	1425	920	1125	1275	920	1125	1250	840	1025	1150	880	1075	1200	800	970	1075
K2	930	1150	1275	830	1000	1125	810	1000	1125	750	920	1025	780	960	1075	700	870	980
K3	790	970	1075	700	850	950	690	850	950	630	780	870	660	810	910	600	740	830
K4	750	920	1025	670	820	910	650	810	910	610	740	830	630	770	870	570	700	790
K5	455	560	630	405	500	550	405	490	560	365	455	500	390	470	530	350	425	485
K6	660	810	900	590	720	800	580	710	800	530	650	730	550	680	760	500	620	700
K7	580	720	800	520	640	710	520	630	710	470	580	640	495	600	680	450	550	620
N1	—	—	—	3375	4175	4675	—	—	—	3075	3800	4250	3250	3950	4425	2950	3575	4025
N2	—	—	—	2725	3375	3775	—	—	—	2475	3075	3425	2625	3175	3575	2400	2900	3250
N3	—	—	—	1825	2250	2525	—	—	—	1650	2050	2300	1750	2125	2375	1600	1925	2175
N11	—	—	—	2075	2575	2875	—	—	—	1900	2325	2625	2000	2425	2725	1825	2200	2475
S1	—	—	—	240	290	290	240	285	290	235	280	285	240	285	290	215	260	265
S2	—	—	—	190	230	235	195	230	235	190	225	230	195	230	235	175	210	215
S3	—	—	—	170	205	205	170	200	205	165	200	200	170	200	205	150	185	190
S11	—	—	—	325	395	410	325	395	410	315	385	400	325	395	410	295	360	370
S12	—	—	—	185	230	235	190	230	235	180	220	230	190	230	235	170	210	215
S13	—	—	—	155	185	190	155	185	190	150	180	185	155	185	190	140	165	170
H5	230	280	300	185	225	240	200	245	260	185	225	240	190	235	250	175	215	225
H8	250	305	320	200	250	260	215	260	275	200	250	260	205	250	265	185	225	240
H11	295	355	380	240	285	305	255	310	330	240	285	305	240	300	320	220	270	290
H12	445	540	570	360	435	460	380	470	500	360	435	460	365	450	480	330	410	435
H21	250	305	320	200	250	260	215	260	275	200	250	260	205	250	265	185	225	240

R218.19-100 – Insert selection – Roughing

SMG			Recommended a_p**	f_z		
				100%	30%	15%
P1	218.19-100T-M06 F40M	SPMX070304-75 F40M	0.50	0.0048	0.0055	0.0070
P2	218.19-100T-M06 F40M	SPMX070304-75 F40M	0.50	0.0050	0.0055	0.0070
P3	218.19-100T-M06 F40M	SPMX070304-75 F40M	0.50	0.0048	0.0050	0.0065
P4	218.19-100T-MD08 MP2500	SPMX070304-75 F40M	0.50	0.0065	0.0065	0.0085
P5	218.19-100T-MD08 MP2500	SPMX070304-75 F40M	0.50	0.0060	0.0065	0.0085
P6	218.19-100T-MD08 MP2500	SPMX070304-75 F40M	0.50	0.0060	0.0065	0.0085
P7	218.19-100T-MD08 MP2500	SPMX070304-75 F40M	0.50	0.0060	0.0065	0.0085
P8	218.19-100T-MD08 MP2500	SPMX070304-75 F40M	0.50	0.0065	0.0065	0.0085
P11	218.19-100T-MD08 MP2500	SPMX070304-75 F40M	0.50	0.0060	0.0065	0.0085
M1	218.19-100T-M06 T350M	SPMX070304-75 F40M	0.50	0.0050	0.0055	0.0070
M2	218.19-100T-M06 T350M	SPMX070304-75 F40M	0.50	0.0048	0.0050	0.0065
M3	218.19-100T-M06 T350M	SPMX070304-75 F40M	0.40	0.0040	0.0044	0.0055
M4	218.19-100T-M06 T350M	SPMX070304-75 F40M	0.32	0.0036	0.0040	0.0050
M5	218.19-100T-M06 T350M	SPMX070304-75 F40M	0.32	0.0036	0.0040	0.0050
K1	218.19-100T-MD08 MP1500	SPMX070304-75 F40M	0.50	0.0065	0.0070	0.0095
K2	218.19-100T-MD08 MP1500	SPMX070304-75 F40M	0.50	0.0060	0.0065	0.0085
K3	218.19-100T-MD08 MP1500	SPMX070304-75 F40M	0.50	0.0060	0.0065	0.0085
K4	218.19-100T-MD08 MP1500	SPMX070304-75 F40M	0.50	0.0060	0.0065	0.0085
K5	218.19-100T-MD08 MP1500	SPMX070304-75 F40M	0.50	0.0055	0.0060	0.0080
K6	218.19-100T-MD08 MP1500	SPMX070304-75 F40M	0.50	0.0060	0.0065	0.0085
K7	218.19-100T-MD08 MP1500	SPMX070304-75 F40M	0.50	0.0055	0.0060	0.0080
N1	218.19-100-E06 H25	SPMX070304-75 F40M	0.50	0.0065	0.0070	0.0085
N2	218.19-100-E06 H25	SPMX070304-75 F40M	0.50	0.0065	0.0070	0.0085
N3	218.19-100-E06 H25	SPMX070304-75 F40M	0.50	0.0065	0.0070	0.0085
N11	218.19-100-E06 H25	SPMX070304-75 F40M	0.50	0.0065	0.0070	0.0085
S1	218.19-100T-M06 MS2500	SPMX070304-75 F40M	0.32	0.0036	0.0040	0.0050
S2	218.19-100T-M06 MS2500	SPMX070304-75 F40M	0.32	0.0036	0.0040	0.0050
S3	218.19-100T-M06 MS2500	SPMX070304-75 F40M	0.32	0.0034	0.0036	0.0048
S11	218.19-100T-M06 MS2050	SPMX070304-75 F40M	0.36	0.0040	0.0044	0.0055
S12	218.19-100T-M06 MS2050	SPMX070304-75 F40M	0.36	0.0040	0.0044	0.0055
S13	218.19-100T-M06 MS2050	SPMX070304-75 F40M	0.32	0.0036	0.0040	0.0050
H5	218.19-100T-MD08 F15M	SPMX070304-75 F40M	0.40	0.0048	0.0050	0.0065
H8	218.19-100T-MD08 F15M	SPMX070304-75 F40M	0.36	0.0036	0.0038	0.0050
H11	218.19-100T-MD08 F15M	SPMX070304-75 F40M	0.40	0.0048	0.0050	0.0065
H12	218.19-100T-MD08 F15M	SPMX070304-75 F40M	0.40	0.0048	0.0050	0.0065
H21	218.19-100T-MD08 F15M	SPMX070304-75 F40M	0.36	0.0036	0.0038	0.0050

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-100 – Cutting data v_c = (sf/min)

	MS2050			MS2500			H25		
SMG	100%	30%	15%	100%	30%	15%	100%	30%	15%
P1	1125	1300	1400	1500	1850	2025	—	—	—
P2	1100	1300	1375	1450	1775	1975	—	—	—
P3	940	1100	1150	1275	1550	1750	—	—	—
P4	830	950	1025	1125	1375	1525	—	—	—
P5	790	910	950	1075	1325	1475	—	—	—
P6	880	1025	1075	1200	1475	1675	—	—	—
P7	840	960	1000	1125	1400	1575	—	—	—
P8	790	920	970	1075	1300	1475	—	—	—
P11	810	940	980	1100	1350	1525	—	—	—
M1	970	1125	1200	1050	1275	1425	—	—	—
M2	770	890	930	860	1050	1175	—	—	—
M3	475	550	660	730	890	940	—	—	—
M4	240	300	460	600	710	730	—	—	—
M5	200	250	380	495	590	610	—	—	—
K1	1125	1300	1375	1150	1400	1575	—	—	—
K2	950	1100	1150	1025	1250	1400	—	—	—
K3	810	930	980	860	1050	1200	—	—	—
K4	770	890	930	820	1025	1125	—	—	—
K5	440	520	530	510	610	700	—	—	—
K6	680	780	820	720	890	1000	—	—	—
K7	560	660	680	650	790	890	—	—	—
N1	—	—	—	—	—	—	3075	3725	4175
N2	—	—	—	—	—	—	2475	3000	3375
N3	—	—	—	—	—	—	1650	2000	2250
N11	—	—	—	—	—	—	1900	2300	2575
S1	265	295	280	290	345	355	—	—	—
S2	210	235	225	235	280	285	—	—	—
S3	185	205	200	205	245	250	—	—	—
S11	350	400	380	395	485	500	—	—	—
S12	270	310	290	230	280	290	—	—	—
S13	225	250	240	190	225	230	—	—	—
H5	—	—	—	225	275	295	—	—	—
H8	—	—	—	245	295	310	—	—	—
H11	—	—	—	285	355	375	—	—	—
H12	—	—	—	430	530	570	—	—	—
H21	—	—	—	245	295	310	—	—	—

R218.19-125 – Selection roughing

SMG			Recommended a_p**	f_z		
				100%	30%	15%
P1	218.19-125T-T3-M07 T350M	SPMX090304-75 F40M	0.65	0.0050	0.0055	0.0075
P2	218.19-125T-T3-M07 T350M	SPMX090304-75 F40M	0.65	0.0050	0.0060	0.0075
P3	218.19-125T-T3-M07 T350M	SPMX090304-75 F40M	0.65	0.0050	0.0055	0.0070
P4	218.19-125T-T3-MD10 MP2500	SPMX090304-75 F40M	0.65	0.0070	0.0075	0.010
P5	218.19-125T-T3-MD10 MP2500	SPMX090304-75 F40M	0.65	0.0065	0.0075	0.0095
P6	218.19-125T-T3-MD10 MP2500	SPMX090304-75 F40M	0.65	0.0065	0.0075	0.0095
P7	218.19-125T-T3-MD10 MP2500	SPMX090304-75 F40M	0.65	0.0065	0.0075	0.0095
P8	218.19-125T-T3-MD10 MP2500	SPMX090304-75 F40M	0.65	0.0070	0.0080	0.010
P11	218.19-125T-T3-MD10 MP2500	SPMX090304-75 F40M	0.65	0.0065	0.0075	0.0095
M1	218.19-125T-T3-M07 T350M	SPMX090304-75 F40M	0.65	0.0050	0.0060	0.0075
M2	218.19-125T-T3-M07 T350M	SPMX090304-75 F40M	0.65	0.0048	0.0050	0.0065
M3	218.19-125T-T3-M07 T350M	SPMX090304-75 F40M	0.50	0.0044	0.0048	0.0060
M4	218.19-125T-T3-M07 T350M	SPMX090304-75 F40M	0.40	0.0038	0.0044	0.0055
M5	218.19-125T-T3-M07 T350M	SPMX090304-75 F40M	0.40	0.0038	0.0044	0.0055
K1	218.19-125T-T3-MD10 MK2050	SPMX090304-75 F40M	0.65	0.0075	0.0085	0.011
K2	218.19-125T-T3-MD10 MK2050	SPMX090304-75 F40M	0.65	0.0065	0.0075	0.0095
K3	218.19-125T-T3-MD10 MK2050	SPMX090304-75 F40M	0.65	0.0065	0.0075	0.0095
K4	218.19-125T-T3-MD10 MK2050	SPMX090304-75 F40M	0.65	0.0065	0.0075	0.0095
K5	218.19-125T-T3-MD10 MK2050	SPMX090304-75 F40M	0.65	0.0065	0.0065	0.0085
K6	218.19-125T-T3-MD10 MK2050	SPMX090304-75 F40M	0.65	0.0065	0.0075	0.0095
K7	218.19-125T-T3-MD10 MK2050	SPMX090304-75 F40M	0.65	0.0065	0.0065	0.0085
N1	218.19-125-T3-E06 H25	SPMX090304-75 F40M	0.65	0.0060	0.0065	0.0080
N2	218.19-125-T3-E06 H25	SPMX090304-75 F40M	0.65	0.0060	0.0065	0.0080
N3	218.19-125-T3-E06 H25	SPMX090304-75 F40M	0.65	0.0060	0.0065	0.0080
N11	218.19-125-T3-E06 H25	SPMX090304-75 F40M	0.65	0.0060	0.0065	0.0080
S1	218.19-125T-T3-M07 MS2500	SPMX090304-75 F40M	0.40	0.0038	0.0044	0.0055
S2	218.19-125T-T3-M07 MS2500	SPMX090304-75 F40M	0.40	0.0038	0.0044	0.0055
S3	218.19-125T-T3-M07 MS2500	SPMX090304-75 F40M	0.40	0.0036	0.0040	0.0050
S11	218.19-125T-T3-M07 MS2050	SPMX090304-75 F40M	0.44	0.0044	0.0048	0.0065
S12	218.19-125T-T3-M07 MS2050	SPMX090304-75 F40M	0.44	0.0044	0.0048	0.0065
S13	218.19-125T-T3-M07 MS2050	SPMX090304-75 F40M	0.40	0.0038	0.0044	0.0055
H5	218.19-125T-T3-MD10 F15M	SPMX090304-75 F40M	0.50	0.0050	0.0060	0.0075
H8	218.19-125T-T3-MD10 F15M	SPMX090304-75 F40M	0.44	0.0040	0.0044	0.0055
H11	218.19-125T-T3-MD10 F15M	SPMX090304-75 F40M	0.50	0.0050	0.0060	0.0075
H12	218.19-125T-T3-MD10 F15M	SPMX090304-75 F40M	0.50	0.0050	0.0060	0.0075
H21	218.19-125T-T3-MD10 F15M	SPMX090304-75 F40M	0.44	0.0040	0.0044	0.0055

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-125 – Insert selection – Semi-finishing

SMG		Recommended a_p**	f_z			
			15%	12%	10%	8%
P1	218.19-125T-T3-M07 F40M	0.65	0.0075	0.0080	0.0085	0.0095
P2	218.19-125T-T3-M07 F40M	0.65	0.0075	0.0080	0.0085	0.010
P3	218.19-125T-T3-M07 F40M	0.65	0.0070	0.0080	0.0085	0.0095
P4	218.19-125T-T3-MD10 MP1500	0.65	0.010	0.011	0.012	0.013
P5	218.19-125T-T3-MD10 MP1500	0.65	0.0095	0.011	0.012	0.013
P6	218.19-125T-T3-MD10 MP1500	0.65	0.0095	0.010	0.012	0.013
P7	218.19-125T-T3-MD10 MP1500	0.65	0.0095	0.010	0.012	0.013
P8	218.19-125T-T3-MD10 MP1500	0.65	0.010	0.011	0.012	0.013
P11	218.19-125T-T3-MD10 MP1500	0.65	0.0095	0.010	0.012	0.013
M1	218.19-125T-T3-M07 F25M	0.65	0.0075	0.0080	0.0085	0.010
M2	218.19-125T-T3-M07 F25M	0.65	0.0065	0.0075	0.0080	0.0085
M3	218.19-125T-T3-M07 F25M	0.50	0.0060	0.0065	0.0070	0.0080
M4	218.19-125T-T3-M07 F25M	0.40	0.0055	0.0060	0.0065	0.0070
M5	218.19-125T-T3-M07 F25M	0.40	0.0055	0.0060	0.0065	0.0070
K1	218.19-125T-T3-MD10 F25M	0.65	0.011	0.012	0.013	0.014
K2	218.19-125T-T3-MD10 F25M	0.65	0.0095	0.011	0.012	0.013
K3	218.19-125T-T3-MD10 F25M	0.65	0.0095	0.011	0.012	0.013
K4	218.19-125T-T3-MD10 F25M	0.65	0.0095	0.011	0.012	0.013
K5	218.19-125T-T3-MD10 F25M	0.65	0.0085	0.0095	0.010	0.012
K6	218.19-125T-T3-MD10 F25M	0.65	0.0095	0.011	0.012	0.013
K7	218.19-125T-T3-MD10 F25M	0.65	0.0085	0.0095	0.010	0.012
N1	218.19-125-T3-E06 H25	0.65	0.0080	0.0085	0.0095	0.011
N2	218.19-125-T3-E06 H25	0.65	0.0080	0.0085	0.0095	0.011
N3	218.19-125-T3-E06 H25	0.65	0.0080	0.0085	0.0095	0.011
N11	218.19-125-T3-E06 H25	0.65	0.0080	0.0085	0.0095	0.011
S1	218.19-125T-T3-M07 F40M	0.40	0.0055	0.0060	0.0065	0.0070
S2	218.19-125T-T3-M07 F40M	0.40	0.0055	0.0060	0.0065	0.0070
S3	218.19-125T-T3-M07 F40M	0.40	0.0050	0.0055	0.0060	0.0065
S11	218.19-125T-T3-M07 MS2050	0.44	0.0065	0.0065	0.0075	0.0080
S12	218.19-125T-T3-M07 MS2050	0.44	0.0065	0.0065	0.0075	0.0080
S13	218.19-125T-T3-M07 MS2050	0.40	0.0055	0.0060	0.0065	0.0070
H5	218.19-125T-T3-MD10 F15M	0.50	0.0075	0.0080	0.0085	0.0095
H8	218.19-125T-T3-MD10 F15M	0.44	0.0055	0.0065	0.0065	0.0075
H11	218.19-125T-T3-MD10 F15M	0.50	0.0075	0.0080	0.0085	0.0095
H12	218.19-125T-T3-MD10 F15M	0.50	0.0075	0.0080	0.0085	0.0095
H21	218.19-125T-T3-MD10 F15M	0.44	0.0055	0.0065	0.0065	0.0075

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-125 – Cutting data v_c = (sf/min)

	MP1500			MP2500			T350M			F15M			F25M			F40M		
SMG	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%
P1	1325	1650	1800	1175	1450	1600	1225	1475	1675	1075	1325	1450	1175	1425	1600	1075	1300	1450
P2	1300	1550	1750	1150	1375	1550	1175	1450	1625	1050	1250	1400	1125	1375	1550	1025	1250	1400
P3	1125	1375	1550	1000	1225	1375	1025	1275	1425	910	1125	1250	980	1200	1350	890	1100	1225
P4	990	1225	1350	880	1075	1200	900	1125	1250	800	980	1100	860	1075	1200	790	970	1075
P5	950	1175	1325	840	1050	1175	880	1075	1200	760	950	1075	840	1025	1150	770	930	1050
P6	1075	1325	1500	940	1175	1325	990	1225	1350	860	1075	1200	940	1175	1300	860	1050	1175
P7	1000	1250	1400	890	1100	1250	930	1150	1275	810	1000	1125	890	1100	1225	810	1000	1100
P8	950	1150	1300	840	1025	1150	860	1075	1200	760	940	1050	820	1025	1125	750	930	1025
P11	980	1225	1375	870	1075	1200	910	1125	1250	790	980	1100	870	1075	1175	790	970	1075
M1	—	—	—	820	1000	1125	900	1125	1250	840	1025	1150	900	1125	1250	820	1000	1125
M2	—	—	—	680	840	940	760	920	1050	690	850	960	760	920	1050	690	830	940
M3	—	—	—	550	670	760	600	740	830	560	680	770	600	740	830	550	670	750
M4	—	—	—	450	550	590	490	590	640	455	560	600	490	590	640	445	540	590
M5	—	—	—	375	460	495	410	495	540	380	465	500	410	495	540	370	450	490
K1	1025	1225	1400	910	1100	1225	930	1150	1275	820	1000	1125	890	1100	1225	810	1000	1125
K2	900	1125	1250	800	990	1125	840	1000	1150	730	900	1025	800	970	1100	730	880	1000
K3	760	950	1075	680	840	940	710	850	970	610	760	860	680	820	930	610	740	840
K4	730	900	1025	640	800	900	670	820	920	590	730	820	650	780	880	590	710	800
K5	450	550	620	395	490	550	410	500	560	360	445	500	390	485	530	355	440	485
K6	640	800	890	570	710	790	590	720	810	520	640	720	570	690	780	520	620	710
K7	570	710	790	510	630	700	530	650	720	460	570	640	500	620	680	455	560	620
N1	—	—	—	3350	4025	4500	—	—	—	3050	3650	4100	3325	4050	4575	3025	3700	4150
N2	—	—	—	2700	3250	3650	—	—	—	2450	2950	3300	2675	3275	3675	2450	2975	3350
N3	—	—	—	1800	2175	2425	—	—	—	1625	1975	2200	1800	2175	2450	1625	1975	2225
N11	—	—	—	2050	2475	2775	—	—	—	1875	2250	2525	2050	2500	2800	1850	2275	2550
S1	—	—	—	220	270	290	230	275	300	215	260	280	230	275	300	210	250	275
S2	—	—	—	175	215	230	185	225	240	170	210	225	185	225	240	165	205	220
S3	—	—	—	155	190	205	160	195	215	150	185	200	160	195	215	145	180	195
S11	—	—	—	295	370	400	315	385	420	290	360	390	315	385	420	285	350	380
S12	—	—	—	170	210	230	180	220	240	165	205	225	180	220	240	165	200	220
S13	—	—	—	140	175	185	150	180	195	135	170	180	150	180	195	135	160	175
H5	215	265	295	170	210	235	195	235	265	170	210	235	185	225	250	170	205	230
H8	235	285	310	190	230	250	210	255	280	190	230	250	200	245	270	180	220	245
H11	270	335	375	220	270	300	245	300	335	220	270	300	235	290	320	215	260	290
H12	410	510	560	330	405	455	370	455	510	330	405	455	355	435	485	325	395	440
H21	235	285	310	190	230	250	210	255	280	190	230	250	200	245	270	180	220	245

R218.19-125 – Cutting data v_c = (sf/min)

	MK2050			MS2050			MS2500			H25		
SMG	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%
P1	1150	1450	1575	1125	1325	1400	1525	1850	2075	—	—	—
P2	1125	1350	1525	1125	1300	1375	1475	1800	2025	—	—	—
P3	980	1200	1350	950	1100	1150	1275	1575	1775	—	—	—
P4	870	1050	1175	840	970	1025	1125	1400	1550	—	—	—
P5	830	1025	1150	780	920	960	1100	1325	1500	—	—	—
P6	930	1150	1300	880	1025	1075	1225	1525	1700	—	—	—
P7	880	1100	1225	830	960	1025	1175	1450	1600	—	—	—
P8	830	1025	1125	800	920	970	1075	1325	1500	—	—	—
P11	850	1050	1200	810	930	980	1125	1400	1550	—	—	—
M1	—	—	—	980	1125	1200	1050	1300	1450	—	—	—
M2	—	—	—	760	900	930	880	1075	1200	—	—	—
M3	—	—	—	550	630	650	700	860	960	—	—	—
M4	—	—	—	325	390	440	570	690	750	—	—	—
M5	—	—	—	270	325	370	475	570	620	—	—	—
K1	1225	1475	1650	1125	1300	1375	1150	1425	1600	—	—	—
K2	1075	1325	1500	950	1125	1150	1050	1275	1425	—	—	—
K3	910	1125	1275	800	940	980	880	1075	1225	—	—	—
K4	860	1075	1200	760	900	930	840	1025	1150	—	—	—
K5	530	660	740	440	510	540	510	630	700	—	—	—
K6	760	950	1075	670	790	820	740	900	1025	—	—	—
K7	680	840	940	570	650	690	660	810	900	—	—	—
N1	—	—	—	—	—	—	—	—	—	3175	3950	4425
N2	—	—	—	—	—	—	—	—	—	2575	3175	3575
N3	—	—	—	—	—	—	—	—	—	1725	2125	2400
N11	—	—	—	—	—	—	—	—	—	1950	2425	2725
S1	—	—	—	245	280	290	280	335	365	—	—	—
S2	—	—	—	200	225	235	225	270	295	—	—	—
S3	—	—	—	175	200	205	195	240	260	—	—	—
S11	—	—	—	325	375	395	380	470	510	—	—	—
S12	—	—	—	250	290	300	220	270	295	—	—	—
S13	—	—	—	210	240	250	180	220	235	—	—	—
H5	—	—	—	—	—	—	220	265	300	—	—	—
H8	—	—	—	—	—	—	235	290	315	—	—	—
H11	—	—	—	—	—	—	280	340	380	—	—	—
H12	—	—	—	—	—	—	420	510	570	—	—	—
H21	—	—	—	—	—	—	235	290	315	—	—	—

R218.19-160 – Insert selection – Roughing

SMG			Recommended a_p**	f_z		
				100%	30%	15%
P1	218.19-160T-04-M08 T350M	SPMT100408T-M08 F40M	0.75	0.0055	0.0060	0.0080
P2	218.19-160T-04-M08 T350M	SPMT100408T-M08 F40M	0.75	0.0055	0.0065	0.0080
P3	218.19-160T-04-M08 T350M	SPMT100408T-M08 F40M	0.75	0.0055	0.0060	0.0075
P4	218.19-160T-04-MD11 MP2500	SPMT100408T-M08 F40M	0.75	0.0070	0.0080	0.010
P5	218.19-160T-04-MD11 MP2500	SPMT100408T-M08 F40M	0.75	0.0070	0.0080	0.010
P6	218.19-160T-04-MD11 MP2500	SPMT100408T-M08 F40M	0.75	0.0070	0.0075	0.0095
P7	218.19-160T-04-MD11 MP2500	SPMT100408T-M08 F40M	0.75	0.0070	0.0075	0.0095
P8	218.19-160T-04-MD11 MP2500	SPMT100408T-M08 F40M	0.75	0.0075	0.0080	0.010
P11	218.19-160T-04-MD11 MP2500	SPMT100408T-M08 F40M	0.75	0.0070	0.0075	0.0095
M1	218.19-160T-04-M08 T350M	SPMT100408T-M08 F40M	0.75	0.0055	0.0065	0.0080
M2	218.19-160T-04-M08 T350M	SPMT100408T-M08 F40M	0.75	0.0050	0.0055	0.0070
M3	218.19-160T-04-M08 T350M	SPMT100408T-M08 F40M	0.60	0.0044	0.0048	0.0065
M4	218.19-160T-04-M08 T350M	SPMT100408T-M08 F40M	0.44	0.0040	0.0044	0.0055
M5	218.19-160T-04-M08 T350M	SPMT100408T-M08 F40M	0.44	0.0040	0.0044	0.0055
K1	218.19-160T-04-MD11 MK2050	SPMT100408T-M08 F40M	0.75	0.0080	0.0085	0.011
K2	218.19-160T-04-MD11 MK2050	SPMT100408T-M08 F40M	0.75	0.0070	0.0080	0.010
K3	218.19-160T-04-MD11 MK2050	SPMT100408T-M08 F40M	0.75	0.0070	0.0080	0.010
K4	218.19-160T-04-MD11 MK2050	SPMT100408T-M08 F40M	0.75	0.0070	0.0080	0.010
K5	218.19-160T-04-MD11 MK2050	SPMT100408T-M08 F40M	0.75	0.0065	0.0070	0.0085
K6	218.19-160T-04-MD11 MK2050	SPMT100408T-M08 F40M	0.75	0.0070	0.0080	0.010
K7	218.19-160T-04-MD11 MK2050	SPMT100408T-M08 F40M	0.75	0.0065	0.0070	0.0085
N1	218.19-160-04-E07 H25	SPMT100408T-M08 F40M	0.75	0.0065	0.0065	0.0085
N2	218.19-160-04-E07 H25	SPMT100408T-M08 F40M	0.75	0.0065	0.0065	0.0085
N3	218.19-160-04-E07 H25	SPMT100408T-M08 F40M	0.75	0.0065	0.0065	0.0085
N11	218.19-160-04-E07 H25	SPMT100408T-M08 F40M	0.75	0.0065	0.0065	0.0085
S1	218.19-160T-04-M08 MS2500	SPMT100408T-M08 F40M	0.44	0.0040	0.0044	0.0055
S2	218.19-160T-04-M08 MS2500	SPMT100408T-M08 F40M	0.44	0.0040	0.0044	0.0055
S3	218.19-160T-04-M08 MS2500	SPMT100408T-M08 F40M	0.44	0.0036	0.0040	0.0050
S11	218.19-160T-04-M08 MS2050	SPMT100408T-M08 F40M	0.50	0.0044	0.0048	0.0065
S12	218.19-160T-04-M08 MS2050	SPMT100408T-M08 F40M	0.50	0.0044	0.0048	0.0065
S13	218.19-160T-04-M08 MS2050	SPMT100408T-M08 F40M	0.44	0.0040	0.0044	0.0055
H5	218.19-160T-04-MD11 F15M	SPMT100408T-M08 F40M	0.60	0.0050	0.0055	0.0075
H8	218.19-160T-04-MD11 F15M	SPMT100408T-M08 F40M	0.50	0.0040	0.0044	0.0055
H11	218.19-160T-04-MD11 F15M	SPMT100408T-M08 F40M	0.60	0.0050	0.0055	0.0075
H12	218.19-160T-04-MD11 F15M	SPMT100408T-M08 F40M	0.60	0.0050	0.0055	0.0075
H21	218.19-160T-04-MD11 F15M	SPMT100408T-M08 F40M	0.50	0.0040	0.0044	0.0055

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-160 – Insert selection – Semi-finishing

SMG		Recommended a_p**	f_z			
			15%	12%	10%	8%
P1	218.19-160T-04-M08 F40M	0.90	0.0075	0.0080	0.0085	0.0095
P2	218.19-160T-04-M08 F40M	0.90	0.0075	0.0080	0.0085	0.0095
P3	218.19-160T-04-M08 F40M	0.90	0.0070	0.0080	0.0085	0.0095
P4	218.19-160T-04-MD11 MP1500	0.90	0.0095	0.010	0.011	0.013
P5	218.19-160T-04-MD11 MP1500	0.90	0.0095	0.010	0.011	0.013
P6	218.19-160T-04-MD11 MP1500	0.90	0.0095	0.010	0.011	0.013
P7	218.19-160T-04-MD11 MP1500	0.90	0.0095	0.010	0.011	0.013
P8	218.19-160T-04-MD11 MP1500	0.90	0.0095	0.011	0.012	0.013
P11	218.19-160T-04-MD11 MP1500	0.90	0.0095	0.010	0.011	0.013
M1	218.19-160T-04-M08 F25M	0.90	0.0075	0.0080	0.0085	0.0095
M2	218.19-160T-04-M08 F25M	0.90	0.0065	0.0075	0.0080	0.0085
M3	218.19-160T-04-M08 F25M	0.75	0.0060	0.0065	0.0065	0.0075
M4	218.19-160T-04-M08 F25M	0.55	0.0055	0.0060	0.0065	0.0070
M5	218.19-160T-04-M08 F25M	0.55	0.0055	0.0060	0.0065	0.0070
K1	218.19-160T-04-MD11 F25M	0.90	0.010	0.011	0.013	0.013
K2	218.19-160T-04-MD11 F25M	0.90	0.0095	0.010	0.011	0.013
K3	218.19-160T-04-MD11 F25M	0.90	0.0095	0.010	0.011	0.013
K4	218.19-160T-04-MD11 F25M	0.90	0.0095	0.010	0.011	0.013
K5	218.19-160T-04-MD11 F25M	0.90	0.0085	0.0095	0.010	0.011
K6	218.19-160T-04-MD11 F25M	0.90	0.0095	0.010	0.011	0.013
K7	218.19-160T-04-MD11 F25M	0.90	0.0085	0.0095	0.010	0.011
N1	218.19-160-04-E07 H25	0.90	0.0080	0.0095	0.010	0.011
N2	218.19-160-04-E07 H25	0.90	0.0080	0.0095	0.010	0.011
N3	218.19-160-04-E07 H25	0.90	0.0080	0.0095	0.010	0.011
N11	218.19-160-04-E07 H25	0.90	0.0080	0.0095	0.010	0.011
S1	218.19-160T-04-M08 F40M	0.55	0.0055	0.0060	0.0065	0.0070
S2	218.19-160T-04-M08 F40M	0.55	0.0055	0.0060	0.0065	0.0070
S3	218.19-160T-04-M08 F40M	0.55	0.0050	0.0055	0.0060	0.0065
S11	218.19-160T-04-M08 MS2050	0.65	0.0065	0.0065	0.0075	0.0080
S12	218.19-160T-04-M08 MS2050	0.65	0.0065	0.0065	0.0075	0.0080
S13	218.19-160T-04-M08 MS2050	0.55	0.0055	0.0060	0.0065	0.0070
H5	218.19-160T-04-MD11 F15M	0.75	0.0065	0.0075	0.0080	0.0085
H8	218.19-160T-04-MD11 F15M	0.65	0.0055	0.0060	0.0065	0.0070
H11	218.19-160T-04-MD11 F15M	0.75	0.0065	0.0075	0.0080	0.0085
H12	218.19-160T-04-MD11 F15M	0.75	0.0065	0.0075	0.0080	0.0085
H21	218.19-160T-04-MD11 F15M	0.65	0.0055	0.0060	0.0065	0.0070

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-160 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			F15M			T25M			F40M		
SMG	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%
P1	1325	1625	1800	1175	1425	1600	1300	1600	1800	1075	1300	1450	1150	1425	1575	1050	1300	1450
P2	1275	1575	1750	1150	1400	1550	1275	1550	1725	1025	1275	1425	1125	1350	1525	1025	1225	1375
P3	1125	1375	1550	1000	1225	1375	1100	1350	1500	910	1100	1250	960	1200	1325	870	1075	1200
P4	990	1200	1350	880	1075	1200	980	1200	1350	800	970	1100	860	1050	1175	790	950	1075
P5	950	1175	1300	840	1050	1150	940	1150	1275	760	940	1050	830	1025	1125	750	930	1025
P6	1050	1325	1450	940	1175	1300	1050	1300	1450	850	1050	1175	930	1150	1275	840	1050	1150
P7	1000	1250	1375	890	1100	1225	990	1225	1375	810	1000	1100	880	1075	1200	800	980	1100
P8	950	1150	1300	840	1025	1150	920	1125	1275	760	930	1050	810	1000	1125	740	910	1025
P11	970	1200	1325	860	1075	1175	970	1200	1325	780	970	1075	850	1050	1175	770	950	1050
M1	—	—	—	820	1000	1125	950	1150	1300	830	1025	1150	900	1100	1225	820	990	1125
M2	—	—	—	670	840	930	780	970	1075	690	850	940	740	920	1025	680	830	930
M3	—	—	—	550	670	750	630	780	860	560	680	760	600	740	810	550	670	740
M4	—	—	—	435	540	590	495	610	670	440	540	600	470	580	630	430	520	570
M5	—	—	—	360	445	490	415	510	560	370	455	500	390	480	530	355	435	480
K1	1025	1250	1400	900	1100	1225	1000	1225	1375	820	1000	1125	—	—	—	810	980	1100
K2	900	1125	1225	800	990	1100	890	1100	1225	720	900	990	—	—	—	710	880	980
K3	760	940	1050	670	830	920	750	930	1025	610	760	840	—	—	—	600	740	830
K4	720	900	1000	640	800	880	720	890	990	580	720	800	—	—	—	580	710	790
K5	445	550	610	395	490	540	440	540	610	360	445	490	—	—	—	350	430	485
K6	640	790	880	570	700	780	630	780	870	510	640	710	—	—	—	510	620	700
K7	570	710	780	510	630	690	560	690	780	460	570	630	—	—	—	450	550	620
N1	—	—	—	3275	4025	4500	3700	4525	5075	2975	3675	4100	—	—	—	2950	3625	4075
N2	—	—	—	2650	3250	3625	3000	3650	4100	2400	2950	3300	—	—	—	2400	2925	3275
N3	—	—	—	1750	2175	2425	2000	2425	2725	1600	1975	2200	—	—	—	1600	1950	2200
N11	—	—	—	2025	2475	2775	2275	2775	3125	1825	2250	2525	—	—	—	1825	2225	2500
S1	—	—	—	210	260	285	230	285	310	205	255	280	220	270	295	200	245	270
S2	—	—	—	170	210	230	185	230	250	165	205	225	175	215	240	160	195	215
S3	—	—	—	150	185	200	165	200	220	145	180	195	155	190	210	140	175	190
S11	—	—	—	285	350	395	320	390	435	275	345	385	300	370	410	275	335	375
S12	—	—	—	165	205	230	185	225	250	160	200	225	175	215	235	160	195	215
S13	—	—	—	135	170	185	150	185	200	135	165	180	140	175	190	130	160	175
H5	215	260	290	170	210	235	195	240	265	170	210	235	—	—	—	165	205	225
H8	225	275	310	180	225	250	205	250	280	180	225	250	—	—	—	175	215	240
H11	270	335	370	220	270	300	245	305	335	220	270	300	—	—	—	210	260	285
H12	410	500	560	330	405	450	370	460	510	330	405	450	—	—	—	315	390	435
H21	225	275	310	180	225	250	205	250	280	180	225	250	—	—	—	175	215	240

R218.19-160 – Cutting data v_c = (sf/min)

	MK2050			MS2050			MS2500			MH1000			H25		
SMG	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%	100%	30%	15%
P1	1150	1400	1575	1125	1300	1375	1500	1850	2075	1275	1575	1750	—	—	—
P2	1125	1375	1525	1100	1300	1375	1475	1775	2000	1250	1525	1700	—	—	—
P3	980	1200	1350	950	1100	1150	1250	1550	1725	1100	1325	1500	—	—	—
P4	860	1050	1175	820	970	1000	1125	1375	1550	960	1175	1325	—	—	—
P5	830	1025	1125	780	900	960	1075	1325	1475	920	1150	1275	—	—	—
P6	930	1150	1275	880	1025	1075	1225	1500	1675	1025	1275	1425	—	—	—
P7	870	1075	1200	830	960	1025	1150	1400	1575	970	1200	1350	—	—	—
P8	830	1000	1125	800	920	980	1050	1300	1450	920	1125	1275	—	—	—
P11	850	1050	1175	810	930	990	1125	1375	1525	950	1175	1300	—	—	—
M1	—	—	—	960	1125	1200	1050	1275	1425	—	—	—	—	—	—
M2	—	—	—	760	880	940	860	1075	1175	—	—	—	—	—	—
M3	—	—	—	530	620	660	700	860	950	—	—	—	—	—	—
M4	—	—	—	355	410	450	550	670	740	—	—	—	—	—	—
M5	—	—	—	295	345	375	455	560	610	—	—	—	—	—	—
K1	1200	1475	1650	1100	1300	1375	1150	1400	1575	990	1225	1350	—	—	—
K2	1075	1325	1475	950	1100	1150	1025	1275	1400	870	1075	1200	—	—	—
K3	900	1125	1250	800	930	980	870	1075	1200	740	920	1025	—	—	—
K4	860	1075	1175	760	880	940	830	1025	1125	710	880	970	—	—	—
K5	530	660	720	445	510	530	500	620	700	435	540	590	—	—	—
K6	760	940	1050	670	780	820	730	900	1000	620	770	850	—	—	—
K7	680	840	920	570	660	680	650	790	890	560	690	760	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	3125	3850	4350
N2	—	—	—	—	—	—	—	—	—	—	—	—	2525	3125	3525
N3	—	—	—	—	—	—	—	—	—	—	—	—	1675	2075	2350
N11	—	—	—	—	—	—	—	—	—	—	—	—	1925	2375	2675
S1	—	—	—	230	265	285	270	330	360	—	—	—	—	—	—
S2	—	—	—	185	215	230	215	265	290	—	—	—	—	—	—
S3	—	—	—	165	190	205	190	235	255	—	—	—	—	—	—
S11	—	—	—	300	350	385	365	450	500	—	—	—	—	—	—
S12	—	—	—	230	270	295	210	260	290	—	—	—	—	—	—
S13	—	—	—	200	230	245	175	210	230	—	—	—	—	—	—
H5	—	—	—	—	—	—	215	265	295	205	255	285	—	—	—
H8	—	—	—	—	—	—	225	280	310	220	270	305	—	—	—
H11	—	—	—	—	—	—	270	340	375	265	325	360	—	—	—
H12	—	—	—	—	—	—	410	510	560	400	490	550	—	—	—
H21	—	—	—	—	—	—	225	280	310	220	270	305	—	—	—

R218.19-200 – Insert selection – Roughing

SMG		Recommended a_p**	f_z		
			100%	30%	15%
P1	218.19-200T-05-M10 F40M	0.48	0.010	0.011	0.014
P2	218.19-200T-05-M10 F40M	0.48	0.010	0.011	0.014
P3	218.19-200T-05-M10 F40M	0.48	0.0095	0.010	0.013
P4	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
P5	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
P6	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
P7	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
P8	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
P11	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
M1	218.19-200T-05-M10 F40M	0.48	0.010	0.011	0.014
M2	218.19-200T-05-M10 F40M	0.48	0.0095	0.010	0.013
M3	218.19-200T-05-M10 F40M	0.40	0.0075	0.0080	0.010
M4	218.19-200T-05-M10 F40M	0.28	0.0065	0.0070	0.0095
M5	218.19-200T-05-M10 F40M	0.28	0.0065	0.0070	0.0095
K1	218.19-200T-05-M10 F25M	0.48	0.010	0.011	0.014
K2	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
K3	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
K4	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
K5	218.19-200T-05-M10 F25M	0.48	0.0085	0.0095	0.012
K6	218.19-200T-05-M10 F25M	0.48	0.0095	0.010	0.013
K7	218.19-200T-05-M10 F25M	0.48	0.0085	0.0095	0.012
N1	218.19-200T-05-ME10 F40M	0.48	0.013	0.014	0.018
N2	218.19-200T-05-ME10 F40M	0.48	0.013	0.014	0.018
N3	218.19-200T-05-ME10 F40M	0.48	0.013	0.014	0.018
N11	218.19-200T-05-ME10 F40M	0.48	0.013	0.014	0.018
S1	218.19-200T-05-M10 F40M	0.28	0.0065	0.0070	0.0095
S2	218.19-200T-05-M10 F40M	0.28	0.0065	0.0070	0.0095
S3	218.19-200T-05-M10 F40M	0.28	0.0060	0.0065	0.0085
S11	218.19-200T-05-M10 F40M	0.32	0.0075	0.0080	0.010
S12	218.19-200T-05-M10 F40M	0.32	0.0075	0.0080	0.010
S13	218.19-200T-05-M10 F40M	0.28	0.0065	0.0070	0.0095
H5	218.19-200T-05-M10 F25M	0.40	0.0065	0.0070	0.0085
H8	218.19-200T-05-M10 F25M	0.32	0.0048	0.0050	0.0065
H11	218.19-200T-05-M10 F25M	0.40	0.0065	0.0070	0.0085
H12	218.19-200T-05-M10 F25M	0.40	0.0065	0.0070	0.0085
H21	218.19-200T-05-M10 F25M	0.32	0.0048	0.0050	0.0065

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.19-200 – Insert selection – Semi-finishing

SMG		Recommended a_p**	f_z			
			15%	12%	10%	8%
P1	218.19-200T-05-M10 F40M	0.48	0.014	0.016	0.017	0.019
P2	218.19-200T-05-M10 F40M	0.48	0.014	0.016	0.017	0.019
P3	218.19-200T-05-M10 F40M	0.48	0.013	0.015	0.017	0.018
P4	218.19-200T-05-M10 F25M	0.48	0.013	0.015	0.016	0.018
P5	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
P6	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
P7	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
P8	218.19-200T-05-M10 F25M	0.48	0.013	0.015	0.017	0.018
P11	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
M1	218.19-200T-05-M10 F25M	0.48	0.014	0.016	0.017	0.019
M2	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
M3	218.19-200T-05-M10 F25M	0.40	0.010	0.012	0.013	0.014
M4	218.19-200T-05-M10 F25M	0.28	0.0095	0.010	0.011	0.012
M5	218.19-200T-05-M10 F25M	0.28	0.0095	0.010	0.011	0.012
K1	218.19-200T-05-M10 F25M	0.48	0.014	0.016	0.017	0.019
K2	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
K3	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
K4	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
K5	218.19-200T-05-M10 F25M	0.48	0.012	0.013	0.014	0.016
K6	218.19-200T-05-M10 F25M	0.48	0.013	0.014	0.016	0.017
K7	218.19-200T-05-M10 F25M	0.48	0.012	0.013	0.014	0.016
N1	218.19-200T-05-ME10 F40M	0.48	0.018	0.020	0.022	0.024
N2	218.19-200T-05-ME10 F40M	0.48	0.018	0.020	0.022	0.024
N3	218.19-200T-05-ME10 F40M	0.48	0.018	0.020	0.022	0.024
N11	218.19-200T-05-ME10 F40M	0.48	0.018	0.020	0.022	0.024
S1	218.19-200T-05-M10 F40M	0.28	0.0095	0.010	0.011	0.012
S2	218.19-200T-05-M10 F40M	0.28	0.0095	0.010	0.011	0.012
S3	218.19-200T-05-M10 F40M	0.28	0.0085	0.0095	0.010	0.011
S11	218.19-200T-05-M10 F40M	0.32	0.010	0.012	0.013	0.014
S12	218.19-200T-05-M10 F40M	0.32	0.010	0.012	0.013	0.014
S13	218.19-200T-05-M10 F40M	0.28	0.0095	0.010	0.011	0.012
H5	218.19-200T-05-M10 F25M	0.40	0.0085	0.0095	0.010	0.012
H8	218.19-200T-05-M10 F25M	0.32	0.0065	0.0075	0.0080	0.0085
H11	218.19-200T-05-M10 F25M	0.40	0.0085	0.0095	0.010	0.012
H12	218.19-200T-05-M10 F25M	0.40	0.0085	0.0095	0.010	0.012
H21	218.19-200T-05-M10 F25M	0.32	0.0065	0.0075	0.0080	0.0085

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

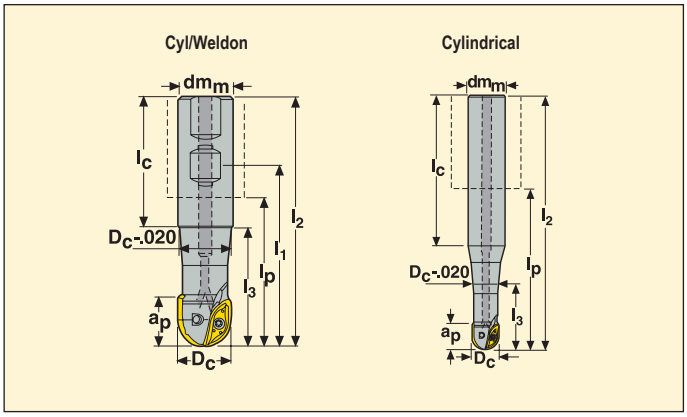
R218.19-200 – Cutting data v_c = (sf/min)

SMG	F25M			F40M		
	100%	30%	15%	100%	30%	15%
P1	1050	1275	1425	960	1150	1300
P2	1025	1250	1400	940	1125	1275
P3	910	1100	1225	820	990	1100
P4	800	960	1075	730	870	970
P5	760	920	1025	690	830	930
P6	860	1025	1175	780	940	1050
P7	810	970	1100	730	880	1000
P8	760	920	1025	690	830	930
P11	780	950	1075	710	860	970
M1	830	1000	1125	750	910	1025
M2	690	830	920	620	750	840
M3	570	680	750	520	620	690
M4	460	530	580	415	480	530
M5	380	440	480	345	400	440
K1	820	980	1100	740	890	1000
K2	720	870	970	660	790	880
K3	610	740	820	560	670	750
K4	580	700	780	530	640	710
K5	355	430	485	325	390	440
K6	510	620	690	470	560	630
K7	455	550	620	415	500	560
N1	2975	3600	4050	2700	3275	3675
N2	2400	2900	3275	2175	2650	2975
N3	1600	1950	2175	1450	1775	1975
N11	1825	2225	2500	1675	2025	2275
S1	215	245	270	195	225	245
S2	170	200	215	155	180	200
S3	155	175	190	140	160	175
S11	295	345	380	270	315	345
S12	170	200	220	155	180	200
S13	140	160	175	125	145	160
H5	175	205	230	160	185	210
H8	190	225	245	175	205	225
H11	225	260	295	205	240	270
H12	335	395	445	305	360	405
H21	190	225	245	175	205	225

R218.20

90° ball nose cutters Ø 0.625" - 2.00"

- For insert selection and cutting data recommendations, see pages 277-303.
- For complete insert program, see pages 574, 590, 601.



EDP No.	Part No.	Dimensions in inch								Z_c*	lbs	Type of mounting	Max rpm	() = No of inserts	
		D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p					218.20	SPMX/SCET
45305	R218.20 -00.500-3-11-060A	0.50	0.75	3.31	4.33	0.83	2.36	2.36	0.433	2	0.4	Cyl/Weldon	30000	-0.250.R (2)	–
64676	-00.625-3-14-050A	0.62	0.62	2.92	3.87	1.50	1.97	2.30	0.551	2	0.4	Cyl/Weldon	28500	-080 (2)	–
07863	-00.750-3-17-070A	0.75	1.00	3.89	5.04	2.00	2.83	2.28	0.669	2	1.1	Cyl/Weldon	20200	-0.375.R (2)	–
07865	-01.00-3-22-070A	1.00	1.00	3.90	5.04	2.00	2.76	2.36	0.866	2	1.1	Cyl/Weldon	16900	-125.R (2)	–
07251	-01.25-3-28-100A	1.25	1.25	5.07	6.21	3.50	3.94	2.67	1.102	2	1.8	Cyl/Weldon	10900	-160.R (2)	–
07866	-01.50-3-34-100A	1.50	1.50	5.44	6.63	3.50	3.87	3.08	1.339	2	2.6	Cyl/Weldon	7200	-0.750.R (2)	–
05418	-01.00-3-45-080A	1.00	1.00	4.29	5.43	3.00	3.15	2.36	1.772	2	0.9	Cyl/Weldon	16900	-125.R (2)	SPMX09 (3)
07252	-01.25-3-54-100A	1.25	1.25	5.07	6.21	3.50	3.94	2.67	2.126	2	1.8	Cyl/Weldon	10900	-160.R (2)	SPMT10 (3)
05666	-01.50-3-60-110A	1.50	1.50	5.83	7.02	3.92	4.26	3.08	2.362	2	2.6	Cyl/Weldon	7200	-0.750.R (2)	SC..12 (3)
62582	-01.50-3-60-152A	1.50	1.50	7.48	8.67	5.57	5.92	3.08	2.362	2	3.3	Cyl/Weldon	7200	-0.750.R (2)	SC..12 (3)
64677	-02.00-3-70-120A	2.00	2.00	6.12	7.97	4.70	4.82	3.24	2.756	2	5.7	Cyl/Weldon	3700	-250.R (2)	SC..12 (3)
62583	-02.00-3-70-152A	2.00	2.00	7.38	9.23	5.96	6.08	3.24	2.756	2	6.2	Cyl/Weldon	3700	-250.R (2)	SC..12 (3)
62584	-02.00-3-70-203A	2.00	2.00	9.39	11.24	7.97	8.09	3.24	2.756	2	7.9	Cyl/Weldon	3700	-250.R (2)	SC..12 (3)
45304	R218.20 -00.500-0-11-111A	0.50	0.62	–	6.30	1.14	4.41	4.72	0.433	2	0.7	Cylindrical	30000	-0.250.R (2)	–
64675	-00.625-0-14-070A	0.62	0.75	–	4.79	1.40	2.76	2.82	0.551	2	0.7	Cylindrical	28500	-080.R (2)	–
07867	-00.750-0-17-120A	0.75	1.00	–	7.00	2.09	4.80	4.25	0.669	2	1.3	Cylindrical	20200	-0.375.R (2)	–
07248	-01.00-0-22-160A	1.00	1.25	–	8.58	2.80	6.21	5.00	0.866	2	2.4	Cylindrical	16900	-125.R (2)	–
07250	-01.25-0-28-160A	1.25	1.25	–	8.58	3.37	6.21	5.04	1.102	2	2.4	Cylindrical	10900	-160.R (2)	–

* Effective number of teeth (1 effective when plunging).

Spare Parts, included in delivery.

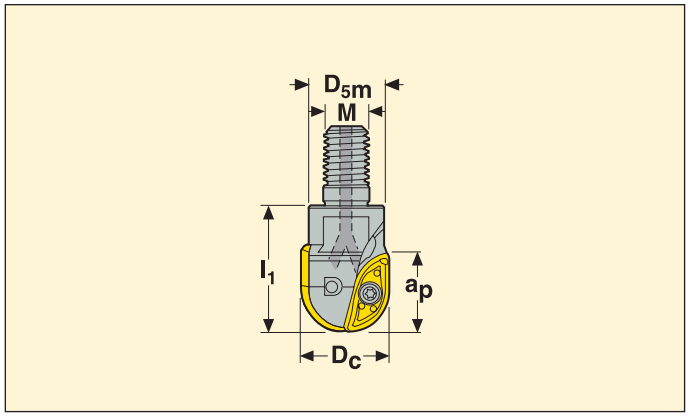
For cutter	Insert key	Insert screw	Insert screw center	Insert screw periph	Torque value in/lbs	When machining a form, error can occur at the center point.		
						r	A	B
Dia 00.500	T06P-3	C02052-T06P	–	–	4.4	.250	.031	.002
Dia 00.625	T08P-3	C02506-T08P	–	–	10.6	.315	.043	.0025
Dia 00.750	T09P-3	C03006-T09P	–	–	17.7	.375	.051	.003
Dia 01.00	T15P-3	C04009-T15P	–	–	31	.492	.070	.004
Dia 01.25	T15P-3	C04011-T15P	–	–	31	.630	.090	.004
Dia 01.50	T20P-4	C05013-T20P	–	–	44	.750	.108	.005
Dia 02.00	T25P-3	–	C06018-T25P	C45011-T20P	53	.984	.142	.006

Please check availability in current price and stock-list.

Torque keys available, see page 643.

R218.20 — **90° ball nose cutters Ø 0.625" - 1.50"**

- For insert selection and cutting data recommendations, see pages 277-303.
- For complete insert program, see pages 601.



EDP No.	Part No.	Dimensions in inch					Zc*	lbs	Type of mounting	Max rpm	() = No of inserts
		Dc	D5m	l1	M	ap					218.20
45306	R218.20 -00.500-06RE-11A	0.500	0.433	0.787	M6	0.433	2	0.02	Combimaster**	30000	-0.250.R (2)
45307	-00.500-08RE-11A	0.500	0.531	0.906	M8	0.433	2	0.02	Combimaster**	28500	-0.250.R (2)
65035	-00.625-08RE-14A	0.625	0.531	0.906	M8	0.551	2	0.02	Combimaster**	28500	-080.R (2)
05419	-00.750-10RE-17A	0.750	0.709	1.102	M10	0.669	2	0.22	Combimaster**	20200	-0.375.R (2)
07247	-01.00-12RE-22A	1.000	0.846	1.378	M12	0.866	2	0.22	Combimaster**	16900	-125.R (2)
07249	-01.25-16RE-28A	1.250	1.122	1.575	M16	1.102	2	0.22	Combimaster**	10900	-160.R (2)
07862	-01.50-16RE-34A	1.500	1.339	1.969	M16	1.339	2	0.22	Combimaster**	7200	-0.750.R (2)
05787	-01.50-20RE-34A	1.500	1.437	2.165	M20	1.339	2	0.66	Combimaster**	7200	-0.750.R (2)

* Effective number of teeth (1 effective when plunging).

** For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw	Torque value in/lbs	When machining a form, error can occur at the center point.		
				r	A	B
Dia 00.500	T06P-3	C02052-T06P	4.4	.250	.031	.002
Dia 00.625	T08P-3	C02506-T08P	10.6	.315	.043	.0025
Dia 00.750	T09P-3	C03006-T09P	17.7	.375	.051	.003
Dia 01.00	T15P-3	C04009-T15P	31	.492	.070	.004
Dia 01.25	T15P-3	C04011-T15P	31	.630	.090	.004
Dia 01.50	T20P-3	C05013-T20P	44	.750	.108	.005

Please check availability in current price and stock-list.

Torque keys available, see page 643.

R218.20-080 – Insert selection – Roughing

SMG		f_z			
		100%	30%	20%	15%
P1	218.20-080ER-ME04 F40M	0.0055	0.0060	0.0065	0.0075
P2	218.20-080ER-ME04 F40M	0.0055	0.0060	0.0070	0.0080
P3	218.20-080ER-ME04 F40M	0.0050	0.0060	0.0065	0.0075
P4	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
P5	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
P6	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
P7	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
P8	218.20-080ER-M04 F25M	0.0050	0.0060	0.0065	0.0075
P11	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
M1	218.20-080ER-ME04 F40M	0.0055	0.0060	0.0070	0.0080
M2	218.20-080ER-ME04 F40M	0.0050	0.0055	0.0065	0.0070
M3	218.20-080ER-ME04 F40M	0.0040	0.0044	0.0050	0.0060
M4	218.20-080ER-ME04 F40M	0.0036	0.0040	0.0044	0.0050
M5	218.20-080ER-M04 F40M	0.0036	0.0040	0.0044	0.0050
K1	218.20-080ER-M04 F25M	0.0055	0.0060	0.0070	0.0080
K2	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
K3	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
K4	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
K5	218.20-080ER-M04 F25M	0.0044	0.0050	0.0055	0.0065
K6	218.20-080ER-M04 F25M	0.0050	0.0055	0.0065	0.0070
K7	218.20-080ER-M04 F25M	0.0044	0.0050	0.0055	0.0065
N1	218.20-080ER-ME04 F40M	0.0070	0.0080	0.0085	0.010
N2	218.20-080ER-ME04 F40M	0.0070	0.0080	0.0085	0.010
N3	218.20-080ER-ME04 F40M	0.0070	0.0080	0.0085	0.010
N11	218.20-080ER-ME04 F40M	0.0070	0.0080	0.0085	0.010
S1	218.20-080ER-ME04 T350M	0.0036	0.0040	0.0044	0.0050
S2	218.20-080ER-ME04 T350M	0.0036	0.0040	0.0044	0.0050
S3	218.20-080ER-ME04 T350M	0.0034	0.0036	0.0040	0.0048
S11	218.20-080ER-ME04 F40M	0.0040	0.0044	0.0050	0.0060
S12	218.20-080ER-ME04 F40M	0.0040	0.0044	0.0050	0.0060
S13	218.20-080ER-ME04 F40M	0.0036	0.0040	0.0044	0.0050
H5	218.20-080ER-M04 F25M	0.0036	0.0038	0.0044	0.0048
H8	218.20-080ER-M04 F25M	0.0026	0.0030	0.0034	0.0038
H11	218.20-080ER-M04 F25M	0.0036	0.0038	0.0044	0.0048
H12	218.20-080ER-M04 F25M	0.0036	0.0038	0.0044	0.0048
H21	218.20-080ER-M04 F25M	0.0026	0.0030	0.0034	0.0038

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R218.20-080 – Insert selection – Semi finishing

SMG		f_z			
		15%	12%	10%	8%
P1	218.20-080ER-ME04 F40M	0.0075	0.0085	0.0095	0.010
P2	218.20-080ER-ME04 F40M	0.0080	0.0085	0.0095	0.010
P3	218.20-080ER-ME04 F40M	0.0075	0.0080	0.0085	0.0095
P4	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
P5	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
P6	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
P7	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
P8	218.20-080ER-M04 F25M	0.0075	0.0080	0.0085	0.0095
P11	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
M1	218.20-080ER-ME04 F40M	0.0080	0.0085	0.0095	0.010
M2	218.20-080ER-ME04 F40M	0.0070	0.0080	0.0085	0.0095
M3	218.20-080ER-ME04 F40M	0.0060	0.0065	0.0065	0.0075
M4	218.20-080ER-ME04 F40M	0.0050	0.0055	0.0060	0.0065
M5	218.20-080ER-ME04 F40M	0.0050	0.0055	0.0060	0.0065
K1	218.20-080ER-M04 F25M	0.0080	0.0085	0.0095	0.010
K2	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
K3	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
K4	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
K5	218.20-080ER-M04 F25M	0.0065	0.0070	0.0075	0.0085
K6	218.20-080ER-M04 F25M	0.0070	0.0080	0.0085	0.0095
K7	218.20-080ER-M04 F25M	0.0065	0.0070	0.0075	0.0085
N1	218.20-080ER-ME04 F40M	0.010	0.011	0.012	0.013
N2	218.20-080ER-ME04 F40M	0.010	0.011	0.012	0.013
N3	218.20-080ER-ME04 F40M	0.010	0.011	0.012	0.013
N11	218.20-080ER-ME04 F40M	0.010	0.011	0.012	0.013
S1	218.20-080ER-ME04 T350M	0.0050	0.0055	0.0060	0.0065
S2	218.20-080ER-ME04 T350M	0.0050	0.0055	0.0060	0.0065
S3	218.20-080ER-ME04 T350M	0.0048	0.0050	0.0055	0.0065
S11	218.20-080ER-ME04 F40M	0.0060	0.0065	0.0065	0.0075
S12	218.20-080ER-ME04 F40M	0.0060	0.0065	0.0065	0.0075
S13	218.20-080ER-ME04 F40M	0.0050	0.0055	0.0060	0.0065
H5	218.20-080ER-M04 F25M	0.0048	0.0055	0.0060	0.0065
H8	218.20-080ER-M04 F25M	0.0038	0.0040	0.0044	0.0048
H11	218.20-080ER-M04 F25M	0.0048	0.0055	0.0060	0.0065
H12	218.20-080ER-M04 F25M	0.0048	0.0055	0.0060	0.0065
H21	218.20-080ER-M04 F25M	0.0038	0.0040	0.0044	0.0048

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-080 – Cutting data v_c = (sf/min)

	T350M					F25M					F40M					MM4500				
SMG	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	1200	1500	1600	1750	1900	1125	1375	1475	1625	1775	1050	1300	1400	1525	1650	830	1025	1100	1200	1300
P2	1175	1450	1525	1700	1850	1100	1350	1425	1575	1725	1025	1275	1325	1475	1600	800	990	1050	1175	1275
P3	1025	1250	1350	1500	1625	960	1150	1250	1400	1500	900	1075	1175	1300	1400	700	850	920	1025	1100
P4	910	1125	1200	1325	1425	840	1050	1125	1225	1325	790	970	1050	1150	1250	620	770	820	900	980
P5	870	1075	1150	1250	1375	800	990	1075	1175	1275	750	930	1000	1100	1200	590	730	780	860	950
P6	970	1200	1275	1400	1550	900	1125	1200	1300	1450	850	1050	1125	1225	1350	670	820	880	970	1050
P7	920	1125	1225	1325	1475	850	1050	1125	1225	1350	800	990	1050	1150	1275	630	770	830	910	1000
P8	870	1050	1125	1250	1350	800	980	1050	1175	1275	750	910	980	1100	1175	590	720	770	860	930
P11	890	1100	1175	1300	1425	830	1025	1100	1200	1325	780	960	1025	1125	1250	610	750	810	880	970
M1	910	1125	1175	1300	1425	880	1075	1150	1275	1375	820	1025	1075	1200	1300	690	850	900	1000	1100
M2	750	920	990	1075	1200	720	890	960	1050	1150	680	840	900	980	1075	570	700	750	820	910
M3	620	760	810	880	960	610	740	790	850	930	570	700	740	800	870	475	580	620	670	730
M4	510	620	660	680	730	495	600	640	660	710	465	560	600	610	660	390	470	500	510	560
M5	425	510	550	560	610	415	500	540	550	590	385	465	500	510	550	325	390	420	430	465
K1	930	1150	1225	1350	1475	860	1075	1125	1250	1375	810	1000	1050	1175	1275	—	—	—	—	—
K2	820	1025	1075	1200	1325	760	940	1000	1100	1225	720	880	940	1050	1150	—	—	—	—	—
K3	700	860	920	1000	1100	650	800	850	940	1025	610	750	800	880	970	—	—	—	—	—
K4	660	820	880	960	1050	620	760	810	890	980	580	710	760	840	920	—	—	—	—	—
K5	405	495	530	590	640	375	460	495	550	600	350	430	460	510	560	—	—	—	—	—
K6	590	720	770	850	930	540	670	720	790	870	510	630	670	740	810	—	—	—	—	—
K7	520	640	680	750	820	480	590	630	700	760	450	550	590	650	710	—	—	—	—	—
N1	—	—	—	—	—	3200	3900	4225	4675	5025	3000	3675	3975	4375	4725	—	—	—	—	—
N2	—	—	—	—	—	2575	3150	3425	3775	4075	2425	2950	3200	3525	3800	—	—	—	—	—
N3	—	—	—	—	—	1725	2100	2275	2500	2700	1600	1975	2125	2350	2550	—	—	—	—	—
N11	—	—	—	—	—	1975	2400	2600	2875	3100	1850	2250	2450	2700	2900	—	—	—	—	—
S1	240	285	310	315	340	230	280	300	305	330	215	260	280	285	310	120	145	155	155	170
S2	190	230	250	255	275	185	225	240	245	265	175	210	225	230	250	95	115	125	125	135
S3	165	205	220	220	240	160	195	210	215	235	150	185	200	200	220	85	100	110	110	120
S11	325	395	420	445	485	315	385	410	430	470	295	360	385	405	440	165	200	210	220	240
S12	190	230	245	255	280	180	220	235	250	270	170	210	220	230	255	125	150	160	170	185
S13	155	185	200	205	220	150	180	195	200	215	140	170	180	185	200	100	125	135	135	145
H5	195	245	260	275	305	180	225	240	255	285	170	210	225	240	265	—	—	—	—	—
H8	215	260	280	295	320	200	240	260	275	295	185	225	240	255	280	—	—	—	—	—
H11	250	310	330	355	390	230	285	305	325	360	215	270	285	305	340	—	—	—	—	—
H12	375	465	495	530	590	350	435	460	495	550	330	405	430	465	510	—	—	—	—	—
H21	215	260	280	295	320	200	240	260	275	295	185	225	240	255	280	—	—	—	—	—

R218.20-100 – Insert selection – Semi finishing

SMG		f_z			
		15%	12%	10%	8%
P1	218.20-100ER-ME05 F40M	0.0075	0.0080	0.0085	0.0095
P2	218.20-100ER-ME05 F40M	0.0075	0.0080	0.0085	0.010
P3	218.20-100ER-ME05 F40M	0.0070	0.0080	0.0085	0.0095
P4	218.20-100ER-M05 F25M	0.0070	0.0075	0.0080	0.0095
P5	218.20-100ER-M05 F25M	0.0065	0.0075	0.0080	0.0085
P6	218.20-100ER-M05 F25M	0.0065	0.0075	0.0080	0.0085
P7	218.20-100ER-M05 F25M	0.0065	0.0075	0.0080	0.0085
P8	218.20-100ER-M05 F25M	0.0070	0.0080	0.0085	0.0095
P11	218.20-100ER-M05 F25M	0.0065	0.0075	0.0080	0.0085
M1	218.20-100ER-ME05 F40M	0.0075	0.0080	0.0085	0.010
M2	218.20-100ER-ME05 F40M	0.0065	0.0075	0.0080	0.0085
M3	218.20-100ER-ME05 F40M	0.0055	0.0065	0.0065	0.0075
M4	218.20-100ER-ME05 F40M	0.0050	0.0055	0.0060	0.0065
M5	218.20-100ER-ME05 F40M	0.0050	0.0055	0.0060	0.0065
K1	218.20-100ER-M05 F25M	0.0075	0.0080	0.0085	0.010
K2	218.20-100ER-M05 F25M	0.0065	0.0075	0.0080	0.0085
K3	218.20-100ER-M05 F25M	0.0065	0.0075	0.0080	0.0085
K4	218.20-100ER-M05 F25M	0.0065	0.0075	0.0080	0.0085
K5	218.20-100ER-M05 F25M	0.0060	0.0065	0.0075	0.0080
K6	218.20-100ER-M05 F25M	0.0065	0.0075	0.0080	0.0085
K7	218.20-100ER-M05 F25M	0.0060	0.0065	0.0075	0.0080
N1	218.20-100ER-ME05 F40M	0.0095	0.010	0.011	0.013
N2	218.20-100ER-ME05 F40M	0.0095	0.010	0.011	0.013
N3	218.20-100ER-ME05 F40M	0.0095	0.010	0.011	0.013
N11	218.20-100ER-ME05 F40M	0.0095	0.010	0.011	0.013
S1	218.20-100ER-ME05 F40M	0.0050	0.0055	0.0060	0.0065
S2	218.20-100ER-ME05 F40M	0.0050	0.0055	0.0060	0.0065
S3	218.20-100ER-ME05 F40M	0.0048	0.0050	0.0055	0.0065
S11	218.20-100ER-ME05 F40M	0.0055	0.0065	0.0065	0.0075
S12	218.20-100ER-ME05 F40M	0.0055	0.0065	0.0065	0.0075
S13	218.20-100ER-ME05 F40M	0.0050	0.0055	0.0060	0.0065
H5	218.20-100ER-M05 F25M	0.0048	0.0055	0.0060	0.0065
H8	218.20-100ER-M05 F25M	0.0038	0.0040	0.0044	0.0048
H11	218.20-100ER-M05 F25M	0.0048	0.0055	0.0060	0.0065
H12	218.20-100ER-M05 F25M	0.0048	0.0055	0.0060	0.0065
H21	218.20-100ER-M05 F25M	0.0038	0.0040	0.0044	0.0048

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-100 – Cutting data v_c = (sf/min)

	F25M					F40M					MM4500				
SMG	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	1150	1375	1475	1650	1800	1050	1275	1350	1525	1650	850	1025	1100	1225	1325
P2	1100	1350	1450	1600	1750	1000	1225	1325	1475	1600	810	1000	1075	1200	1300
P3	960	1175	1275	1375	1525	880	1075	1150	1275	1400	710	880	940	1025	1125
P4	840	1050	1100	1225	1350	770	950	1025	1125	1225	620	770	830	910	1000
P5	820	1000	1075	1200	1275	750	930	990	1100	1175	610	750	800	890	950
P6	920	1125	1200	1350	1475	840	1050	1100	1225	1350	680	840	900	990	1075
P7	870	1075	1150	1275	1375	800	980	1050	1150	1275	640	790	850	940	1025
P8	800	990	1050	1175	1275	740	910	970	1075	1175	600	740	790	870	950
P11	840	1050	1100	1225	1350	770	950	1025	1125	1225	630	770	820	910	1000
M1	880	1075	1175	1300	1400	800	990	1075	1200	1300	690	860	920	1025	1100
M2	740	910	970	1075	1150	680	830	890	980	1050	580	720	770	850	910
M3	610	740	790	850	930	560	680	720	780	850	480	590	620	670	730
M4	500	610	650	670	720	460	550	600	610	660	400	480	510	530	570
M5	420	500	540	550	600	385	460	495	510	550	330	400	430	440	475
K1	860	1075	1150	1275	1375	790	980	1050	1175	1275	—	—	—	—	—
K2	780	960	1025	1125	1225	710	880	940	1050	1125	—	—	—	—	—
K3	660	810	870	960	1025	600	740	790	880	940	—	—	—	—	—
K4	630	770	830	920	980	580	710	760	840	900	—	—	—	—	—
K5	380	470	500	550	610	350	430	460	510	560	—	—	—	—	—
K6	550	680	730	810	870	510	620	670	740	790	—	—	—	—	—
K7	490	600	640	710	780	450	550	590	650	710	—	—	—	—	—
N1	3250	3950	4225	4650	5100	2975	3625	3875	4275	4650	—	—	—	—	—
N2	2625	3200	3425	3750	4100	2400	2925	3125	3450	3775	—	—	—	—	—
N3	1750	2125	2275	2500	2750	1600	1950	2075	2300	2500	—	—	—	—	—
N11	2000	2425	2600	2875	3125	1825	2225	2375	2625	2875	—	—	—	—	—
S1	235	285	305	310	340	215	260	280	285	310	120	145	155	160	175
S2	190	230	245	250	270	175	210	225	230	250	100	120	125	130	140
S3	165	200	215	220	235	150	185	195	200	215	85	105	110	115	125
S11	315	385	410	430	470	290	350	375	395	430	165	200	210	225	245
S12	180	220	235	250	270	165	205	215	225	250	125	155	160	170	185
S13	150	180	195	200	220	140	165	180	185	200	105	125	135	140	150
H5	180	225	240	260	285	165	205	220	240	260	—	—	—	—	—
H8	200	240	255	275	300	180	220	235	250	275	—	—	—	—	—
H11	230	285	305	330	360	215	265	280	305	330	—	—	—	—	—
H12	350	435	460	500	550	320	395	425	460	500	—	—	—	—	—
H21	200	240	255	275	300	180	220	235	250	275	—	—	—	—	—

R218.20-100 – Insert selection – Roughing

SMG		f_z			
		100%	30%	20%	15%
P1	218.20-100ER-ME05 F40M	0.0050	0.0055	0.0065	0.0075
P2	218.20-100ER-ME05 F40M	0.0050	0.0060	0.0065	0.0075
P3	218.20-100ER-ME05 F40M	0.0050	0.0055	0.0065	0.0070
P4	218.20-100ER-M05 F25M	0.0048	0.0055	0.0065	0.0070
P5	218.20-100ER-M05 F25M	0.0048	0.0050	0.0060	0.0065
P6	218.20-100ER-M05 F25M	0.0048	0.0050	0.0060	0.0065
P7	218.20-100ER-M05 F25M	0.0048	0.0050	0.0060	0.0065
P8	218.20-100ER-M05 F25M	0.0050	0.0055	0.0065	0.0070
P11	218.20-100ER-M05 F25M	0.0048	0.0050	0.0060	0.0065
M1	218.20-100ER-ME05 F40M	0.0050	0.0060	0.0065	0.0075
M2	218.20-100ER-ME05 F40M	0.0048	0.0050	0.0060	0.0065
M3	218.20-100ER-ME05 F40M	0.0040	0.0044	0.0050	0.0055
M4	218.20-100ER-ME05 F40M	0.0036	0.0040	0.0044	0.0050
M5	218.20-100ER-M05 F40M	0.0036	0.0040	0.0044	0.0050
K1	218.20-100ER-M05 F25M	0.0050	0.0060	0.0065	0.0075
K2	218.20-100ER-M05 F25M	0.0048	0.0050	0.0060	0.0065
K3	218.20-100ER-M05 F25M	0.0048	0.0050	0.0060	0.0065
K4	218.20-100ER-M05 F25M	0.0048	0.0050	0.0060	0.0065
K5	218.20-100ER-M05 F25M	0.0044	0.0048	0.0055	0.0060
K6	218.20-100ER-M05 F25M	0.0048	0.0050	0.0060	0.0065
K7	218.20-100ER-M05 F25M	0.0044	0.0048	0.0055	0.0060
N1	218.20-100ER-ME05 F40M	0.0065	0.0075	0.0085	0.0095
N2	218.20-100ER-ME05 F40M	0.0065	0.0075	0.0085	0.0095
N3	218.20-100ER-ME05 F40M	0.0065	0.0075	0.0085	0.0095
N11	218.20-100ER-ME05 F40M	0.0065	0.0075	0.0085	0.0095
S1	218.20-100ER-ME05 F40M	0.0036	0.0040	0.0044	0.0050
S2	218.20-100ER-ME05 F40M	0.0036	0.0040	0.0044	0.0050
S3	218.20-100ER-ME05 F40M	0.0034	0.0036	0.0040	0.0048
S11	218.20-100ER-ME05 F40M	0.0040	0.0044	0.0050	0.0055
S12	218.20-100ER-ME05 F40M	0.0040	0.0044	0.0050	0.0055
S13	218.20-100ER-ME05 F40M	0.0036	0.0040	0.0044	0.0050
H5	218.20-100ER-M05 F25M	0.0036	0.0038	0.0044	0.0048
H8	218.20-100ER-M05 F25M	0.0026	0.0030	0.0034	0.0038
H11	218.20-100ER-M05 F25M	0.0036	0.0038	0.0044	0.0048
H12	218.20-100ER-M05 F25M	0.0036	0.0038	0.0044	0.0048
H21	218.20-100ER-M05 F25M	0.0026	0.0030	0.0034	0.0038

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-125 – Insert selection – Roughing

SMG		f_z			
		100%	30%	20%	15%
P1	218.20-125ER-ME07 F40M	0.0055	0.0060	0.0065	0.0075
P2	218.20-125ER-ME07 F40M	0.0055	0.0060	0.0070	0.0080
P3	218.20-125ER-ME07 F40M	0.0050	0.0060	0.0065	0.0075
P4	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
P5	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
P6	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
P7	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
P8	218.20-125ER-M07 F25M	0.0050	0.0060	0.0065	0.0075
P11	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
M1	218.20-125ER-ME07 F40M	0.0055	0.0060	0.0070	0.0080
M2	218.20-125ER-ME07 F40M	0.0050	0.0055	0.0065	0.0070
M3	218.20-125ER-ME07 F40M	0.0040	0.0044	0.0050	0.0055
M4	218.20-125ER-ME07 F40M	0.0036	0.0040	0.0044	0.0050
M5	218.20-125ER-M07 F40M	0.0036	0.0040	0.0044	0.0050
K1	218.20-125ER-M07 F25M	0.0055	0.0060	0.0070	0.0080
K2	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
K3	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
K4	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
K5	218.20-125ER-M07 F25M	0.0044	0.0050	0.0055	0.0065
K6	218.20-125ER-M07 F25M	0.0050	0.0055	0.0065	0.0070
K7	218.20-125ER-M07 F25M	0.0044	0.0050	0.0055	0.0065
N1	218.20-125ER-ME07 F40M	0.0070	0.0080	0.0085	0.010
N2	218.20-125ER-ME07 F40M	0.0070	0.0080	0.0085	0.010
N3	218.20-125ER-ME07 F40M	0.0070	0.0080	0.0085	0.010
N11	218.20-125ER-ME07 F40M	0.0070	0.0080	0.0085	0.010
S1	218.20-125ER-ME07 T350M	0.0036	0.0040	0.0044	0.0050
S2	218.20-125ER-ME07 T350M	0.0036	0.0040	0.0044	0.0050
S3	218.20-125ER-ME07 T350M	0.0034	0.0036	0.0040	0.0048
S11	218.20-125ER-ME07 F40M	0.0040	0.0044	0.0050	0.0055
S12	218.20-125ER-ME07 F40M	0.0040	0.0044	0.0050	0.0055
S13	218.20-125ER-ME07 F40M	0.0036	0.0040	0.0044	0.0050
H5	218.20-125ER-M07 F25M	0.0036	0.0038	0.0044	0.0048
H8	218.20-125ER-M07 F25M	0.0026	0.0030	0.0034	0.0038
H11	218.20-125ER-M07 F25M	0.0036	0.0038	0.0044	0.0048
H12	218.20-125ER-M07 F25M	0.0036	0.0038	0.0044	0.0048
H21	218.20-125ER-M07 F25M	0.0026	0.0030	0.0034	0.0038

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-125 – Insert selection – Semi finishing

SMG		f_z			
		15%	12%	10%	8%
P1	218.20-125ER-ME07 F40M	0.0075	0.0085	0.0095	0.010
P2	218.20-125ER-ME07 F40M	0.0080	0.0085	0.0095	0.010
P3	218.20-125ER-ME07 F40M	0.0075	0.0080	0.0085	0.0095
P4	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
P5	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
P6	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
P7	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
P8	218.20-125ER-M07 F25M	0.0075	0.0080	0.0085	0.0095
P11	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
M1	218.20-125ER-ME07 F40M	0.0080	0.0085	0.0095	0.010
M2	218.20-125ER-ME07 F40M	0.0070	0.0080	0.0085	0.0095
M3	218.20-125ER-ME07 F40M	0.0055	0.0065	0.0065	0.0075
M4	218.20-125ER-ME07 F40M	0.0050	0.0055	0.0060	0.0065
M5	218.20-125ER-ME07 F40M	0.0050	0.0055	0.0060	0.0065
K1	218.20-125ER-M07 F25M	0.0080	0.0085	0.0095	0.010
K2	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
K3	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
K4	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
K5	218.20-125ER-M07 F25M	0.0065	0.0070	0.0075	0.0085
K6	218.20-125ER-M07 F25M	0.0070	0.0080	0.0085	0.0095
K7	218.20-125ER-M07 F25M	0.0065	0.0070	0.0075	0.0085
N1	218.20-125ER-ME07 F40M	0.010	0.011	0.012	0.013
N2	218.20-125ER-ME07 F40M	0.010	0.011	0.012	0.013
N3	218.20-125ER-ME07 F40M	0.010	0.011	0.012	0.013
N11	218.20-125ER-ME07 F40M	0.010	0.011	0.012	0.013
S1	218.20-125ER-ME07 T350M	0.0050	0.0055	0.0060	0.0065
S2	218.20-125ER-ME07 T350M	0.0050	0.0055	0.0060	0.0065
S3	218.20-125ER-ME07 T350M	0.0048	0.0050	0.0055	0.0065
S11	218.20-125ER-ME07 F40M	0.0055	0.0065	0.0065	0.0075
S12	218.20-125ER-ME07 F40M	0.0055	0.0065	0.0065	0.0075
S13	218.20-125ER-ME07 F40M	0.0050	0.0055	0.0060	0.0065
H5	218.20-125ER-M07 F25M	0.0048	0.0055	0.0060	0.0065
H8	218.20-125ER-M07 F25M	0.0038	0.0040	0.0044	0.0048
H11	218.20-125ER-M07 F25M	0.0048	0.0055	0.0060	0.0065
H12	218.20-125ER-M07 F25M	0.0048	0.0055	0.0060	0.0065
H21	218.20-125ER-M07 F25M	0.0038	0.0040	0.0044	0.0048

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-125 – Cutting data v_c = (sf/min)

	T350M					F25M					F40M					MM4500				
SMG	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	1250	1550	1675	1850	2000	1125	1375	1475	1650	1800	1100	1350	1450	1625	1750	880	1100	1175	1300	1425
P2	1225	1500	1625	1775	1950	1075	1350	1450	1575	1750	1075	1325	1400	1550	1700	860	1075	1150	1250	1375
P3	1075	1325	1425	1550	1700	950	1175	1250	1375	1525	930	1150	1225	1350	1500	760	930	1000	1100	1200
P4	940	1175	1250	1375	1500	840	1025	1100	1225	1350	820	1025	1075	1200	1300	670	820	880	970	1050
P5	900	1100	1200	1300	1450	800	990	1050	1175	1275	780	970	1025	1125	1250	640	780	840	920	1025
P6	1025	1250	1325	1475	1625	920	1100	1200	1300	1425	900	1075	1150	1275	1400	730	880	940	1025	1150
P7	970	1175	1250	1375	1525	870	1050	1125	1225	1350	850	1025	1100	1200	1325	690	830	890	980	1075
P8	900	1100	1200	1300	1450	800	990	1050	1175	1275	780	970	1025	1125	1250	640	780	840	920	1025
P11	950	1150	1225	1350	1475	840	1025	1100	1200	1325	820	1000	1075	1175	1300	670	810	860	950	1050
M1	940	1175	1250	1375	1500	880	1075	1150	1275	1400	860	1050	1125	1250	1375	740	910	980	1075	1175
M2	780	960	1025	1125	1250	720	890	950	1050	1150	710	870	930	1025	1125	610	750	800	880	970
M3	650	800	850	910	1000	600	740	790	850	930	590	720	770	830	900	510	630	660	720	780
M4	530	640	690	700	780	495	600	640	650	720	485	580	630	640	710	415	500	540	550	610
M5	445	530	570	590	650	410	495	530	540	600	400	485	520	530	590	345	420	450	460	510
K1	970	1200	1275	1400	1550	860	1075	1150	1250	1375	840	1050	1125	1225	1350	—	—	—	—	—
K2	860	1050	1125	1250	1375	760	940	1000	1100	1225	740	920	980	1075	1200	—	—	—	—	—
K3	720	890	960	1050	1150	640	790	850	930	1025	630	780	830	910	1000	—	—	—	—	—
K4	690	850	910	1000	1100	610	760	810	890	980	600	740	790	870	960	—	—	—	—	—
K5	430	530	560	620	680	380	470	500	550	600	375	460	490	540	590	—	—	—	—	—
K6	610	750	800	880	970	540	670	710	790	860	530	650	700	770	850	—	—	—	—	—
K7	550	670	720	790	870	490	600	640	700	770	475	590	620	690	760	—	—	—	—	—
N1	—	—	—	—	—	3175	3950	4225	4650	5075	3100	3875	4125	4550	4975	—	—	—	—	—
N2	—	—	—	—	—	2575	3200	3400	3750	4100	2525	3125	3325	3675	4000	—	—	—	—	—
N3	—	—	—	—	—	1725	2125	2275	2500	2725	1675	2075	2225	2450	2675	—	—	—	—	—
N11	—	—	—	—	—	1950	2425	2600	2850	3125	1925	2375	2550	2800	3050	—	—	—	—	—
S1	250	300	320	330	365	230	280	300	305	335	225	270	295	300	330	125	155	165	170	185
S2	200	240	260	265	290	185	225	240	245	270	180	220	235	240	265	105	125	135	135	150
S3	175	210	225	230	255	160	195	210	215	235	160	195	205	210	230	90	110	115	120	130
S11	345	415	445	460	500	320	390	410	430	470	310	380	405	420	455	175	215	230	235	260
S12	200	240	255	265	290	185	225	240	245	270	180	220	230	240	265	135	165	175	180	200
S13	160	195	210	210	235	150	180	195	195	220	145	175	190	195	215	110	130	140	145	160
H5	205	255	270	295	320	180	225	240	260	285	180	220	235	255	275	—	—	—	—	—
H8	225	275	290	305	335	200	240	260	275	300	195	235	255	265	295	—	—	—	—	—
H11	260	320	345	370	405	230	285	305	330	360	225	280	300	325	355	—	—	—	—	—
H12	395	485	520	560	610	350	430	460	500	540	340	425	450	490	530	—	—	—	—	—
H21	225	275	290	305	335	200	240	260	275	300	195	235	255	265	295	—	—	—	—	—

R218.20-150 – Insert selection – Roughing

SMG			f_z			
			100%	30%	20%	15%
P1	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0075	0.0085
P2	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0075	0.0085
P3	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0070	0.0080
P4	218.20-150ER-M08 F25M		0.0055	0.0065	0.0070	0.0080
P5	218.20-150ER-M08 F25M		0.0055	0.0060	0.0070	0.0080
P6	218.20-150ER-M08 F25M		0.0055	0.0060	0.0065	0.0080
P7	218.20-150ER-M08 F25M		0.0055	0.0060	0.0065	0.0080
P8	218.20-150ER-M08 F25M		0.0060	0.0065	0.0070	0.0080
P11	218.20-150ER-M08 F25M		0.0055	0.0060	0.0065	0.0080
M1	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0075	0.0085
M2	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0055	0.0060	0.0070	0.0080
M3	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0048	0.0050	0.0060	0.0065
M4	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0055	0.0065
M5	218.20-150ER-M08 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0055	0.0065
K1	218.20-150ER-M08 F25M		0.0060	0.0065	0.0075	0.0085
K2	218.20-150ER-M08 F25M		0.0055	0.0060	0.0070	0.0080
K3	218.20-150ER-M08 F25M		0.0055	0.0060	0.0070	0.0080
K4	218.20-150ER-M08 F25M		0.0055	0.0060	0.0070	0.0080
K5	218.20-150ER-M08 F25M		0.0050	0.0055	0.0065	0.0070
K6	218.20-150ER-M08 F25M		0.0055	0.0060	0.0070	0.0080
K7	218.20-150ER-M08 F25M		0.0050	0.0055	0.0065	0.0070
N1	218.20-150ER-ME07 F40M		0.0080	0.0085	0.0095	0.011
N2	218.20-150ER-ME07 F40M		0.0080	0.0085	0.0095	0.011
N3	218.20-150ER-ME07 F40M		0.0080	0.0085	0.0095	0.011
N11	218.20-150ER-ME07 F40M		0.0080	0.0085	0.0095	0.011
S1	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0055	0.0065
S2	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0055	0.0065
S3	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0050	0.0060
S11	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0050	0.0055	0.0065	0.0070
S12	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0050	0.0055	0.0065	0.0070
S13	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0055	0.0065
H5	218.20-150ER-M08 F25M		0.0040	0.0044	0.0050	0.0055
H8	218.20-150ER-M08 F25M		0.0032	0.0036	0.0040	0.0048
H11	218.20-150ER-M08 F25M		0.0040	0.0044	0.0050	0.0055
H12	218.20-150ER-M08 F25M		0.0040	0.0044	0.0050	0.0055
H21	218.20-150ER-M08 F25M		0.0032	0.0036	0.0040	0.0048

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-150 – Insert selection – Semi finishing

SMG			f_z			
			15%	12%	10%	8%
P1	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0085	0.0095	0.010	0.011
P2	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0085	0.0095	0.010	0.011
P3	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0080	0.0085	0.0095	0.011
P4	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
P5	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
P6	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
P7	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
P8	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.011
P11	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
M1	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0085	0.0095	0.010	0.011
M2	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0080	0.0085	0.0095	0.010
M3	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0065	0.0070	0.0080	0.0085
M4	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0065	0.0070	0.0075	0.0085
M5	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0065	0.0070	0.0075	0.0085
K1	218.20-150ER-M08 F25M		0.0085	0.0095	0.010	0.011
K2	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
K3	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
K4	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
K5	218.20-150ER-M08 F25M		0.0070	0.0080	0.0085	0.0095
K6	218.20-150ER-M08 F25M		0.0080	0.0085	0.0095	0.010
K7	218.20-150ER-M08 F25M		0.0070	0.0080	0.0085	0.0095
N1	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.011	0.012	0.013	0.014
N2	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.011	0.012	0.013	0.014
N3	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.011	0.012	0.013	0.014
N11	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.011	0.012	0.013	0.014
S1	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0065	0.0070	0.0075	0.0085
S2	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0065	0.0070	0.0075	0.0085
S3	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0070	0.0080
S11	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
S12	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
S13	218.20-150ER-ME07 F40M	SPMT100408T-M08 F40M	0.0065	0.0070	0.0075	0.0085
H5	218.20-150ER-M08 F25M		0.0055	0.0060	0.0065	0.0075
H8	218.20-150ER-M08 F25M		0.0048	0.0050	0.0055	0.0060
H11	218.20-150ER-M08 F25M		0.0055	0.0060	0.0065	0.0075
H12	218.20-150ER-M08 F25M		0.0055	0.0060	0.0065	0.0075
H21	218.20-150ER-M08 F25M		0.0048	0.0050	0.0055	0.0060

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-150 – Cutting data v_c = (sf/min)

	F25M					F40M					MM4500				
SMG	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	1000	1200	1325	1450	1575	970	1175	1275	1400	1525	740	890	970	1075	1175
P2	960	1175	1275	1400	1550	930	1150	1225	1350	1475	710	870	940	1025	1125
P3	840	1050	1100	1225	1350	810	1000	1075	1175	1300	620	770	810	900	990
P4	750	920	990	1100	1200	720	890	960	1050	1150	550	680	730	810	880
P5	720	890	950	1050	1150	690	860	920	1000	1100	530	650	700	770	840
P6	800	1000	1075	1175	1275	780	960	1025	1125	1250	590	740	780	860	940
P7	760	940	1000	1100	1200	730	910	970	1075	1175	560	690	740	820	890
P8	700	880	930	1025	1125	680	850	890	990	1100	520	650	680	760	830
P11	740	910	980	1075	1175	710	880	940	1050	1125	540	670	720	790	870
M1	770	950	1025	1125	1250	750	920	1000	1075	1200	610	740	810	880	970
M2	640	800	850	940	1025	620	770	820	910	990	510	630	670	740	810
M3	540	670	710	760	830	520	640	690	730	800	425	520	560	600	650
M4	445	540	580	600	640	430	520	560	580	620	350	425	455	470	500
M5	370	450	480	495	530	360	435	465	480	520	290	355	380	390	420
K1	760	930	1025	1100	1225	730	900	980	1075	1175	—	—	—	—	—
K2	680	840	900	990	1075	660	810	870	960	1050	—	—	—	—	—
K3	570	710	760	840	920	550	690	740	810	890	—	—	—	—	—
K4	550	680	730	800	880	530	660	700	770	850	—	—	—	—	—
K5	335	410	445	495	540	325	400	430	480	520	—	—	—	—	—
K6	485	600	640	710	770	465	580	620	680	740	—	—	—	—	—
K7	430	530	570	630	690	415	510	550	610	660	—	—	—	—	—
N1	2850	3425	3675	4100	4450	2750	3325	3550	3950	4300	—	—	—	—	—
N2	2300	2775	2975	3325	3600	2225	2675	2875	3200	3475	—	—	—	—	—
N3	1525	1850	1975	2200	2400	1475	1775	1925	2125	2325	—	—	—	—	—
N11	1750	2100	2275	2525	2750	1700	2050	2200	2450	2650	—	—	—	—	—
S1	205	250	270	280	300	200	245	260	270	290	105	130	140	145	155
S2	165	205	215	225	240	160	195	210	215	235	85	105	110	115	125
S3	145	180	190	195	210	140	170	185	190	205	75	90	100	100	110
S11	285	350	375	385	420	275	335	360	370	405	145	180	190	200	215
S12	165	200	215	220	240	160	195	210	215	235	110	140	150	150	165
S13	135	165	175	180	195	130	155	170	175	185	90	110	120	125	135
H5	165	200	215	235	255	160	195	210	225	245	—	—	—	—	—
H8	180	225	235	245	270	175	215	230	240	260	—	—	—	—	—
H11	210	255	275	300	325	200	250	265	290	315	—	—	—	—	—
H12	315	390	415	450	490	305	375	400	435	475	—	—	—	—	—
H21	180	225	235	245	270	175	215	230	240	260	—	—	—	—	—

R218.20-160 – Insert selection – Roughing

SMG			f_z			
			100%	30%	20%	15%
P1	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0055	0.0060	0.0070	0.0080
P2	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0055	0.0065	0.0070	0.0080
P3	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0050	0.0060	0.0065	0.0075
P4	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0075
P5	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0070
P6	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0070
P7	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0070
P8	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0060	0.0065	0.0075
P11	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0070
M1	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0055	0.0065	0.0070	0.0080
M2	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0050	0.0055	0.0065	0.0070
M3	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0055	0.0060
M4	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0050	0.0060
M5	218.20-160ER-M08 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0050	0.0060
K1	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0055	0.0065	0.0070	0.0080
K2	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0070
K3	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0070
K4	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0070
K5	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0048	0.0050	0.0060	0.0065
K6	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0050	0.0055	0.0065	0.0070
K7	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0048	0.0050	0.0060	0.0065
N1	218.20-160ER-ME08 F40M	SPMT100408T-M08 F25M	0.0070	0.0080	0.0085	0.010
N2	218.20-160ER-ME08 F40M	SPMT100408T-M08 F25M	0.0070	0.0080	0.0085	0.010
N3	218.20-160ER-ME08 F40M	SPMT100408T-M08 F25M	0.0070	0.0080	0.0085	0.010
N11	218.20-160ER-ME08 F40M	SPMT100408T-M08 F25M	0.0070	0.0080	0.0085	0.010
S1	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0050	0.0060
S2	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0044	0.0048	0.0050	0.0060
S3	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0040	0.0044	0.0048	0.0055
S11	218.20-160ER-ME08 MS2050	SPMT100408T-M08 F40M	0.0036	0.0040	0.0044	0.0050
S12	218.20-160ER-ME08 MS2050	SPMT100408T-M08 F40M	0.0036	0.0040	0.0044	0.0050
S13	218.20-160ER-ME08 MS2050	SPMT100408T-M08 F40M	0.0034	0.0038	0.0044	0.0048
H5	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0038	0.0040	0.0048	0.0050
H8	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0030	0.0032	0.0036	0.0040
H11	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0038	0.0040	0.0048	0.0050
H12	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0038	0.0040	0.0048	0.0050
H21	218.20-160ER-M08 F25M	SPMT100408T-M08 F25M	0.0030	0.0032	0.0036	0.0040

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-160 – Insert selection – Semi finishing

SMG			f_z			
			15%	12%	10%	8%
P1	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0080	0.0085	0.0095	0.010
P2	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0080	0.0085	0.0095	0.010
P3	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0075	0.0080	0.0085	0.010
P4	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0075	0.0080	0.0085	0.0095
P5	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
P6	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
P7	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
P8	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0075	0.0080	0.0085	0.010
P11	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
M1	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0080	0.0085	0.0095	0.010
M2	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
M3	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0070	0.0080
M4	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0070	0.0080
M5	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0070	0.0080
K1	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0080	0.0085	0.0095	0.010
K2	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
K3	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
K4	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
K5	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0065	0.0070	0.0080	0.0085
K6	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0070	0.0080	0.0085	0.0095
K7	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0065	0.0070	0.0080	0.0085
N1	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.010	0.011	0.012	0.013
N2	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.010	0.011	0.012	0.013
N3	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.010	0.011	0.012	0.013
N11	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.010	0.011	0.012	0.013
S1	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0070	0.0080
S2	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0060	0.0065	0.0070	0.0080
S3	218.20-160ER-ME08 F40M	SPMT100408T-M08 F40M	0.0055	0.0060	0.0065	0.0070
S11	218.20-160ER-ME08 MS2050	SPMT100408T-M08 F40M	0.0050	0.0055	0.0060	0.0065
S12	218.20-160ER-ME08 MS2050	SPMT100408T-M08 F40M	0.0050	0.0055	0.0060	0.0065
S13	218.20-160ER-ME08 MS2050	SPMT100408T-M08 F40M	0.0048	0.0050	0.0055	0.0065
H5	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0050	0.0055	0.0065	0.0065
H8	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0040	0.0044	0.0048	0.0055
H11	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0050	0.0055	0.0065	0.0065
H12	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0050	0.0055	0.0065	0.0065
H21	218.20-160ER-M08 F25M	SPMT100408T-M08 F40M	0.0040	0.0044	0.0048	0.0055

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-160 – Cutting data v_c = (sf/min)

	F25M					F40M					MM4500				
SMG	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	1000	1200	1325	1450	1575	970	1175	1275	1400	1525	780	950	1025	1150	1225
P2	960	1175	1275	1400	1550	930	1150	1225	1350	1475	750	920	1000	1100	1200
P3	840	1050	1100	1225	1350	810	1000	1075	1175	1300	660	820	860	960	1050
P4	750	920	990	1100	1200	720	890	960	1050	1150	590	720	780	860	940
P5	720	890	950	1050	1150	690	860	920	1000	1100	560	700	740	820	890
P6	800	1000	1075	1175	1275	780	960	1025	1125	1250	630	780	830	920	1000
P7	760	940	1000	1100	1200	730	910	970	1075	1175	590	740	790	870	950
P8	700	880	930	1025	1125	680	850	890	990	1100	550	690	720	800	880
P11	740	920	980	1075	1175	710	880	940	1050	1125	580	720	760	840	920
M1	770	950	1025	1125	1250	750	920	1000	1075	1200	640	790	860	940	1025
M2	640	800	850	940	1025	620	770	820	910	990	540	670	710	780	860
M3	550	670	720	760	830	530	650	700	730	800	455	560	600	630	690
M4	450	550	580	600	640	435	530	560	580	620	375	455	485	495	530
M5	375	455	485	495	530	365	440	470	480	520	315	380	405	415	445
K1	760	930	1025	1100	1225	730	900	980	1075	1175	—	—	—	—	—
K2	680	840	900	990	1075	660	810	870	960	1050	—	—	—	—	—
K3	570	710	760	840	920	560	690	740	810	890	—	—	—	—	—
K4	550	680	730	800	880	530	660	700	770	850	—	—	—	—	—
K5	340	410	445	485	540	325	400	430	470	520	—	—	—	—	—
K6	485	600	640	710	770	465	580	620	680	740	—	—	—	—	—
K7	430	530	570	620	690	415	510	550	600	660	—	—	—	—	—
N1	2850	3425	3675	4100	4450	2750	3325	3550	3975	4300	—	—	—	—	—
N2	2300	2775	2975	3325	3600	2225	2675	2875	3200	3475	—	—	—	—	—
N3	1525	1850	1975	2200	2400	1475	1775	1925	2125	2325	—	—	—	—	—
N11	1750	2125	2275	2525	2750	1700	2050	2200	2450	2650	—	—	—	—	—
S1	210	255	275	280	300	205	245	265	270	290	115	140	150	150	165
S2	170	205	220	225	240	165	200	210	215	235	95	110	120	125	130
S3	150	180	190	195	210	145	175	185	190	205	80	100	105	105	115
S11	280	345	370	385	420	275	335	360	370	405	155	190	205	210	230
S12	165	200	215	220	240	155	195	205	215	235	120	145	155	160	175
S13	135	165	175	180	195	130	160	170	175	185	100	120	130	130	140
H5	165	205	220	235	255	160	200	210	225	245	—	—	—	—	—
H8	180	225	235	245	270	175	215	230	240	260	—	—	—	—	—
H11	210	260	280	300	325	205	250	270	290	315	—	—	—	—	—
H12	320	395	420	450	490	310	380	405	435	475	—	—	—	—	—
H21	180	225	235	245	270	175	215	230	240	260	—	—	—	—	—

R218.20-200 – Insert selection – Roughing

SMG			f_z			
			100%	30%	20%	15%
P1	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0080	0.0085	0.010	0.011
P2	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0080	0.0085	0.010	0.011
P3	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0075	0.0085	0.0095	0.011
P4	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
P5	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
P6	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
P7	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
P8	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.0075	0.0085	0.0095	0.011
P11	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
M1	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0080	0.0085	0.010	0.011
M2	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0075	0.0080	0.0095	0.010
M3	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0065	0.0070	0.0080	0.0085
M4	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0065	0.0065	0.0075	0.0085
M5	218.20-200ER-M10 F40M	SCET120612T-M14 T350M	0.0065	0.0065	0.0075	0.0085
N1	218.20-200ER-ME10 F40M	SCET120612T-M11 F40M	0.010	0.011	0.013	0.014
N2	218.20-200ER-ME10 F40M	SCET120612T-M11 F40M	0.010	0.011	0.013	0.014
N3	218.20-200ER-ME10 F40M	SCET120612T-M11 F40M	0.010	0.011	0.013	0.014
N11	218.20-200ER-ME10 F40M	SCET120612T-M11 F40M	0.010	0.011	0.013	0.014
S1	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0065	0.0065	0.0075	0.0085
S2	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0065	0.0065	0.0075	0.0085
S3	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0055	0.0065	0.0070	0.0080
S11	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.0065	0.0070	0.0080	0.0095
S12	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.0065	0.0070	0.0080	0.0095
S13	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.0065	0.0065	0.0075	0.0085

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-200 – Insert selection – Semi finishing

SMG			f_z			
			15%	12%	10%	8%
P1	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.011	0.013	0.013	0.015
P2	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.011	0.013	0.013	0.015
P3	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.011	0.012	0.013	0.014
P4	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.010	0.012	0.013	0.014
P5	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.010	0.011	0.013	0.013
P6	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.010	0.011	0.013	0.013
P7	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.010	0.011	0.013	0.013
P8	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.011	0.012	0.013	0.014
P11	218.20-200ER-M10 F40M	SCET120612T-M11 MP2500	0.010	0.011	0.013	0.013
M1	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.011	0.013	0.013	0.015
M2	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.010	0.011	0.013	0.013
M3	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0085	0.0095	0.010	0.012
M4	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0085	0.0095	0.010	0.011
M5	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0085	0.0095	0.010	0.011
N1	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.014	0.016	0.017	0.020
N2	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.014	0.016	0.017	0.020
N3	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.014	0.016	0.017	0.020
N11	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.014	0.016	0.017	0.020
S1	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0085	0.0095	0.010	0.011
S2	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0085	0.0095	0.010	0.011
S3	218.20-200ER-ME10 F40M	SCET120612T-M14 T350M	0.0080	0.0085	0.0095	0.010
S11	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.0095	0.010	0.011	0.012
S12	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.0095	0.010	0.011	0.012
S13	218.20-200ER-ME10 F40M	SCET120612T-M14 F40M	0.0085	0.0095	0.010	0.011

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-200 – Cutting data v_c = (sf/min)

SMG	F40M					MM4500				
	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	860	1075	1150	1275	1375	700	860	930	1025	1125
P2	840	1025	1125	1225	1350	680	840	900	1000	1075
P3	740	910	980	1075	1175	600	740	790	870	960
P4	650	800	860	950	1050	530	650	700	770	840
P5	620	770	820	920	990	500	620	670	740	810
P6	710	860	920	1025	1125	580	700	750	830	910
P7	670	810	870	970	1050	550	660	710	790	850
P8	620	770	820	900	990	500	620	670	730	810
P11	650	790	850	940	1025	530	640	690	760	830
M1	670	840	900	990	1075	580	720	780	860	930
M2	560	690	740	820	900	480	590	640	710	770
M3	485	590	630	670	730	420	510	540	580	630
M4	400	485	520	520	570	345	415	450	450	490
M5	335	400	435	435	475	290	345	375	375	410
N1	2425	3000	3225	3550	3850	—	—	—	—	—
N2	1950	2425	2600	2850	3100	—	—	—	—	—
N3	1300	1625	1725	1900	2075	—	—	—	—	—
N11	1475	1850	1975	2175	2375	—	—	—	—	—
S1	185	225	245	240	265	105	125	140	135	150
S2	150	180	195	195	215	85	105	110	110	120
S3	130	160	175	170	190	75	90	100	95	105
S11	255	310	325	340	370	145	175	185	190	210
S12	145	180	190	195	215	110	135	140	145	160
S13	120	145	155	155	170	90	110	120	120	130

R218.20-250 – Insert selection – Roughing

SMG			f_z			
			100%	30%	20%	15%
P1	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0065	0.0075	0.0085	0.0095
P2	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0070	0.0075	0.0085	0.0095
P3	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0065	0.0070	0.0085	0.0095
P4	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
P5	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
P6	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
P7	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
P8	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.0080	0.0085	0.0095	0.011
P11	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.0075	0.0080	0.0095	0.010
M1	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0070	0.0075	0.0085	0.0095
M2	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0065	0.0070	0.0080	0.0085
M3	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0055	0.0060	0.0070	0.0080
M4	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0055	0.0060	0.0065	0.0075
M5	218.20-250TR-M14 F40M	SCET120612T-M14 T350M	0.0065	0.0065	0.0080	0.0085
N1	218.20-250ER-ME12 F40M	SCET120612T-M11 F40M	0.0085	0.0095	0.011	0.013
N2	218.20-250ER-ME12 F40M	SCET120612T-M11 F40M	0.0085	0.0095	0.011	0.013
N3	218.20-250ER-ME12 F40M	SCET120612T-M11 F40M	0.0085	0.0095	0.011	0.013
N11	218.20-250ER-ME12 F40M	SCET120612T-M11 F40M	0.0085	0.0095	0.011	0.013
S1	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0055	0.0060	0.0065	0.0075
S2	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0055	0.0060	0.0065	0.0075
S3	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0050	0.0055	0.0065	0.0070
S11	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.0060	0.0065	0.0075	0.0085
S12	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.0060	0.0065	0.0075	0.0085
S13	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.0055	0.0060	0.0065	0.0075

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-250 – Insert selection – Semi finishing

SMG			f_z			
			15%	12%	10%	8%
P1	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0095	0.010	0.012	0.013
P2	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0095	0.011	0.012	0.013
P3	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0095	0.010	0.011	0.013
P4	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.010	0.012	0.013	0.014
P5	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.010	0.012	0.013	0.014
P6	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.010	0.011	0.013	0.013
P7	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.010	0.011	0.013	0.013
P8	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.011	0.012	0.013	0.014
P11	218.20-250TR-M14 F40M	SCET120612T-M11 MP2500	0.010	0.011	0.013	0.013
M1	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0095	0.011	0.012	0.013
M2	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0085	0.0095	0.011	0.012
M3	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0080	0.0085	0.0095	0.010
M4	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0075	0.0085	0.0085	0.010
M5	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0075	0.0085	0.0085	0.010
N1	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.013	0.013	0.015	0.017
N2	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.013	0.013	0.015	0.017
N3	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.013	0.013	0.015	0.017
N11	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.013	0.013	0.015	0.017
S1	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0075	0.0085	0.0085	0.010
S2	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0075	0.0085	0.0085	0.010
S3	218.20-250ER-ME12 F40M	SCET120612T-M14 T350M	0.0070	0.0080	0.0085	0.0095
S11	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.0085	0.0095	0.010	0.011
S12	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.0085	0.0095	0.010	0.011
S13	218.20-250ER-ME12 F40M	SCET120612T-M14 F40M	0.0075	0.0085	0.0085	0.010

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-250 – Cutting data v_c = (sf/min)

SMG	F40M					MM4500				
	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	920	1125	1225	1325	1475	740	920	980	1075	1200
P2	890	1100	1175	1300	1425	720	880	960	1050	1150
P3	780	970	1025	1150	1250	630	780	820	930	1000
P4	690	850	920	1000	1100	560	690	750	820	900
P5	670	810	880	960	1050	540	660	710	780	860
P6	750	910	990	1100	1200	610	740	800	890	960
P7	710	860	930	1050	1125	570	700	750	840	910
P8	660	810	860	960	1050	530	660	690	780	850
P11	690	840	900	1000	1100	560	680	730	820	880
M1	720	880	950	1050	1150	620	760	820	910	990
M2	600	730	790	860	950	520	630	680	750	820
M3	480	600	640	700	770	415	510	550	610	670
M4	370	460	495	550	600	320	395	425	475	520
M5	310	385	410	455	500	265	330	355	395	435
N1	2625	3225	3450	3800	4125	—	—	—	—	—
N2	2125	2600	2775	3075	3325	—	—	—	—	—
N3	1425	1750	1850	2050	2225	—	—	—	—	—
N11	1625	2000	2125	2350	2525	—	—	—	—	—
S1	175	215	230	255	280	100	120	130	145	160
S2	140	175	185	205	225	80	100	105	115	130
S3	125	150	160	180	200	70	85	90	100	115
S11	245	300	325	355	390	135	170	185	200	220
S12	140	175	185	205	225	105	130	140	155	170
S13	110	140	150	165	180	85	105	110	125	135

R218.20-0.250 – Insert selection – Roughing

SMG		f_z			
		100%	30%	20%	15%
P1	218.20-0.250ER-ME03 F40M	0.0022	0.0024	0.0028	0.0032
P2	218.20-0.250ER-ME03 F40M	0.0024	0.0026	0.0028	0.0032
P3	218.20-0.250ER-ME03 F40M	0.0022	0.0024	0.0028	0.0030
P4	218.20-0.250ER-M03 F40M	0.0022	0.0024	0.0026	0.0030
P5	218.20-0.250ER-M03 F40M	0.0020	0.0022	0.0026	0.0030
P6	218.20-0.250ER-M03 F40M	0.0020	0.0022	0.0026	0.0030
P7	218.20-0.250ER-M03 F40M	0.0020	0.0022	0.0026	0.0030
P8	218.20-0.250ER-M03 F40M	0.0022	0.0024	0.0028	0.0030
P11	218.20-0.250ER-M03 F40M	0.0020	0.0022	0.0026	0.0030
M1	218.20-0.250ER-ME03 F40M	0.0024	0.0026	0.0028	0.0032
M2	218.20-0.250ER-ME03 F40M	0.0020	0.0022	0.0026	0.0030
M3	218.20-0.250ER-ME03 F40M	0.0017	0.0019	0.0022	0.0024
M4	218.20-0.250ER-ME03 F40M	0.0015	0.0017	0.0019	0.0022
M5	218.20-0.250ER-M03 F40M	0.0015	0.0017	0.0019	0.0022
K1	218.20-0.250ER-M03 F40M	0.0024	0.0026	0.0028	0.0032
K2	218.20-0.250ER-M03 F40M	0.0020	0.0022	0.0026	0.0030
K3	218.20-0.250ER-M03 F40M	0.0020	0.0022	0.0026	0.0030
K4	218.20-0.250ER-M03 F40M	0.0020	0.0022	0.0026	0.0030
K5	218.20-0.250ER-M03 F40M	0.0019	0.0020	0.0024	0.0026
K6	218.20-0.250ER-M03 F40M	0.0020	0.0022	0.0026	0.0030
K7	218.20-0.250ER-M03 F40M	0.0019	0.0020	0.0024	0.0026
N1	218.20-0.250ER-ME03 F40M	0.0030	0.0032	0.0036	0.0040
N2	218.20-0.250ER-ME03 F40M	0.0030	0.0032	0.0036	0.0040
N3	218.20-0.250ER-ME03 F40M	0.0030	0.0032	0.0036	0.0040
N11	218.20-0.250ER-ME03 F40M	0.0030	0.0032	0.0036	0.0040
S1	218.20-0.250ER-ME03 F40M	0.0015	0.0017	0.0019	0.0022
S2	218.20-0.250ER-ME03 F40M	0.0015	0.0017	0.0019	0.0022
S3	218.20-0.250ER-ME03 F40M	0.0014	0.0016	0.0017	0.0020
S11	218.20-0.250ER-ME03 F40M	0.0017	0.0019	0.0022	0.0024
S12	218.20-0.250ER-ME03 F40M	0.0017	0.0019	0.0022	0.0024
S13	218.20-0.250ER-ME03 F40M	0.0015	0.0017	0.0019	0.0022
H5	218.20-0.250ER-M03 F40M	0.0015	0.0016	0.0018	0.0022
H8	218.20-0.250ER-M03 F40M	0.0011	0.0013	0.0014	0.0016
H11	218.20-0.250ER-M03 F40M	0.0015	0.0016	0.0018	0.0022
H12	218.20-0.250ER-M03 F40M	0.0015	0.0016	0.0018	0.0022
H21	218.20-0.250ER-M03 F40M	0.0011	0.0013	0.0014	0.0016

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_e/D_c = %
All cutting data are start values

R218.20-0.250 – Insert selection – Semi finishing

SMG		f_z			
		15%	12%	10%	8%
P1	218.20-0.250ER-ME03 F40M	0.0032	0.0034	0.0038	0.0044
P2	218.20-0.250ER-ME03 F40M	0.0032	0.0036	0.0038	0.0044
P3	218.20-0.250ER-ME03 F40M	0.0030	0.0034	0.0036	0.0040
P4	218.20-0.250ER-M03 F40M	0.0030	0.0034	0.0036	0.0040
P5	218.20-0.250ER-M03 F40M	0.0030	0.0032	0.0036	0.0038
P6	218.20-0.250ER-M03 F40M	0.0030	0.0032	0.0034	0.0038
P7	218.20-0.250ER-M03 F40M	0.0030	0.0032	0.0034	0.0038
P8	218.20-0.250ER-M03 F40M	0.0030	0.0034	0.0036	0.0040
P11	218.20-0.250ER-M03 F40M	0.0030	0.0032	0.0034	0.0038
M1	218.20-0.250ER-ME03 F40M	0.0032	0.0036	0.0038	0.0044
M2	218.20-0.250ER-ME03 F40M	0.0030	0.0032	0.0036	0.0038
M3	218.20-0.250ER-ME03 F40M	0.0024	0.0028	0.0030	0.0032
M4	218.20-0.250ER-ME03 F40M	0.0022	0.0024	0.0026	0.0028
M5	218.20-0.250ER-ME03 F40M	0.0022	0.0024	0.0026	0.0028
K1	218.20-0.250ER-M03 F40M	0.0032	0.0036	0.0038	0.0044
K2	218.20-0.250ER-M03 F40M	0.0030	0.0032	0.0036	0.0038
K3	218.20-0.250ER-M03 F40M	0.0030	0.0032	0.0036	0.0038
K4	218.20-0.250ER-M03 F40M	0.0030	0.0032	0.0036	0.0038
K5	218.20-0.250ER-M03 F40M	0.0026	0.0030	0.0032	0.0036
K6	218.20-0.250ER-M03 F40M	0.0030	0.0032	0.0036	0.0038
K7	218.20-0.250ER-M03 F40M	0.0026	0.0030	0.0032	0.0036
N1	218.20-0.250ER-ME03 F40M	0.0040	0.0044	0.0048	0.0055
N2	218.20-0.250ER-ME03 F40M	0.0040	0.0044	0.0048	0.0055
N3	218.20-0.250ER-ME03 F40M	0.0040	0.0044	0.0048	0.0055
N11	218.20-0.250ER-ME03 F40M	0.0040	0.0044	0.0048	0.0055
S1	218.20-0.250ER-ME03 F40M	0.0022	0.0024	0.0026	0.0028
S2	218.20-0.250ER-ME03 F40M	0.0022	0.0024	0.0026	0.0028
S3	218.20-0.250ER-ME03 F40M	0.0020	0.0022	0.0024	0.0026
S11	218.20-0.250ER-ME03 F40M	0.0024	0.0028	0.0030	0.0032
S12	218.20-0.250ER-ME03 F40M	0.0024	0.0028	0.0030	0.0032
S13	218.20-0.250ER-ME03 F40M	0.0022	0.0024	0.0026	0.0028
H5	218.20-0.250ER-M03 F40M	0.0022	0.0024	0.0026	0.0028
H8	218.20-0.250ER-M03 F40M	0.0016	0.0017	0.0019	0.0022
H11	218.20-0.250ER-M03 F40M	0.0022	0.0024	0.0026	0.0028
H12	218.20-0.250ER-M03 F40M	0.0022	0.0024	0.0026	0.0028
H21	218.20-0.250ER-M03 F40M	0.0016	0.0017	0.0019	0.0022

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-0.250 – Cutting data v_c = (sf/min)

	F40M				
SMG	100%	30%	20%	10%	5%
P1	1325	1650	1750	1925	2125
P2	1275	1575	1675	1875	2025
P3	1125	1375	1475	1625	1775
P4	990	1225	1300	1425	1550
P5	940	1175	1250	1375	1500
P6	1075	1325	1400	1525	1700
P7	1025	1250	1325	1450	1600
P8	940	1150	1225	1375	1500
P11	980	1200	1275	1400	1550
M1	1025	1275	1350	1500	1625
M2	850	1050	1125	1225	1350
M3	700	860	910	980	1075
M4	550	660	710	750	820
M5	455	550	590	620	680
K1	1025	1250	1325	1475	1600
K2	890	1125	1175	1300	1425
K3	760	940	1000	1100	1200
K4	720	900	960	1050	1150
K5	440	550	580	640	700
K6	640	790	840	920	1025
K7	560	700	740	820	890
N1	3850	4750	5075	5625	6125
N2	3100	3825	4100	4550	4950
N3	2075	2550	2750	3025	3300
N11	2350	2925	3125	3450	3775
S1	255	310	330	350	380
S2	205	250	265	280	310
S3	180	215	230	245	265
S11	360	435	465	495	540
S12	205	250	270	285	310
S13	165	200	215	225	245
H5	210	260	275	295	320
H8	220	265	285	305	330
H11	265	330	350	375	410
H12	405	495	530	560	620
H21	220	265	285	305	330

R218.20-0.375 – Insert selection – Roughing

SMG		f_z			
		100%	30%	20%	15%
P1	218.20-0.375ER-ME05 F40M	0.0038	0.0044	0.0048	0.0055
P2	218.20-0.375ER-ME05 F40M	0.0040	0.0044	0.0048	0.0055
P3	218.20-0.375ER-ME05 F40M	0.0038	0.0040	0.0048	0.0050
P4	218.20-0.375ER-M05 F25M	0.0036	0.0040	0.0044	0.0050
P5	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0044	0.0050
P6	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0044	0.0048
P7	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0044	0.0048
P8	218.20-0.375ER-M05 F25M	0.0038	0.0040	0.0048	0.0050
P11	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0044	0.0048
M1	218.20-0.375ER-ME05 F40M	0.0040	0.0044	0.0048	0.0055
M2	218.20-0.375ER-ME05 F40M	0.0036	0.0038	0.0044	0.0050
M3	218.20-0.375ER-ME05 F40M	0.0030	0.0032	0.0036	0.0040
M4	218.20-0.375ER-ME05 F40M	0.0026	0.0028	0.0032	0.0036
M5	218.20-0.375ER-M05 F40M	0.0026	0.0028	0.0032	0.0036
K1	218.20-0.375ER-M05 F25M	0.0040	0.0044	0.0048	0.0055
K2	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0044	0.0050
K3	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0044	0.0050
K4	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0044	0.0050
K5	218.20-0.375ER-M05 F25M	0.0032	0.0036	0.0040	0.0044
K6	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0044	0.0050
K7	218.20-0.375ER-M05 F25M	0.0032	0.0036	0.0040	0.0044
N1	218.20-0.375ER-ME05 F40M	0.0048	0.0055	0.0065	0.0070
N2	218.20-0.375ER-ME05 F40M	0.0048	0.0055	0.0065	0.0070
N3	218.20-0.375ER-ME05 F40M	0.0048	0.0055	0.0065	0.0070
N11	218.20-0.375ER-ME05 F40M	0.0048	0.0055	0.0065	0.0070
S1	218.20-0.375ER-ME05 F40M	0.0026	0.0028	0.0032	0.0036
S2	218.20-0.375ER-ME05 F40M	0.0026	0.0028	0.0032	0.0036
S3	218.20-0.375ER-ME05 F40M	0.0024	0.0026	0.0030	0.0034
S11	218.20-0.375ER-ME05 F40M	0.0030	0.0032	0.0036	0.0040
S12	218.20-0.375ER-ME05 F40M	0.0030	0.0032	0.0036	0.0040
S13	218.20-0.375ER-ME05 F40M	0.0026	0.0028	0.0032	0.0036
H5	218.20-0.375ER-M05 F25M	0.0026	0.0028	0.0032	0.0036
H8	218.20-0.375ER-M05 F25M	0.0019	0.0020	0.0024	0.0026
H11	218.20-0.375ER-M05 F25M	0.0026	0.0028	0.0032	0.0036
H12	218.20-0.375ER-M05 F25M	0.0026	0.0028	0.0032	0.0036
H21	218.20-0.375ER-M05 F25M	0.0019	0.0020	0.0024	0.0026

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-0.375 – Insert selection – Semi finishing

SMG		f_z			
		15%	12%	10%	8%
P1	218.20-0.375ER-ME05 F40M	0.0055	0.0060	0.0065	0.0070
P2	218.20-0.375ER-ME05 F40M	0.0055	0.0060	0.0065	0.0070
P3	218.20-0.375ER-ME05 F40M	0.0050	0.0055	0.0065	0.0065
P4	218.20-0.375ER-M05 F25M	0.0050	0.0055	0.0060	0.0065
P5	218.20-0.375ER-M05 F25M	0.0050	0.0055	0.0060	0.0065
P6	218.20-0.375ER-M05 F25M	0.0048	0.0055	0.0060	0.0065
P7	218.20-0.375ER-M05 F25M	0.0048	0.0055	0.0060	0.0065
P8	218.20-0.375ER-M05 F25M	0.0050	0.0055	0.0065	0.0065
P11	218.20-0.375ER-M05 F25M	0.0048	0.0055	0.0060	0.0065
M1	218.20-0.375ER-ME05 F40M	0.0055	0.0060	0.0065	0.0070
M2	218.20-0.375ER-ME05 F40M	0.0050	0.0055	0.0060	0.0065
M3	218.20-0.375ER-ME05 F40M	0.0040	0.0044	0.0048	0.0055
M4	218.20-0.375ER-ME05 F40M	0.0036	0.0040	0.0044	0.0048
M5	218.20-0.375ER-ME05 F40M	0.0036	0.0040	0.0044	0.0048
K1	218.20-0.375ER-M05 F25M	0.0055	0.0060	0.0065	0.0070
K2	218.20-0.375ER-M05 F25M	0.0050	0.0055	0.0060	0.0065
K3	218.20-0.375ER-M05 F25M	0.0050	0.0055	0.0060	0.0065
K4	218.20-0.375ER-M05 F25M	0.0050	0.0055	0.0060	0.0065
K5	218.20-0.375ER-M05 F25M	0.0044	0.0048	0.0050	0.0060
K6	218.20-0.375ER-M05 F25M	0.0050	0.0055	0.0060	0.0065
K7	218.20-0.375ER-M05 F25M	0.0044	0.0048	0.0050	0.0060
N1	218.20-0.375ER-ME05 F40M	0.0070	0.0075	0.0085	0.0095
N2	218.20-0.375ER-ME05 F40M	0.0070	0.0075	0.0085	0.0095
N3	218.20-0.375ER-ME05 F40M	0.0070	0.0075	0.0085	0.0095
N11	218.20-0.375ER-ME05 F40M	0.0070	0.0075	0.0085	0.0095
S1	218.20-0.375ER-ME05 F40M	0.0036	0.0040	0.0044	0.0048
S2	218.20-0.375ER-ME05 F40M	0.0036	0.0040	0.0044	0.0048
S3	218.20-0.375ER-ME05 F40M	0.0034	0.0036	0.0040	0.0044
S11	218.20-0.375ER-ME05 F40M	0.0040	0.0044	0.0048	0.0055
S12	218.20-0.375ER-ME05 F40M	0.0040	0.0044	0.0048	0.0055
S13	218.20-0.375ER-ME05 F40M	0.0036	0.0040	0.0044	0.0048
H5	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0040	0.0048
H8	218.20-0.375ER-M05 F25M	0.0026	0.0030	0.0032	0.0036
H11	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0040	0.0048
H12	218.20-0.375ER-M05 F25M	0.0036	0.0038	0.0040	0.0048
H21	218.20-0.375ER-M05 F25M	0.0026	0.0030	0.0032	0.0036

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-0.375 – Cutting data v_c = (sf/min)

	F25M					F40M				
SMG	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	1250	1500	1625	1800	1975	1200	1450	1575	1750	1900
P2	1200	1475	1600	1725	1900	1150	1425	1525	1675	1825
P3	1050	1300	1375	1500	1650	1000	1250	1325	1450	1600
P4	930	1150	1225	1350	1450	900	1100	1175	1300	1400
P5	890	1075	1175	1300	1400	850	1050	1125	1250	1350
P6	1000	1225	1325	1450	1600	960	1200	1275	1400	1550
P7	940	1175	1250	1375	1500	910	1125	1200	1325	1450
P8	880	1075	1150	1275	1400	840	1050	1100	1225	1350
P11	910	1125	1200	1325	1475	880	1100	1150	1275	1425
M1	970	1175	1275	1400	1525	930	1150	1225	1350	1475
M2	800	980	1050	1150	1250	770	940	1025	1125	1200
M3	660	810	870	930	1000	630	780	840	890	970
M4	530	640	690	710	780	510	620	660	680	750
M5	440	540	570	590	650	425	520	550	570	620
K1	950	1175	1250	1375	1500	910	1125	1225	1325	1450
K2	840	1025	1125	1225	1325	810	990	1075	1175	1275
K3	710	870	940	1025	1125	690	840	910	1000	1075
K4	680	830	900	990	1075	660	800	870	950	1025
K5	415	510	550	600	660	400	490	530	580	630
K6	600	730	790	870	940	580	710	760	840	910
K7	530	650	700	760	840	510	630	670	740	810
N1	3525	4350	4650	5100	5625	3400	4200	4475	4925	5425
N2	2850	3500	3750	4125	4550	2750	3375	3625	3975	4375
N3	1900	2350	2500	2750	3025	1825	2250	2425	2650	2925
N11	2175	2675	2875	3150	3450	2100	2575	2750	3025	3325
S1	250	300	320	330	360	240	290	310	320	350
S2	200	240	260	265	290	190	235	250	255	280
S3	175	210	225	235	255	170	205	215	225	245
S11	340	415	445	470	510	330	400	430	450	490
S12	195	240	260	270	295	190	230	250	260	285
S13	160	195	205	215	235	155	185	200	205	225
H5	200	245	260	280	310	190	235	250	270	295
H8	215	260	275	295	320	205	250	265	280	310
H11	255	310	330	360	390	245	300	320	345	380
H12	380	470	500	540	590	365	450	480	520	570
H21	215	260	275	295	320	205	250	265	280	310

R218.20-0.750 – Insert selection – Roughing

SMG			f_z			
			100%	30%	20%	15%
P1	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0055	0.0065	0.0070	0.0080
P2	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0060	0.0065	0.0070	0.0080
P3	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0055	0.0060	0.0065	0.0075
P4	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0050	0.0060	0.0065	0.0075
P5	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0050	0.0055	0.0065	0.0075
P6	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0050	0.0055	0.0065	0.0070
P7	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0050	0.0055	0.0065	0.0070
P8	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0055	0.0060	0.0065	0.0075
P11	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0050	0.0055	0.0065	0.0070
M1	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0060	0.0065	0.0070	0.0080
M2	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0050	0.0055	0.0065	0.0075
M3	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0044	0.0048	0.0055	0.0065
M4	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0044	0.0048	0.0055	0.0060
M5	218.20-0.750ER-M10 MM4500	SCET120612T-M14 T350M	0.0044	0.0048	0.0055	0.0060
N1	218.20-0.750ER-ME10 F40M	SCET120612T-M11 F40M	0.0070	0.0080	0.0095	0.010
N2	218.20-0.750ER-ME10 F40M	SCET120612T-M11 F40M	0.0070	0.0080	0.0095	0.010
N3	218.20-0.750ER-ME10 F40M	SCET120612T-M11 F40M	0.0070	0.0080	0.0095	0.010
N11	218.20-0.750ER-ME10 F40M	SCET120612T-M11 F40M	0.0070	0.0080	0.0095	0.010
S1	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0044	0.0048	0.0055	0.0060
S2	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0044	0.0048	0.0055	0.0060
S3	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0040	0.0044	0.0050	0.0055
S11	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.0048	0.0050	0.0060	0.0065
S12	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.0048	0.0050	0.0060	0.0065
S13	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.0044	0.0048	0.0055	0.0060

R218.20-0.750 – Insert selection – Semi finishing

SMG			f_z			
			15%	12%	10%	8%
P1	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0080	0.0085	0.0095	0.010
P2	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0080	0.0085	0.0095	0.011
P3	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0075	0.0085	0.0095	0.010
P4	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0075	0.0080	0.0085	0.010
P5	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0075	0.0080	0.0085	0.0095
P6	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0070	0.0080	0.0085	0.0095
P7	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0070	0.0080	0.0085	0.0095
P8	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0075	0.0085	0.0095	0.010
P11	218.20-0.750ER-M10 MM4500	SCET120612T-M11 MP2500	0.0070	0.0080	0.0085	0.0095
M1	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0080	0.0085	0.0095	0.011
M2	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0075	0.0080	0.0085	0.0095
M3	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0065	0.0065	0.0075	0.0080
M4	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0060	0.0065	0.0070	0.0080
M5	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0060	0.0065	0.0070	0.0080
N1	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.010	0.011	0.013	0.013
N2	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.010	0.011	0.013	0.013
N3	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.010	0.011	0.013	0.013
N11	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.010	0.011	0.013	0.013
S1	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0060	0.0065	0.0070	0.0080
S2	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0060	0.0065	0.0070	0.0080
S3	218.20-0.750ER-ME10 F40M	SCET120612T-M14 T350M	0.0055	0.0065	0.0065	0.0075
S11	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.0065	0.0070	0.0080	0.0085
S12	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.0065	0.0070	0.0080	0.0085
S13	218.20-0.750ER-ME10 F40M	SCET120612T-M14 F40M	0.0060	0.0065	0.0070	0.0080

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R218.20-0.750 – Cutting data v_c = (sf/min)

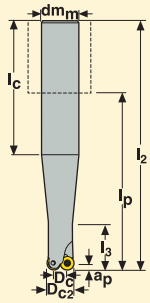
	F40M					MM4500				
SMG	100%	30%	20%	10%	5%	100%	30%	20%	10%	5%
P1	980	1175	1275	1400	1550	740	900	970	1075	1175
P2	950	1150	1250	1375	1500	720	880	950	1050	1150
P3	820	1000	1075	1200	1300	620	770	830	920	1000
P4	730	890	960	1075	1150	560	680	730	810	880
P5	700	870	930	1025	1125	530	660	710	780	860
P6	790	970	1050	1150	1250	600	740	790	870	960
P7	740	920	980	1075	1200	570	700	750	820	910
P8	690	850	910	1025	1100	520	650	700	780	840
P11	720	890	950	1050	1150	550	680	730	800	880
M1	770	930	1000	1100	1200	620	760	810	900	980
M2	630	780	830	920	1000	510	630	680	740	820
M3	510	630	670	730	810	415	510	540	600	660
M4	390	480	520	580	620	315	390	420	470	510
M5	325	400	435	480	520	265	325	350	390	420
N1	2775	3400	3575	3975	4375	—	—	—	—	—
N2	2250	2750	2900	3200	3525	—	—	—	—	—
N3	1500	1825	1925	2150	2350	—	—	—	—	—
N11	1700	2075	2200	2450	2675	—	—	—	—	—
S1	180	225	245	270	290	95	120	130	145	155
S2	145	180	195	215	235	80	95	105	115	125
S3	130	160	170	190	205	70	85	90	100	110
S11	255	315	335	370	410	135	165	180	200	220
S12	145	180	195	215	235	105	130	135	150	170
S13	120	145	155	175	190	85	105	110	125	135

R217.29-03

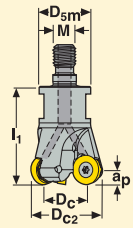
Cutters with 6mm round inserts, max axial cutting depth 0.118”

- For insert selection and cutting data recommendations, see pages 305-306.
- For complete insert program, see page 570.
- For helical interpolation, see page 632.
- For plunging, see page 634.

Cylindrical



Combimaster

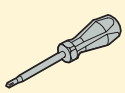


EDP No.	Part No.	Dimensions in inch										α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	D_{5m} dm_m	l_1	l_2	l_3	l_p	l_c	M	a_p						
96938	R217.29 -01.00-0-03-5	1.00	0.764	1.00	–	6.50	2.50	4.00	4.00	–	0.118	6.76	5	1.3	Cylindrical	23200	RD..06
96942	R217.29 -00.750-10RE-03-4A	0.75	0.514	0.73	1.10	–	–	–	–	M10	0.118	9.84	4	0.2	Combimaster*	25600	RD..06
96943	-01.00-12RE-03-5A	1.00	0.764	0.91	1.10	–	–	–	–	M12	0.118	6.76	5	0.2	Combimaster*	23200	RD..06
96944	-01.25-16RE-03-6A	1.25	1.014	1.18	1.10	–	–	–	–	M16	0.118	4.7	6	0.4	Combimaster*	20000	RD..06

α° = Ramping angle

* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.29-01.00 / 01.25	T07P-3	C02245-T07P
R217.29-00.750	T07P-3	C02204-T07P

Please check availability in current price and stock-list.

Insert screw torque value 8.0 in/lbs.
Torque keys available, see page 643.

R217/220.29-03 – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	RDHT06T1M0-E02 F40M	0.048	0.0024	0.0028	0.0040	0.0060
P2	RDHT06T1M0-E02 F40M	0.048	0.0026	0.0028	0.0044	0.0060
P3	RDHT06T1M0-E02 F40M	0.048	0.0024	0.0026	0.0040	0.0055
P4	RDHW06T1M0-MD02 MP3000	0.048	0.0036	0.0038	0.0060	0.0080
P5	RDHW06T1M0-MD02 MP3000	0.048	0.0034	0.0038	0.0060	0.0080
P6	RDHW06T1M0-MD02 MP3000	0.048	0.0034	0.0038	0.0055	0.0080
P7	RDHW06T1M0-MD02 MP3000	0.048	0.0034	0.0038	0.0055	0.0080
P8	RDHW06T1M0-MD02 MP3000	0.048	0.0036	0.0040	0.0060	0.0085
P11	RDHW06T1M0-MD02 MP3000	0.048	0.0034	0.0038	0.0055	0.0080
M1	RDHT06T1M0-E02 F40M	0.048	0.0026	0.0028	0.0044	0.0060
M2	RDHT06T1M0-E02 F40M	0.048	0.0024	0.0026	0.0038	0.0050
M3	RDHT06T1M0-E02 F40M	0.038	0.0020	0.0022	0.0034	0.0048
M4	RDHW06T1M0-MD02 MP3000	0.030	0.0030	0.0034	0.0050	0.0070
M5	RDHW06T1M0-MD02 MP3000	0.030	0.0030	0.0034	0.0050	0.0070
K1	RDHW06T1M0-MD02 MK2050	0.048	0.0038	0.0040	0.0065	0.0085
K2	RDHW06T1M0-MD02 MK2050	0.048	0.0034	0.0038	0.0060	0.0080
K3	RDHW06T1M0-MD02 MK2050	0.048	0.0034	0.0038	0.0060	0.0080
K4	RDHW06T1M0-MD02 MK2050	0.048	0.0034	0.0038	0.0060	0.0080
K5	RDHW06T1M0-MD02 MK2050	0.048	0.0032	0.0034	0.0050	0.0070
K6	RDHW06T1M0-MD02 MK2050	0.048	0.0034	0.0038	0.0060	0.0080
K7	RDHW06T1M0-MD02 MK2050	0.048	0.0032	0.0034	0.0050	0.0070
N1	RDHT06T1M0-E02 H25	0.048	0.0032	0.0036	0.0055	0.0075
N2	RDHT06T1M0-E02 H25	0.048	0.0032	0.0036	0.0055	0.0075
N3	RDHT06T1M0-E02 H25	0.048	0.0032	0.0036	0.0055	0.0075
N11	RDHT06T1M0-E02 H25	0.048	0.0032	0.0036	0.0055	0.0075
S1	RDHW06T1M0-MD02 F40M	0.030	0.0030	0.0034	0.0050	0.0070
S2	RDHW06T1M0-MD02 F40M	0.030	0.0030	0.0034	0.0050	0.0070
S3	RDHW06T1M0-MD02 MP3000	0.030	0.0028	0.0032	0.0048	0.0065
S11	RDHW06T1M0-MD02 F40M	0.034	0.0032	0.0036	0.0055	0.0075
S12	RDHW06T1M0-MD02 F40M	0.034	0.0032	0.0036	0.0055	0.0075
S13	RDHW06T1M0-MD02 F40M	0.030	0.0030	0.0034	0.0050	0.0070
H5	RDHW06T1M0-MD02 F15M	0.038	0.0026	0.0028	0.0044	0.0060
H8	RDHW06T1M0-MD02 F15M	0.034	0.0022	0.0024	0.0036	0.0048
H11	RDHW06T1M0-MD02 F15M	0.038	0.0026	0.0028	0.0044	0.0060
H12	RDHW06T1M0-MD02 F15M	0.038	0.0026	0.0028	0.0044	0.0060
H21	RDHW06T1M0-MD02 F15M	0.034	0.0022	0.0024	0.0036	0.0048

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.29-03 – Cutting data v_c = (sf/min)

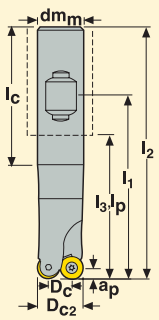
	MP3000				F15M				F25M				F40M				MK2050			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	1150	1575	1850	2025	1100	1500	1775	1950	1025	1375	1650	1775	920	1250	1500	1625	1200	1650	1925	2100
P2	1125	1525	1800	1975	1075	1450	1750	1900	990	1325	1600	1750	900	1225	1450	1575	1175	1575	1875	2050
P3	980	1325	1550	1725	940	1275	1500	1650	860	1150	1375	1500	780	1050	1250	1375	1025	1375	1625	1775
P4	860	1175	1375	1500	830	1125	1325	1450	760	1025	1200	1325	690	940	1100	1200	890	1225	1425	1575
P5	830	1125	1325	1450	800	1075	1275	1375	730	990	1175	1275	660	900	1075	1150	860	1175	1375	1500
P6	930	1250	1500	1625	890	1200	1425	1550	820	1100	1325	1425	750	1000	1200	1300	970	1300	1550	1675
P7	880	1175	1400	1525	840	1150	1350	1475	770	1050	1250	1350	700	950	1125	1225	910	1225	1475	1600
P8	820	1100	1300	1450	790	1075	1250	1375	720	980	1150	1275	660	890	1050	1150	850	1150	1375	1500
P11	850	1150	1375	1475	820	1100	1325	1425	750	1025	1200	1300	680	920	1100	1200	890	1200	1425	1550
M1	840	1125	1350	1475	870	1175	1400	1525	800	1075	1275	1400	720	980	1175	1275	—	—	—	—
M2	690	940	1100	1200	720	970	1150	1250	660	890	1050	1150	600	810	960	1050	—	—	—	—
M3	540	740	870	950	560	760	900	980	510	700	830	900	470	630	750	820	—	—	—	—
M4	420	560	660	730	430	570	690	750	395	530	630	690	360	480	570	630	—	—	—	—
M5	350	465	550	610	360	480	570	630	330	440	520	570	300	400	475	520	—	—	—	—
K1	890	1200	1425	1575	850	1150	1375	1500	780	1050	1275	1375	710	960	1150	1250	1250	1700	2025	2225
K2	790	1075	1250	1375	760	1025	1200	1325	690	940	1100	1200	630	850	1000	1100	1125	1500	1775	1950
K3	670	900	1075	1150	640	860	1025	1125	590	790	940	1025	530	720	850	930	940	1275	1500	1650
K4	640	860	1025	1100	610	820	980	1050	560	760	900	970	510	690	810	890	900	1225	1450	1575
K5	385	520	620	670	365	500	590	650	335	460	540	590	305	415	490	540	540	740	870	950
K6	560	760	900	970	540	730	860	940	495	670	790	860	450	610	720	780	790	1075	1275	1375
K7	490	670	790	860	470	640	760	830	430	590	690	760	390	530	630	690	690	950	1125	1225
N1	3375	4550	5400	5925	3225	4375	5175	5675	2950	4000	4750	5200	2700	3650	4325	4750	—	—	—	—
N2	2725	3675	4350	4775	2600	3525	4175	4600	2400	3250	3850	4200	2175	2950	3500	3825	—	—	—	—
N3	1800	2450	2900	3200	1750	2350	2800	3050	1600	2150	2550	2800	1450	1975	2325	2550	—	—	—	—
N11	2075	2800	3325	3650	1975	2700	3200	3500	1825	2475	2925	3200	1650	2250	2650	2925	—	—	—	—
S1	195	260	310	340	200	270	320	350	185	245	295	320	170	225	265	290	—	—	—	—
S2	155	210	250	275	160	215	260	285	150	200	235	260	135	180	215	235	—	—	—	—
S3	135	180	215	240	140	190	225	245	130	170	205	225	120	155	185	205	—	—	—	—
S11	275	370	440	480	285	380	455	495	260	350	415	455	235	315	380	415	—	—	—	—
S12	160	210	255	275	165	220	265	285	150	200	240	260	135	185	220	240	—	—	—	—
S13	125	165	200	220	130	175	205	225	120	160	190	210	110	145	170	190	—	—	—	—
H5	165	225	265	285	170	230	270	295	155	210	250	270	140	190	225	245	—	—	—	—
H8	170	230	270	300	175	235	280	305	160	215	255	280	145	195	230	255	—	—	—	—
H11	210	285	335	365	215	290	345	375	200	265	315	345	180	240	290	315	—	—	—	—
H12	320	430	510	550	330	440	520	570	300	400	480	520	275	365	435	470	—	—	—	—
H21	170	230	270	300	175	235	280	305	160	215	255	280	145	195	230	255	—	—	—	—

R217/220.29-03 – Cutting data v_c = (sf/min)

	H25			
SMG	100%	30%	10%	5%
P1	—	—	—	—
P2	—	—	—	—
P3	—	—	—	—
P4	—	—	—	—
P5	—	—	—	—
P6	—	—	—	—
P7	—	—	—	—
P8	—	—	—	—
P11	—	—	—	—
M1	—	—	—	—
M2	—	—	—	—
M3	—	—	—	—
M4	—	—	—	—
M5	—	—	—	—
K1	—	—	—	—
K2	—	—	—	—
K3	—	—	—	—
K4	—	—	—	—
K5	—	—	—	—
K6	—	—	—	—
K7	—	—	—	—
N1	3125	4225	4975	5450
N2	2525	3425	4000	4400
N3	1700	2275	2675	2925
N11	1925	2600	3050	3350
S1	—	—	—	—
S2	—	—	—	—
S3	—	—	—	—
S11	—	—	—	—
S12	—	—	—	—
S13	—	—	—	—
H5	—	—	—	—
H8	—	—	—	—
H11	—	—	—	—
H12	—	—	—	—
H21	—	—	—	—

R217.29-04

Cutters with 8mm round inserts, max axial cutting depth 0.158”

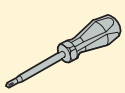


- For insert selection and cutting data recommendations, see pages 308-309.
- For complete insert program, see page 570, 608.
- For helical interpolation, see page 632.
- For plunging, see page 634.

EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	dm_m	l_1	l_2	l_3	l_c	a_p						
01983	R217.29 -00.750-3-04-3	0.75	0.435	0.75	3.52	4.53	2.50	2.03	0.157	16.5	3	0.9	Cyl/Weldon	32400	RD..08
01984	-01.00-3-04-4	1.00	0.685	1.00	4.39	5.53	2.28	2.78	0.157	10	4	1.3	Cyl/Weldon	29000	RD..08

α° = Ramping angle

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.29-..	T08P-3	C02505-T08P

Please check availability in current price and stock-list.

Insert screw torque value 10.6 in/lbs.
Torque keys available, see page 643.

R217220.29-04 – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	RDHT0803M0-E03 T350M	0.065	0.0038	0.0040	0.0065	0.0085
P2	RDHT0803M0-E03 T350M	0.065	0.0038	0.0040	0.0065	0.0085
P3	RDHT0803M0-E03 T350M	0.065	0.0036	0.0038	0.0060	0.0080
P4	RDKW0803M0T-MD05 MS2500	0.065	0.0060	0.0065	0.0095	0.013
P5	RDKW0803M0T-MD05 MS2500	0.065	0.0055	0.0065	0.0095	0.013
P6	RDKW0803M0T-MD05 MS2500	0.065	0.0055	0.0060	0.0095	0.013
P7	RDKW0803M0T-MD05 MS2500	0.065	0.0055	0.0060	0.0095	0.013
P8	RDKW0803M0T-MD05 MP2500	0.065	0.0060	0.0065	0.0095	0.013
P11	RDKW0803M0T-MD05 MS2500	0.065	0.0055	0.0060	0.0095	0.013
M1	RDHW0803M0-MD03 F40M	0.065	0.0050	0.0055	0.0085	0.012
M2	RDHW0803M0-MD03 F40M	0.065	0.0044	0.0048	0.0075	0.010
M3	RDHW0803M0-MD03 F40M	0.050	0.0040	0.0044	0.0065	0.0095
M4	RDHW0803M0-MD03 F40M	0.038	0.0040	0.0044	0.0070	0.0095
M5	RDHW0803M0-MD03 F40M	0.038	0.0040	0.0044	0.0070	0.0095
K1	RDKW0803M0T-MD05 MK2050	0.065	0.0065	0.0065	0.010	0.014
K2	RDKW0803M0T-MD05 MK2050	0.065	0.0055	0.0065	0.0095	0.013
K3	RDKW0803M0T-MD05 MK2050	0.065	0.0055	0.0065	0.0095	0.013
K4	RDKW0803M0T-MD05 MK2050	0.065	0.0055	0.0065	0.0095	0.013
K5	RDKW0803M0T-MD05 MK2050	0.065	0.0050	0.0055	0.0085	0.012
K6	RDKW0803M0T-MD05 MK2050	0.065	0.0055	0.0065	0.0095	0.013
K7	RDKW0803M0T-MD05 MK2050	0.065	0.0050	0.0055	0.0085	0.012
N1	RDHT0803M0-E03 H25	0.065	0.0048	0.0050	0.0080	0.011
N2	RDHT0803M0-E03 H25	0.065	0.0048	0.0050	0.0080	0.011
N3	RDHT0803M0-E03 H25	0.065	0.0048	0.0050	0.0080	0.011
N11	RDHT0803M0-E03 H25	0.065	0.0048	0.0050	0.0080	0.011
S1	RDHW0803M0-MD03 F40M	0.038	0.0040	0.0044	0.0070	0.0095
S2	RDHW0803M0-MD03 F40M	0.038	0.0040	0.0044	0.0070	0.0095
S3	RDHW0803M0-MD03 F40M	0.038	0.0038	0.0044	0.0065	0.0085
S11	RDHW0803M0-MD03 MS2050	0.044	0.0044	0.0048	0.0075	0.010
S12	RDHW0803M0-MD03 MS2050	0.044	0.0044	0.0048	0.0075	0.010
S13	RDHW0803M0-MD03 MS2050	0.038	0.0040	0.0044	0.0070	0.0095
H5	RDKW0803M0T-MD05 F15M	0.050	0.0044	0.0048	0.0075	0.010
H8	RDKW0803M0T-MD05 F15M	0.044	0.0036	0.0040	0.0060	0.0080
H11	RDKW0803M0T-MD05 F15M	0.050	0.0044	0.0048	0.0075	0.010
H12	RDKW0803M0T-MD05 F15M	0.050	0.0044	0.0048	0.0075	0.010
H21	RDKW0803M0T-MD05 F15M	0.044	0.0036	0.0040	0.0060	0.0080

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.29-04 – Cutting data v_c = (sf/min)

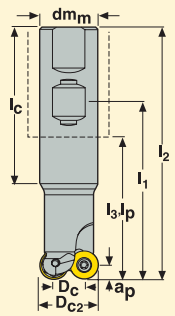
	MP2500				MP3000				T350M				F15M				F25M			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	1100	1500	1775	1950	1100	1475	1775	1925	1225	1650	1950	2175	1000	1350	1600	1775	920	1250	1475	1625
P2	1075	1450	1725	1900	1075	1450	1725	1875	1200	1625	1900	2075	980	1325	1575	1725	890	1225	1425	1575
P3	940	1275	1500	1650	930	1250	1500	1650	1050	1400	1650	1800	850	1150	1375	1500	780	1050	1250	1375
P4	830	1125	1325	1450	820	1100	1325	1450	920	1250	1450	1600	750	1025	1200	1325	690	930	1100	1200
P5	790	1075	1275	1400	780	1050	1250	1375	890	1200	1400	1550	720	970	1175	1275	660	890	1075	1175
P6	900	1225	1450	1575	880	1200	1425	1550	990	1350	1575	1725	820	1100	1300	1450	750	1025	1200	1325
P7	850	1150	1350	1500	830	1125	1350	1450	940	1275	1475	1625	770	1050	1225	1350	710	960	1125	1250
P8	790	1075	1275	1400	780	1050	1250	1375	880	1175	1400	1525	720	970	1150	1250	660	890	1050	1150
P11	820	1125	1325	1450	810	1100	1300	1425	910	1225	1425	1575	750	1025	1200	1325	690	930	1100	1200
M1	770	1050	1250	1375	800	1075	1275	1400	930	1250	1475	1600	790	1075	1250	1375	720	980	1150	1275
M2	630	860	1025	1125	650	890	1050	1150	760	1025	1200	1325	650	880	1050	1150	590	800	960	1050
M3	510	690	810	890	530	710	840	920	600	800	950	1050	520	700	830	910	475	640	760	830
M4	390	520	620	690	400	540	640	700	455	610	730	800	400	530	640	700	365	490	580	640
M5	325	435	520	570	330	450	530	580	380	510	610	660	330	445	530	580	305	405	485	530
K1	850	1150	1375	1500	840	1150	1350	1475	950	1275	1500	1650	770	1050	1250	1375	710	960	1125	1250
K2	750	1025	1225	1350	740	1000	1200	1300	840	1125	1325	1450	680	920	1100	1225	620	850	1025	1125
K3	630	860	1025	1125	630	850	1000	1100	710	960	1125	1225	580	780	940	1025	530	720	860	940
K4	600	820	980	1075	600	810	960	1050	680	910	1075	1175	550	750	890	980	500	680	820	900
K5	370	500	590	650	370	500	590	650	410	550	660	720	340	455	540	590	310	420	495	540
K6	530	720	870	950	530	720	850	930	600	810	940	1050	485	660	790	870	445	600	720	790
K7	475	640	760	840	475	640	750	830	520	700	840	920	430	590	690	760	395	540	630	700
N1	3200	4350	5125	5625	3175	4325	5100	5625	—	—	—	—	2900	3950	4650	5125	2650	3625	4250	4700
N2	2575	3500	4125	4550	2575	3500	4125	4525	—	—	—	—	2350	3200	3750	4125	2150	2925	3450	3800
N3	1725	2350	2750	3025	1725	2325	2750	3025	—	—	—	—	1550	2125	2500	2750	1425	1950	2300	2525
N11	1950	2675	3150	3475	1950	2675	3150	3450	—	—	—	—	1775	2425	2850	3150	1625	2225	2625	2875
S1	190	255	305	335	185	250	300	325	215	285	340	370	185	250	295	325	170	230	270	300
S2	155	205	245	270	150	205	240	265	170	230	275	300	150	200	240	265	135	185	220	240
S3	135	180	215	235	130	175	210	230	150	200	240	260	130	175	210	230	120	160	190	210
S11	270	360	430	470	265	355	425	465	300	405	480	530	260	350	420	460	240	325	385	420
S12	155	210	245	270	155	205	245	265	175	235	275	305	150	205	240	265	140	185	220	245
S13	125	165	195	215	120	165	195	210	140	185	220	240	120	160	190	210	110	145	175	195
H5	155	210	250	275	160	215	255	275	190	255	300	325	155	210	250	275	145	195	230	255
H8	165	220	265	285	165	220	265	290	195	260	310	335	165	220	265	285	150	205	240	265
H11	200	270	320	350	205	275	320	355	240	325	380	415	200	270	320	350	185	250	295	325
H12	300	410	485	530	305	410	485	530	365	485	570	630	300	410	485	530	275	375	445	485
H21	165	220	265	285	165	220	265	290	195	260	310	335	165	220	265	285	150	205	240	265

R217/220.29-04 – Cutting data v_c = (sf/min)

	F40M				MK2050				MS2050				MS2500				H25			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	880	1175	1400	1550	1075	1475	1750	1925	670	690	670	710	1200	1625	1925	2125	—	—	—	—
P2	850	1150	1375	1500	1050	1425	1700	1875	650	670	650	700	1175	1600	1875	2075	—	—	—	—
P3	750	1000	1200	1300	920	1250	1500	1625	530	540	530	540	1025	1400	1650	1800	—	—	—	—
P4	660	890	1050	1150	810	1100	1300	1425	465	475	465	480	900	1225	1450	1575	—	—	—	—
P5	630	850	1000	1100	780	1050	1275	1400	445	450	445	455	860	1175	1400	1525	—	—	—	—
P6	700	950	1150	1250	890	1200	1425	1550	500	510	465	510	980	1325	1575	1725	—	—	—	—
P7	660	900	1075	1175	840	1125	1350	1475	470	480	435	485	930	1250	1475	1625	—	—	—	—
P8	630	850	1000	1100	780	1050	1250	1375	445	450	445	455	860	1175	1375	1525	—	—	—	—
P11	650	870	1050	1125	810	1100	1300	1425	460	465	425	470	900	1225	1450	1575	—	—	—	—
M1	690	930	1100	1200	—	—	—	—	570	590	570	610	840	1150	1350	1475	—	—	—	—
M2	560	760	900	990	—	—	—	—	435	440	435	445	690	930	1125	1225	—	—	—	—
M3	455	610	720	790	—	—	—	—	255	245	230	245	550	750	880	970	—	—	—	—
M4	345	465	550	600	—	—	—	—	180	160	155	155	425	570	680	740	—	—	—	—
M5	285	385	460	500	—	—	—	—	150	135	125	130	355	475	560	620	—	—	—	—
K1	680	910	1100	1200	1150	1550	1825	2000	660	680	660	700	930	1250	1500	1625	—	—	—	—
K2	600	810	950	1050	1000	1350	1625	1800	540	550	540	550	820	1100	1325	1450	—	—	—	—
K3	500	680	810	890	850	1150	1375	1525	455	460	455	470	690	940	1125	1225	—	—	—	—
K4	480	650	770	850	810	1100	1325	1450	435	440	435	445	660	900	1075	1175	—	—	—	—
K5	295	400	470	520	500	670	790	880	220	215	220	225	405	550	650	710	—	—	—	—
K6	425	570	680	740	710	970	1175	1275	385	390	380	395	580	790	950	1050	—	—	—	—
K7	380	510	600	660	640	860	1025	1125	285	275	280	285	520	700	830	910	—	—	—	—
N1	2550	3475	4075	4500	—	—	—	—	—	—	—	—	—	—	—	—	2975	4025	4750	5225
N2	2050	2800	3300	3625	—	—	—	—	—	—	—	—	—	—	—	—	2400	3250	3850	4200
N3	1375	1875	2200	2425	—	—	—	—	—	—	—	—	—	—	—	—	1600	2150	2550	2800
N11	1575	2125	2525	2775	—	—	—	—	—	—	—	—	—	—	—	—	1825	2475	2925	3200
S1	160	215	255	280	—	—	—	—	195	235	260	275	210	280	330	365	—	—	—	—
S2	130	175	205	225	—	—	—	—	155	190	210	220	165	225	265	295	—	—	—	—
S3	115	150	180	200	—	—	—	—	135	165	180	190	145	195	235	255	—	—	—	—
S11	230	305	365	400	—	—	—	—	275	340	375	400	290	395	465	510	—	—	—	—
S12	130	175	210	230	—	—	—	—	210	260	290	305	170	225	270	295	—	—	—	—
S13	105	140	165	180	—	—	—	—	165	205	225	235	135	180	215	235	—	—	—	—
H5	135	185	215	235	—	—	—	—	—	—	—	—	170	230	275	300	—	—	—	—
H8	140	190	225	245	—	—	—	—	—	—	—	—	180	240	285	310	—	—	—	—
H11	175	235	275	300	—	—	—	—	—	—	—	—	215	295	350	380	—	—	—	—
H12	260	350	415	455	—	—	—	—	—	—	—	—	325	440	530	580	—	—	—	—
H21	140	190	225	245	—	—	—	—	—	—	—	—	180	240	285	310	—	—	—	—

R217.29-05

Cutters with 10mm round inserts, max axial cutting depth 0.197”

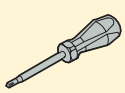


- For insert selection and cutting data recommendations, see pages 312-313.
- For complete insert program, see page 570, 608.
- For helical interpolation, see page 632.
- For plunging, see page 634.

EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	dm_m	l_1	l_2	l_3	l_c	a_p						
01882	R217.29 -01.00-3-05-3	1.00	0.606	1.00	4.14	5.28	3.00	2.28	0.197	17.25	3	1.3	Cyl/Weldon	24400	RD..10
01895	-01.25-3F-05-4	1.25	0.856	1.00	4.64	5.78	3.50	3.28	0.197	10.02	4	1.5	3 Flat Weldon	21600	RD..10

α° = Ramping angle

Spare Parts, included in delivery.

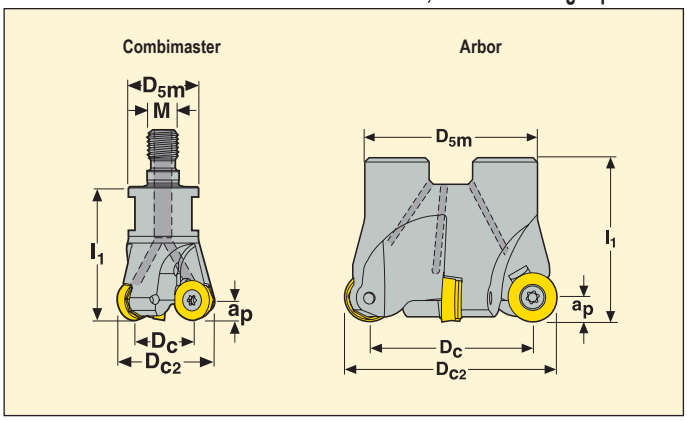
For cutter	Insert key	Insert screw
		
R217.29-01.00 - 01.25	T09P-3	C03007-T09P

Please check availability in current price and stock-list.

Insert screw torque value 17.7 in/lbs.
Torque keys available, see page 643.

R217/220.29-05

Cutters with 10mm round inserts, max axial cutting depth 0.197”



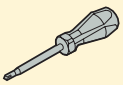
- For insert selection and cutting data recommendations, see pages 312-313.
- For complete insert program, see page 570, 608.
- For helical interpolation, see page 632.
- For plunging, see page 634.

EDP No.	Part No.	Dimensions in inch D_{c2}	D_c	D_{5m}	l_1	M	a_p	α° max		lbs	Type of mounting	Max rpm	Insert
01865	R217.29 -01.00-12RE-05-2A	1.00	0.606	0.91	1.18	M12	0.197	17.25	2	0.4	Combimaster*	24400	RD..10
01866	-01.00-12RE-05-3A	1.00	0.606	0.91	1.18	M12	0.197	17.25	3	0.4	Combimaster*	24400	RD..10
12489	-01.25-12RE-05-4A	1.25	0.856	0.91	1.18	M12	0.197	10.02	4	0.4	Combimaster*	21600	RD..10
01868	-01.25-16RE-05-4A	1.25	0.856	1.18	1.57	M16	0.197	10.02	4	0.4	Combimaster*	21600	RD..10
01872	-01.50-16RE-05-5A	1.50	1.106	1.18	1.57	M16	0.197	7	5	0.7	Combimaster*	19300	RD..10
01904	R220.29 -01.50-05-5A	1.50	1.106	1.38	1.50	–	0.197	7	5	0.9	Arbor	14000	RD..10
01910	-02.00-05-4A	2.00	1.606	1.65	1.50	–	0.197	4.87	4	0.9	Arbor	12500	RD..10
01911	-02.00-05-6A	2.00	1.606	1.65	1.50	–	0.197	4.87	6	1.1	Arbor	12500	RD..10

α° = Ramping angle

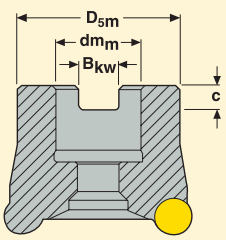
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.29-01.00 - 01.50	–	T09P-3	C03007-T09P
R220.29-01.50	UC6S1/4UNFX1SHCS	T09P-3	C03007-T09P
R220.29-02.00	UC6S3/8UNFX1	T09P-3	C03007-T09P

Insert screw torque value 17.7 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.29-01.50	0.50	1.38	0.26	0.16
R220.29-02.00	0.75	1.65	0.32	0.19

Please check availability in current price and stock-list.

R217/220.29-05 – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	RDHT10T3M0T-M05 T350M	0.080	0.0065	0.0065	0.010	0.014
P2	RDHT10T3M0T-M05 T350M	0.080	0.0065	0.0065	0.010	0.015
P3	RDHT10T3M0T-M05 T350M	0.080	0.0060	0.0065	0.010	0.013
P4	RDHT10T3M0T-M05 MS2500	0.080	0.0060	0.0065	0.0095	0.013
P5	RDHT10T3M0T-M05 MS2500	0.080	0.0055	0.0065	0.0095	0.013
P6	RDHT10T3M0T-M05 MS2500	0.080	0.0055	0.0065	0.0095	0.013
P7	RDKW10T3M0T-MD06 MS2500	0.080	0.0065	0.0075	0.011	0.016
P8	RDKW10T3M0T-MD06 MP2500	0.080	0.0070	0.0080	0.012	0.017
P11	RDKW10T3M0T-MD06 MS2500	0.080	0.0065	0.0075	0.011	0.016
M1	RDHT10T3M0T-M05 T350M	0.080	0.0065	0.0065	0.010	0.015
M2	RDHT10T3M0T-M05 T350M	0.080	0.0055	0.0065	0.0095	0.013
M3	RDHT10T3M0T-M05 T350M	0.065	0.0050	0.0055	0.0085	0.012
M4	RDHT10T3M0T-M05 T350M	0.048	0.0050	0.0055	0.0085	0.012
M5	RDHT10T3M0T-M05 T350M	0.048	0.0050	0.0055	0.0085	0.012
K1	RDKW10T3M0T-MD06 MK2050	0.080	0.0075	0.0080	0.013	0.017
K2	RDKW10T3M0T-MD06 MK2050	0.080	0.0065	0.0075	0.012	0.016
K3	RDKW10T3M0T-MD06 MK2050	0.080	0.0065	0.0075	0.012	0.016
K4	RDKW10T3M0T-MD06 MK2050	0.080	0.0065	0.0075	0.012	0.016
K5	RDKW10T3M0T-MD06 MK2050	0.080	0.0065	0.0065	0.010	0.014
K6	RDKW10T3M0T-MD06 MP1500	0.080	0.0065	0.0075	0.012	0.016
K7	RDKW10T3M0T-MD06 MP1500	0.080	0.0065	0.0065	0.010	0.014
N1	RDHT10T3M0-E04 H25	0.080	0.0065	0.0070	0.011	0.015
N2	RDHT10T3M0-E04 H25	0.080	0.0065	0.0070	0.011	0.015
N3	RDHT10T3M0-E04 H25	0.080	0.0065	0.0070	0.011	0.015
N11	RDHT10T3M0-E04 H25	0.080	0.0065	0.0070	0.011	0.015
S1	RDHT10T3M0T-M07 MS2500	0.048	0.0070	0.0080	0.012	0.017
S2	RDHT10T3M0T-M07 MS2500	0.048	0.0070	0.0080	0.012	0.017
S3	RDHT10T3M0T-M05 MS2500	0.048	0.0048	0.0050	0.0080	0.011
S11	RDHT10T3M0T-M05 MS2050	0.055	0.0055	0.0060	0.0095	0.013
S12	RDHT10T3M0T-M05 MS2050	0.055	0.0055	0.0060	0.0095	0.013
S13	RDHT10T3M0T-M05 MS2050	0.048	0.0050	0.0055	0.0085	0.012
H5	RDHW10T3M0T-MD06 MH1000	0.065	0.0050	0.0055	0.0085	0.012
H8	RDHW10T3M0T-MD06 MH1000	0.055	0.0044	0.0048	0.0070	0.010
H11	RDHW10T3M0T-MD06 MH1000	0.065	0.0050	0.0055	0.0085	0.012
H12	RDHW10T3M0T-MD06 MH1000	0.065	0.0050	0.0055	0.0085	0.012
H21	RDHW10T3M0T-MD06 MH1000	0.055	0.0044	0.0048	0.0070	0.010

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.29-05 – Cutting data v_c = (sf/min)

	MP1500				MP2500				T350M				F40M				MK2050			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	1200	1650	1950	2125	1050	1475	1725	1900	1075	1475	1750	1925	930	1300	1525	1675	1050	1450	1700	1850
P2	1150	1600	1900	2075	1025	1400	1675	1850	1050	1425	1700	1875	910	1250	1500	1625	1025	1375	1650	1800
P3	1000	1375	1675	1800	900	1225	1475	1600	910	1250	1500	1625	790	1075	1300	1425	880	1200	1450	1575
P4	890	1225	1475	1600	790	1100	1300	1400	800	1100	1300	1450	700	970	1150	1250	780	1075	1275	1400
P5	860	1175	1400	1550	760	1050	1250	1375	770	1050	1275	1375	670	920	1100	1200	750	1025	1225	1350
P6	970	1325	1575	1725	860	1175	1400	1525	870	1200	1425	1550	760	1025	1225	1350	850	1150	1375	1500
P7	910	1250	1500	1625	810	1100	1325	1450	830	1125	1350	1450	720	980	1175	1275	800	1100	1300	1425
P8	850	1175	1400	1525	750	1025	1250	1350	770	1050	1250	1375	670	910	1100	1200	740	1025	1225	1325
P11	890	1225	1450	1600	790	1075	1275	1400	800	1100	1300	1425	700	950	1125	1225	770	1050	1250	1375
M1	—	—	—	—	740	1025	1225	1325	810	1100	1325	1450	730	1000	1200	1300	—	—	—	—
M2	—	—	—	—	610	840	1000	1100	660	910	1100	1175	600	830	990	1075	—	—	—	—
M3	—	—	—	—	485	660	790	880	530	720	860	950	480	660	780	860	—	—	—	—
M4	—	—	—	—	375	510	620	670	405	550	660	720	370	500	600	660	—	—	—	—
M5	—	—	—	—	310	425	510	560	340	460	550	600	310	415	500	550	—	—	—	—
K1	920	1250	1500	1650	810	1125	1325	1450	830	1125	1350	1475	720	980	1175	1300	1100	1500	1800	1950
K2	820	1125	1325	1475	730	990	1175	1300	730	1000	1200	1300	630	880	1050	1125	970	1325	1575	1750
K3	690	950	1125	1250	610	840	1000	1100	620	850	1025	1100	540	740	880	960	820	1125	1350	1475
K4	660	900	1075	1175	590	800	950	1050	590	810	970	1050	510	710	840	920	790	1075	1275	1400
K5	400	550	650	710	355	490	580	630	360	490	580	650	315	430	510	560	475	660	780	850
K6	580	800	950	1050	520	710	840	920	520	720	850	930	450	620	740	810	690	950	1125	1250
K7	510	710	840	910	455	630	740	810	465	630	750	830	400	550	650	720	610	840	990	1075
N1	—	—	—	—	3025	4175	4950	5425	—	—	—	—	2700	3700	4400	4825	—	—	—	—
N2	—	—	—	—	2450	3375	4000	4375	—	—	—	—	2175	2975	3550	3900	—	—	—	—
N3	—	—	—	—	1625	2250	2650	2925	—	—	—	—	1450	2000	2375	2600	—	—	—	—
N11	—	—	—	—	1875	2575	3050	3350	—	—	—	—	1650	2275	2700	2975	—	—	—	—
S1	—	—	—	—	180	250	300	325	190	255	310	340	175	235	280	305	—	—	—	—
S2	—	—	—	—	145	200	240	260	155	205	250	270	140	190	225	245	—	—	—	—
S3	—	—	—	—	130	175	210	230	135	180	215	235	120	165	195	215	—	—	—	—
S11	—	—	—	—	255	350	420	460	265	360	435	480	245	330	395	435	—	—	—	—
S12	—	—	—	—	150	200	240	265	155	210	250	275	140	190	230	250	—	—	—	—
S13	—	—	—	—	120	160	195	210	125	165	200	220	110	150	180	200	—	—	—	—
H5	190	255	305	335	150	205	245	270	170	230	275	300	145	200	240	260	—	—	—	—
H8	195	265	320	350	160	215	260	280	175	240	285	310	155	205	245	270	—	—	—	—
H11	240	325	390	430	195	265	315	345	215	290	350	380	185	255	305	330	—	—	—	—
H12	365	495	590	650	290	395	475	520	325	440	530	580	280	380	460	500	—	—	—	—
H21	195	265	320	350	160	215	260	280	175	240	285	310	155	205	245	270	—	—	—	—

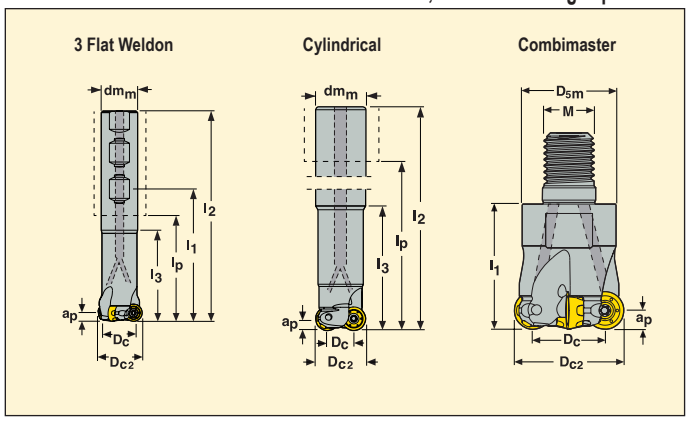
R217/220.29-05 – Cutting data v_c = (sf/min)

	MM4500				MS2050				MS2500				MH1000				H25			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	690	950	1125	1250	860	900	920	970	1375	1900	2250	2450	1175	1650	1950	2125	—	—	—	—
P2	670	920	1100	1200	840	910	900	950	1325	1825	2175	2400	1150	1575	1900	2050	—	—	—	—
P3	580	810	970	1050	700	750	740	760	1175	1600	1900	2075	1000	1375	1650	1800	—	—	—	—
P4	520	710	850	930	620	630	650	670	1025	1425	1675	1850	880	1225	1450	1575	—	—	—	—
P5	500	680	810	890	590	600	590	640	980	1350	1625	1750	860	1175	1400	1525	—	—	—	—
P6	560	760	910	1000	630	670	660	720	1125	1525	1825	1975	960	1325	1575	1725	—	—	—	—
P7	530	720	860	940	600	630	630	680	1050	1425	1700	1850	910	1250	1475	1625	—	—	—	—
P8	485	680	810	880	590	630	620	640	980	1325	1600	1750	840	1150	1400	1500	—	—	—	—
P11	510	700	840	920	580	620	610	660	1025	1400	1675	1800	880	1200	1425	1575	—	—	—	—
M1	580	790	950	1025	730	800	790	830	960	1300	1575	1700	—	—	—	—	—	—	—	—
M2	475	650	780	850	570	580	580	630	780	1075	1300	1400	—	—	—	—	—	—	—	—
M3	380	520	630	690	370	370	365	360	630	860	1025	1125	—	—	—	—	—	—	—	—
M4	295	400	480	530	245	250	230	240	485	650	780	860	—	—	—	—	—	—	—	—
M5	245	330	400	440	205	205	190	200	405	540	650	720	—	—	—	—	—	—	—	—
K1	—	—	—	—	850	920	910	960	1050	1450	1725	1900	910	1250	1500	1625	—	—	—	—
K2	—	—	—	—	710	720	710	780	930	1275	1525	1675	810	1100	1325	1450	—	—	—	—
K3	—	—	—	—	600	610	600	660	790	1100	1300	1400	690	940	1125	1225	—	—	—	—
K4	—	—	—	—	570	580	580	630	750	1050	1250	1350	660	900	1075	1175	—	—	—	—
K5	—	—	—	—	315	325	325	315	460	630	750	830	395	550	650	710	—	—	—	—
K6	—	—	—	—	510	510	510	550	660	920	1100	1175	580	790	940	1025	—	—	—	—
K7	—	—	—	—	400	420	415	405	590	800	950	1050	510	700	830	910	—	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2825	3875	4650	5075
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2300	3125	3750	4100
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1525	2075	2500	2725
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1750	2375	2850	3125
S1	90	120	145	160	210	260	295	315	235	320	385	420	—	—	—	—	—	—	—	—
S2	75	100	120	130	170	210	240	255	190	255	310	340	—	—	—	—	—	—	—	—
S3	65	85	105	115	150	185	205	220	165	225	270	295	—	—	—	—	—	—	—	—
S11	125	170	210	225	290	370	420	450	330	450	540	590	—	—	—	—	—	—	—	—
S12	95	135	160	175	225	285	325	345	190	260	310	345	—	—	—	—	—	—	—	—
S13	80	105	125	140	180	225	255	270	155	205	245	270	—	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—	195	265	315	345	185	255	305	335	—	—	—	—
H8	—	—	—	—	—	—	—	—	205	275	330	360	195	265	320	345	—	—	—	—
H11	—	—	—	—	—	—	—	—	245	335	405	440	240	325	385	425	—	—	—	—
H12	—	—	—	—	—	—	—	—	375	510	610	660	360	490	580	640	—	—	—	—
H21	—	—	—	—	—	—	—	—	205	275	330	360	195	265	320	345	—	—	—	—

R217.29I-06

Cutters with 12mm round inserts, max axial cutting depth 0.236”

- For insert selection and cutting data recommendations, see pages 317-318.
- For complete insert program, see page 571.
- For helical interpolation, see page 632.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch											α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	D_{5m}	dm_m	l_1	l_2	l_3	l_p	l_c	M	a_p						
13702	R217.29I -01.00-12RE-06-2A	1.00	0.528	0.91	–	1.38	–	–	–	–	M12	.236	12	2	0.4	Combimaster*	17700	RP..12
13704	-01.25-12RE-06-3A	1.25	0.778	0.91	–	1.57	–	–	–	–	M12	.236	7	3	0.4	Combimaster*	15600	RP..12
13703	-01.25-16RE-06-3A	1.25	0.778	1.18	–	1.57	–	–	–	–	M16	.236	7	3	0.7	Combimaster*	15600	RP..12
13705	-01.50-16RE-06-3A	1.50	1.028	1.18	–	1.57	–	–	–	–	M16	.236	8.5	3	0.7	Combimaster*	14000	RP..12
13709	-01.50-16RE-06-4A	1.50	1.028	1.18	–	1.57	–	–	–	–	M16	.236	8.5	4	0.7	Combimaster*	14000	RP..12
52980	-01.50-20RE-06-4A	1.50	1.028	1.44	–	1.57	–	–	–	–	M20	.236	8.5	4	0.7	Combimaster*	14000	RP..12
13710	R217.29I -01.00-0-06-2A	1.00	0.528	–	1.00	–	6.50	2.48	4.30	4.01	–	.236	12	2	1.3	Cylindrical	17700	RP..12
13712	R217.29I -01.00-3F-06-2A	1.00	0.528	–	1.00	4.64	5.78	2.50	2.50	3.28	–	.236	12	2	1.1	3 Flat Weldon	17700	RP..12
13711	-01.25-3F-06-3A	1.25	0.778	–	1.00	4.64	5.78	3.42	3.42	3.28	–	.236	7	3	1.3	3 Flat Weldon	15600	RP..12

α° = Ramping angle

* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw	Key	Screw
R217.29I-01.00	T15P-4	C03508-T15P	T05P-2	SX2035-T05P
R217.29I-01.25 / 01.50	T15P-4	C03509-T15P	T05P-2	SX2035-T05P

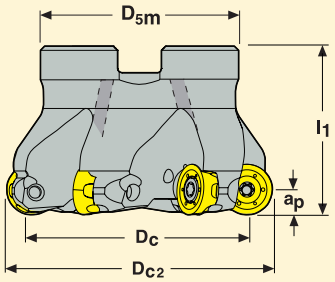
Please check availability in current price and stock-list.

Insert screw torque value 26.5 in/lbs.
Torque keys available, see page 643.

R220.29I-06

Cutters with 12mm round inserts, max axial cutting depth 0.236”

- For insert selection and cutting data recommendations, see pages 317-318.
- For complete insert program, see page 571.
- For helical interpolation, see page 632.
- For plunging, see page 634.



With coolant through up to 5.00” dia.

Pitch	EDP No.	Part No.	Dimensions in inch D_{c2}	D_c	l_1	a_p	α° max		lbs	Max rpm	Insert
Normal											
	13715	R220.29I -02.00-06-4A	2.00	1.528	1.50	0.236	6.5	4	0.7	12500	RP..12
	13718	-02.50-06-6A	2.50	2.028	1.50	0.236	4.6	6	1.1	11200	RP..12
	13721	-03.00-06-6A	3.00	2.528	2.00	0.236	3	6	2.2	10000	RP..12
	13724	-04.00-06-7A	4.00	3.528	2.00	0.236	2	7	4.4	8800	RP..12
	13726	-05.00-06-7A	5.00	4.528	2.00	0.236	1.5	7	6.6	8000	RP..12
	13728	-06.00-06-8	6.00	5.528	2.00	0.236	1.2	8	8.8	7600	RP..12

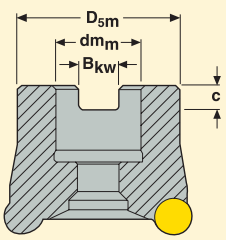
$\alpha°$ = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Key	Screw
R220.29I-02.00 / 02.50	UC6S3/8UNFX1	T15P-4	C03509-T15P	T05P-2	SX2035-T05P
R220.29I-03.00	UC6S1/2UNFX1-1/2	T15P-4	C03509-T15P	T05P-2	SX2035-T05P
R220.29I-04.00 / 05.00	ULC6S3/4UNFX11/2	T15P-4	C03509-T15P	T05P-2	SX2035-T05P
R220.29I-06.00	–	T15P-4	C03509-T15P	T05P-2	SX2035-T05P

Insert screw torque value 26.5 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

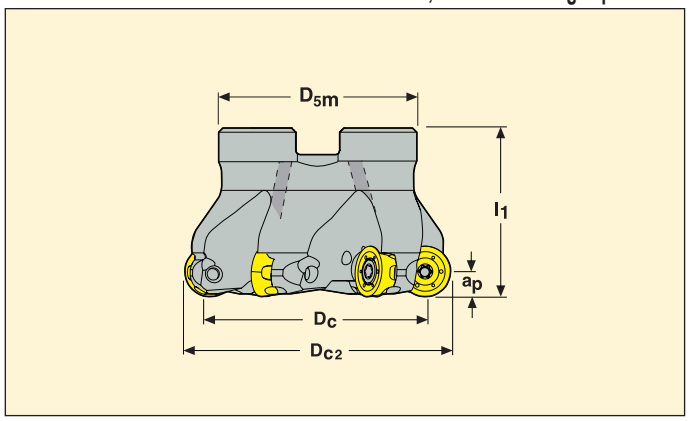


For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.29I-02.00	0.75	1.65	0.32	0.19
R220.29I-02.50	0.75	1.85	0.32	0.19
R220.29I-03.00	1.00	2.44	0.38	0.22
R220.29I-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.29I-06.00	2.00	4.33	0.75	0.44

Please check availability in current price and stock-list.

R220.29I-06

Cutters with 12mm round inserts, max axial cutting depth 0.236”



- For insert selection and cutting data recommendations, see pages 317-318.
- For complete insert program, see page 571.
- For helical interpolation, see page 632.
- For plunging, see page 634.

Pitch	EDP No.	Part No.	Dimensions in inch D_{c2}	D_c	l_1	a_p	α° max		lbs	Max rpm	Insert
Close											
	13713	R220.29I -01.50-06-4A	1.50	1.028	1.50	0.236	10.5	4	0.4	14000	RP..12
	13717	-02.00-06-5A	2.00	1.528	1.50	0.236	6.5	5	0.7	12500	RP..12
	13720	-02.50-06-7A	2.50	2.028	1.50	0.236	4.6	7	1.1	11200	RP..12
	13723	-03.00-06-7A	3.00	2.528	2.00	0.236	3	7	2.2	10000	RP..12
	13725	-04.00-06-9A	4.00	3.528	2.00	0.236	2	9	4.4	8800	RP..12

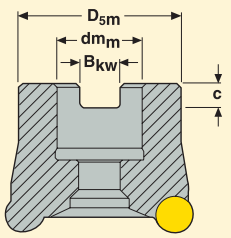
α° = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Key	Screw
R220.29I-01.50	UC6S1/4UNFX1SHCS	T15P-4	C03508-T15P	T05P-2	SX2035-T05P
R220.29I-02.00 / 02.50	UC6S3/8UNFX1	T15P-4	C03509-T15P	T05P-2	SX2035-T05P
R220.29I-03.00	UC6S1/2UNFX1-1/2	T15P-4	C03509-T15P	T05P-2	SX2035-T05P
R220.29I-04.00	ULC6S3/4UNFX11/2	T15P-4	C03509-T15P	T05P-2	SX2035-T05P

Insert screw torque value 26.5 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.29I-01.50	0.50	1.26	0.26	0.16
R220.29I-02.00	0.75	1.65	0.32	0.19
R220.29I-02.50	0.75	1.85	0.32	0.19
R220.29I-03.00	1.00	2.44	0.38	0.22
R220.29I-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217220.29I-06 – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	RPHT1204M0T-M08 T350M	0.10	0.0095	0.010	0.017	0.024
P2	RPHT1204M0T-M08 T350M	0.10	0.0095	0.011	0.017	0.024
P3	RPHT1204M0T-M08 T350M	0.10	0.0095	0.010	0.016	0.022
P4	RPHT1204M0T-M08 T350M	0.10	0.0095	0.010	0.015	0.022
P5	RPHT1204M0T-M15 MS2500	0.10	0.017	0.018	0.028	0.040
P6	RPHT1204M0T-M15 MS2500	0.10	0.017	0.018	0.028	0.040
P7	RPHT1204M0T-M15 MS2500	0.10	0.017	0.018	0.028	0.040
P8	RPHT1204M0T-M15 MP2500	0.10	0.017	0.019	0.030	0.044
P11	RPHT1204M0T-M15 MS2500	0.10	0.017	0.018	0.028	0.040
M1	RPHT1204M0T-ME07 T350M	0.10	0.0085	0.0095	0.014	0.020
M2	RPHT1204M0T-ME07 T350M	0.10	0.0080	0.0085	0.013	0.018
M3	RPHT1204M0T-ME07 T350M	0.075	0.0070	0.0080	0.012	0.017
M4	RPHT1204M0T-M08 T350M	0.060	0.0080	0.0085	0.013	0.019
M5	RPHT1204M0T-M08 T350M	0.060	0.0080	0.0085	0.013	0.019
K1	RPHT1204M0T-M15 MK2050	0.10	0.018	0.020	0.032	0.044
K2	RPHT1204M0T-M15 MK2050	0.10	0.017	0.018	0.028	0.040
K3	RPHT1204M0T-M15 MK2050	0.10	0.017	0.018	0.028	0.040
K4	RPHT1204M0T-M15 MK2050	0.10	0.017	0.018	0.028	0.040
K5	RPHT1204M0T-M15 MK2050	0.10	0.015	0.017	0.026	0.036
K6	RPHT1204M0T-M15 MK2050	0.10	0.017	0.018	0.028	0.040
K7	RPHT1204M0T-M15 MK2050	0.10	0.015	0.017	0.026	0.036
N1	RPHT1204M0-E05 H25	0.10	0.0080	0.0085	0.013	0.018
N2	RPHT1204M0-E05 H25	0.10	0.0080	0.0085	0.013	0.018
N3	RPHT1204M0-E05 H25	0.10	0.0080	0.0085	0.013	0.018
N11	RPHT1204M0-E05 H25	0.10	0.0080	0.0085	0.013	0.018
S1	RPHT1204M0T-M10 MS2500	0.060	0.010	0.011	0.017	0.024
S2	RPHT1204M0T-M10 MS2500	0.060	0.010	0.011	0.017	0.024
S3	RPHT1204M0T-M08 MS2500	0.060	0.0075	0.0080	0.013	0.017
S11	RPHT1204M0T-M08 MS2050	0.065	0.0085	0.0095	0.015	0.022
S12	RPHT1204M0T-M08 MS2050	0.065	0.0085	0.0095	0.015	0.022
S13	RPHT1204M0T-M08 MS2050	0.060	0.0080	0.0085	0.013	0.019
H5	RPHW1204M0T-MD10 MH1000	0.075	0.0085	0.0095	0.015	0.020
H8	RPHW1204M0T-MD10 MH1000	0.065	0.0070	0.0080	0.012	0.017
H11	RPHW1204M0T-MD10 MH1000	0.075	0.0085	0.0095	0.015	0.020
H12	RPHW1204M0T-MD10 MH1000	0.075	0.0085	0.0095	0.015	0.020
H21	RPHW1204M0T-MD10 MH1000	0.065	0.0070	0.0080	0.012	0.017

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.29I-06 – Cutting data v_c = (sf/min)

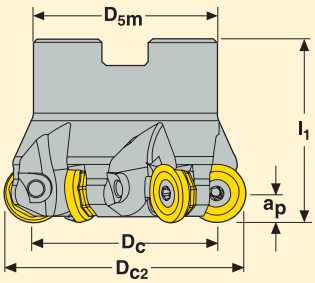
	MP1500				MP2500				MP3000				T350M				F40M			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	1025	1450	1750	1875	1125	1550	1850	2025	1075	1475	1750	1900	970	1350	1625	1750	850	1175	1400	1525
P2	1000	1425	1675	1825	1075	1525	1775	1950	1025	1400	1700	1850	930	1325	1550	1700	810	1150	1350	1475
P3	880	1225	1475	1600	940	1300	1550	1700	890	1225	1450	1600	820	1125	1350	1475	710	990	1175	1300
P4	770	1075	1300	1425	820	1150	1400	1500	780	1100	1300	1425	720	1000	1200	1300	620	870	1050	1125
P5	750	1050	1275	1375	810	1125	1325	1450	760	1050	1250	1350	700	980	1150	1275	610	850	1000	1100
P6	840	1175	1425	1525	900	1250	1500	1625	850	1175	1400	1525	790	1100	1300	1425	690	950	1125	1225
P7	790	1125	1350	1450	850	1175	1400	1525	810	1100	1300	1450	740	1025	1225	1350	650	900	1075	1175
P8	740	1050	1225	1350	790	1100	1300	1425	750	1025	1225	1350	690	950	1125	1250	600	830	990	1075
P11	770	1075	1300	1400	830	1150	1375	1500	780	1075	1275	1400	720	1000	1200	1300	630	870	1025	1125
M1	—	—	—	—	770	1100	1275	1400	760	1050	1275	1375	720	1025	1200	1325	650	920	1075	1200
M2	—	—	—	—	650	900	1075	1175	640	880	1025	1125	600	840	990	1075	550	760	900	990
M3	—	—	—	—	520	710	860	930	500	700	820	910	485	670	800	870	440	600	720	790
M4	—	—	—	—	400	540	650	720	385	530	630	690	375	500	610	670	340	460	550	610
M5	—	—	—	—	335	450	540	600	320	440	530	580	310	420	510	560	285	380	460	510
K1	800	1125	1325	1450	840	1200	1400	1550	810	1125	1350	1475	740	1050	1225	1350	640	910	1075	1175
K2	710	1000	1200	1300	760	1075	1250	1375	720	1000	1175	1300	670	930	1100	1200	580	800	950	1050
K3	600	850	1025	1100	650	900	1075	1175	610	840	990	1100	560	780	930	1025	490	680	810	880
K4	570	810	970	1050	620	860	1025	1100	580	800	950	1050	540	750	890	970	470	650	770	840
K5	355	495	590	650	375	520	610	680	355	485	580	630	330	455	540	590	285	395	465	510
K6	510	710	860	920	540	760	900	980	510	710	840	920	475	660	780	850	410	570	680	740
K7	450	630	760	830	480	670	790	870	450	620	740	810	420	580	690	760	365	510	600	660
N1	—	—	—	—	3150	4400	5275	5725	3025	4200	5025	5500	—	—	—	—	2375	3325	4000	4350
N2	—	—	—	—	2550	3550	4250	4625	2450	3400	4050	4450	—	—	—	—	1925	2700	3225	3500
N3	—	—	—	—	1700	2375	2850	3100	1625	2250	2700	2950	—	—	—	—	1275	1800	2150	2350
N11	—	—	—	—	1925	2700	3250	3525	1850	2575	3100	3375	—	—	—	—	1475	2050	2450	2675
S1	—	—	—	—	195	265	320	350	180	245	295	325	175	235	285	315	160	215	260	285
S2	—	—	—	—	155	210	255	280	145	200	240	260	140	190	230	250	130	170	210	230
S3	—	—	—	—	135	185	225	245	125	175	210	225	125	165	200	220	110	150	185	200
S11	—	—	—	—	270	375	450	490	255	345	415	460	245	335	405	440	220	305	365	400
S12	—	—	—	—	155	215	260	285	145	200	240	265	140	195	235	255	130	175	210	230
S13	—	—	—	—	125	170	205	225	115	160	190	210	115	150	185	200	100	140	165	185
H5	165	235	285	305	160	220	265	290	155	210	250	275	155	210	255	280	135	185	220	240
H8	180	250	300	330	170	235	280	305	160	220	260	285	165	225	265	290	145	195	230	255
H11	215	300	360	390	205	280	340	370	195	265	320	350	195	270	325	355	170	235	280	310
H12	320	450	540	590	310	425	510	560	300	405	480	530	295	410	490	540	255	355	425	465
H21	180	250	300	330	170	235	280	305	160	220	260	285	165	225	265	290	145	195	230	255

R217/220.29I-06 – Cutting data v_c = (sf/min)

	MK2050				MS2050				MS2500				MH1000				H25			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	910	1275	1550	1650	970	1150	1225	1300	1225	1725	2050	2225	1050	1450	1700	1900	—	—	—	—
P2	890	1250	1475	1600	940	1100	1200	1275	1175	1675	1950	2150	990	1400	1675	1800	—	—	—	—
P3	770	1100	1300	1400	810	950	1025	1075	1025	1425	1700	1875	870	1225	1450	1600	—	—	—	—
P4	680	960	1150	1275	710	840	870	940	910	1275	1525	1650	770	1100	1300	1400	—	—	—	—
P5	660	930	1125	1200	680	780	830	880	890	1225	1450	1600	750	1050	1225	1350	—	—	—	—
P6	740	1050	1250	1350	760	870	930	990	1000	1375	1650	1800	840	1175	1400	1500	—	—	—	—
P7	700	980	1175	1275	720	820	880	930	940	1300	1550	1700	790	1100	1300	1425	—	—	—	—
P8	650	910	1100	1175	680	800	860	900	870	1200	1450	1575	730	1025	1225	1350	—	—	—	—
P11	680	950	1150	1250	700	800	860	910	910	1275	1500	1650	770	1075	1275	1375	—	—	—	—
M1	—	—	—	—	830	970	1050	1100	840	1200	1400	1550	—	—	—	—	—	—	—	—
M2	—	—	—	—	660	760	810	860	710	990	1175	1275	—	—	—	—	—	—	—	—
M3	—	—	—	—	475	530	540	580	570	780	940	1025	—	—	—	—	—	—	—	—
M4	—	—	—	—	335	380	380	395	440	590	720	790	—	—	—	—	—	—	—	—
M5	—	—	—	—	280	315	315	330	365	495	600	660	—	—	—	—	—	—	—	—
K1	960	1350	1575	1725	950	1125	1225	1275	930	1325	1550	1700	790	1100	1325	1425	—	—	—	—
K2	850	1200	1450	1550	820	940	1000	1075	840	1175	1375	1525	710	990	1175	1275	—	—	—	—
K3	720	1025	1225	1325	690	800	850	900	710	990	1175	1275	600	840	990	1075	—	—	—	—
K4	690	970	1175	1250	660	760	810	860	680	950	1125	1225	570	800	950	1025	—	—	—	—
K5	425	590	710	780	385	435	465	485	415	580	680	750	350	485	580	630	—	—	—	—
K6	610	850	1025	1100	580	670	710	760	600	830	990	1075	500	700	840	910	—	—	—	—
K7	540	760	910	1000	495	560	600	620	530	740	870	960	445	620	740	810	—	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2675	3700	4425	4850
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2150	3000	3575	3925
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1450	2000	2400	2625
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1650	2275	2725	3000
S1	—	—	—	—	180	230	270	290	215	290	350	385	—	—	—	—	—	—	—	—
S2	—	—	—	—	145	185	215	235	175	235	280	310	—	—	—	—	—	—	—	—
S3	—	—	—	—	125	165	195	205	150	205	250	270	—	—	—	—	—	—	—	—
S11	—	—	—	—	235	320	380	400	300	415	495	540	—	—	—	—	—	—	—	—
S12	—	—	—	—	180	245	290	310	175	240	285	310	—	—	—	—	—	—	—	—
S13	—	—	—	—	155	195	230	250	140	185	225	250	—	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—	175	240	290	320	165	225	275	300	—	—	—	—
H8	—	—	—	—	—	—	—	—	185	255	305	335	175	240	290	315	—	—	—	—
H11	—	—	—	—	—	—	—	—	225	310	370	405	210	290	350	380	—	—	—	—
H12	—	—	—	—	—	—	—	—	335	465	560	610	320	435	530	580	—	—	—	—
H21	—	—	—	—	—	—	—	—	185	255	305	335	175	240	290	315	—	—	—	—

R220.29-08

Cutters with 16mm round inserts, max axial cutting depth 0.315”



With coolant through up to 5.00” dia.

- For insert selection and cutting data recommendations, see pages 320-321.
- For complete insert program, see page 572.
- For helical interpolation, see page 632.
- For plunging, see page 634.

EDP No.	Part No.	Dimensions in inch D_{c2}	D_c	l_1	a_p	α° max		lbs	Max rpm	Insert
26003	R220.29 -02.00-08-4A	2.00	1.370	2.00	0.315	15.5	4	1.1	9600	RP..16
19637	-03.00-08-5A	3.00	2.370	2.37	0.315	6	5	3.1	7700	RP..16
19638	-04.00-08-6A	4.00	3.370	2.50	0.315	5	6	6.0	6800	RP..16
19639	-05.00-08-6A	5.00	4.370	2.50	0.315	3.5	6	7.5	6100	RP..16
19641	-06.00-08-7	6.00	5.370	2.50	0.315	2.5	7	8.8	5400	RP..16

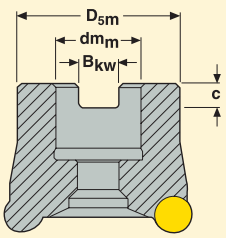
α° = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Insert shim	Key	Shim screw
R220.29-02.00	220.17-698	T20P-4	C05013-T20P	–	–	–
R220.29-03.00	UC6S1/2UNFX2	T20P-4	C05013-T20P	–	–	–
R220.29-04.00	UC6S3/4UNFX1-1/4	T20P-4	C05018-T20P	SRP1604M0	H05-4	CA5010
R220.29-05.00 / 06.00	–	T20P-4	C05018-T20P	SRP1604M0	H05-4	CA5010

Insert screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.29-02.00	0.77	1.65	0.32	0.19
R220.29-03.00	1.00	2.44	0.38	0.22
R220.29-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.29-06.00	2.00	4.33	0.76	0.46

Please check availability in current price and stock-list.

R217/220.29-08 – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	RPHT1605M0T-ME11 T350M	0.12	0.014	0.015	0.024	0.034
P2	RPHT1605M0T-ME11 T350M	0.12	0.014	0.016	0.024	0.034
P3	RPHT1605M0T-ME11 T350M	0.12	0.013	0.015	0.024	0.032
P4	RPHT1605M0T-M18 MS2500	0.12	0.018	0.020	0.032	0.044
P5	RPHT1605M0T-M18 MS2500	0.12	0.017	0.019	0.030	0.044
P6	RPHT1605M0T-M18 MS2500	0.12	0.017	0.019	0.030	0.044
P7	RPHT1605M0T-M18 MS2500	0.12	0.017	0.019	0.030	0.044
P8	RPHT1605M0T-M18 MP2500	0.12	0.018	0.020	0.032	0.044
P11	RPHT1605M0T-M18 MS2500	0.12	0.017	0.019	0.030	0.044
M1	RPHT1605M0T-M12 T350M	0.12	0.016	0.017	0.026	0.038
M2	RPHT1605M0T-M12 T350M	0.12	0.014	0.016	0.024	0.034
M3	RPHT1605M0T-M12 T350M	0.10	0.013	0.013	0.022	0.030
M4	RPHT1605M0T-M12 T350M	0.075	0.013	0.013	0.022	0.030
M5	RPHT1605M0T-M12 T350M	0.075	0.013	0.013	0.022	0.030
K1	RPHT1605M0T-M18 MK2050	0.12	0.020	0.022	0.034	0.048
K2	RPHT1605M0T-M18 MK2050	0.12	0.017	0.019	0.030	0.044
K3	RPHT1605M0T-M18 MK2050	0.12	0.017	0.019	0.030	0.044
K4	RPHT1605M0T-M18 MK2050	0.12	0.017	0.019	0.030	0.044
K5	RPHT1605M0T-M18 MK2050	0.12	0.016	0.017	0.028	0.038
K6	RPHT1605M0T-M18 MK2050	0.12	0.017	0.019	0.030	0.044
K7	RPHT1605M0T-M18 MK2050	0.12	0.016	0.017	0.028	0.038
N1	RPHT1605M0T-ME11 F40M	0.12	0.018	0.020	0.032	0.044
N2	RPHT1605M0T-ME11 F40M	0.12	0.018	0.020	0.032	0.044
N3	RPHT1605M0T-ME11 F40M	0.12	0.018	0.020	0.032	0.044
N11	RPHT1605M0T-ME11 F40M	0.12	0.018	0.020	0.032	0.044
S1	RPHT1605M0T-M12 MS2500	0.075	0.013	0.013	0.022	0.030
S2	RPHT1605M0T-M12 MS2500	0.075	0.013	0.013	0.022	0.030
S3	RPHT1605M0T-M12 MS2500	0.075	0.012	0.013	0.020	0.028
S11	RPHT1605M0T-M12 MS2500	0.10	0.013	0.013	0.022	0.030
S12	RPHT1605M0T-M12 MS2500	0.10	0.013	0.013	0.022	0.030
S13	RPHT1605M0T-M12 MS2500	0.075	0.013	0.013	0.022	0.030
H5	RPHW1605M0T-MD20 MH1000	0.10	0.017	0.019	0.030	0.044
H8	RPHW1605M0T-MD20 MH1000	0.10	0.013	0.015	0.024	0.032
H11	RPHW1605M0T-MD20 MH1000	0.10	0.017	0.019	0.030	0.044
H12	RPHW1605M0T-MD20 MH1000	0.10	0.017	0.019	0.030	0.044
H21	RPHW1605M0T-MD20 MH1000	0.10	0.013	0.015	0.024	0.032

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.29-08 – Cutting data v_c = (sf/min)

	MP1500				MP2500				MP3000				T350M				F40M			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	1050	1475	1750	1925	930	1300	1550	1700	950	1325	1575	1725	920	1300	1550	1700	800	1125	1350	1475
P2	1000	1425	1700	1875	890	1275	1500	1650	920	1300	1525	1675	890	1250	1500	1650	780	1100	1300	1425
P3	890	1250	1500	1625	790	1100	1325	1450	810	1125	1325	1450	780	1100	1325	1425	680	960	1150	1225
P4	780	1100	1325	1425	690	970	1175	1275	710	980	1175	1300	690	970	1150	1275	600	840	1000	1100
P5	750	1075	1250	1375	660	940	1125	1225	680	960	1125	1225	660	930	1100	1225	570	800	960	1050
P6	850	1200	1425	1575	750	1050	1250	1400	760	1075	1275	1400	750	1050	1250	1375	650	920	1100	1175
P7	800	1125	1325	1475	710	1000	1175	1300	720	1025	1200	1325	710	1000	1175	1300	620	870	1025	1125
P8	750	1050	1250	1375	660	930	1125	1225	680	940	1125	1225	660	930	1100	1200	570	800	960	1025
P11	780	1100	1300	1450	690	970	1150	1275	700	990	1175	1275	690	970	1150	1250	600	840	1000	1100
M1	—	—	—	—	640	910	1075	1200	690	970	1150	1250	690	970	1150	1275	630	880	1050	1150
M2	—	—	—	—	530	760	900	980	570	800	940	1025	570	800	950	1050	510	720	860	950
M3	—	—	—	—	435	610	730	800	450	640	760	830	465	650	770	840	425	590	700	770
M4	—	—	—	—	340	470	570	630	350	485	580	640	355	495	600	650	325	450	540	590
M5	—	—	—	—	280	390	470	530	290	405	485	530	295	410	500	550	270	375	455	495
K1	800	1125	1350	1475	700	1000	1200	1300	730	1025	1200	1325	710	1000	1175	1300	620	870	1025	1125
K2	710	1000	1200	1300	630	900	1050	1150	650	910	1075	1175	620	880	1050	1150	540	760	910	1000
K3	600	860	1000	1100	530	760	900	980	550	770	900	990	530	740	890	980	460	650	770	850
K4	570	820	970	1050	510	720	860	930	520	730	860	950	500	710	850	930	440	620	740	810
K5	355	500	590	650	315	445	520	580	320	445	530	580	310	440	520	570	270	380	455	495
K6	500	720	850	930	445	640	750	820	460	650	760	830	445	630	750	820	385	540	650	710
K7	455	640	750	830	405	570	670	740	405	570	680	740	400	560	670	730	345	490	580	630
N1	—	—	—	—	2550	3650	4350	4725	2675	3775	4475	4950	—	—	—	—	2250	3175	3800	4150
N2	—	—	—	—	2050	2950	3500	3825	2150	3050	3625	4000	—	—	—	—	1825	2575	3075	3350
N3	—	—	—	—	1375	1975	2325	2550	1450	2025	2425	2650	—	—	—	—	1225	1700	2050	2225
N11	—	—	—	—	1575	2250	2675	2925	1650	2325	2750	3050	—	—	—	—	1400	1950	2350	2550
S1	—	—	—	—	165	230	275	305	165	225	270	300	165	230	280	305	150	210	255	280
S2	—	—	—	—	130	185	220	245	130	185	220	240	135	185	225	245	120	170	205	225
S3	—	—	—	—	120	160	195	215	115	160	195	210	120	165	195	215	110	150	180	195
S11	—	—	—	—	230	315	385	425	230	320	385	420	235	320	390	425	215	295	355	390
S12	—	—	—	—	130	185	220	245	130	185	225	245	135	185	225	245	125	170	205	225
S13	—	—	—	—	105	150	180	200	105	145	175	195	105	150	180	195	95	135	165	180
H5	170	235	285	310	135	190	230	250	140	195	230	255	150	205	245	270	130	180	215	235
H8	180	250	305	335	145	205	245	270	150	205	245	270	160	220	265	290	140	190	230	250
H11	215	300	360	400	175	240	290	320	180	245	295	325	190	265	310	345	165	230	270	300
H12	325	455	550	600	260	365	440	485	270	375	445	490	285	400	470	520	250	345	410	455
H21	180	250	305	335	145	205	245	270	150	205	245	270	160	220	265	290	140	190	230	250

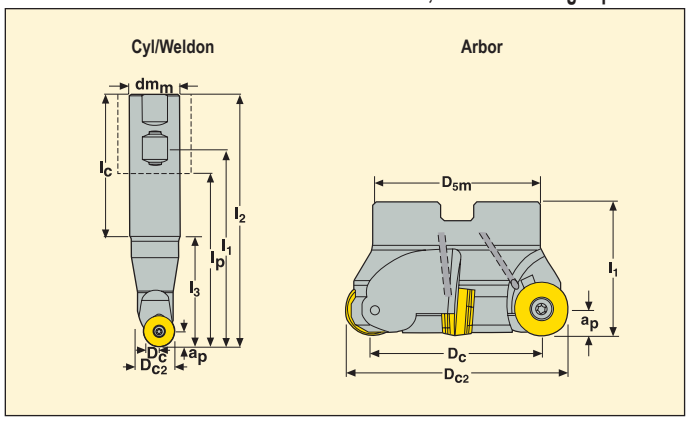
R217/220.29-08 – Cutting data v_c = (sf/min)

	MK2050				MM4500				MS2500				MH1000			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	740	1050	1250	1375	650	910	1100	1200	1075	1525	1825	2000	830	1175	1400	1525
P2	720	1000	1225	1325	630	890	1050	1150	1050	1475	1775	1900	800	1125	1375	1500
P3	640	890	1075	1150	550	780	930	1000	910	1275	1550	1675	710	990	1200	1275
P4	560	780	950	1050	485	680	810	900	810	1150	1350	1500	630	870	1050	1150
P5	540	770	900	990	465	650	780	860	780	1100	1300	1425	600	860	1000	1100
P6	600	860	1025	1125	530	750	880	960	870	1225	1475	1600	670	960	1125	1250
P7	570	810	960	1050	500	700	830	910	820	1150	1400	1525	630	910	1075	1175
P8	540	750	900	970	465	650	780	840	760	1075	1300	1400	600	830	1000	1075
P11	550	790	930	1025	485	680	810	880	800	1125	1350	1475	620	880	1025	1150
M1	—	—	—	—	540	760	900	990	750	1050	1275	1350	—	—	—	—
M2	—	—	—	—	445	620	750	820	620	880	1050	1150	—	—	—	—
M3	—	—	—	—	365	510	610	660	500	700	840	930	—	—	—	—
M4	—	—	—	—	280	390	470	510	390	540	660	720	—	—	—	—
M5	—	—	—	—	230	325	390	430	325	455	550	600	—	—	—	—
K1	780	1075	1325	1450	—	—	—	—	820	1150	1400	1500	640	890	1075	1175
K2	690	990	1175	1275	—	—	—	—	740	1050	1225	1350	570	810	960	1050
K3	590	840	990	1075	—	—	—	—	620	880	1050	1150	480	690	810	890
K4	560	800	940	1025	—	—	—	—	600	840	990	1100	460	660	770	850
K5	345	490	590	640	—	—	—	—	365	520	610	670	280	405	480	520
K6	495	710	830	910	—	—	—	—	530	740	880	970	405	580	680	750
K7	440	630	750	810	—	—	—	—	470	660	790	850	360	520	610	670
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S1	—	—	—	—	85	120	145	155	190	265	320	350	—	—	—	—
S2	—	—	—	—	70	95	115	125	155	215	260	280	—	—	—	—
S3	—	—	—	—	60	85	100	110	135	190	225	250	—	—	—	—
S11	—	—	—	—	120	165	200	220	265	370	445	495	—	—	—	—
S12	—	—	—	—	95	125	155	170	155	215	255	285	—	—	—	—
S13	—	—	—	—	75	100	125	135	125	170	210	225	—	—	—	—
H5	—	—	—	—	—	—	—	—	160	220	260	290	135	190	230	250
H8	—	—	—	—	—	—	—	—	170	235	280	305	150	205	250	275
H11	—	—	—	—	—	—	—	—	200	280	335	365	175	245	290	320
H12	—	—	—	—	—	—	—	—	305	425	500	550	265	370	435	480
H21	—	—	—	—	—	—	—	—	170	235	280	305	150	205	250	275

R217/220.29-10

Cutters with 20mm round inserts, max axial cutting depth 0.394”

- For insert selection and cutting data recommendations, see pages 323-324.
- For complete insert program, see page 572.
- For helical interpolation, see page 632.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch D_{c2}	D_c	dm_m	l_1	l_2	l_3	l_p	l_c	a_p	α° max		lbs	Type of mounting	Max rpm	Insert
87696	R217.29 -02.00-3-10-3	2.00	1.213	1.25	4.37	5.51	3.40	3.40	3.40	0.394	9.8	3	2.2	Cyl/Weldon	6500	RP..20
87697	R220.29 -02.50-10-4A	2.50	1.713	0.77	2.00	–	–	–	–	0.394	6	4	1.3	Arbor	5800	RP..20
87698	-03.00-10-4A	3.00	2.213	1.00	2.00	–	–	–	–	0.394	5	4	2.2	Arbor	5100	RP..20
87699	-04.00-10-05A	4.00	3.213	1.50	2.50	–	–	–	–	0.394	4.8	5	5.7	Arbor	4500	RP..20

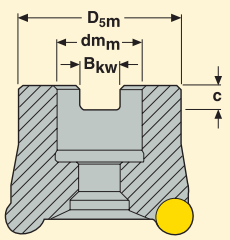
α° = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Insert shim	Shim key	Shim screw
R217.29-..	–	T20P-3	C05013-T20P	–	–	–
R220.29-02.50	UC6S3/8UNFX11/2	T20P-4	C05013-T20P	–	–	–
R220.29-03.00	UC6S1/2UNFX1-1/4	T20P-4	C05018-T20P	SRP2004M0	5SMS795	CA5010
R220.29-04.00	UC6S3/4UNFX1-1/4	T20P-4	C05018-T20P	SRP2004M0	5SMS795	CA5010

Insert screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.29-02.50	0.77	1.85	0.32	0.19
R220.29-03.00	1.00	2.44	0.38	0.22
R220.29-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217/220.29-10 – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	RPHT2006M0T-ME12 T350M	0.16	0.015	0.016	0.026	0.036
P2	RPHT2006M0T-ME12 T350M	0.16	0.015	0.017	0.026	0.036
P3	RPHT2006M0T-ME12 T350M	0.16	0.014	0.016	0.024	0.034
P4	RPKT2006M0T-M20 MS2500	0.16	0.017	0.019	0.030	0.044
P5	RPKT2006M0T-M20 MS2500	0.16	0.017	0.019	0.030	0.040
P6	RPKT2006M0T-M20 MS2500	0.16	0.017	0.018	0.030	0.040
P7	RPKT2006M0T-M20 MS2500	0.16	0.017	0.018	0.030	0.040
P8	RPKT2006M0T-M20 MP2500	0.16	0.017	0.020	0.030	0.044
P11	RPKT2006M0T-M20 MS2500	0.16	0.017	0.018	0.030	0.040
M1	RPHT2006M0T-ME12 T350M	0.16	0.015	0.017	0.026	0.036
M2	RPHT2006M0T-ME12 T350M	0.16	0.013	0.015	0.024	0.032
M3	RPHT2006M0T-ME12 T350M	0.12	0.013	0.013	0.022	0.030
M4	RPHT2006M0T-ME12 T350M	0.10	0.012	0.013	0.020	0.030
M5	RPHT2006M0T-ME12 T350M	0.10	0.012	0.013	0.020	0.030
K1	RPKT2006M0T-M20 MK2050	0.16	0.019	0.020	0.032	0.048
K2	RPKT2006M0T-M20 MK2050	0.16	0.017	0.019	0.030	0.040
K3	RPKT2006M0T-M20 MK2050	0.16	0.017	0.019	0.030	0.040
K4	RPKT2006M0T-M20 MK2050	0.16	0.017	0.019	0.030	0.040
K5	RPKT2006M0T-M20 MK2050	0.16	0.015	0.017	0.026	0.038
K6	RPKT2006M0T-M20 MK2050	0.16	0.017	0.019	0.030	0.040
K7	RPKT2006M0T-M20 MK2050	0.16	0.015	0.017	0.026	0.038
S1	RPHT2006M0T-ME12 MS2500	0.10	0.012	0.013	0.020	0.030
S2	RPHT2006M0T-ME12 MS2500	0.10	0.012	0.013	0.020	0.030
S3	RPKT2006M0T-M15 MS2500	0.10	0.014	0.015	0.024	0.034
S11	RPKT2006M0T-M15 MS2500	0.12	0.016	0.017	0.028	0.038
S12	RPKT2006M0T-M15 MS2500	0.12	0.016	0.017	0.028	0.038
S13	RPKT2006M0T-M15 MS2500	0.10	0.015	0.017	0.026	0.036
H5	RPKW2006M0T-MD22 F15M	0.12	0.020	0.022	0.034	0.048
H8	RPKW2006M0T-MD22 F15M	0.12	0.015	0.017	0.026	0.036
H11	RPKW2006M0T-MD22 F15M	0.12	0.020	0.022	0.034	0.048
H12	RPKW2006M0T-MD22 F15M	0.12	0.020	0.022	0.034	0.048
H21	RPKW2006M0T-MD22 F15M	0.12	0.015	0.017	0.026	0.036

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth (based on recommended a_p)
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

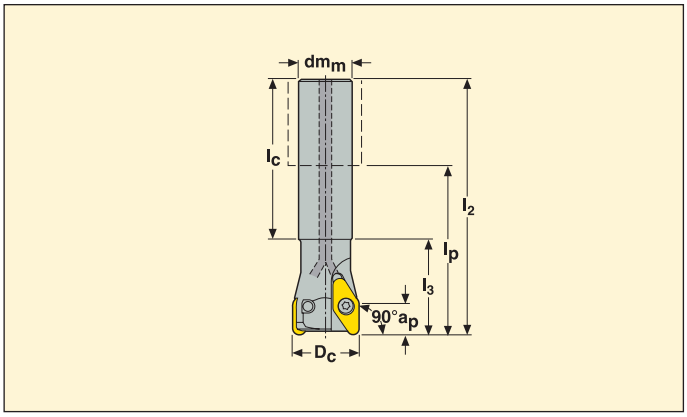
R217/220.29-10 – Cutting data v_c = (sf/min)

	MP1500				MP2500				T350M				F15M				F30M			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	1050	1525	1825	2000	930	1350	1625	1775	900	1300	1550	1725	670	960	1175	1250	750	1100	1300	1425
P2	1025	1475	1775	1950	900	1300	1575	1725	880	1250	1525	1625	650	940	1125	1225	730	1050	1250	1375
P3	890	1300	1525	1700	790	1150	1350	1500	770	1100	1325	1450	570	820	990	1075	640	910	1100	1200
P4	800	1125	1375	1500	710	1000	1225	1325	680	980	1150	1275	510	730	870	950	570	820	970	1050
P5	760	1100	1325	1425	670	980	1175	1275	660	930	1125	1225	485	690	850	910	540	780	940	1025
P6	850	1225	1475	1625	760	1100	1325	1450	740	1050	1250	1375	540	800	960	1025	620	880	1050	1150
P7	810	1175	1400	1550	710	1025	1250	1375	700	990	1200	1300	510	750	900	960	580	830	990	1100
P8	750	1075	1275	1425	660	960	1150	1275	650	920	1100	1200	485	690	830	910	540	770	920	1000
P11	780	1125	1350	1500	690	1000	1200	1325	680	960	1150	1275	495	730	880	940	570	800	960	1050
M1	—	—	—	—	650	940	1125	1250	680	960	1175	1250	520	750	910	990	590	840	1025	1125
M2	—	—	—	—	540	780	940	1025	570	800	970	1075	435	620	770	820	485	700	840	920
M3	—	—	—	—	440	630	760	840	455	650	780	850	355	520	620	680	400	560	670	730
M4	—	—	—	—	345	485	600	650	355	500	600	660	280	400	490	530	305	430	520	570
M5	—	—	—	—	285	405	495	540	295	415	500	550	235	335	410	440	255	355	435	475
K1	810	1175	1400	1525	720	1050	1250	1350	700	990	1200	1300	510	740	900	970	580	820	1000	1100
K2	720	1050	1250	1350	640	930	1100	1200	620	890	1075	1175	460	660	810	860	510	740	890	970
K3	610	880	1050	1150	540	780	940	1025	530	750	900	990	390	560	680	730	435	630	750	820
K4	580	840	1000	1100	520	750	900	970	500	720	860	950	370	530	650	700	415	600	720	790
K5	355	520	620	680	315	460	550	600	305	440	530	580	225	335	395	440	255	365	435	480
K6	510	740	890	960	455	660	790	850	445	630	760	830	325	470	580	610	365	530	630	690
K7	455	660	790	870	405	590	700	770	390	560	670	740	290	430	510	560	330	465	560	610
N1	—	—	—	—	2625	3775	4525	4975	—	—	—	—	1850	2675	3225	3500	2150	3075	3725	4000
N2	—	—	—	—	2125	3050	3650	4025	—	—	—	—	1500	2175	2600	2825	1725	2475	3000	3225
N3	—	—	—	—	1425	2025	2425	2675	—	—	—	—	1000	1450	1725	1875	1150	1650	2000	2150
N11	—	—	—	—	1625	2325	2775	3050	—	—	—	—	1150	1650	1975	2150	1325	1875	2300	2450
S1	—	—	—	—	170	235	290	315	165	230	280	305	130	185	230	250	145	200	245	265
S2	—	—	—	—	135	190	235	255	135	185	225	245	105	150	185	200	115	160	195	215
S3	—	—	—	—	120	165	205	225	115	165	200	220	90	135	160	175	100	140	170	185
S11	—	—	—	—	235	330	400	445	230	325	390	430	180	260	315	345	200	280	340	370
S12	—	—	—	—	135	190	230	255	135	190	225	250	105	150	180	200	115	160	195	215
S13	—	—	—	—	110	155	185	205	105	150	180	200	85	120	150	160	90	130	155	170
H5	170	245	295	320	140	195	235	255	145	205	250	275	110	160	195	210	125	170	205	225
H8	185	260	320	345	150	210	255	280	160	215	265	290	120	170	210	225	130	180	220	240
H11	220	310	375	405	175	250	300	330	185	265	320	345	140	200	245	265	155	215	260	290
H12	330	470	570	610	265	380	455	495	280	395	480	520	215	305	370	400	235	330	395	435
H21	185	260	320	345	150	210	255	280	160	215	265	290	120	170	210	225	130	180	220	240

R217/220.29-10 – Cutting data v_c = (sf/min)

	F40M				MK2050				MM4500				MS2500			
SMG	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	780	1125	1350	1500	920	1325	1600	1750	640	920	1100	1200	1125	1625	1950	2150
P2	760	1100	1325	1425	890	1300	1550	1700	620	880	1075	1150	1100	1575	1900	2050
P3	670	950	1150	1250	780	1125	1325	1475	540	770	930	1025	960	1375	1650	1800
P4	590	850	1000	1100	690	990	1200	1300	475	690	820	890	850	1225	1450	1575
P5	570	810	980	1075	660	960	1150	1250	465	660	790	870	820	1175	1400	1550
P6	640	910	1100	1200	740	1075	1300	1425	520	740	890	980	920	1325	1575	1725
P7	610	860	1025	1150	700	1025	1225	1350	490	700	840	920	870	1250	1500	1650
P8	560	800	960	1050	650	950	1125	1250	455	650	780	850	810	1150	1400	1525
P11	590	840	1000	1100	680	990	1175	1300	475	680	810	900	850	1200	1450	1600
M1	620	880	1050	1150	—	—	—	—	530	760	920	990	790	1125	1350	1475
M2	510	730	880	970	—	—	—	—	445	630	760	830	660	940	1125	1250
M3	415	590	710	770	—	—	—	—	355	510	610	670	530	750	900	990
M4	320	455	540	600	—	—	—	—	280	390	470	520	415	580	700	770
M5	270	375	455	500	—	—	—	—	230	325	390	430	345	485	580	640
K1	600	860	1050	1125	960	1400	1675	1825	—	—	—	—	870	1250	1500	1625
K2	540	770	930	1025	860	1250	1500	1600	—	—	—	—	780	1100	1325	1475
K3	460	650	780	860	730	1050	1250	1375	—	—	—	—	660	940	1125	1250
K4	440	620	750	820	690	1000	1200	1300	—	—	—	—	630	900	1075	1175
K5	265	385	455	500	425	610	740	800	—	—	—	—	380	550	660	720
K6	385	550	660	730	610	880	1050	1150	—	—	—	—	560	790	950	1050
K7	340	490	580	640	540	790	940	1025	—	—	—	—	490	710	840	920
N1	2225	3175	3775	4150	—	—	—	—	—	—	—	—	—	—	—	—
N2	1800	2575	3050	3350	—	—	—	—	—	—	—	—	—	—	—	—
N3	1200	1700	2025	2225	—	—	—	—	—	—	—	—	—	—	—	—
N11	1375	1950	2325	2550	—	—	—	—	—	—	—	—	—	—	—	—
S1	150	210	255	280	—	—	—	—	85	120	145	160	200	285	340	375
S2	120	170	205	225	—	—	—	—	70	95	115	125	160	230	275	300
S3	105	150	180	200	—	—	—	—	60	85	105	110	145	200	245	265
S11	210	295	355	390	—	—	—	—	120	165	200	220	280	395	480	520
S12	120	170	205	225	—	—	—	—	90	130	155	170	160	230	275	300
S13	95	135	165	180	—	—	—	—	75	105	125	135	130	185	220	240
H5	125	180	215	235	—	—	—	—	—	—	—	—	165	235	280	310
H8	135	190	235	250	—	—	—	—	—	—	—	—	180	245	300	330
H11	160	230	275	300	—	—	—	—	—	—	—	—	210	295	360	390
H12	240	345	415	455	—	—	—	—	—	—	—	—	315	450	540	590
H21	135	190	235	250	—	—	—	—	—	—	—	—	180	245	300	330

R217.97-22

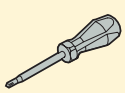


- For insert selection and cutting data recommendations, see page 327.
- For complete insert program, see page 591.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch							α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_2	l_3	l_p	l_c	a_p						
54103	R217.97 -01.25-0-V22-2A	1.25	1.00	6.00	3.80	3.54	4.00	0.394	10	2	0.2	Cylindrical	40000	VP..22
54181	-01.50-0-V22-2A	1.50	1.25	6.00	3.64	3.54	4.00	0.394	10	2	2.0	Cylindrical	35000	VP..22
54232	-02.00-0-V22-3A	2.00	1.25	5.00	2.64	2.36	3.00	0.394	8	3	2.0	Cylindrical	30000	VP..22

α° = Ramping angle

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.97-..	T20P-4	C05010-T20P

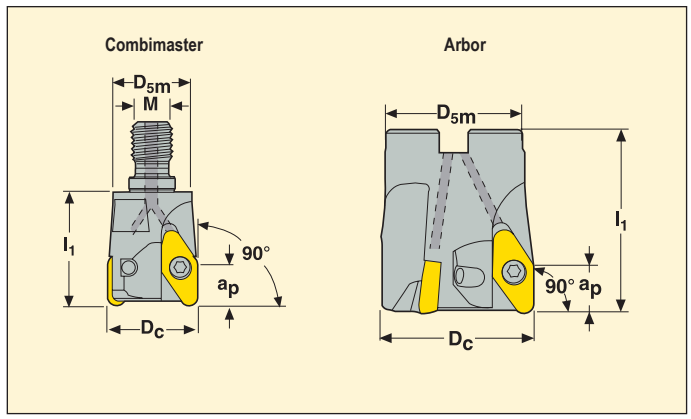
Please check availability in current price and stock-list.

Insert screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

Copy milling cutters – Cavity milling in aluminum

R217/220.97-22

- For insert selection and cutting data recommendations, see page 327.
- For complete insert program, see page 591.
- For helical interpolation, see page 632.

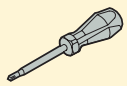


EDP No.	Part No.		Dimensions in inch D_c	D_{5m}	l_1	M	a_p	α° max		lbs	Type of mounting	Max rpm	Insert
54077	R217.97	-01.25-16RE-V22-2A	1.25	1.18	1.60	M16	0.394	10	2	0.7	Combimaster*	40000	VP..22
54146		-01.50-16RE-V22-2A	1.50	1.18	1.60	M16	0.394	10	2	0.9	Combimaster*	35000	VP..22
05729		-01.50-20RE-V22-2A	1.50	1.44	1.77	M20	0.394	10	2	0.7	Combimaster*	35000	VP..22
54269	R220.97	-02.00-V22-2A	2.00	1.85	2.25	–	0.394	8	2	1.5	Arbor	30000	VP..22
54587		-02.00-V22-3A	2.00	1.85	2.25	–	0.394	8	3	1.3	Arbor	30000	VP..22
55249		-02.50-V22-4A	2.50	2.05	2.25	–	0.394	6	4	2.0	Arbor	27000	VP..22
50756		-03.00-V22-4A	3.00	2.44	2.25	–	0.394	5	4	2.9	Arbor	25000	VP..22
50828		-04.00-V22-5A	4.00	3.54	2.25	–	0.394	4	5	4.9	Arbor	22000	VP..22

α° = Ramping angle

* For Combimaster holders and adapters, see page 534.

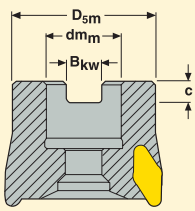
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.97-..	-	T20P-4	C05010-T20P
R220.97-02.00	UC6S3/8UNFX11/2	T20P-4	C05010-T20P
R220.97-02.50	UC6S1/2UNFX1-1/2	T20P-4	C05013-T20P
R220.97-03.00	UC6S1/2UNFX1-1/2	T20P-4	C05013-T20P
R220.97-04.00	UC6S3/4UNFX1-1/4	T20P-4	C05013-T20P

Insert screw torque value 44.0 in/lbs.

Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.97-02.00	0.75	1.85	0.32	0.19
R220.97-02.50	1.00	2.05	0.38	0.22
R220.97-03.00	1.00	2.44	0.38	0.22
R220.97-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217/220.97-V22 – Insert selection

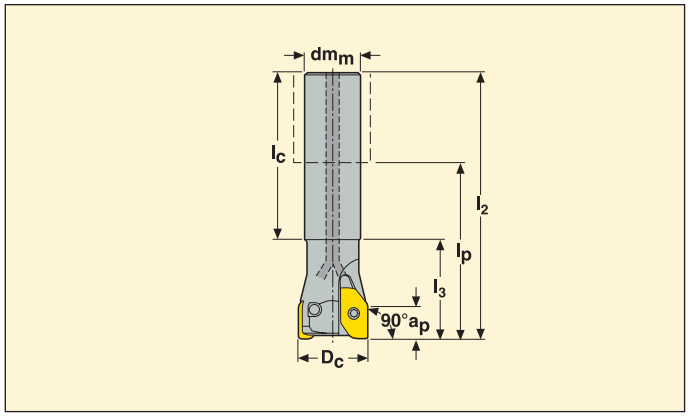
SMG		a_p	f_z			
			100%	30%	10%	5%
N1	VPGX220605ER-E10 H25	0.20	0.0070	0.0080	0.012	0.017
N2	VPGX220605ER-E10 H25	0.20	0.0070	0.0080	0.012	0.017
N3	VPGX220605ER-E10 H25	0.20	0.0070	0.0080	0.012	0.017
N11	VPGX220605ER-E10 H25	0.20	0.0070	0.0080	0.012	0.017
S11	VPGX220605ER-E10 H25	0.14	0.0040	0.0044	0.0070	0.0095
S12	VPGX220605ER-E10 H25	0.14	0.0040	0.0044	0.0070	0.0095

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.97-V22 – Cutting data v_c = (sf/min)

SMG	H15				H25			
	100%	30%	10%	5%	100%	30%	10%	5%
N1	2450	3225	3850	4175	2125	2800	3325	3650
N2	1975	2600	3100	3375	1725	2250	2700	2950
N3	1325	1750	2075	2250	1150	1500	1800	1975
N11	1500	2000	2375	2575	1300	1725	2050	2250
S11	—	—	—	—	130	170	200	215
S12	—	—	—	—	100	130	155	165

R217.97-12



- For insert selection and cutting data recommendations, see page 330.
- For complete insert program, see page 598.
- For helical interpolation, see page 632.

EDP No.	Part No.	Dimensions in inch							α° max		lbs	Type of mounting	Max rpm	Insert
		D_c	dm_m	l_2	l_3	l_p	l_c	a_p						
19575	R217.97 -01.00-0-12-2A	1.00	1.00	6.00	2.20	3.80	3.80	0.295	10	2	1.3	Cylindrical	40000	XP..12
19580	-01.25-0-12-3A	1.25	1.25	6.00	2.20	3.80	3.35	0.295	8	3	1.8	Cylindrical	35000	XP..12

α° = Ramping angle

Spare Parts, included in delivery.

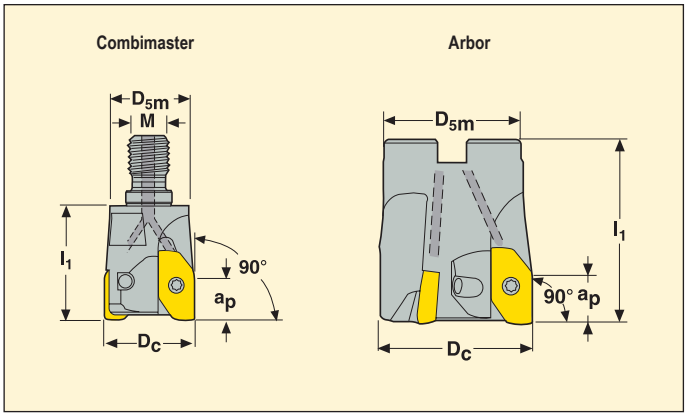
For cutter	Insert key	Insert screw
		
R217.97-01.00	T10P-3	C03508-T10P
R217.97-01.25	T10P-3	C03509-T10P

Please check availability in current price and stock-list.

Insert screw torque value 17.7 in/lbs.
Torque keys available, see page 643.

R217/220.97-12

- For insert selection and cutting data recommendations, see page 330.
- For complete insert program, see page 598.
- For helical interpolation, see page 632.



EDP No.	Part No.		Dimensions in inch D_c	D_{5m}	l_1	M	a_p	α° max		lbs	Type of mounting	Max rpm	Insert
19570	R217.97	-01.00-12RE-12-2A	1.00	0.91	1.18	M12	0.295	10	2	0.2	Combimaster*	40000	XP..12
19572		-01.25-16RE-12-2A	1.25	1.18	1.57	M16	0.295	8	2	0.7	Combimaster*	40000	XP..12
19573		-01.25-16RE-12-3A	1.25	1.18	1.57	M16	0.295	8	3	0.4	Combimaster*	40000	XP..12
25592		-01.50-16RE-12-3A	1.50	1.18	1.57	M16	0.295	6	3	0.7	Combimaster*	35000	XP..12
05733		-01.50-20RE-12-3A	1.50	1.44	1.57	M20	0.295	6	3	0.7	Combimaster*	35000	XP..12
27438	R220.97	-02.00-12-3A	2.00	1.85	1.77	–	0.295	5	3	0.9	Arbor	30000	XP..12
19592		-02.00-12-4A	2.00	1.85	1.77	–	0.295	5	4	0.9	Arbor	30000	XP..12

α° = Ramping angle

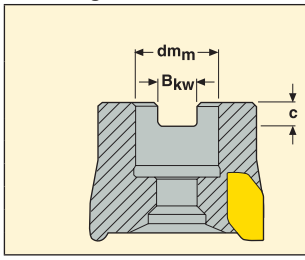
* For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.97-01.00	-	T10P-3	C03508-T10P
R217.97-01.25 / 01.50	-	T10P-3	C03509-T10P
R220.97-..	UC6S3/8UNFX1	T10P-3	C03509-T10P

Insert screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.97-..	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R217/220.97-X12 – Insert selection

SMG		a_p	f_z			
			100%	30%	10%	5%
N1	XPKX12T304PDER-E08 H25	0.14	0.0050	0.0055	0.0085	0.012
N2	XPKX12T304PDER-E08 H25	0.14	0.0050	0.0055	0.0085	0.012
N3	XPKX12T304PDER-E08 H25	0.14	0.0050	0.0055	0.0085	0.012
N11	XPKX12T304PDER-E08 H25	0.14	0.0050	0.0055	0.0085	0.012
S11	XPKX12T304PDER-E08 H25	0.10	0.0030	0.0032	0.0048	0.0065
S12	XPKX12T304PDER-E08 H25	0.10	0.0030	0.0032	0.0048	0.0065

SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.97-X12 – Cutting data v_c = (sf/min)

SMG	H25			
	100%	30%	10%	5%
N1	2275	3000	3525	3875
N2	1825	2425	2850	3125
N3	1225	1625	1900	2100
N11	1400	1850	2175	2375
S11	135	175	210	225
S12	105	135	160	175

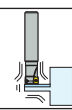

R220.21-00

Highfeed milling cutters

Insert	a_p max	Material suitability									
		P	M	K	N	S	H				
LP..05 	0.020	■	■	■	□	■	■	■	□	■	■
LP..06 	0.031	■	■	■	■	■	■	■	□	■	■
LOH.06 	0.031	■	◩	■	–	■	■	■	■	◩	◩
218.19-100 	0.028	■	◩	■	■	◩	■	■	◩	■	■
218.19-125 	0.039	■	◩	■	■	◩	■	◩	■	■	■
218.19-160 	0.071	■	◩	■	■	◩	□	–	■	■	■
SC..12 	0.079	■	■	■	–	■	–	–	■	□	■
ON..09 	0.079	■	–	■	–	–	–	–	■	–	–

1st choice	■
Alternative choice	◩
Possible choice	□
Not recommended	–

High speed machine with low power/torque	
Strong stable machine with rigid connection	
a_p max	Max depth of cut

Unstable condition suitability	
Ramping ability	
Plunging ability	

Highfeed milling cutters

No. of insert cutting edges	Application	Cutter diameter available (inch) / number of teeth												Page
		0.50	0.625	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	
2			2	3										335-336
		2	3	4										
2				2	3	4								339-340
			2	3	4	5	6/7							
4				2	3	4	5							343-344
					4	5	6	8	9					
3				2	3									347-349
3					2	3	4							
3								3	4					
						2	3	4	5	6	7			
4									4	5	5			356
								4						
16										6	7	8	10	359

x — x indicates number of teeth (first choice)

x — x indicates number of teeth

 Troubleshooter for unstable fixturing and/or machine

 First choice

Code key

There is no ISO system available for cutters.
Parts of the code key vary for different cutter systems.

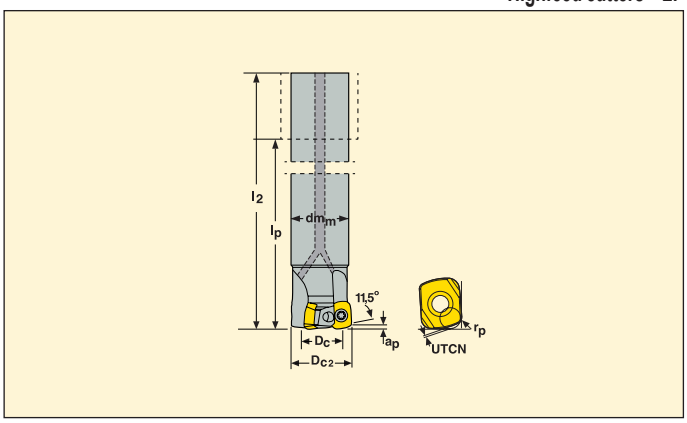
R	220.21	-	04.00	-	3	-	R160	-	3	A

- R: Right-hand rotation
- 220.21: Cutter system (217 = With shank, 220 = For arbor)
- 04.00: Cutter diameter
- 3: Type of shank: 0 = Cylindrical, RE = Combimaster
- R160: Insert size and style
- 3: Effective No. of teeth (Z_c)
- A: A = Holes for internal coolant supply, W = Insert locking with wedge, G = Coarse pitch version for low power machines, T = Close pitch version for high feed rates in powerful machines, C = With adjustable cassettes

R217.21

Highfeed cutters – LP

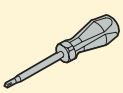
- For insert selection and cutting data recommendations, see pages 337-338
- For complete insert program, see page 565.
- For helical interpolation, see page 632.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	dm_m	l_2	l_p	a_p	UTCN	r_p						
84141	R217.21 -00.500-0-LP05-2A	0.500	0.24	0.500	5.00	3.23	0.026	0.013	0.059	5.4	2	0.4	Cylindrical	45000	LP..05
84142	-00.625-0-LP05-2A	0.625	0.36	0.625	6.00	4.02	0.026	0.013	0.059	3	2	0.4	Cylindrical	39000	LP..05
84143	-00.750-0-LP05-3A	0.750	0.49	0.750	6.50	4.33	0.026	0.013	0.059	1.9	3	0.7	Cylindrical	35000	LP..05

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.
α° = Ramping angle

Spare Parts, included in delivery.

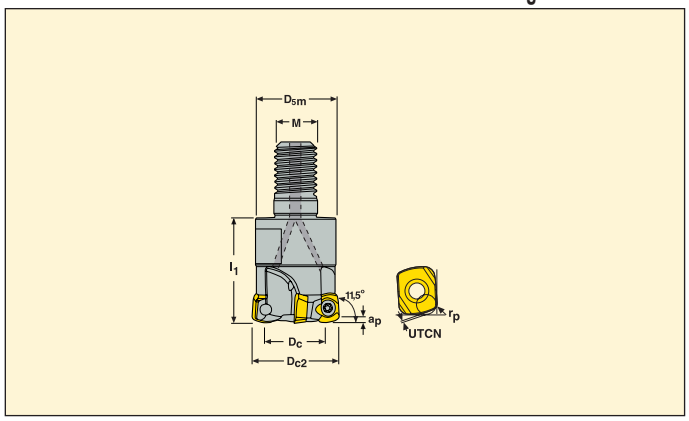
For cutter	Insert key	Insert screw
		
R217.21-0.500	T06P-3	C02005-T06P
R217.21-0.625 / 0.750	T06P-3	C02053-T06P

Please check availability in current price and stock-list.

Torque value 4.4 in/lbs.
Torque keys available, see page 643.

R217.21

Highfeed cutters – LP

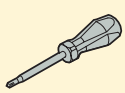


- For insert selection and cutting data recommendations, see pages 337-338
- For complete insert program, see page 565.
- For helical interpolation, see page 632.
- For plunging, see page 634.

EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	D_{5m}	l_1	M	a_p	UTCN	r_p						
84138	R217.21 -00.500-06RE-LP05-2A	0.500	0.24	0.43	0.71	M6	0.026	.013	.059	3.9	2	0.2	Combimaster*	45000	LP..05
14008	-00.500-08RE-LP05-2A	0.500	0.24	0.53	0.79	M8	0.026	.013	.059	3.9	2	0.2	Combimaster*	45000	LP..05
84139	-00.625-08RE-LP05-3A	0.625	0.36	0.53	0.79	M8	0.026	.013	.059	3	3	0.2	Combimaster*	39000	LP..05
84140	-00.750-10RE-LP05-4A	0.750	0.49	0.73	0.91	M10	0.026	.013	.059	1.9	4	0.2	Combimaster*	35000	LP..05

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile. * For Combimaster holders and adapters, see page 534.
α° = Ramping angle

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R217.21-0.500 / 00.625	T06P-3	C02005-T06P
R217.21-0.750	T06P-3	C02053-T06P

Please check availability in current price and stock-list.

Torque value 4.4 in/lbs.
Torque keys available, see page 643.

R217/220.21-LP05 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	70%	30%
P1	LPHT05T210TR-ME04 T350M	0.016	0.013	0.013	0.013
P2	LPHT05T210TR-ME04 T350M	0.016	0.013	0.013	0.014
P3	LPHT05T210TR-ME04 T350M	0.016	0.012	0.012	0.013
P4	LPKT05T210TR-M05 MP2500	0.016	0.015	0.015	0.016
P5	LPKT05T210TR-M05 MP2500	0.016	0.014	0.014	0.016
P6	LPKT05T210TR-M05 MP2500	0.016	0.014	0.014	0.016
P7	LPKT05T210TR-M05 MP2500	0.016	0.014	0.014	0.016
P8	LPKW05T210TR-MD05 MP2500	0.016	0.015	0.015	0.017
P11	LPKT05T210TR-M05 MP2500	0.016	0.014	0.014	0.016
M1	LPKT05T210TR-M05 F40M	0.016	0.016	0.016	0.017
M2	LPKT05T210TR-M05 F40M	0.016	0.014	0.014	0.016
M3	LPKT05T210TR-M05 F40M	0.013	0.013	0.013	0.014
M4	LPKT05T210TR-M05 F40M	0.0095	0.013	0.013	0.014
M5	LPKT05T210TR-M05 F40M	0.0095	0.013	0.013	0.014
K1	LPKW05T210TR-MD05 MP2500	0.016	0.016	0.016	0.017
K2	LPKW05T210TR-MD05 MP2500	0.016	0.014	0.014	0.016
K3	LPKW05T210TR-MD05 MP2500	0.016	0.014	0.014	0.016
K4	LPKW05T210TR-MD05 MP2500	0.016	0.014	0.014	0.016
K5	LPKW05T210TR-MD05 MP2500	0.016	0.013	0.013	0.014
K6	LPKW05T210TR-MD05 MP2500	0.016	0.014	0.014	0.016
K7	LPKW05T210TR-MD05 MP2500	0.016	0.013	0.013	0.014
N1	LPHT05T210TR-ME04 F40M	0.016	0.016	0.016	0.017
N2	LPHT05T210TR-ME04 F40M	0.016	0.016	0.016	0.017
N3	LPHT05T210TR-ME04 F40M	0.016	0.016	0.016	0.017
N11	LPHT05T210TR-ME04 F40M	0.016	0.016	0.016	0.017
S1	LPHT05T210TR-ME04 F40M	0.0095	0.010	0.010	0.012
S2	LPHT05T210TR-ME04 F40M	0.0095	0.010	0.010	0.012
S3	LPKT05T210TR-M05 F40M	0.0095	0.012	0.012	0.013
S11	LPHT05T210TR-ME04 MS2050	0.011	0.011	0.011	0.012
S12	LPHT05T210TR-ME04 MS2050	0.011	0.011	0.011	0.012
S13	LPHT05T210TR-ME04 MS2050	0.0095	0.010	0.010	0.012
H5	LPHW05T210TR-MD05 MH1000	0.013	0.011	0.011	0.012
H8	LPHW05T210TR-MD05 MH1000	0.011	0.0085	0.0085	0.010
H11	LPKT05T210TR-M05 F40M	0.013	0.011	0.011	0.012
H12	LPKT05T210TR-M05 F40M	0.013	0.011	0.011	0.012
H21	LPHW05T210TR-MD05 MH1000	0.011	0.0085	0.0085	0.010

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values.

R217/220.21-LP05 – Cutting data v_c = (sf/min)

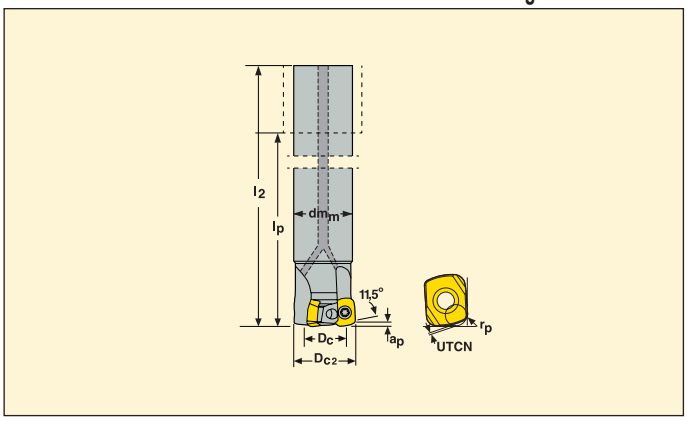
	MP2500			MP3000			T350M			F40M			MM4500			MP3000		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	1275	1475	1775	1200	1400	1675	1200	1400	1675	960	1125	1325	840	980	1175	1300	1525	1825
P2	1225	1425	1725	1175	1350	1625	1175	1350	1600	930	1100	1300	820	960	1125	1275	1475	1750
P3	1075	1250	1500	1025	1175	1425	1025	1175	1400	810	950	1125	720	830	990	1100	1300	1525
P4	940	1100	1325	890	1050	1250	890	1050	1250	710	830	1000	630	740	880	970	1125	1350
P5	910	1075	1275	860	1000	1200	850	1000	1200	690	810	960	600	700	840	930	1075	1300
P6	1025	1200	1425	970	1125	1350	960	1125	1350	780	900	1075	680	790	940	1050	1225	1450
P7	970	1125	1350	910	1075	1275	900	1050	1275	730	850	1025	640	740	890	980	1150	1375
P8	900	1050	1250	850	1000	1200	850	1000	1175	680	800	950	600	700	830	930	1075	1275
P11	940	1100	1300	890	1025	1225	880	1025	1225	710	830	990	620	720	860	950	1125	1325
M1	890	1025	1250	870	1025	1225	900	1050	1250	750	880	1050	700	820	970	950	1100	1300
M2	730	860	1025	720	840	1000	730	860	1025	620	730	860	580	670	800	770	900	1075
M3	580	680	800	570	670	790	590	680	810	495	570	680	460	530	630	620	720	850
M4	445	510	610	435	500	600	450	520	610	375	435	520	350	405	475	475	550	640
M5	370	425	510	365	420	500	375	430	510	315	360	430	295	340	395	395	455	530
K1	980	1150	1350	920	1075	1300	920	1075	1275	740	860	1025	—	—	—	1000	1175	1400
K2	870	1000	1200	820	960	1150	810	950	1125	660	760	910	—	—	—	880	1025	1225
K3	730	850	1025	690	810	960	690	800	960	550	650	770	—	—	—	740	870	1050
K4	700	820	970	660	770	920	650	760	910	530	620	740	—	—	—	710	830	990
K5	420	490	590	400	465	560	400	470	550	320	370	445	—	—	—	435	510	600
K6	620	720	860	580	680	810	580	670	810	465	540	650	—	—	—	630	730	880
K7	540	630	760	510	600	720	510	600	700	410	475	570	—	—	—	560	650	770
N1	3675	4275	5125	3475	4050	4875	—	—	—	2775	3250	3900	—	—	—	3750	4375	5225
N2	2950	3450	4150	2800	3275	3925	—	—	—	2250	2625	3150	—	—	—	3025	3525	4225
N3	1975	2300	2775	1875	2175	2625	—	—	—	1500	1750	2100	—	—	—	2025	2350	2825
N11	2250	2625	3150	2125	2500	3000	—	—	—	1700	2000	2400	—	—	—	2300	2675	3225
S1	215	250	295	205	235	280	210	240	285	175	205	240	110	125	145	220	255	300
S2	175	200	240	165	190	225	170	195	230	140	165	195	85	100	115	180	205	240
S3	155	175	210	145	165	195	145	170	200	125	145	170	75	90	100	155	180	210
S11	305	350	420	285	330	400	295	340	405	245	285	345	150	175	210	310	360	430
S12	175	205	245	165	190	230	170	195	235	145	165	200	115	135	160	180	210	245
S13	140	160	190	130	150	180	135	155	185	115	130	155	95	105	125	145	165	195
H5	180	210	250	175	205	240	185	215	255	150	175	205	—	—	—	190	220	260
H8	190	220	255	185	215	250	195	225	265	155	180	215	—	—	—	195	230	265
H11	230	265	315	220	260	310	235	275	325	190	220	265	—	—	—	240	280	330
H12	345	400	475	335	390	465	355	415	490	285	335	395	—	—	—	365	420	500
H21	190	220	255	185	215	250	195	225	265	155	180	215	—	—	—	195	230	265

R217/220.21-LP05 – Cutting data v_c = (sf/min)

	MS2500			MH1000		
SMG	100%	70%	30%	100%	70%	30%
P1	1375	1600	1925	1275	1500	1800
P2	1350	1575	1875	1250	1450	1750
P3	1175	1375	1625	1075	1275	1525
P4	1025	1200	1425	960	1125	1325
P5	990	1150	1375	920	1075	1275
P6	1125	1300	1550	1050	1200	1450
P7	1050	1225	1475	980	1150	1375
P8	980	1150	1375	910	1075	1275
P11	1025	1200	1425	950	1100	1325
M1	960	1125	1350	—	—	—
M2	800	930	1100	—	—	—
M3	630	740	870	—	—	—
M4	480	560	660	—	—	—
M5	400	465	550	—	—	—
K1	1075	1250	1475	990	1150	1375
K2	940	1100	1300	880	1025	1225
K3	800	930	1100	740	870	1025
K4	760	890	1050	710	830	990
K5	460	540	640	425	500	600
K6	670	780	930	620	730	870
K7	590	690	820	550	640	770
N1	—	—	—	—	—	—
N2	—	—	—	—	—	—
N3	—	—	—	—	—	—
N11	—	—	—	—	—	—
S1	235	270	325	—	—	—
S2	190	220	260	—	—	—
S3	165	195	225	—	—	—
S11	330	385	460	—	—	—
S12	190	220	265	—	—	—
S13	150	175	210	—	—	—
H5	195	225	270	200	230	275
H8	205	235	275	210	245	285
H11	245	285	340	255	295	350
H12	375	435	520	385	445	530
H21	205	235	275	210	245	285

R217.21

Highfeed cutters – LP

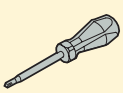


- For insert selection and cutting data recommendations, see pages 341-342.
- For complete insert program, see page 565.
- For helical interpolation, see page 632.
- For plunging, see page 634.

EDP No.	Part No.	Dimensions in inch							α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	dm_m	l_2	a_p	UTCN	r_p						
71017	R217.21 -00.625-0-LP06-2A	0.625	0.290	0.625	6.00	0.030	0.018	0.071	5	2	0.44	Cylindrical	39000	LP..06
71018	-00.750-0-LP06-2A	0.750	0.410	0.750	6.50	0.030	0.018	0.071	3	2	0.66	Cylindrical	35000	LP..06
71019	-01.00-0-LP06-3A	1.000	0.660	1.000	7.00	0.030	0.018	0.071	2	3	1.54	Cylindrical	30000	LP..06
71020	-01.25-0-LP06-4A	1.250	0.910	1.250	8.00	0.030	0.018	0.071	1.5	4	2.20	Cylindrical	27000	LP..06

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.
α° = Ramping angle

Spare Parts, included in delivery.

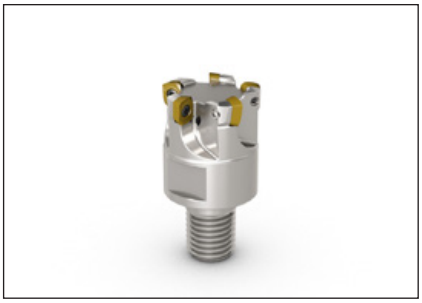
For cutter	Insert key	Insert screw
		
R217.21-0.625 / 0.750	T08P-3	C02555-T08P
R217.21-1.00 - 1.50	T08P-3	C02506-T08P

Please check availability in current price and stock-list.

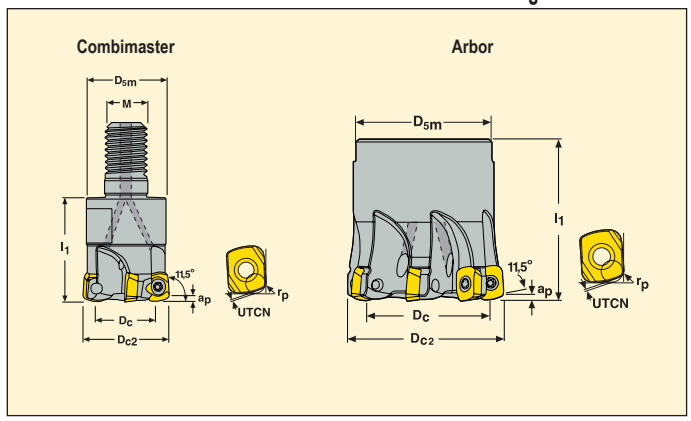
Torque value 10.6 in/lbs.
Torque keys available, see page 643.

R217.21

Highfeed cutters – LP



- For insert selection and cutting data recommendations, see pages 341-342.
- For complete insert program, see page 565.
- For helical interpolation, see page 632.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch									α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	D_{5m}	dm_m	l_1	M	a_p	UTCN	r_p						
71011	R217.21 -00.625-08RE-LP06-2A	0.625	0.29	0.53	–	0.79	M8	.031	.018	.071	5	2	0.04	Combimaster*	39000	LP..06
71012	-00.750-10RE-LP06-3A	0.750	0.41	0.73	–	1.10	M10	.031	.018	.071	3	3	0.11	Combimaster*	35000	LP..06
71013	-01.00-12RE-LP06-3A	1.000	0.66	0.91	–	1.18	M12	.031	.018	.071	2	3	0.44	Combimaster*	30000	LP..06
71014	-01.00-12RE-LP06-4A	1.000	0.66	0.91	–	1.18	M12	.031	.018	.071	2	4	0.22	Combimaster*	30000	LP..06
71016	-01.25-16RE-LP06-5A	1.250	0.91	1.18	–	1.18	M16	.031	.018	.071	1.2	5	0.44	Combimaster*	27000	LP..06
05938	-01.50-20RE-LP06-7A	1.500	1.18	1.44	–	1.57	M20	.031	.018	.071	0.9	7	0.66	Combimaster*	24000	LP..06
86606	R220.21 -01.50-LP06-6A	1.500	1.17	1.26	0.50	1.50	–	.031	.018	.071	1	6	0.44	Arbor	25000	LP..06

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile. * For Combimaster holders and adapters, see page 534.
α° = Ramping angle

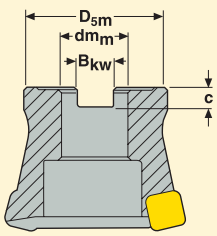
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R217.21-0.625 / 0.750	–	T08P-3	C02555-T08P
R217.21-1.00 - 1.50	–	T08P-3	C02506-T08P
R220.21-..	UC6S1/4UNFX1SHCS	T08P-3	C02506-T08P

Please check availability in current price and stock-list.

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.21-1.50	0.500	1.260	0.258	0.157

Please check availability in current price and stock-list.

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

R217/220.21-LP06 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	70%	30%
P1	LPHT060310TR-M06 T350M	0.019	0.019	0.019	0.022
P2	LPHT060310TR-M06 T350M	0.019	0.020	0.020	0.022
P3	LPHT060310TR-M06 T350M	0.019	0.018	0.018	0.020
P4	LPHT060310TR-M06 MP2500	0.019	0.018	0.018	0.020
P5	LPHT060310TR-M06 MP2500	0.019	0.017	0.017	0.020
P6	LPHT060310TR-M06 MP2500	0.019	0.017	0.017	0.019
P7	LPHW060310TR-MD07 MP2500	0.019	0.020	0.020	0.022
P8	LPHW060310TR-MD07 MP2500	0.019	0.022	0.022	0.024
P11	LPHW060310TR-MD07 MP2500	0.019	0.020	0.020	0.022
M1	LPHT060310TR-ME05 F40M	0.019	0.017	0.017	0.018
M2	LPHT060310TR-ME05 F40M	0.019	0.015	0.015	0.017
M3	LPHT060310TR-ME05 F40M	0.015	0.013	0.013	0.014
M4	LPHT060310TR-M06 F40M	0.011	0.017	0.017	0.018
M5	LPHT060310TR-M06 F40M	0.011	0.017	0.017	0.018
K1	LPHW060310TR-D06 MP3000	0.019	0.020	0.020	0.022
K2	LPHW060310TR-D06 MP3000	0.019	0.017	0.017	0.020
K3	LPHW060310TR-D06 MP3000	0.019	0.017	0.017	0.020
K4	LPHW060310TR-D06 MP3000	0.019	0.017	0.017	0.020
K5	LPHW060310TR-D06 MP3000	0.019	0.016	0.016	0.017
K6	LPHW060310TR-D06 MP3000	0.019	0.017	0.017	0.020
K7	LPHW060310TR-D06 MP3000	0.019	0.016	0.016	0.017
N1	LPHT060310ER-E05 H25	0.019	0.020	0.020	0.024
N2	LPHT060310ER-E05 H25	0.019	0.020	0.020	0.024
N3	LPHT060310ER-E05 H25	0.019	0.020	0.020	0.024
N11	LPHT060310ER-E05 H25	0.019	0.020	0.020	0.024
S1	LPHT060310TR-M06 MS2500	0.011	0.017	0.017	0.018
S2	LPHT060310TR-M06 MS2500	0.011	0.017	0.017	0.018
S3	LPHT060310TR-M06 MS2500	0.011	0.015	0.015	0.017
S11	LPHT060310TR-M06 MS2050	0.013	0.017	0.017	0.019
S12	LPHT060310TR-M06 MS2050	0.013	0.017	0.017	0.019
S13	LPHT060310TR-M06 MS2050	0.011	0.017	0.017	0.018
H5	LPHW060310TR-D06 MH1000	0.015	0.013	0.013	0.015
H8	LPHW060310TR-D06 MH1000	0.013	0.011	0.011	0.012
H11	LPHW060310TR-D06 MH1000	0.015	0.013	0.013	0.015
H12	LPHW060310TR-D06 MH1000	0.015	0.013	0.013	0.015
H21	LPHW060310TR-D06 MH1000	0.013	0.011	0.011	0.012

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.21-LP06 – Cutting data v_c = (sf/min)

	MP2500			MP3000			T350M			F40M			MM4500			MS2050		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	1150	1300	1550	1100	1225	1475	1000	1125	1350	870	990	1175	760	860	1025	860	970	980
P2	1100	1250	1500	1050	1200	1425	970	1100	1325	840	950	1150	730	830	1000	850	960	960
P3	970	1100	1325	920	1050	1250	850	960	1150	740	840	1000	640	720	880	710	800	780
P4	860	970	1175	810	920	1100	750	850	1025	650	740	890	570	640	770	630	710	690
P5	820	930	1125	770	880	1050	710	810	970	620	700	850	540	620	740	600	680	660
P6	930	1050	1275	880	1000	1200	810	920	1100	700	800	960	610	690	830	660	750	720
P7	870	990	1200	830	940	1125	760	860	1050	660	750	900	570	650	790	620	700	680
P8	820	930	1125	770	880	1050	710	810	970	620	700	850	540	610	740	600	680	660
P11	850	960	1150	800	910	1100	740	840	1000	640	730	880	560	630	770	610	680	660
M1	800	910	1100	780	890	1075	740	840	1025	680	770	920	630	710	860	740	840	840
M2	660	750	900	650	730	880	610	700	840	560	630	760	520	590	700	580	660	640
M3	530	600	720	520	590	700	495	560	670	450	510	610	415	470	560	390	445	410
M4	405	460	550	400	450	540	380	425	510	345	390	465	320	360	430	270	310	280
M5	340	380	455	335	375	450	315	355	425	285	325	385	265	300	355	225	255	230
K1	880	1000	1200	830	940	1125	760	870	1050	670	750	910	—	—	—	860	970	970
K2	780	880	1050	730	830	1000	680	770	920	590	670	800	—	—	—	720	820	800
K3	660	740	900	620	710	850	570	650	780	495	560	680	—	—	—	610	690	670
K4	630	710	860	590	670	810	550	620	750	475	540	650	—	—	—	580	660	640
K5	385	435	520	365	415	495	335	380	455	290	330	395	—	—	—	330	370	355
K6	550	630	750	520	590	710	480	550	660	420	475	570	—	—	—	520	580	570
K7	495	560	670	465	530	630	430	485	580	375	425	510	—	—	—	420	475	450
N1	3250	3700	4475	3075	3500	4250	—	—	—	2475	2800	3400	—	—	—	—	—	—
N2	2625	2975	3625	2500	2825	3425	—	—	—	2000	2250	2750	—	—	—	—	—	—
N3	1750	1975	2400	1650	1875	2275	—	—	—	1325	1500	1825	—	—	—	—	—	—
N11	2000	2275	2750	1900	2150	2600	—	—	—	1525	1725	2075	—	—	—	—	—	—
S1	195	225	265	185	210	250	175	200	240	160	180	215	100	110	130	190	200	240
S2	160	180	215	150	170	200	140	160	190	130	145	175	80	90	105	150	165	190
S3	140	160	190	130	150	175	125	140	170	115	130	155	70	80	95	135	145	170
S11	280	315	380	265	300	355	250	285	340	225	255	305	135	155	185	260	280	335
S12	160	180	220	150	170	205	145	165	195	130	150	175	105	120	140	200	215	260
S13	130	145	170	120	135	160	115	130	155	105	115	140	85	95	115	160	175	205
H5	165	185	220	160	180	215	155	180	210	135	155	185	—	—	—	—	—	—
H8	170	195	230	165	190	225	165	185	220	145	160	195	—	—	—	—	—	—
H11	210	235	280	205	230	275	200	225	270	175	195	235	—	—	—	—	—	—
H12	315	355	425	305	350	415	300	340	405	265	295	355	—	—	—	—	—	—
H21	170	195	230	165	190	225	165	185	220	145	160	195	—	—	—	—	—	—

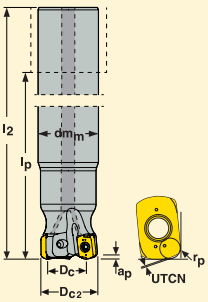
R217/220.21-LP06 – Cutting data v_c = (sf/min)

	MS2500			MH1000			H25		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	1250	1425	1700	1175	1325	1575	—	—	—
P2	1200	1375	1650	1125	1275	1525	—	—	—
P3	1050	1200	1450	990	1125	1350	—	—	—
P4	930	1050	1275	870	990	1175	—	—	—
P5	890	1000	1225	830	940	1125	—	—	—
P6	1000	1150	1375	940	1075	1275	—	—	—
P7	950	1075	1300	890	1000	1200	—	—	—
P8	890	1000	1225	830	940	1125	—	—	—
P11	930	1050	1275	860	980	1175	—	—	—
M1	870	980	1175	—	—	—	—	—	—
M2	710	810	970	—	—	—	—	—	—
M3	570	650	780	—	—	—	—	—	—
M4	440	495	590	—	—	—	—	—	—
M5	365	415	495	—	—	—	—	—	—
K1	960	1075	1300	890	1000	1225	—	—	—
K2	850	960	1150	790	890	1075	—	—	—
K3	720	810	980	670	760	910	—	—	—
K4	680	780	930	640	720	870	—	—	—
K5	420	475	570	390	445	530	—	—	—
K6	600	680	820	560	640	770	—	—	—
K7	540	610	730	500	570	680	—	—	—
N1	—	—	—	—	—	—	2525	2875	3450
N2	—	—	—	—	—	—	2050	2325	2800
N3	—	—	—	—	—	—	1350	1550	1850
N11	—	—	—	—	—	—	1550	1775	2125
S1	215	245	290	—	—	—	—	—	—
S2	175	195	235	—	—	—	—	—	—
S3	150	170	205	—	—	—	—	—	—
S11	305	345	410	—	—	—	—	—	—
S12	175	200	235	—	—	—	—	—	—
S13	140	155	185	—	—	—	—	—	—
H5	180	200	240	185	205	245	—	—	—
H8	185	210	250	190	215	260	—	—	—
H11	225	255	305	235	265	315	—	—	—
H12	340	385	460	350	400	475	—	—	—
H21	185	210	250	190	215	260	—	—	—

R217.21

Highfeed cutters – LO

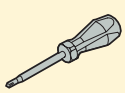
- For insert selection and cutting data recommendations, see pages 345-346.
- For complete insert program, see page 564.
- For helical interpolation, see page 632.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch								α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	dm_m	l_2	l_p	a_p	UTCN	r_p						
16121	R217.21 -01.00-0-LO06-3A	1.00	0.74	1.00	7.00	4.88	.035	.015	.071	0.7	3	1.5	Cylindrical	30000	LOH.06
16199	-01.25-0-LO06-4A	1.25	0.98	1.25	8.00	5.51	.035	.015	.071	0.5	4	2.6	Cylindrical	27000	LOH.06

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.
α° = Ramping angle

Spare Parts, included in delivery.

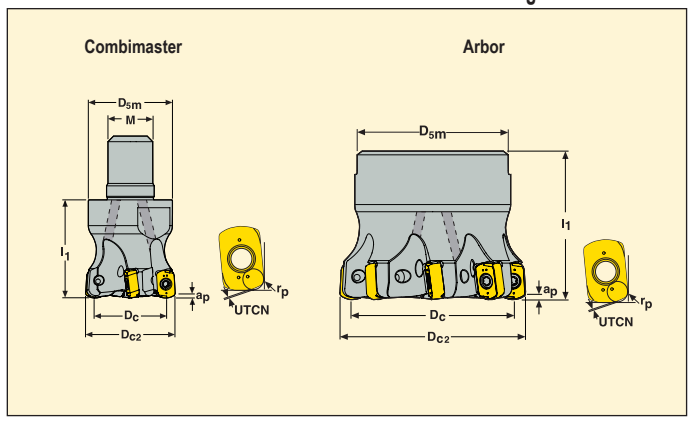
For cutter	Insert key	Insert screw
		
R217.21-..	T08P-3	C02508-T08P

Please check availability in current price and stock-list.

Torque value 10.6 in/lbs.
Torque keys available, see page 643.

R217/220.21

- For insert selection and cutting data recommendations, see pages 345-346.
- For complete insert program, see page 564.
- For helical interpolation, see page 632.
- For plunging, see page 634.



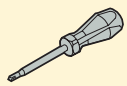
EDP No.	Part No.	Dimensions in inch D_{c2}	D_c	D_{5m}	l_1	M	a_p	UTCN	r_p	α° max		lbs	Type of mounting	Max rpm	Insert
09955	R217.21 -01.00-12RE-LO06-3A	1.00	0.74	0.91	1.18	M12	.035	.015	.071	0.7	3	0.2	Combimaster*	30000	LOH.06
16119	-01.00-12RE-LO06-4A	1.00	0.74	0.91	1.18	M12	.035	.015	.071	0.7	4	0.2	Combimaster*	30000	LOH.06
14025	-01.25-16RE-LO06-4A	1.25	0.98	1.18	1.38	M16	.035	.015	.071	0.5	4	0.4	Combimaster*	27000	LOH.06
16154	-01.25-16RE-LO06-5A	1.25	0.98	1.18	1.38	M16	.035	.015	.071	0.5	5	0.4	Combimaster*	27000	LOH.06
14026	-01.50-16RE-LO06-5A	1.50	1.24	1.18	1.38	M16	.035	.015	.071	0.4	5	0.4	Combimaster*	18000	LOH.06
52990	-01.50-20RE-LO06-6A	1.50	1.30	1.44	1.57	M20	.035	.015	.071	0.4	6	0.7	Combimaster*	18000	LOH.06
16203	R220.21 -01.50-LO06-6A	1.50	1.24	1.26	1.50	–	.035	.015	.071	0.4	6	0.4	Arbor	18000	LOH.06
14028	-02.00-LO06-8A	2.00	1.74	1.65	1.50	–	.035	.015	.071	0.3	8	0.9	Arbor	16000	LOH.06
14031	-02.50-LO06-9A	2.50	2.24	1.85	1.50	–	.035	.015	.071	0.25	9	1.1	Arbor	15000	LOH.06

α° = Ramping angle

* For Combimaster holders and adapters, see page 534.

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

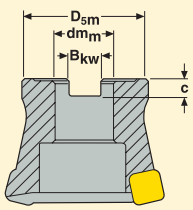
Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R217.21-..	–	T08P-3	C02508-T08P
R220.21-01.50	UC6S1/4UNFX1SHCS	T08P-3	C02508-T08P
R220.21-02.00 / 02.50	UC6S3/8UNFX1	T08P-3	C02508-T08P

Torque value 10.6 in/lbs.

Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.21-01.50	0.50	1.26	0.26	0.16
R220.21-02.00	0.75	1.65	0.32	0.19
R220.21-02.50	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R217/220.21-LO06 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	70%	30%
P1	LOHT060310TR-ME06 T350M	0.022	0.015	0.015	0.016
P2	LOHT060310TR-ME06 T350M	0.022	0.015	0.015	0.017
P3	LOHT060310TR-ME06 T350M	0.022	0.014	0.014	0.016
P4	LOHT060310TR-M07 MP2500	0.022	0.017	0.017	0.018
P5	LOHT060310TR-M07 MP2500	0.022	0.016	0.016	0.017
P6	LOHT060310TR-M07 MP2500	0.022	0.016	0.016	0.017
P7	LOHT060310TR-M07 MP2500	0.022	0.016	0.016	0.017
P8	LOHT060310TR-MD07 MP2500	0.022	0.017	0.017	0.018
P11	LOHT060310TR-ME06 T350M	0.022	0.013	0.013	0.015
M1	LOHT060310TR-ME06 T350M	0.022	0.015	0.015	0.017
M2	LOHT060310TR-ME06 T350M	0.022	0.013	0.013	0.015
M3	LOHT060310TR-ME06 T350M	0.017	0.013	0.013	0.013
M4	LOHT060310TR-ME06 T350M	0.013	0.013	0.013	0.013
M5	LOHT060310TR-ME06 T350M	0.013	0.013	0.013	0.013
K1	LOHT060310TR-MD07 MK2050	0.022	0.017	0.017	0.019
K2	LOHT060310TR-MD07 MK2050	0.022	0.016	0.016	0.017
K3	LOHT060310TR-MD07 MK2050	0.022	0.016	0.016	0.017
K4	LOHW060310TR-D07 MP1500	0.022	0.016	0.016	0.017
K5	LOHW060310TR-D07 MP1500	0.022	0.014	0.014	0.016
K6	LOHT060310TR-MD07 MK2050	0.022	0.016	0.016	0.017
K7	LOHT060310TR-MD07 MK2050	0.022	0.014	0.014	0.016
S1	LOHT060310TR-ME06 MS2500	0.013	0.013	0.013	0.013
S2	LOHT060310TR-ME06 MS2500	0.013	0.013	0.013	0.013
S3	LOHT060310TR-M07 F40M	0.013	0.013	0.013	0.015
S11	LOHT060310TR-ME06 MS2050	0.015	0.013	0.013	0.014
S12	LOHT060310TR-ME06 MS2050	0.015	0.013	0.013	0.014
S13	LOHT060310TR-ME06 MS2050	0.013	0.013	0.013	0.013
H5	LOHW060310TR-D07 MH1000	0.017	0.013	0.013	0.013
H8	LOHW060310TR-D07 MH1000	0.015	0.010	0.010	0.011
H11	LOHT060310TR-M07 T350M	0.017	0.013	0.013	0.013
H12	LOHT060310TR-M07 T350M	0.017	0.013	0.013	0.013
H21	LOHW060310TR-D07 MH1000	0.015	0.010	0.010	0.011

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values.

R217/220.21-LO06 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F40M			MM4500		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	1075	1200	1475	1050	1175	1425	1000	1125	1350	1000	1125	1350	800	900	1075	700	790	950
P2	1050	1175	1425	1025	1150	1400	970	1100	1325	970	1100	1300	780	870	1050	680	770	920
P3	920	1025	1250	890	1000	1200	850	950	1150	850	950	1150	680	760	910	600	670	800
P4	810	900	1100	790	880	1075	740	830	1000	750	840	1025	600	670	810	530	590	720
P5	780	870	1050	760	850	1025	720	810	970	720	810	970	580	650	780	510	570	680
P6	870	980	1175	850	960	1150	810	910	1100	810	910	1100	650	720	870	570	640	770
P7	820	930	1125	800	900	1075	760	860	1025	760	860	1025	610	680	820	540	610	720
P8	770	860	1050	750	840	1025	710	800	960	710	800	960	570	640	770	500	560	680
P11	800	900	1075	780	880	1050	740	830	1000	740	830	1000	590	660	800	520	590	700
M1	—	—	—	740	830	1000	730	810	980	750	840	1000	630	700	850	590	660	790
M2	—	—	—	610	690	830	600	670	810	620	700	830	520	580	700	485	550	650
M3	—	—	—	490	550	660	480	540	650	490	550	670	415	465	560	385	435	520
M4	—	—	—	375	420	510	370	415	500	380	430	510	320	355	430	300	335	405
M5	—	—	—	315	350	425	310	345	415	320	355	430	265	300	360	250	280	335
K1	830	930	1125	810	910	1100	770	860	1050	770	860	1050	620	690	830	—	—	—
K2	740	830	1000	720	810	970	680	770	920	680	770	920	550	610	740	—	—	—
K3	630	700	840	610	680	820	580	650	780	580	650	780	460	520	620	—	—	—
K4	600	670	810	580	650	790	550	620	740	550	620	740	440	495	600	—	—	—
K5	365	410	490	355	400	480	335	380	455	335	375	455	270	300	360	—	—	—
K6	530	590	710	510	580	690	485	550	660	485	550	650	390	435	520	—	—	—
K7	465	520	630	455	510	610	430	485	580	425	480	580	345	385	465	—	—	—
S1	—	—	—	185	205	245	175	195	235	180	200	240	150	165	200	90	105	125
S2	—	—	—	150	165	200	140	155	190	145	160	195	120	135	160	75	85	100
S3	—	—	—	130	145	175	125	140	165	125	140	170	105	120	140	65	70	85
S11	—	—	—	255	285	350	240	270	330	250	280	335	210	235	285	130	145	175
S12	—	—	—	150	165	200	140	155	190	145	160	195	120	135	165	100	110	135
S13	—	—	—	120	130	160	110	125	150	115	130	155	95	110	130	80	90	105
H5	170	195	230	155	170	205	150	165	200	160	175	210	125	145	170	—	—	—
H8	180	200	240	160	180	215	155	175	210	165	185	220	135	150	180	—	—	—
H11	220	245	290	195	220	260	190	210	250	200	225	270	160	180	215	—	—	—
H12	330	370	440	295	330	390	285	320	380	305	340	410	245	275	325	—	—	—
H21	180	200	240	160	180	215	155	175	210	165	185	220	135	150	180	—	—	—

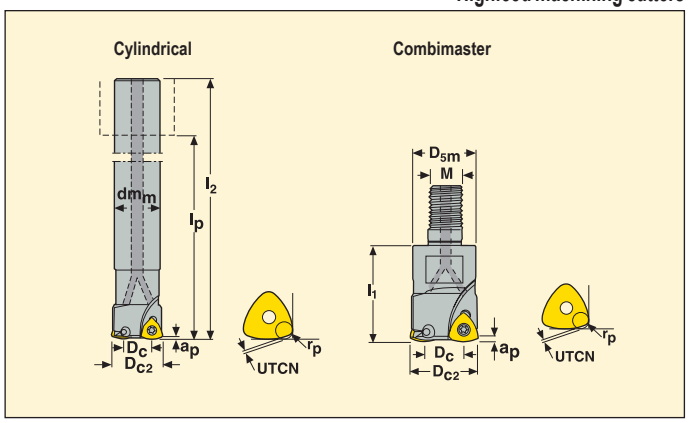
R217/220.21-LO06 – Cutting data v_c = (sf/min)

	MK2050			MS2050			MP3000			MH1000		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	950	1075	1300	880	990	1000	1100	1225	1475	1000	1125	1350
P2	930	1050	1250	860	960	970	1075	1200	1450	980	1100	1325
P3	810	900	1100	730	820	810	930	1050	1250	850	950	1150
P4	710	800	960	640	720	700	820	920	1125	750	840	1025
P5	690	770	930	600	670	670	790	890	1075	720	810	980
P6	770	860	1050	670	760	750	890	1000	1200	810	910	1100
P7	730	820	980	630	710	710	840	940	1125	770	860	1025
P8	680	760	920	610	690	680	780	880	1050	720	800	970
P11	710	790	950	610	690	690	820	920	1100	740	840	1000
M1	—	—	—	750	840	850	800	900	1075	—	—	—
M2	—	—	—	580	660	650	660	740	890	—	—	—
M3	—	—	—	405	465	425	520	590	710	—	—	—
M4	—	—	—	270	315	275	405	455	550	—	—	—
M5	—	—	—	225	260	230	340	380	455	—	—	—
K1	1000	1125	1350	870	970	980	850	950	1150	770	870	1050
K2	890	1000	1200	720	820	810	750	840	1000	690	770	930
K3	750	840	1025	610	690	680	640	710	860	580	650	790
K4	720	800	970	580	660	650	610	680	820	550	620	750
K5	435	490	590	340	385	360	365	410	500	340	380	455
K6	630	710	850	510	580	570	540	600	720	490	550	660
K7	560	630	750	430	490	460	470	530	640	435	485	580
N1	—	—	—	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—	—	—	—
S1	—	—	—	195	205	245	190	215	255	—	—	—
S2	—	—	—	155	165	195	155	170	205	—	—	—
S3	—	—	—	135	145	170	135	150	180	—	—	—
S11	—	—	—	260	280	340	265	300	360	—	—	—
S12	—	—	—	200	215	260	155	170	205	—	—	—
S13	—	—	—	165	175	210	125	135	165	—	—	—
H5	—	—	—	—	—	—	160	180	220	160	180	215
H8	—	—	—	—	—	—	170	190	225	165	190	225
H11	—	—	—	—	—	—	205	230	280	205	230	270
H12	—	—	—	—	—	—	310	350	420	305	345	410
H21	—	—	—	—	—	—	170	190	225	165	190	225

R217.21

Highfeed machining cutters

- For insert selection and cutting data recommendations, see pages 350-355.
- For complete insert program, see page 600.
- For helical interpolation, see page 632.
- For plunging, see page 634.



EDP No.	Part No.	Dimensions in inch									α° max		lbs	Type of mounting	Max rpm	Insert
		D_{c2}	D_c	D_{5m}	M dm_m	l_1/l_2	l_p	a_p	UTCN	r_p						
30661	R217.21 -00.750-0-R100-2A	0.75	0.41	–	0.75	6.50	4.00	.029	.018	.058	6.45	2	1.1	Cylindrical	32600	218.19-100
30662	-01.00-0-R100-3A	1.00	0.66	–	1.00	7.00	4.50	.029	.018	.058	3.38	3	1.3	Cylindrical	29100	218.19-100
30180	-01.25-0-R125-3A	1.25	0.82	–	1.25	7.50	5.22	.039	.024	.069	3.73	3	2.4	Cylindrical	19700	218.19-125
07331	R217.21 -00.750-10RE-R100-2A	0.75	0.41	0.73	M10	1.10	–	.028	.017	.058	6.45	2	0.4	Combimaster*	32600	218.19-100
07332	-01.00-12RE-R100-3A	1.00	0.66	0.91	M12	1.40	–	.028	.018	.058	3.38	3	0.4	Combimaster*	29100	218.19-100
07334	-01.25-16RE-R125-3A	1.25	0.82	1.18	M16	1.60	–	.039	.024	.069	3.73	3	0.7	Combimaster*	19700	218.19-125
12506	-01.50-16RE-R125-4A	1.50	1.00	1.18	M16	1.60	–	.059	.031	.086	1.69	4	0.7	Combimaster*	17600	218.19-125
05927	-01.50-20RE-R125-4A	1.50	0.98	1.44	M20	1.60	–	.059	.024	.069	2.47	4	0.7	Combimaster*	17600	218.19-125
29647	R217.21 -00.750-0-R100-2HA	0.75	0.36	–	0.75	6.50	4.00	.043	.024	.071	4.5	2	1.1	Cylindrical	32600	218.19-100
30179	-01.00-0-R125-2HA	1.00	0.50	–	1.00	7.04	4.50	.059	.031	.086	4.1	2	1.5	Cylindrical	29100	218.19-125
30181	-01.25-0-R160-2HA	1.25	0.58	–	1.25	7.50	5.22	.080	.041	.121	3.37	2	2.6	Cylindrical	19700	218.19-160
30183	-01.50-0-R160-3HA	1.50	0.85	–	1.50	8.00	5.31	.080	.041	.120	3.09	3	3.7	Cylindrical	17600	218.19-160
29648	R217.21 -00.750-10RE-R100-2HA	0.75	0.36	0.73	M10	1.10	–	.043	.024	.071	4.5	2	0.4	Combimaster*	32600	218.19-100
29644	-01.00-12RE-R125-2HA	1.00	0.50	0.91	M12	1.40	–	.059	.031	.086	4.1	2	0.4	Combimaster*	29100	218.19-125
29645	-01.25-16RE-R160-2HA	1.25	0.60	1.18	M16	1.60	–	.079	.041	.121	3.37	2	0.7	Combimaster*	19700	218.19-160
29646	-01.50-16RE-R160-3HA	1.50	0.85	1.18	M16	1.60	–	.079	.041	.121	1.96	3	0.9	Combimaster*	17600	218.19-160
05835	-01.50-20RE-R160-3HA	1.50	0.91	1.44	M20	1.60	–	.079	.038	.113	2.18	3	0.7	Combimaster*	14500	218.19-160

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.
α° = Ramping angle

* For Combimaster holders and adapters, see page 534.
R217.21...HA cutters have larger depth of cut capability.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw	Torque value in/lbs
R217.21-0.75 / 1.00 / 0.75HA	T08P-3	C02506-T08P	10.6
R217.21-1.25 / 1.50 / 1.00HA	T09P-3	C03007-T09P	17.7
R217.21-1.25HA / 1.50HA	T15P-3	C03510-T15P	26.5

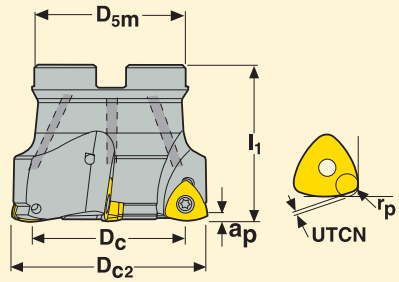
Please check availability in current price and stock-list.

Torque keys available, see page 643.

R220.21

Highfeed machining cutters

- For insert selection and cutting data recommendations, see pages 352-355.
- For complete insert program, see page 600.
- For plunging, see page 634.



Pitch	EDP No.	Part No.	Dimensions in inch D_{c2}	D_c	l_1	a_p	UTCN	r_p		lbs	Max rpm	Insert
Normal												
	07338	R220.21 -01.50-R125-4A	1.50	1.00	1.60	0.060	0.03	0.09	4	0.7	17600	218.19-125
	07340	-02.00-R160-4A	2.00	1.35	1.60	0.079	0.04	0.12	4	1.1	12900	218.19-160
	07342	-02.50-R160-5A	2.50	1.84	2.00	0.079	0.04	0.12	5	1.5	11500	218.19-160
	04973	-03.00-R160-6A	3.00	2.28	2.00	0.098	0.05	0.14	6	2.2	10200	218.19-160
	04975	-04.00-R160-7A	4.00	3.29	2.00	0.098	0.05	0.14	7	4.6	9100	218.19-160
Coarse												
	07339	R220.21 -02.00-R160-3A	2.00	1.35	1.60	0.079	0.04	0.12	3	1.1	12900	218.19-160
	07341	-02.50-R160-4A	2.50	1.84	2.00	0.079	0.04	0.12	4	1.5	11500	218.19-160

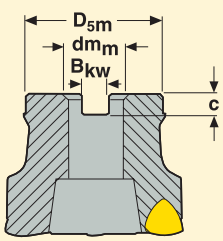
UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.
$\alpha°$ = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Torque value in/lbs
R220.21-01.50	UC6S1/4UNFX1SHCS	T09P-3	C03007-T09P	17.7
R220.21-02.00	UC6S3/8UNFX1	T15P-3	C03510-T15P	26.5
R220.21-02.50	UC6S3/8UNFX11/2	T15P-3	C03510-T15P	26.5
R220.21-03.00	UC6S1/2UNFX1-1/4	T15P-4	C03510-T15P	26.5
R220.21-04.00	UC6S3/4UNFX1-1/4	T15P-4	C03510-T15P	26.5

Torque keys available, see page 643.

Mounting Dimensions



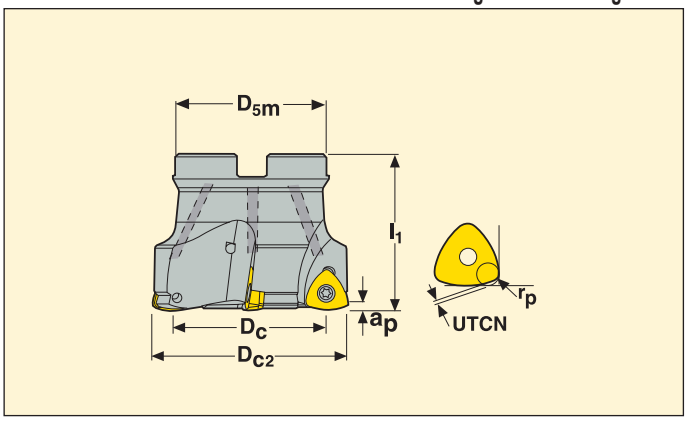
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.21-01.50	0.50	1.38	0.26	0.16
R220.21-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.21-03.00	1.00	2.44	0.38	0.22
R220.21-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R220.21

Highfeed machining cutters

- For insert selection and cutting data recommendations, see pages 354-355.
- For complete insert program, see page 600.
- For plunging, see page 634.



Pitch	EDP No.	Part No.	Dimensions in inch D_{c2}	D_c	l_1	a_p	UTCN	r_p		lbs	Max rpm	Insert
Close												
	70707	R220.21 -02.00-R160-5A	2.00	1.33	1.60	0.079	0.04	0.12	5	1.1	12900	218.19-160
	09024	-02.50-R160-6A	2.50	1.83	2.00	0.079	0.04	0.12	6	2.0	11500	218.19-160
	09491	-03.00-R160-7A	3.00	2.35	2.00	0.079	0.04	0.12	7	2.4	10200	218.19-160
	09496	-03.50-R160-8A	3.50	2.85	2.00	0.079	0.04	0.12	8	3.5	10200	218.19-160
	75755	-04.00-R160-9A	4.00	3.35	2.00	0.083	0.04	0.12	9	4.6	9100	218.19-160

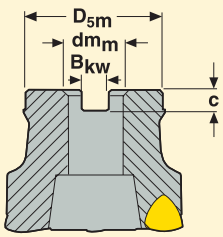
UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.
$\alpha°$ = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
R220.21-02.00	UC6S3/8UNFX1	T15P-3	C03508-T15P
R220.21-02.50	UC6S3/8UNFX11/2	T15P-3	C03508-T15P
R220.21-03.00	UC6S1/2UNFX1-1/4	T15P-3	C03508-T15P
R220.21-03.50	UC6S5/8UNFX1-1/4	T15P-3	C03508-T15P
R220.21-04.00	UC6S3/4UNFX1-1/4	T15P-3	C03508-T15P

Torque value 26.5 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.21-02.00 / 02.50	0.75	1.85	0.32	0.19
R220.21-02.50	0.75	2.35	0.32	0.19
R220.21-03.00	1.00	2.44	0.38	0.22
R220.21-03.50	1.25	3.03	0.51	0.29
R220.21-04.00	1.50	3.54	0.63	0.38

Please check availability in current price and stock-list.

R217.21-100 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	70%	30%
P1	218.19-100T-M06 T350M	0.017	0.022	0.022	0.026
P2	218.19-100T-M06 T350M	0.017	0.024	0.024	0.026
P3	218.19-100T-M06 T350M	0.017	0.022	0.022	0.024
P4	218.19-100T-MD08 MS2500	0.017	0.028	0.028	0.032
P5	218.19-100T-MD08 MS2500	0.017	0.028	0.028	0.032
P6	218.19-100T-MD08 MS2500	0.017	0.028	0.028	0.030
P7	218.19-100T-MD08 MS2500	0.017	0.028	0.028	0.030
P8	218.19-100T-MD08 MP2500	0.017	0.030	0.030	0.032
P11	218.19-100T-MD08 MS2500	0.017	0.028	0.028	0.030
M1	218.19-100T-M06 F40M	0.017	0.024	0.024	0.026
M2	218.19-100T-M06 F40M	0.017	0.022	0.022	0.024
M3	218.19-100T-M06 F40M	0.013	0.019	0.019	0.022
M4	218.19-100T-M06 F40M	0.010	0.019	0.019	0.022
M5	218.19-100T-M06 F40M	0.010	0.019	0.019	0.022
K1	218.19-100T-MD08 MK2050	0.017	0.032	0.032	0.034
K2	218.19-100T-MD08 MK2050	0.017	0.028	0.028	0.032
K3	218.19-100T-MD08 MK2050	0.017	0.028	0.028	0.032
K4	218.19-100T-MD08 MK2050	0.017	0.028	0.028	0.032
K5	218.19-100T-MD08 MK2050	0.017	0.026	0.026	0.028
K6	218.19-100T-MD08 MK2050	0.017	0.028	0.028	0.032
K7	218.19-100T-MD08 MK2050	0.017	0.026	0.026	0.028
N1	218.19-100-E06 H25	0.017	0.030	0.030	0.032
N2	218.19-100-E06 H25	0.017	0.030	0.030	0.032
N3	218.19-100-E06 H25	0.017	0.030	0.030	0.032
N11	218.19-100-E06 H25	0.017	0.030	0.030	0.032
S1	218.19-100T-M06 MS2500	0.010	0.019	0.019	0.022
S2	218.19-100T-M06 MS2500	0.010	0.019	0.019	0.022
S3	218.19-100T-M06 MS2500	0.010	0.017	0.017	0.020
S11	218.19-100T-M06 MS2050	0.012	0.020	0.020	0.022
S12	218.19-100T-M06 MS2050	0.012	0.020	0.020	0.022
S13	218.19-100T-M06 MS2050	0.010	0.019	0.019	0.022
H5	218.19-100T-MD08 MH1000	0.013	0.022	0.022	0.024
H8	218.19-100T-MD08 MH1000	0.012	0.017	0.017	0.019
H11	218.19-100T-MD08 MH1000	0.013	0.022	0.022	0.024
H12	218.19-100T-MD08 MH1000	0.013	0.022	0.022	0.024
H21	218.19-100T-MD08 MH1000	0.012	0.017	0.017	0.019

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217.21-100 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F15M			F25M		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	1200	1375	1675	1050	1225	1475	1125	1300	1575	1025	1200	1450	960	1100	1350	990	1150	1375
P2	1150	1350	1625	1025	1175	1450	1100	1275	1525	1000	1175	1400	930	1075	1300	960	1125	1350
P3	1000	1175	1425	900	1050	1250	960	1125	1350	880	1025	1225	810	940	1150	850	980	1175
P4	890	1025	1250	790	910	1100	850	980	1175	780	900	1075	720	830	1000	740	860	1025
P5	860	1000	1200	770	890	1050	810	940	1125	740	860	1025	700	810	960	710	820	990
P6	970	1125	1350	860	1000	1200	910	1050	1275	830	970	1150	780	910	1075	800	930	1100
P7	920	1050	1275	810	940	1125	860	990	1200	790	910	1100	740	850	1025	750	870	1050
P8	850	980	1200	750	870	1050	810	940	1125	740	860	1025	680	790	960	710	820	990
P11	890	1025	1225	790	910	1100	830	960	1150	760	890	1075	720	830	990	730	850	1025
M1	—	—	—	740	860	1050	820	950	1150	780	900	1075	750	870	1050	780	900	1075
M2	—	—	—	620	710	850	670	780	940	640	740	890	630	730	870	640	740	890
M3	—	—	—	490	560	680	540	620	740	510	590	700	500	570	690	510	590	700
M4	—	—	—	380	435	520	415	480	560	395	455	540	385	440	530	395	455	540
M5	—	—	—	315	360	435	345	400	470	330	380	445	320	370	440	330	380	445
K1	920	1050	1300	810	940	1150	870	1000	1200	800	920	1125	740	850	1050	760	880	1075
K2	820	950	1125	730	840	1000	770	890	1075	710	820	980	660	770	910	670	780	940
K3	690	800	960	620	710	850	650	750	900	600	690	830	560	650	770	570	660	790
K4	660	770	920	590	680	810	620	720	860	570	660	790	530	620	740	540	630	760
K5	400	465	560	355	410	500	380	440	520	350	405	480	325	375	455	335	390	460
K6	580	680	810	520	600	720	550	630	760	500	580	700	470	550	650	480	560	670
K7	510	600	720	455	530	640	485	560	670	450	520	620	415	480	580	430	495	590
N1	—	—	—	3025	3500	4250	3250	3775	4500	—	—	—	2750	3200	3850	2850	3325	3975
N2	—	—	—	2450	2825	3425	2625	3050	3625	—	—	—	2225	2575	3125	2300	2675	3200
N3	—	—	—	1625	1900	2275	1750	2025	2425	—	—	—	1475	1725	2075	1550	1775	2125
N11	—	—	—	1875	2150	2625	2000	2325	2775	—	—	—	1700	1975	2375	1750	2050	2450
S1	—	—	—	185	210	255	195	225	265	185	210	250	180	205	245	185	210	250
S2	—	—	—	150	170	205	155	180	210	150	170	200	145	165	200	150	170	200
S3	—	—	—	130	150	180	135	160	190	130	150	180	125	145	175	130	150	180
S11	—	—	—	255	295	355	275	315	375	260	300	355	250	290	350	260	300	355
S12	—	—	—	150	170	205	160	180	215	150	175	205	145	165	200	150	175	205
S13	—	—	—	120	135	165	125	145	170	120	135	160	115	135	160	120	135	160
H5	190	220	260	150	175	210	165	190	230	165	190	225	150	175	210	155	180	215
H8	200	230	275	160	185	220	175	200	240	170	195	235	160	185	220	165	190	225
H11	240	275	330	195	225	270	210	245	290	210	240	285	195	225	270	200	230	275
H12	365	420	500	290	335	405	320	370	440	315	365	435	290	335	405	300	350	415
H21	200	230	275	160	185	220	175	200	240	170	195	235	160	185	220	165	190	225

R217.21-100 – Cutting data v_c = (sf/min)

	F40M			MK2050			MS2050			MS2500			MH1000			H25		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	900	1050	1250	1025	1200	1450	910	1025	1000	1300	1500	1800	1150	1350	1625	—	—	—
P2	880	1025	1225	1000	1175	1425	890	1000	980	1250	1450	1750	1125	1300	1575	—	—	—
P3	770	890	1075	880	1025	1250	740	840	800	1100	1275	1550	980	1150	1375	—	—	—
P4	680	780	940	780	900	1100	650	740	710	970	1125	1350	870	1000	1225	—	—	—
P5	650	750	900	750	870	1050	620	700	680	930	1075	1300	840	980	1175	—	—	—
P6	730	840	1000	850	980	1175	700	790	760	1050	1200	1450	940	1100	1300	—	—	—
P7	680	790	950	800	930	1100	660	740	720	990	1150	1375	890	1025	1225	—	—	—
P8	650	750	900	740	860	1050	620	700	680	930	1075	1300	830	960	1175	—	—	—
P11	670	770	930	780	900	1075	640	720	700	960	1100	1325	870	1000	1200	—	—	—
M1	710	820	990	—	—	—	770	870	860	900	1050	1250	—	—	—	—	—	—
M2	580	670	810	—	—	—	610	690	660	740	860	1025	—	—	—	—	—	—
M3	465	540	640	—	—	—	410	465	435	600	690	820	—	—	—	—	—	—
M4	360	410	485	—	—	—	275	315	290	460	530	620	—	—	—	—	—	—
M5	300	345	405	—	—	—	230	260	240	385	440	520	—	—	—	—	—	—
K1	690	800	970	1100	1250	1525	890	1000	990	1000	1150	1400	890	1025	1250	—	—	—
K2	610	710	850	980	1125	1350	750	850	820	880	1025	1225	800	930	1100	—	—	—
K3	520	600	720	830	960	1150	640	720	690	750	870	1050	680	780	930	—	—	—
K4	495	570	690	790	910	1100	610	690	660	710	830	990	650	750	890	—	—	—
K5	305	355	420	475	550	670	340	385	370	440	510	600	390	455	550	—	—	—
K6	435	510	610	690	800	960	540	600	580	630	730	880	570	660	790	—	—	—
K7	390	450	540	610	710	860	435	495	475	560	650	770	500	580	700	—	—	—
N1	2600	3000	3600	—	—	—	—	—	—	—	—	—	—	—	—	2700	3125	3725
N2	2100	2425	2900	—	—	—	—	—	—	—	—	—	—	—	—	2175	2525	3025
N3	1400	1625	1950	—	—	—	—	—	—	—	—	—	—	—	—	1450	1675	2000
N11	1600	1850	2225	—	—	—	—	—	—	—	—	—	—	—	—	1650	1925	2300
S1	165	190	225	—	—	—	195	215	250	225	260	305	—	—	—	—	—	—
S2	135	155	185	—	—	—	160	175	200	180	210	245	—	—	—	—	—	—
S3	120	135	160	—	—	—	140	155	180	160	180	215	—	—	—	—	—	—
S11	235	270	325	—	—	—	275	300	355	315	365	435	—	—	—	—	—	—
S12	135	155	185	—	—	—	210	230	275	185	210	250	—	—	—	—	—	—
S13	110	125	145	—	—	—	170	185	215	145	165	195	—	—	—	—	—	—
H5	140	165	195	—	—	—	—	—	—	185	215	255	185	210	255	—	—	—
H8	150	170	205	—	—	—	—	—	—	195	220	265	195	225	270	—	—	—
H11	180	210	250	—	—	—	—	—	—	235	270	325	235	270	325	—	—	—
H12	275	315	375	—	—	—	—	—	—	355	410	490	355	410	490	—	—	—
H21	150	170	205	—	—	—	—	—	—	195	220	265	195	225	270	—	—	—

R217/220.21-125 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	70%	30%
P1	218.19-125T-T3-M07 T350M	0.024	0.026	0.026	0.028
P2	218.19-125T-T3-M07 T350M	0.024	0.026	0.026	0.028
P3	218.19-125T-T3-M07 T350M	0.024	0.024	0.024	0.026
P4	218.19-125T-T3-MD10 MS2500	0.024	0.034	0.034	0.038
P5	218.19-125T-T3-MD10 MS2500	0.024	0.034	0.034	0.036
P6	218.19-125T-T3-MD10 MS2500	0.024	0.032	0.032	0.036
P7	218.19-125T-T3-MD10 MS2500	0.024	0.032	0.032	0.036
P8	218.19-125T-T3-MD10 MP2500	0.024	0.034	0.034	0.038
P11	218.19-125T-T3-MD10 MS2500	0.024	0.032	0.032	0.036
M1	218.19-125T-T3-M07 F40M	0.024	0.026	0.026	0.028
M2	218.19-125T-T3-M07 F40M	0.024	0.024	0.024	0.026
M3	218.19-125T-T3-M07 F40M	0.019	0.020	0.020	0.022
M4	218.19-125T-T3-M07 F40M	0.014	0.022	0.022	0.024
M5	218.19-125T-T3-M07 F40M	0.014	0.022	0.022	0.024
K1	218.19-125T-T3-MD10 MK2050	0.024	0.036	0.036	0.040
K2	218.19-125T-T3-MD10 MK2050	0.024	0.034	0.034	0.036
K3	218.19-125T-T3-MD10 MK2050	0.024	0.034	0.034	0.036
K4	218.19-125T-T3-MD10 MK2050	0.024	0.034	0.034	0.036
K5	218.19-125T-T3-MD10 MK2050	0.024	0.030	0.030	0.032
K6	218.19-125T-T3-MD10 MK2050	0.024	0.034	0.034	0.036
K7	218.19-125T-T3-MD10 MK2050	0.024	0.030	0.030	0.032
N1	218.19-125-T3-E06 H25	0.024	0.028	0.028	0.030
N2	218.19-125-T3-E06 H25	0.024	0.028	0.028	0.030
N3	218.19-125-T3-E06 H25	0.024	0.028	0.028	0.030
N11	218.19-125-T3-E06 H25	0.024	0.028	0.028	0.030
S1	218.19-125T-T3-M07 MS2500	0.014	0.022	0.022	0.024
S2	218.19-125T-T3-M07 MS2500	0.014	0.022	0.022	0.024
S3	218.19-125T-T3-M07 MS2500	0.014	0.020	0.020	0.022
S11	218.19-125T-T3-M07 MS2050	0.017	0.022	0.022	0.024
S12	218.19-125T-T3-M07 MS2050	0.017	0.022	0.022	0.024
S13	218.19-125T-T3-M07 MS2050	0.014	0.022	0.022	0.024
H5	218.19-125T-T3-MD10 MH1000	0.019	0.026	0.026	0.028
H8	218.19-125T-T3-MD10 MH1000	0.017	0.020	0.020	0.022
H11	218.19-125T-T3-MD10 MH1000	0.019	0.026	0.026	0.028
H12	218.19-125T-T3-MD10 MH1000	0.019	0.026	0.026	0.028
H21	218.19-125T-T3-MD10 MH1000	0.017	0.020	0.020	0.022

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.21-125 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F40M			MK2050		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	1100	1250	1525	1125	1300	1575	1075	1225	1500	990	1125	1375	860	980	1200	960	1100	1325
P2	1075	1225	1475	1100	1275	1525	1050	1200	1450	960	1100	1325	840	960	1150	930	1075	1275
P3	930	1075	1275	970	1100	1350	920	1050	1275	840	970	1175	730	840	1025	810	930	1125
P4	820	940	1125	850	980	1175	810	920	1125	740	850	1025	650	740	890	720	820	990
P5	780	890	1100	820	930	1125	770	880	1075	710	810	980	620	710	850	680	780	950
P6	880	1000	1225	910	1050	1275	870	990	1200	800	910	1100	690	790	960	770	880	1075
P7	830	950	1150	860	990	1200	820	940	1125	750	860	1050	650	750	900	720	830	1000
P8	780	890	1075	820	930	1125	770	880	1075	710	810	980	620	710	850	680	780	940
P11	810	920	1125	840	960	1150	790	910	1100	730	840	1000	640	730	880	700	800	980
M1	—	—	—	800	910	1100	780	890	1075	740	850	1025	670	770	930	—	—	—
M2	—	—	—	660	750	910	640	740	890	610	700	840	560	640	770	—	—	—
M3	—	—	—	520	600	720	510	590	700	490	560	670	445	510	610	—	—	—
M4	—	—	—	405	460	550	400	450	540	375	430	510	345	390	465	—	—	—
M5	—	—	—	335	385	460	330	375	450	315	355	425	285	325	390	—	—	—
K1	850	970	1175	880	1000	1200	830	950	1150	760	870	1050	660	760	920	1000	1150	1375
K2	740	850	1050	770	880	1075	730	840	1025	670	770	930	590	670	810	880	1000	1225
K3	630	720	880	650	750	900	620	710	860	570	650	790	495	570	690	750	850	1050
K4	600	690	840	620	710	860	590	680	820	540	620	750	475	540	650	710	820	1000
K5	370	420	510	380	435	520	360	410	495	330	380	455	290	330	395	440	500	600
K6	530	600	740	550	630	760	520	600	720	480	550	660	415	475	580	630	720	880
K7	475	540	650	485	560	670	460	530	630	425	485	580	370	420	510	560	640	770
N1	—	—	—	3275	3750	4500	3100	3550	4275	—	—	—	2475	2850	3425	—	—	—
N2	—	—	—	2650	3025	3650	2500	2875	3450	—	—	—	2000	2300	2750	—	—	—
N3	—	—	—	1775	2025	2425	1675	1900	2300	—	—	—	1350	1525	1850	—	—	—
N11	—	—	—	2025	2300	2775	1900	2175	2625	—	—	—	1525	1750	2100	—	—	—
S1	—	—	—	195	225	270	185	210	250	175	200	240	160	180	220	—	—	—
S2	—	—	—	160	180	215	150	170	205	140	160	195	130	145	175	—	—	—
S3	—	—	—	140	160	190	130	150	180	125	140	170	115	130	155	—	—	—
S11	—	—	—	280	320	380	265	300	360	250	285	340	225	260	310	—	—	—
S12	—	—	—	160	185	220	150	175	210	145	165	195	130	150	180	—	—	—
S13	—	—	—	125	145	175	120	135	165	115	130	155	105	115	140	—	—	—
H5	175	200	240	165	190	225	160	185	220	160	180	215	135	155	185	—	—	—
H8	185	215	255	175	200	235	170	195	230	165	190	225	145	165	195	—	—	—
H11	220	250	305	210	240	285	205	235	280	200	230	275	175	200	240	—	—	—
H12	335	380	460	315	360	430	310	350	420	305	345	415	265	300	360	—	—	—
H21	185	215	255	175	200	235	170	195	230	165	190	225	145	165	195	—	—	—

R217/220.21-125 – Cutting data v_c = (sf/min)

	MM4500			MS2050			MS2500			MH1000			H25		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	700	800	970	940	1050	1075	1250	1425	1725	1075	1225	1475	—	—	—
P2	680	780	940	920	1025	1050	1200	1375	1675	1050	1175	1425	—	—	—
P3	600	680	820	780	870	880	1050	1200	1450	910	1025	1250	—	—	—
P4	520	600	720	680	770	770	930	1075	1275	800	910	1100	—	—	—
P5	500	570	690	650	730	740	890	1025	1225	760	870	1075	—	—	—
P6	560	640	780	730	820	830	1000	1150	1375	860	980	1200	—	—	—
P7	530	610	730	690	780	780	940	1075	1300	810	920	1125	—	—	—
P8	500	570	690	650	730	740	890	1025	1225	760	870	1050	—	—	—
P11	520	590	710	670	750	760	920	1050	1275	780	900	1100	—	—	—
M1	580	670	810	800	900	920	860	990	1200	—	—	—	—	—	—
M2	480	550	660	640	720	720	710	810	980	—	—	—	—	—	—
M3	380	435	520	455	510	495	570	650	780	—	—	—	—	—	—
M4	295	335	400	315	355	335	440	500	600	—	—	—	—	—	—
M5	245	280	335	260	295	275	365	415	495	—	—	—	—	—	—
K1	—	—	—	920	1025	1050	950	1100	1325	820	940	1125	—	—	—
K2	—	—	—	790	890	890	840	970	1175	720	830	1000	—	—	—
K3	—	—	—	670	750	760	710	820	990	610	700	860	—	—	—
K4	—	—	—	640	720	720	680	780	940	580	670	820	—	—	—
K5	—	—	—	370	420	415	415	475	570	360	410	495	—	—	—
K6	—	—	—	560	630	640	600	690	830	510	590	720	—	—	—
K7	—	—	—	475	530	530	530	610	730	460	530	630	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	2625	2975	3625
N2	—	—	—	—	—	—	—	—	—	—	—	—	2100	2400	2925
N3	—	—	—	—	—	—	—	—	—	—	—	—	1400	1600	1950
N11	—	—	—	—	—	—	—	—	—	—	—	—	1600	1850	2225
S1	90	105	125	180	195	235	215	245	290	—	—	—	—	—	—
S2	75	85	100	145	155	190	175	195	235	—	—	—	—	—	—
S3	65	75	85	130	140	170	150	175	205	—	—	—	—	—	—
S11	130	145	175	255	275	330	305	345	415	—	—	—	—	—	—
S12	100	110	135	195	210	255	175	200	240	—	—	—	—	—	—
S13	80	90	105	155	170	205	140	155	190	—	—	—	—	—	—
H5	—	—	—	—	—	—	180	205	245	170	195	235	—	—	—
H8	—	—	—	—	—	—	190	215	255	180	210	250	—	—	—
H11	—	—	—	—	—	—	225	260	310	215	245	295	—	—	—
H12	—	—	—	—	—	—	340	390	465	325	370	450	—	—	—
H21	—	—	—	—	—	—	190	215	255	180	210	250	—	—	—

R217/220.21-160 – Insert selection

SMG		Recommended a_p**	f_z		
			100%	70%	30%
P1	218.19-160T-04-M08 T350M	0.044	0.024	0.024	0.026
P2	218.19-160T-04-M08 T350M	0.044	0.024	0.024	0.026
P3	218.19-160T-04-M08 T350M	0.044	0.024	0.024	0.026
P4	218.19-160T-04-MD11 MS2500	0.044	0.032	0.032	0.034
P5	218.19-160T-04-MD11 MS2500	0.044	0.030	0.030	0.034
P6	218.19-160T-04-MD11 MS2500	0.044	0.030	0.030	0.034
P7	218.19-160T-04-MD11 MS2500	0.044	0.030	0.030	0.034
P8	218.19-160T-04-MD11 MP2500	0.044	0.032	0.032	0.034
P11	218.19-160T-04-MD11 MS2500	0.044	0.030	0.030	0.034
M1	218.19-160T-04-M08 F40M	0.044	0.024	0.024	0.026
M2	218.19-160T-04-M08 F40M	0.044	0.022	0.022	0.024
M3	218.19-160T-04-M08 F40M	0.034	0.020	0.020	0.022
M4	218.19-160T-04-M08 F40M	0.026	0.020	0.020	0.022
M5	218.19-160T-04-M08 F40M	0.026	0.020	0.020	0.022
K1	218.19-160T-04-MD11 MK2050	0.044	0.034	0.034	0.036
K2	218.19-160T-04-MD11 MK2050	0.044	0.030	0.030	0.034
K3	218.19-160T-04-MD11 MK2050	0.044	0.030	0.030	0.034
K4	218.19-160T-04-MD11 MK2050	0.044	0.030	0.030	0.034
K5	218.19-160T-04-MD11 MK2050	0.044	0.028	0.028	0.030
K6	218.19-160T-04-MD11 MK2050	0.044	0.030	0.030	0.034
K7	218.19-160T-04-MD11 MK2050	0.044	0.028	0.028	0.030
N1	218.19-160-04-E07 H25	0.044	0.028	0.028	0.030
N2	218.19-160-04-E07 H25	0.044	0.028	0.028	0.030
N3	218.19-160-04-E07 H25	0.044	0.028	0.028	0.030
N11	218.19-160-04-E07 H25	0.044	0.028	0.028	0.030
S1	218.19-160T-04-M08 MS2500	0.026	0.020	0.020	0.022
S2	218.19-160T-04-M08 MS2500	0.026	0.020	0.020	0.022
S3	218.19-160T-04-M08 MS2500	0.026	0.019	0.019	0.020
S11	218.19-160T-04-M08 MS2050	0.032	0.020	0.020	0.022
S12	218.19-160T-04-M08 MS2050	0.032	0.020	0.020	0.022
S13	218.19-160T-04-M08 MS2050	0.026	0.020	0.020	0.022
H5	218.19-160T-04-MD11 MH1000	0.034	0.024	0.024	0.026
H8	218.19-160T-04-MD11 MH1000	0.032	0.018	0.018	0.020
H11	218.19-160T-04-MD11 MH1000	0.034	0.024	0.024	0.026
H12	218.19-160T-04-MD11 MH1000	0.034	0.024	0.024	0.026
H21	218.19-160T-04-MD11 MH1000	0.032	0.018	0.018	0.020

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

R217/220.21-160 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F15M			F25M		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	1075	1225	1525	950	1100	1350	1050	1225	1500	980	1125	1375	860	1000	1225	940	1075	1325
P2	1050	1200	1450	920	1075	1300	1025	1200	1425	950	1100	1300	840	970	1175	910	1050	1250
P3	910	1050	1275	810	930	1125	890	1025	1250	820	950	1150	730	850	1025	780	910	1100
P4	800	930	1150	710	820	1000	800	930	1100	740	850	1025	650	750	920	710	820	970
P5	780	900	1100	690	800	960	770	890	1075	700	810	990	630	730	880	670	780	940
P6	880	1025	1225	780	900	1075	860	990	1200	790	910	1100	710	820	980	760	870	1050
P7	830	960	1150	730	850	1025	810	940	1125	750	860	1050	670	770	930	710	830	1000
P8	770	890	1075	680	790	950	750	870	1050	690	800	970	620	710	860	660	760	920
P11	800	930	1125	710	820	990	790	910	1100	730	840	1025	650	750	900	690	800	970
M1	—	—	—	670	770	930	770	890	1075	730	850	1000	680	780	950	730	850	1000
M2	—	—	—	560	640	780	640	740	900	610	700	850	570	650	790	610	700	850
M3	—	—	—	445	510	630	510	590	710	485	560	670	455	520	640	485	560	670
M4	—	—	—	345	395	480	395	455	540	375	430	520	350	405	490	375	430	520
M5	—	—	—	290	330	400	330	380	455	315	360	430	295	335	405	315	360	430
K1	830	950	1150	730	840	1025	820	950	1125	750	870	1050	660	770	930	720	830	990
K2	740	860	1025	660	760	920	730	840	1025	670	770	940	600	690	830	640	740	900
K3	630	730	870	560	640	770	610	710	860	570	650	790	510	580	700	540	630	760
K4	600	690	830	530	610	740	590	680	820	540	620	760	480	560	670	520	600	720
K5	365	420	510	320	370	455	360	415	500	330	380	460	295	340	415	315	365	440
K6	530	610	740	465	540	650	520	600	720	475	550	670	425	490	590	455	530	640
K7	465	540	660	410	475	580	460	530	640	420	490	590	375	435	530	405	465	560
N1	—	—	—	2675	3100	3800	3000	3450	4250	—	—	—	2425	2800	3450	2625	3050	3750
N2	—	—	—	2175	2500	3050	2425	2800	3425	—	—	—	1975	2275	2775	2125	2450	3025
N3	—	—	—	1450	1675	2050	1600	1875	2275	—	—	—	1300	1525	1850	1425	1650	2025
N11	—	—	—	1650	1900	2325	1850	2125	2625	—	—	—	1500	1725	2125	1625	1875	2300
S1	—	—	—	170	195	235	185	210	255	175	200	240	165	190	230	175	200	240
S2	—	—	—	135	155	190	150	170	205	140	160	195	130	150	185	140	160	195
S3	—	—	—	120	135	165	130	150	180	125	140	170	115	135	160	125	140	170
S11	—	—	—	235	270	325	255	295	355	240	280	335	230	265	320	240	280	335
S12	—	—	—	135	155	190	145	170	205	140	160	195	135	155	185	140	160	195
S13	—	—	—	110	125	150	120	135	165	115	130	155	105	120	145	115	130	155
H5	175	200	240	140	160	195	155	180	215	155	180	215	140	160	195	150	170	205
H8	185	210	255	150	170	205	165	190	230	165	190	225	150	170	205	155	180	215
H11	220	255	305	175	205	245	200	230	275	195	225	270	175	205	245	190	215	260
H12	330	380	460	265	305	370	300	345	420	295	340	410	265	305	370	285	325	395
H21	185	210	255	150	170	205	165	190	230	165	190	225	150	170	205	155	180	215

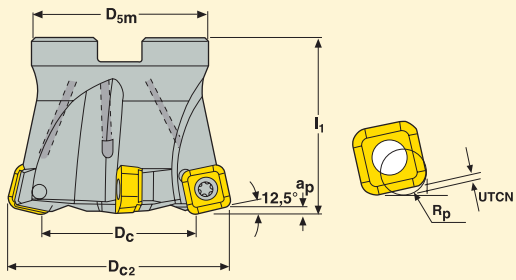
R217/220.21-160 – Cutting data v_c = (sf/min)

	F40M			MK2050			MS2050			MS2500			MH1000			H25		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	850	980	1200	930	1075	1325	970	1100	1150	1225	1425	1725	1050	1200	1475	—	—	—
P2	830	960	1150	910	1050	1275	950	1050	1125	1200	1375	1650	1025	1175	1425	—	—	—
P3	710	820	1000	800	920	1100	810	910	960	1025	1175	1450	890	1025	1250	—	—	—
P4	640	740	880	700	810	990	710	800	850	920	1075	1275	780	900	1100	—	—	—
P5	610	710	860	680	790	950	680	760	790	880	1025	1225	760	880	1050	—	—	—
P6	690	800	960	770	880	1075	760	860	880	990	1150	1375	850	990	1200	—	—	—
P7	650	750	910	720	830	1000	720	810	830	930	1075	1300	810	930	1125	—	—	—
P8	600	690	840	670	770	930	680	770	810	860	1000	1200	750	860	1050	—	—	—
P11	630	730	880	700	810	980	700	790	810	910	1050	1275	780	900	1100	—	—	—
M1	670	770	920	—	—	—	830	930	990	850	990	1175	—	—	—	—	—	—
M2	550	640	770	—	—	—	660	750	770	710	820	990	—	—	—	—	—	—
M3	445	510	610	—	—	—	480	540	530	570	650	780	—	—	—	—	—	—
M4	340	390	470	—	—	—	335	380	365	435	500	600	—	—	—	—	—	—
M5	285	325	390	—	—	—	280	320	300	365	415	500	—	—	—	—	—	—
K1	660	760	900	980	1125	1375	950	1075	1150	940	1100	1300	800	930	1125	—	—	—
K2	580	670	810	880	1025	1225	820	920	950	840	970	1175	720	830	1000	—	—	—
K3	490	570	690	750	860	1050	700	780	810	710	820	990	610	710	850	—	—	—
K4	470	540	660	710	820	990	660	750	770	680	780	950	580	670	810	—	—	—
K5	285	330	400	430	500	610	390	440	440	410	475	580	355	410	500	—	—	—
K6	415	480	580	630	720	870	580	660	680	600	690	830	510	590	720	—	—	—
K7	365	425	510	550	640	780	500	560	570	530	610	740	455	520	640	—	—	—
N1	2400	2775	3400	—	—	—	—	—	—	—	—	—	—	—	—	2525	2925	3575
N2	1925	2225	2750	—	—	—	—	—	—	—	—	—	—	—	—	2050	2350	2875
N3	1300	1500	1825	—	—	—	—	—	—	—	—	—	—	—	—	1350	1575	1925
N11	1475	1700	2100	—	—	—	—	—	—	—	—	—	—	—	—	1550	1800	2200
S1	160	185	220	—	—	—	175	190	235	215	245	295	—	—	—	—	—	—
S2	130	145	175	—	—	—	140	155	190	170	195	235	—	—	—	—	—	—
S3	110	130	155	—	—	—	125	135	170	150	170	210	—	—	—	—	—	—
S11	220	255	305	—	—	—	230	250	315	295	340	410	—	—	—	—	—	—
S12	125	145	175	—	—	—	175	190	240	170	195	235	—	—	—	—	—	—
S13	105	120	140	—	—	—	150	165	200	140	160	190	—	—	—	—	—	—
H5	135	155	185	—	—	—	—	—	—	175	200	240	170	195	235	—	—	—
H8	145	165	195	—	—	—	—	—	—	185	215	255	180	205	250	—	—	—
H11	170	195	235	—	—	—	—	—	—	220	255	305	215	245	300	—	—	—
H12	260	295	355	—	—	—	—	—	—	335	385	465	325	370	450	—	—	—
H21	145	165	195	—	—	—	—	—	—	185	215	255	180	205	250	—	—	—

R220.21

Highfeed machining cutters

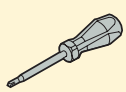
- For insert selection and cutting data recommendations, see pages 357-358.
- For complete insert program, see page 574.



EDP No.	Part No.	Dimensions in inch								Max rpm	Insert
		D_{c2}	D_c	l_1	a_p	UTCN	r_p		lbs		
34518	R220.21 -02.00-SC12-4A	2.00	1.25	1.60	0.079	0.043	0.173	4	0.9	10700	SC..12
34519	-02.50-SC12-4A	2.50	1.75	2.00	0.079	0.043	0.173	4	1.3	9600	SC..12
34520	-03.00-SC12-5A	3.00	2.25	2.00	0.079	0.043	0.173	5	2.0	8500	SC..12
34521	-04.00-SC12-5A	4.00	3.25	2.00	0.079	0.043	0.173	5	3.5	7600	SC..12

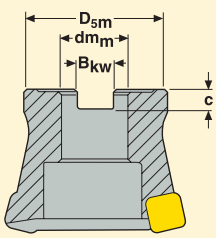
UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.
$\alpha°$ = Ramping angle

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R220.21-02.00	UC6S3/8UNFX1	T20P-4	C45011-T20P
R220.21-02.50	UC6S3/8UNFX11/2	T20P-4	C45011-T20P
R220.21-03.00	UC6S1/2UNFX1-1/4	T20P-4	C45011-T20P
R220.21-04.00	58213810	T20P-4	C45011-T20P

Insert screw torque value 44.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.21-02.00/02.50	1.75	1.75	0.32	0.19
R220.21-03.00	2.25	2.25	0.38	0.22
R220.21-04.00	3.50	3.50	0.63	0.38

Please check availability in current price and stock-list.

R220.21-SC12– Insert selection

SMG		Recommended a_p**	f_z		
			100%	70%	30%
P1	SCET120630T-M14 T350M	0.040	0.038	0.038	0.044
P2	SCET120630T-M14 T350M	0.040	0.040	0.040	0.044
P3	SCET120630T-M14 T350M	0.040	0.038	0.038	0.040
P4	SCET120630T-MD16 MS2500	0.040	0.040	0.040	0.044
P5	SCET120630T-MD16 MS2500	0.040	0.040	0.040	0.044
P6	SCET120630T-MD16 MS2500	0.040	0.040	0.040	0.044
P7	SCET120630T-MD16 MS2500	0.040	0.040	0.040	0.044
P8	SCET120630T-MD16 MP2500	0.040	0.044	0.044	0.048
P11	SCET120630T-MD16 MS2500	0.040	0.040	0.040	0.044
M1	SCET120630T-M14 F40M	0.040	0.040	0.040	0.044
M2	SCET120630T-M14 F40M	0.040	0.036	0.036	0.040
M3	SCET120630T-M14 F40M	0.030	0.030	0.030	0.032
M4	SCET120630T-M14 F40M	0.024	0.026	0.026	0.028
M5	SCET120630T-M14 F40M	0.024	0.026	0.026	0.028
K1	SCET120630T-MD16 MP1500	0.040	0.044	0.044	0.048
K2	SCET120630T-MD16 MP1500	0.040	0.040	0.040	0.044
K3	SCET120630T-MD16 MP1500	0.040	0.040	0.040	0.044
K4	SCET120630T-MD16 MP1500	0.040	0.040	0.040	0.044
K5	SCET120630T-MD16 MP1500	0.040	0.036	0.036	0.040
K6	SCET120630T-MD16 MP1500	0.040	0.040	0.040	0.044
K7	SCET120630T-MD16 MP1500	0.040	0.036	0.036	0.040
S1	SCET120630T-M14 MS2500	0.024	0.026	0.026	0.028
S2	SCET120630T-M14 MS2500	0.024	0.026	0.026	0.028
S3	SCET120630T-M14 MS2500	0.024	0.024	0.024	0.026
S11	SCET120630T-M14 MS2500	0.028	0.030	0.030	0.032
S12	SCET120630T-M14 MS2500	0.028	0.030	0.030	0.032
S13	SCET120630T-M14 MS2500	0.024	0.026	0.026	0.028
H5	SCET120630T-MD16 MP1500	0.030	0.028	0.028	0.032
H8	SCET120630T-MD16 MP1500	0.028	0.022	0.022	0.024
H11	SCET120630T-MD16 MP1500	0.030	0.028	0.028	0.032
H12	SCET120630T-MD16 MP1500	0.030	0.028	0.028	0.032
H21	SCET120630T-MD16 MP1500	0.028	0.022	0.022	0.024

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

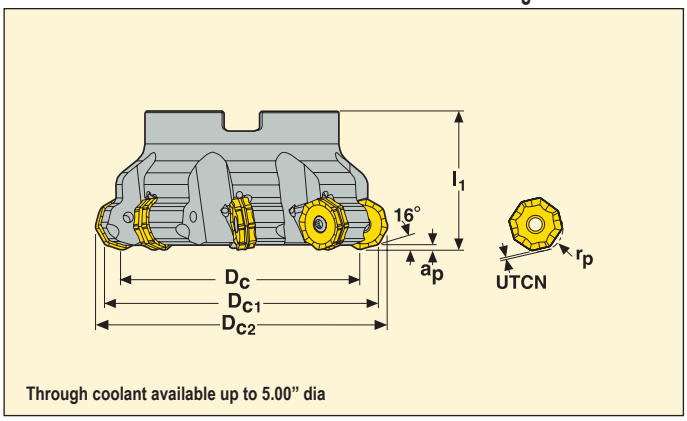
R220.21-SC12 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F40M			MK2050		
SMG	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	980	1125	1375	870	1000	1225	860	990	1200	790	910	1100	690	790	960	900	1025	1250
P2	960	1100	1350	850	970	1200	830	950	1150	760	870	1075	660	760	930	860	980	1200
P3	820	940	1150	730	830	1025	720	830	1025	660	760	950	580	660	820	750	860	1075
P4	750	850	1050	660	760	930	650	740	910	590	680	830	520	590	720	670	770	940
P5	710	820	1000	630	720	890	620	710	860	570	650	800	495	560	690	640	730	900
P6	800	910	1125	710	810	1000	690	790	980	640	730	910	550	630	790	720	820	1025
P7	750	860	1050	670	760	940	650	750	930	600	690	860	520	600	740	680	780	970
P8	690	790	980	610	700	870	610	690	860	560	640	800	485	560	690	630	720	900
P11	730	840	1025	650	740	910	640	730	900	580	670	830	510	580	720	660	760	940
M1	—	—	—	610	700	860	620	710	870	590	670	820	530	610	750	—	—	—
M2	—	—	—	510	580	710	520	590	720	490	560	680	445	510	620	—	—	—
M3	—	—	—	405	460	570	415	470	580	390	445	550	355	405	500	—	—	—
M4	—	—	—	315	355	435	325	365	445	305	345	420	280	315	380	—	—	—
M5	—	—	—	265	295	365	270	305	370	255	285	350	230	260	320	—	—	—
K1	760	870	1075	670	770	950	650	750	920	600	690	850	520	600	740	930	1050	1300
K2	680	770	950	600	690	840	590	670	820	540	620	750	470	540	660	830	950	1150
K3	570	650	800	510	580	710	495	570	690	455	520	640	395	455	560	700	800	980
K4	550	620	770	485	550	680	475	540	660	435	500	610	380	435	530	670	770	940
K5	330	380	470	295	335	415	290	335	405	270	305	375	235	265	325	415	475	580
K6	480	550	680	425	490	600	415	475	580	385	440	540	335	380	465	590	680	830
K7	425	485	600	375	430	530	375	425	520	345	395	480	300	340	415	530	610	740
N1	—	—	—	2450	2800	3425	2375	2725	3375	—	—	—	1900	2175	2700	—	—	—
N2	—	—	—	1975	2275	2775	1925	2200	2725	—	—	—	1550	1750	2200	—	—	—
N3	—	—	—	1325	1525	1850	1275	1475	1825	—	—	—	1025	1175	1450	—	—	—
N11	—	—	—	1525	1725	2100	1475	1675	2075	—	—	—	1175	1350	1675	—	—	—
S1	—	—	—	155	175	210	150	170	205	145	160	195	130	145	180	—	—	—
S2	—	—	—	125	140	170	120	135	165	115	130	160	105	120	145	—	—	—
S3	—	—	—	110	125	150	105	120	145	100	115	140	90	105	125	—	—	—
S11	—	—	—	215	240	300	210	235	290	200	225	275	180	205	250	—	—	—
S12	—	—	—	125	140	170	120	135	165	115	130	160	105	120	145	—	—	—
S13	—	—	—	100	110	135	95	110	135	90	105	125	85	95	115	—	—	—
H5	160	180	220	130	145	180	130	150	180	130	145	180	110	125	155	—	—	—
H8	170	190	235	135	155	190	140	155	190	135	155	190	120	135	165	—	—	—
H11	205	230	285	165	185	230	165	190	230	165	185	225	140	160	195	—	—	—
H12	305	345	425	245	280	345	250	285	350	245	280	340	215	245	300	—	—	—
H21	170	190	235	135	155	190	140	155	190	135	155	190	120	135	165	—	—	—

R220.21-SC12 – Cutting data v_c = (sf/min)

	MS2500		
SMG	100%	70%	30%
P1	990	1125	1375
P2	950	1100	1350
P3	830	950	1175
P4	740	850	1050
P5	710	810	1000
P6	800	910	1125
P7	750	860	1075
P8	700	800	1000
P11	730	840	1050
M1	680	780	960
M2	570	650	800
M3	455	520	640
M4	355	400	490
M5	295	335	410
K1	750	860	1050
K2	670	770	950
K3	570	650	800
K4	540	620	760
K5	335	385	470
K6	480	550	670
K7	430	490	600
N1	—	—	—
N2	—	—	—
N3	—	—	—
N11	—	—	—
S1	175	195	240
S2	140	160	195
S3	125	140	170
S11	240	275	335
S12	140	160	195
S13	115	125	155
H5	145	165	200
H8	155	175	215
H11	185	210	255
H12	280	315	385
H21	155	175	215

- For insert selection and cutting data recommendations, see pages 360.
- For complete insert program, see page 569.

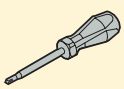


Through coolant available up to 5.00" dia

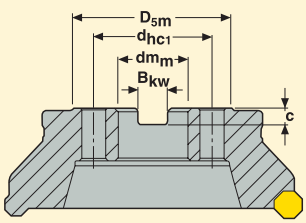
EDP No.	Part No.	Dimensions in inch								lbs	Max rpm	Insert
		D_{c2}	D_{c1}	D_c	l_1	a_p	UTCN	r_p				
79006	R220.21 -03.00-ON09-6A	3.39	3.00	2.42	1.97	0.094	0.033	0.405	6	2.0	4400	ON..09
79007	-04.00-ON09-7A	4.39	4.00	3.42	1.97	0.094	0.033	0.405	7	3.3	3900	ON..09
79008	-05.00-ON09-8A	5.39	5.00	4.42	2.48	0.094	0.033	0.405	8	7.1	3500	ON..09
79009	-06.00-ON09-10	6.39	6.00	5.42	2.48	0.094	0.033	0.405	10	7.7	3200	ON..09

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
			
R220.21-03.00	UC6S1/2UNFX1-1/4	T20P-4	C05013-T20P
R220.21-04.00 / 05.00	UF6S3/4UNFX2	T20P-4	C05013-T20P
R220.21-06.00	–	T20P-4	C05013-T20P

Mounting Dimensions



For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.21-03.00	1.06	2.44	0.38	0.22
R220.21-04.00	1.50	3.03	0.63	0.38
R220.21-05.00	1.50	3.54	0.63	0.38
R220.21-06.00	2.00	4.33	0.76	0.44

Please check availability in current price and stock-list

R220.21-ON09 – Insert selection

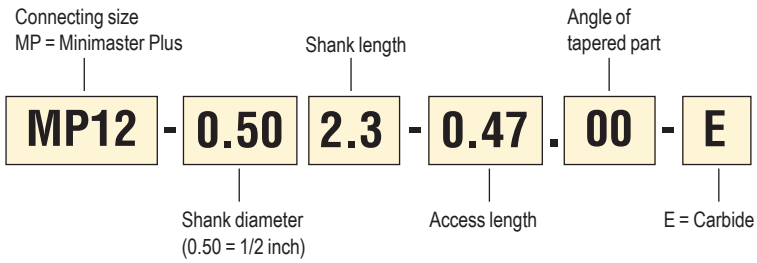
SMG		Recommended a_p**	f_z		
			100%	70%	30%
P1	ONMU090520ANTN-M12 MP2500	0.048	0.024	0.024	0.026
P2	ONMU090520ANTN-M12 MP2500	0.048	0.024	0.024	0.028
P3	ONMU090520ANTN-M12 MP2500	0.048	0.024	0.024	0.026
P4	ONMU090520ANTN-M12 MP2500	0.048	0.024	0.024	0.026
P5	ONMU090520ANTN-M12 MP2500	0.048	0.022	0.022	0.024
P6	ONMU090520ANTN-M12 MP2500	0.048	0.022	0.022	0.024
P7	ONMU090520ANTN-MD16 MP1500	0.048	0.028	0.028	0.030
P8	ONMU090520ANTN-MD16 MP1500	0.048	0.030	0.030	0.032
P11	ONMU090520ANTN-MD16 MP1500	0.048	0.028	0.028	0.030
K1	ONMU090520ANTN-M14 MK2050	0.048	0.030	0.030	0.032
K2	ONMU090520ANTN-M14 MK2050	0.048	0.026	0.026	0.028
K3	ONMU090520ANTN-M14 MK2050	0.048	0.026	0.026	0.028
K4	ONMU090520ANTN-M14 MK2050	0.048	0.026	0.026	0.028
K5	ONMU090520ANTN-M14 MK2050	0.048	0.024	0.024	0.026
K6	ONMU090520ANTN-MD16 MK1500	0.048	0.028	0.028	0.030
K7	ONMU090520ANTN-MD16 MK1500	0.048	0.026	0.026	0.028

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

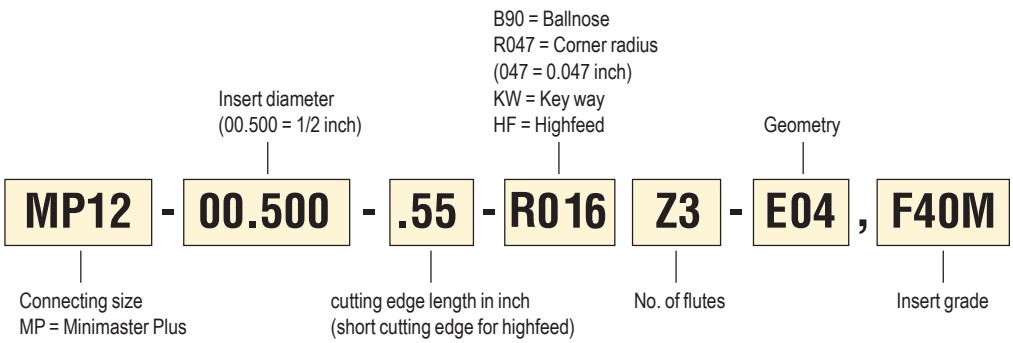
R220.21-ON09 – Cutting data v_c = (sf/min)

SMG	MP1500			MP2500			MK1500			MK2050		
	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	1025	1125	1375	900	1000	1225	—	—	—	820	910	1100
P2	990	1100	1325	880	970	1175	—	—	—	780	860	1075
P3	850	940	1150	750	840	1025	—	—	—	680	760	930
P4	750	830	1025	660	740	900	—	—	—	620	680	820
P5	730	820	990	650	720	880	—	—	—	590	650	800
P6	820	920	1125	730	810	990	—	—	—	660	730	900
P7	780	860	1050	690	770	930	—	—	—	620	690	850
P8	720	790	970	630	700	860	—	—	—	570	640	790
P11	760	840	1025	670	740	910	—	—	—	610	670	820
K1	780	870	1050	690	770	920	890	980	1225	840	930	1150
K2	700	770	940	620	690	840	800	890	1100	760	840	1025
K3	590	650	800	520	580	710	680	750	930	640	710	880
K4	560	620	760	500	550	680	650	720	880	610	680	840
K5	345	385	465	305	340	410	395	440	540	375	415	510
K6	495	550	670	440	490	600	570	630	780	540	600	740
K7	440	490	600	390	435	530	510	560	690	480	530	650

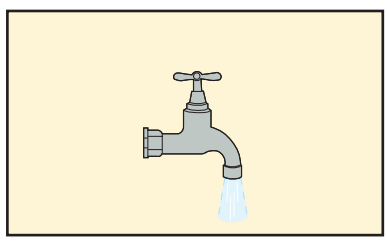
Code key shanks inch



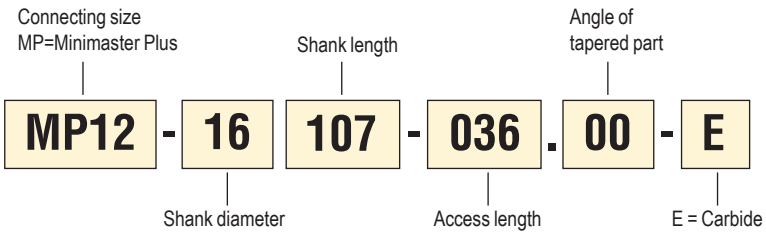
Code key inserts inch



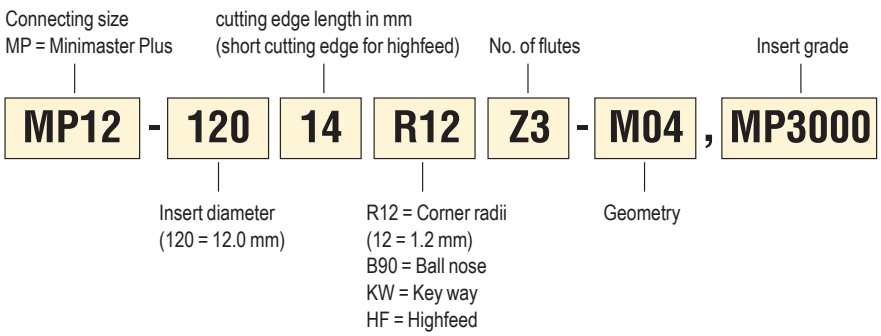
Internal coolant



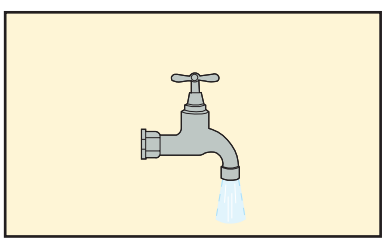
Code key shanks metric



Code key inserts metric



Internal through coolant



Choice of insert, shank and cutting data

Select taper size

- The design of the workpiece and the machining operations determines suitable taper size.

- Select the largest possible taper size for best strength and stability.

Select insert

- Use the tables beginning on page 644 to classify the workpiece material into a Seco material group.

- Look up the pages for the selected taper size and choose a suitable insert in the insert selection table.

Select shank

- Look up the pages for the selected taper size and choose a suitable shank in the tool data table.

- Always choose the shortest shank possible (to get maximum stability).

Select cutting data

- Maximum recommended axial cutting depth is in the cutting data conversion table. (See figure 1.)

- Cutting speed recommendations are in the cutting data tables, see pages 382-387,402-407,422-427.

Notice that the recommendations are for a fully engaged cutter in stable machining condition.

- Maximum RPM that for safety reasons should never be exceeded are shown on each shank page.

- Feed per tooth f_z recommendations are in the cutting data conversion table.

- **If the cutter is not fully engaged** the feed per tooth and the cutting speed should be increased compared to the recommendations for a fully engaged cutter. The reason for that is to keep the average chip thickness and the working temperature in the cutting zone at the same value as for a fully engaged cutter. (See figure 2.)

- Divide the radial cutting depth with the cutter diameter to get the actual cutter engagement percentage (a_e/D_c%).

- Use the percentage to get a correct feed per tooth and cutting speed recommendation for the actual cutter engagement.

- When calculating feed per revolution and feed speed always use the z_c-value. That is the effective number of teeth to use for cutting data calculation. The z_c-value is in the insert selection table.

- Extended tables and formulae for calculating cutting data for side milling are found on page 635.

- Notice that there will be a deterioration of the surface finish on the workpiece when the feed rate is increased (See figure 3).

- When milling in corners and bottoms of cavities the feed rate should be reduced due to the increase of the chip thickness. Use the feed per tooth recommendations for a fully engaged cutter. (See figure 4.)

- **When steep down copying** with an angle bigger than 40° or steep up copying with an angle bigger than 30° in combination with small depths of cut use the diameter (D_c) as working diameter instead of D_w. (See figure 5)

- **Calculate surface finish.** Use the profile height value (H) from the cutting data conversion table to calculate the expected surface finish for the actual operation. (See figure 5).

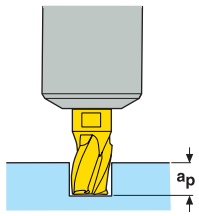


Figure 1

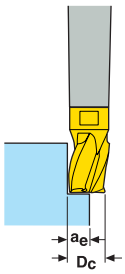


Figure 2

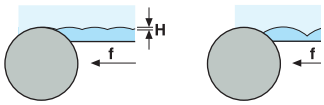


Figure 3

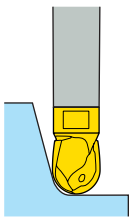


Figure 4

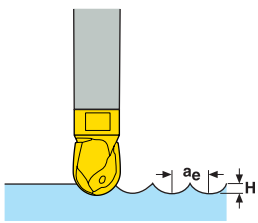
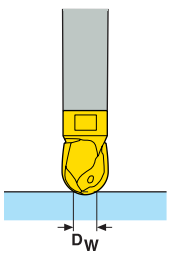


Figure 5



Torque wrench information

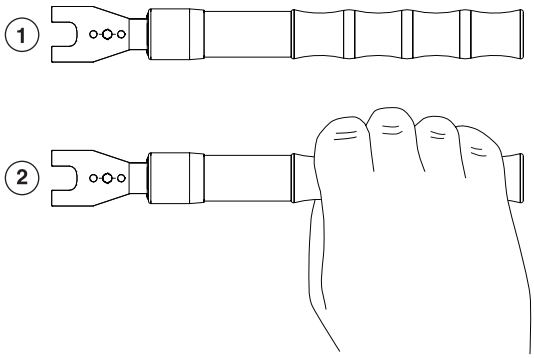
We recommend a torque wrench when mounting the insert
for best precision and extended tool life.

Different torque values for assembly
– MP10: 97 in/lbs (11 Nm)
– MP12: 133 in/lbs (15 Nm)
– MP16: 168 in/lbs (19 Nm)
Do not use worn out replaceable blades

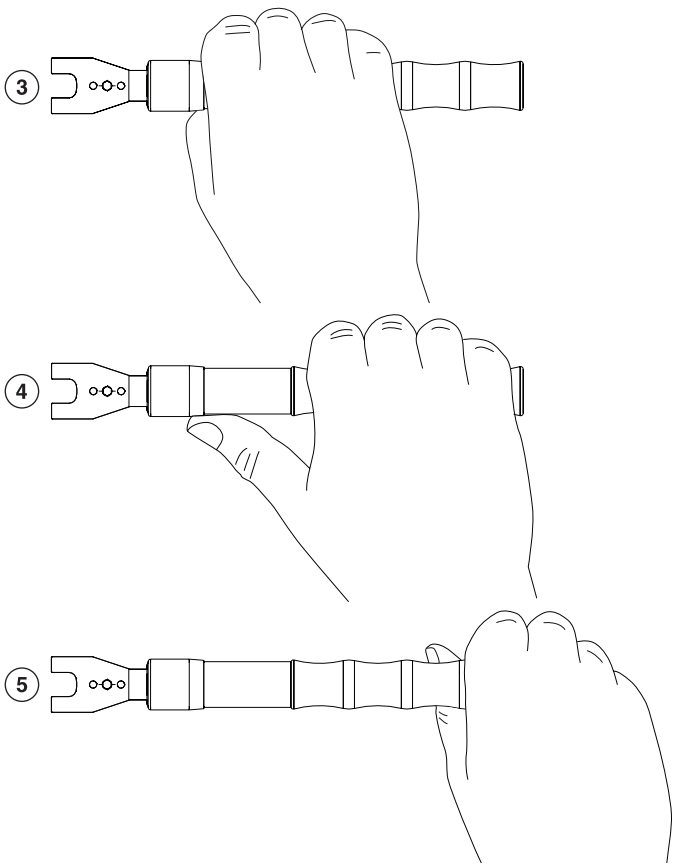
Before mounting the insert make sure to lubricate the contact surface
for extended tool life, trouble free mounting and dismantling.

Note: Torque wrenches and standard keys must be ordered separately

User instructions Torque wrench



Use the arched handle (pic. 1) to grip the wrench by hand as shown (pic. 2)

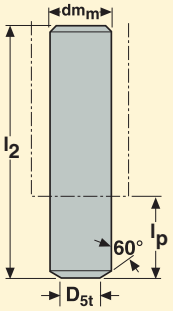


Do not grip the wrench as shown on picture 3-5, there is a risk that the applied torque might be incorrect and the insert will not be properly seated.

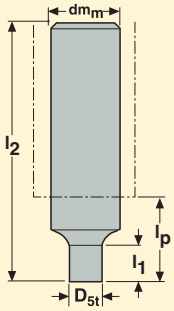
MP10 Shanks (Inch)

Steel and solid carbide shanks

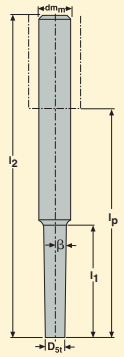
Design 1



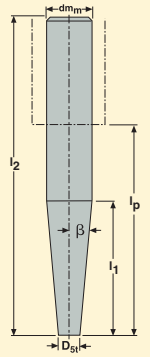
Design 2



Design 3



Design 4



- Cylindrical shank dm_m with tolerance h5, compatible for Shrinkfit.
- Max RPM 8000 r/min

EDP No.	Part No.	Connecting size	Dimensions in inch								lbs
			D_{5t}	dm_m	l_2	l_p	l_1	β°	Design		
44989	MP10 -0372.1-0.39.00	MP10	0.370	0.375	2.1	0.59	0.39	–	2	✓	0.2
44988	-0622.6-0.00.60	MP10	0.374	0.625	2.7	0.79	–	60	1	✓	0.2
44990	-0622.8-0.59.00	MP10	0.370	0.625	2.9	0.98	0.59	–	2	✓	0.2
44992	-0624.6-1.37.01	MP10	0.374	0.625	4.6	2.76	1.38	1	3	✓	0.4
44993	-0626.2-2.36.01	MP10	0.374	0.625	6.2	4.33	2.36	1	3	✓	0.4
44994	-0753.9-1.80.03	MP10	0.374	0.750	4.0	1.97	1.80	3	3	✓	0.4
44995	-0755.5-3.40.03	MP10	0.374	0.750	5.5	3.54	3.40	3	4	✓	0.7
44996	-0755.5-3.54.05	MP10	0.374	0.750	5.5	3.54	2.15	5	4	✓	0.7
18061	MP10 -0504.8-2.36.00-E	MP10	0.370	0.500	4.9	3.15	2.36	–	2	✓	0.4
18065	-0626.6-3.93.01-E	MP10	0.374	0.625	6.7	4.80	3.94	1	3	✓	0.9
18081	-0626.6-4.80.03-E	MP10	0.374	0.625	6.7	4.80	2.40	3	4	✓	0.9

...-E = Solid carbide shank

Spare Parts, not included. Must be ordered separately.

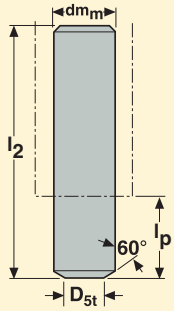
Inserts	Key	Replacement blade	Torque key
MP10	MP1016	MP00-10M	MP00-10.110

Torque value 97 in/lbs.
Blades are included with the torque key.

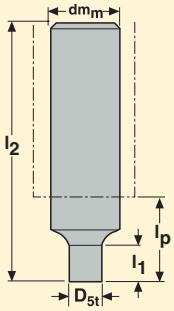
MP10 Shanks (Metric)

Steel and solid carbide shanks

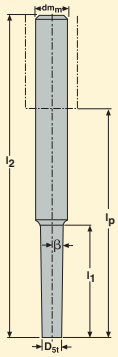
Design 1



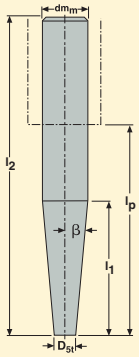
Design 2



Design 3



Design 4



- Cylindrical shank dm_m with tolerance h5, compatible for Shrinkfit.
- Max RPM 8000 r/min

EDP No.	Part No.	Connecting size	Dimensions in mm								lbs
			D_{5t}	dm_m	l_2	l_p	l_1	β°	Design		
51271	MP10 -10055-010.00	MP10	9.8	10	55	15	10	–	2	✓	0.2
51268	-16068-000.60	MP10	9.5	16	68	20	–	60	1	✓	0.2
51281	-16073-015.00	MP10	9.8	16	73	25	15	–	2	✓	0.2
51291	-16118-035.01	MP10	9.5	16	118	70	35	1	3	✓	0.4
51293	-16158-060.01	MP10	9.5	16	158	110	60	1	3	✓	0.4
51294	-20100-045.03	MP10	9.5	20	100	50	45	3	3	✓	0.4
51295	-20140-085.03	MP10	9.5	20	140	90	85	3	3	✓	0.7
51296	-20140-090.05	MP10	9.5	20	140	90	60	5	4	✓	0.7
45092	MP10 -12095-030.00-E	MP10	9.8	12	95	50	30	–	2	✓	0.4
69296	-12105-040.00-E	MP10	9.8	12	105	60	40	–	2	✓	0.4
69297	-12125-060.00-E	MP10	9.8	12	125	80	60	–	2	✓	0.4
69300	-16120-050.01-E	MP10	9.5	16	120	72	50	1	3	✓	0.7
69301	-16150-080.01-E	MP10	9.5	16	150	102	80	1	3	✓	0.7
69302	-16170-100.01-E	MP10	9.5	16	170	122	100	1	3	✓	0.9
69303	-16140-092.03-E	MP10	9.5	16	140	92	62	3	4	✓	0.9
69304	-16170-122.03-E	MP10	9.5	16	170	122	62	3	4	✓	0.9

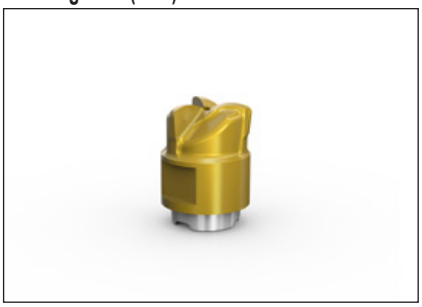
...-E = Solid carbide shank

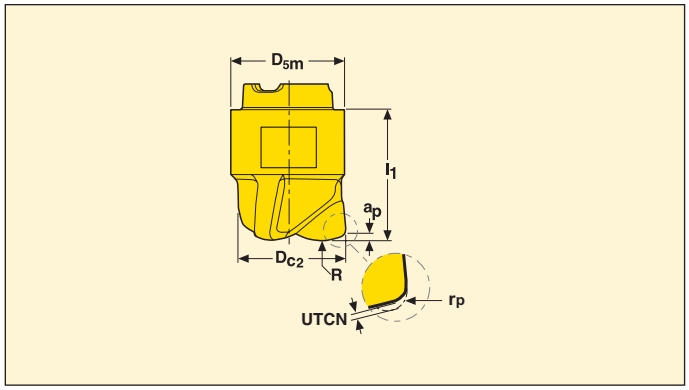
Spare Parts, not included. Must be ordered separately.

Inserts	Key	Replacement blade	Torque key
MP10	MP1016	MP00-10M	MP00-10.110

Torque value 97 in/lbs.
Blades are included with the torque key.

MP10 Highfeed (Inch)





- For insert selection and cutting data recommendations, see pages 382-383.

Z3

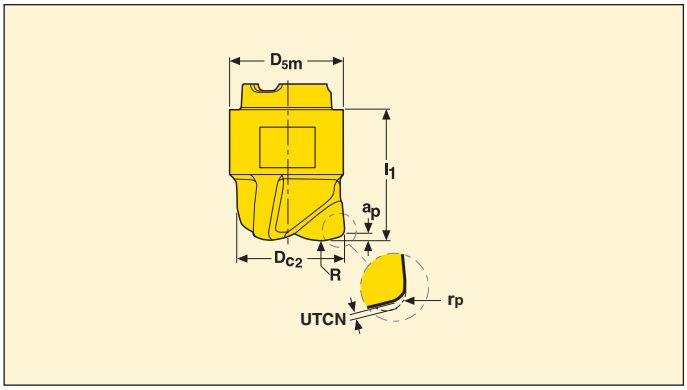
Part No.	Dimensions in inch							Zc*		Coated Grades		
	D_{c2}	R	r_p	D_{5m}	l_1	UTCN	a_p			MP3000	F40M	
MP10 -00.375-.28-HFZ3-MD08	0.375	0.244	0.044	0.370	0.433	0.013	0.024	3	✓	76116		

Please check availability in current price and stock-list.

* Effective number of flutes

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

MP10 Highfeed (Metric)



- For insert selection and cutting data recommendations, see pages 382-383.

Z3

Part No.	Dimensions in mm							Z_c*		Coated Grades		
	D_{c2}	R	r_p	D_{5m}	l_1	UTCN	a_p			MP3000	F40M	
MP10 -1000.6HFZ3-MD08	10	6.2	1.13	9.6	11	0.32	0.6	3	✓	76118		

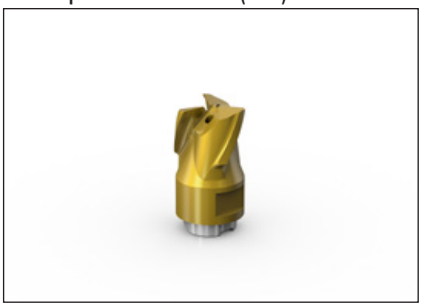
Please check availability in current price and stock-list.

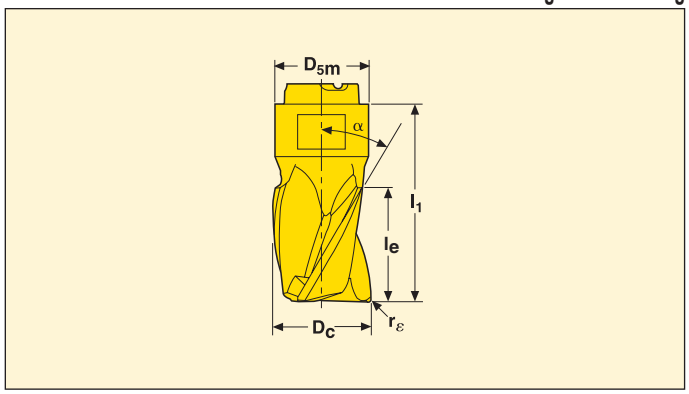
* Effective number of flutes

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

MP10 Square shoulder short (Inch)

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 384-385.

Z3

Z4

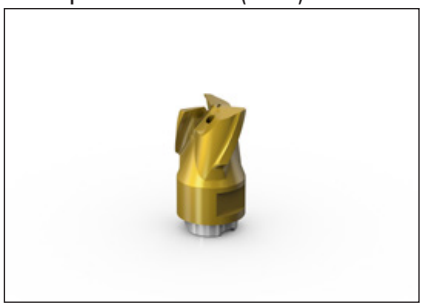
Part No.	Dimensions in inch						Zc*		Coated Grades		
	Dc	rε	le	D5m	l1	α°			MP3000	F40M	
MP10 -00.375-.28-R016Z3-E03	0.375	0.016	0.276	0.370	0.630	30	3			84088	
-00.375-.28-R016Z3-M03	0.375	0.016	0.276	0.370	0.630	30	3		84086		
-00.375-.28-R031Z3-E03	0.375	0.031	0.276	0.370	0.630	30	3			84089	
-00.375-.28-R031Z3-M03	0.375	0.031	0.276	0.370	0.630	30	3		84087		
-00.375-.28-R063Z3-E03	0.375	0.063	0.276	0.370	0.630	30	3			84090	
MP10 -00.375-.28-R016Z4-E02	0.375	0.016	0.276	0.370	0.630	50	4			84093	
-00.375-.28-R016Z4-M02	0.375	0.016	0.276	0.370	0.630	50	4		84091		
-00.375-.28-R031Z4-E02	0.375	0.031	0.276	0.370	0.630	50	4			84094	
-00.375-.28-R031Z4-M02	0.375	0.031	0.276	0.370	0.630	50	4		84092		

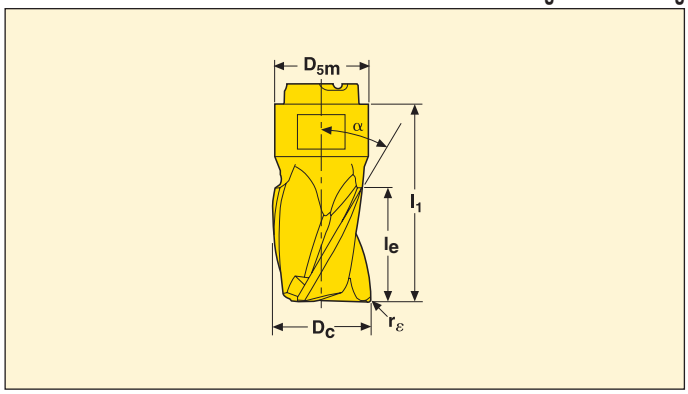
Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Square shoulder short (Metric)

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 384-385.

Z3

Z4

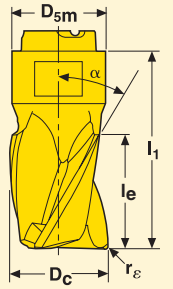
Part No.	Dimensions in mm								Coated Grades		
	D_c	r_ε	l_e	D_{5m}	l_1	α°	Z_c*		MP3000	F40M	
MP10 -09807KWZ3-E03	9.8	0.3	7.0	9.6	16.0	30	3	✓		83928	
-10007R04Z3-E03	10.0	0.4	7.0	9.6	16.0	30	3	✓		83922	
-10007R04Z3-M03	10.0	0.4	7.0	9.6	16.0	30	3	✓	83465		
-10007R05Z3-E03	10.0	0.5	7.0	9.6	16.0	30	3	✓		83924	
-10007R08Z3-E03	10.0	0.8	7.0	9.6	16.0	30	3	✓		91627	
-10007R08Z3-M03	10.0	0.8	7.0	9.6	16.0	30	3	✓	83469		
-10007R12Z3-E03	10.0	1.2	7.0	9.6	16.0	30	3	✓		83925	
-10007R12Z3-M03	10.0	1.2	7.0	9.6	16.0	30	3	✓	83921		
-10007R16Z3-E03	10.0	1.6	7.0	9.6	16.0	30	3	✓		91628	
-10007R20Z3-E03	10.0	2.0	7.0	9.6	16.0	30	3	✓		91629	
-10007R24Z3-E03	10.0	2.4	7.0	9.6	16.0	30	3	✓		91631	
-10007R31Z3-E03	10.0	3.1	7.0	9.6	16.0	30	3	✓		83926	
MP10 -10007R04Z4-E02	10.0	0.4	7.0	9.6	16.0	50	4			83934	
-10007R05Z4-E02	10.0	0.5	7.0	9.6	16.0	50	4			83936	
-10007R08Z4-E02	10.0	0.8	7.0	9.6	16.0	50	4			83937	
-10007R12Z4-E02	10.0	1.2	7.0	9.6	16.0	50	4			83940	
-10007R16Z4-E02	10.0	1.6	7.0	9.6	16.0	50	4			83941	
-10007R20Z4-E02	10.0	2.0	7.0	9.6	16.0	50	4			91633	
-10007R04Z4-M02	10.0	0.4	7.0	9.6	16.0	50	4		83929		
-10007R08Z4-M02	10.0	0.8	7.0	9.6	16.0	50	4		83930		
-10007R12Z4-M02	10.0	1.2	7.0	9.6	16.0	50	4		83932		
-10007R16Z4-M02	10.0	1.6	7.0	9.6	16.0	50	4		83933		

Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Square shoulder (Inch)

Slotting and contouring



- For insert selection and cutting data recommendations, see pages 384-385.

Z3

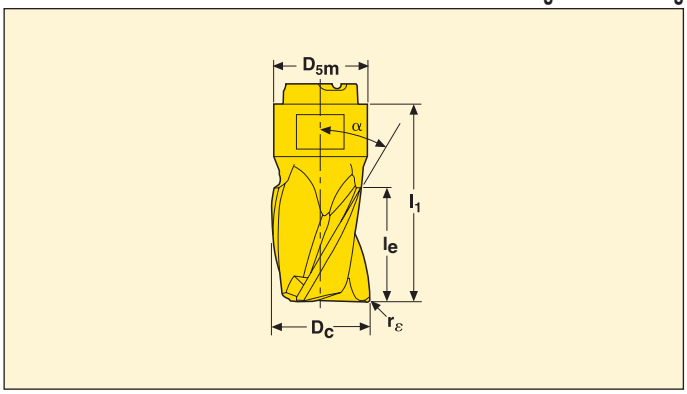
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M
MP10 -00.375-.47-R016Z3-E03	0.375	0.016	0.378	0.827	30	0.472	3	✓		67090
-00.375-.47-R016Z3-M03	0.375	0.016	0.378	0.827	30	0.472	3	✓	45245	
-00.375-.47-R031Z3-E03	0.375	0.031	0.378	0.827	30	0.472	3	✓		67093
-00.375-.47-R031Z3-M03	0.375	0.031	0.378	0.827	30	0.472	3	✓	45246	
-00.375-.47-R063Z3-E03	0.375	0.063	0.378	0.827	30	0.472	3	✓		45247
-00.375-.47-R122Z3-E03	0.375	0.122	0.378	0.827	30	0.472	3	✓		45248

Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Square shoulder (Metric)

Slotting and contouring



- For insert selection and cutting data recommendations, see pages 384-385.

Z3

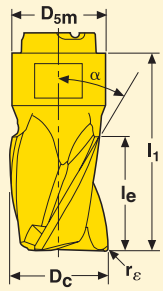
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M
MP10 -09812KWZ3-E03	9.8	0.3	9.6	21	30	12	3	✓		51849
-10012R04Z3-E03	10	0.4	9.6	21	30	12	3	✓		51710
-10012R04Z3-M03	10	0.4	9.6	21	30	12	3	✓	51709	
-10012R05Z3-E03	10	0.5	9.6	21	30	12	3	✓		67049
-10012R08Z3-E03	10	0.8	9.6	21	30	12	3	✓		51712
-10012R08Z3-M03	10	0.8	9.6	21	30	12	3	✓	51711	
-10012R12Z3-E03	10	1.2	9.6	21	30	12	3	✓		51716
-10012R12Z3-M03	10	1.2	9.6	21	30	12	3	✓	51713	
-10012R16Z3-E03	10	1.6	9.6	21	30	12	3	✓		51719
-10012R20Z3-E03	10	2.0	9.6	21	30	12	3	✓		51722
-10012R24Z3-E03	10	2.4	9.6	21	30	12	3	✓		51727
-10012R31Z3-E03	10	3.1	9.6	21	30	12	3	✓		51728

Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Square shoulder (Inch)

Contouring only



- For insert selection and cutting data recommendations, see pages 384-385.

Z4

Z5

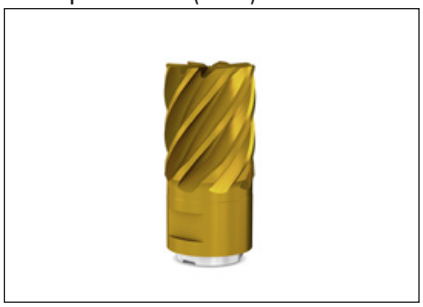
Part No.	Dimensions in inch						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP10 -00.375-.47-R016Z4-E02	0.375	0.016	0.378	0.827	50	0.472	4	✓		45262	
-00.375-.47-R016Z4-M02	0.375	0.016	0.378	0.827	50	0.472	4	✓	67091		
-00.375-.47-R031Z4-E02	0.375	0.031	0.378	0.827	50	0.472	4	✓		45263	
-00.375-.47-R031Z4-M02	0.375	0.031	0.378	0.827	50	0.472	4	✓	67094		
-00.375-.47-R016Z5-M02	0.375	0.016	0.378	0.827	40	0.472	5	✓	67092		

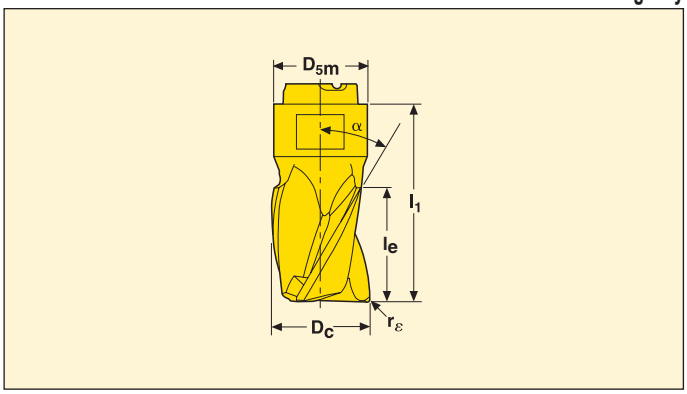
Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Square shoulder (Metric)

Contouring only





- For insert selection and cutting data recommendations, see pages 384-385.

Z4

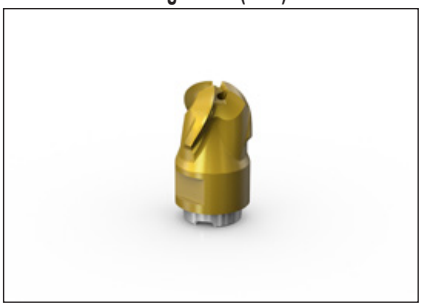
Z5

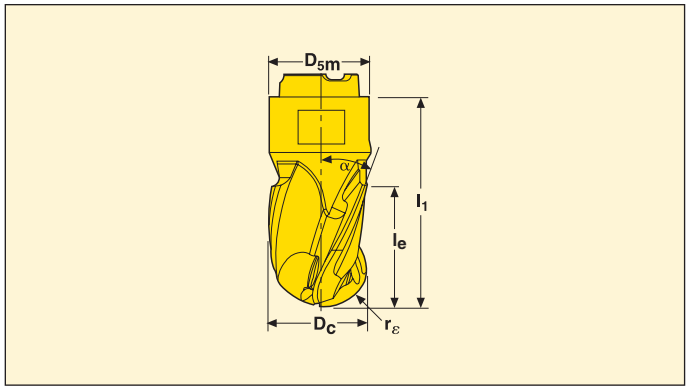
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
MP10 -10012R04Z4-E02	10	0.4	9.6	21	50	12	4			51974	
-10012R04Z4-M02	10	0.4	9.6	21	50	12	4		67050		
-10012R05Z4-E02	10	0.5	9.6	21	50	12	4			67051	
-10012R08Z4-E02	10	0.8	9.6	21	50	12	4			51975	
-10012R08Z4-M02	10	0.8	9.6	21	50	12	4		67053		
-10012R12Z4-E02	10	1.2	9.6	21	50	12	4			51976	
-10012R12Z4-M02	10	1.2	9.6	21	50	12	4		67054		
-10012R16Z4-E02	10	1.6	9.6	21	50	12	4			67055	
-10012R20Z4-E02	10	2.0	9.6	21	50	12	4			67056	
MP10 -10012R04Z5-M02	10	0.4	9.6	21	40	12	5		67052		

Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Ball nose design short (Inch)





• For insert selection and cutting data recommendations, see pages 386-387.

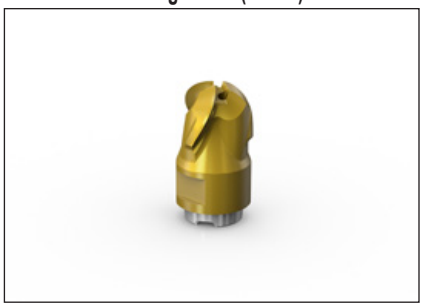
Z3

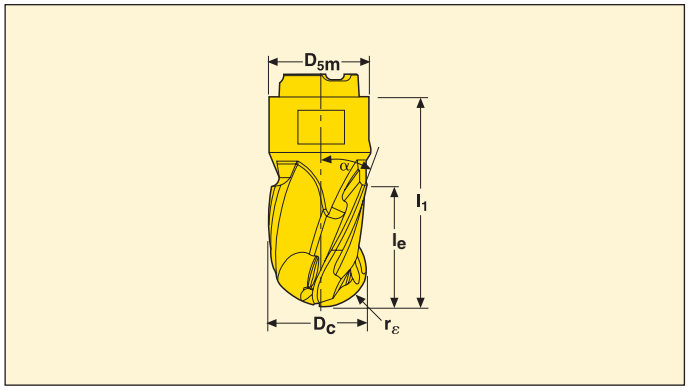
Part No.	Dimensions in inch						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP10 -00.375-.28-B90Z3-E03	0.375	0.187	0.370	0.630	30	0.276	3			13416	
-00.375-.28-B90Z3-M03	0.375	0.187	0.370	0.630	30	0.276	3		13417		

Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Ball nose design short (Metric)





- For insert selection and cutting data recommendations, see pages 386-387.

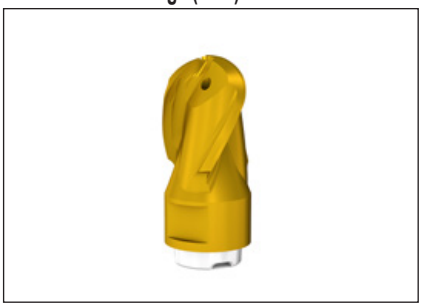
Z3

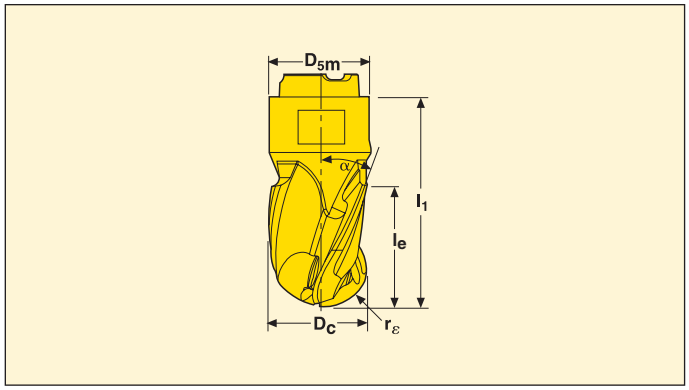
Part No.	Dimensions in mm						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP10 -10007B90Z3-E03	10.0	5.0	9.6	16.0	30	7.0	3	✓		13410	
-10007B90Z3-M03	10.0	5.0	9.6	16.0	30	7.0	3	✓	13411		

Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Ball nose design (Inch)





- For insert selection and cutting data recommendations, see pages 386-387.

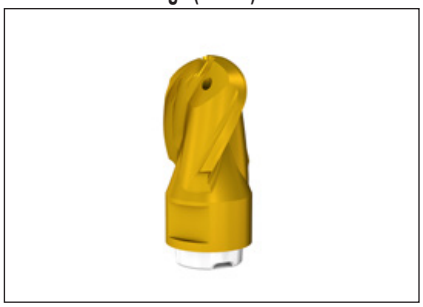
Z3

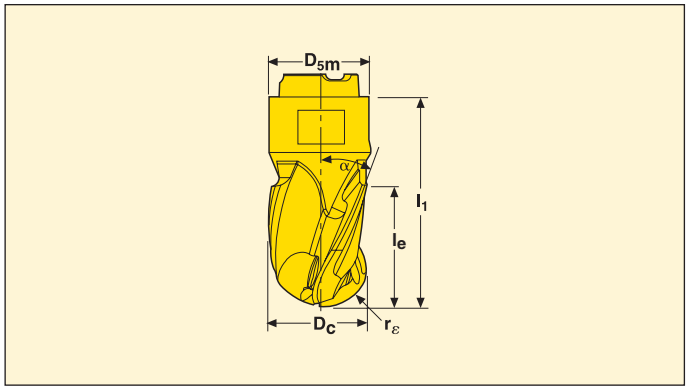
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
MP10 -00.375-.47-B90Z3-E03	0.375	0.187	0.378	0.827	30	0.472	3	✓		69553	
-00.375-.47-B90Z3-M03	0.375	0.187	0.378	0.827	30	0.472	3	✓	45293		

Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Ball nose design (Metric)





- For insert selection and cutting data recommendations, see pages 386-387.

Z3

Part No.	Dimensions in mm						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP10 -10012B90Z3-E03	10	5	9.6	21	30	12	3	✓		69545	
-10012B90Z3-M03	10	5	9.6	21	30	12	3	✓	52104		

Please check availability in current price and stock-list.

* Effective number of flutes

MP10 Highfeed milling – Insert selection

SMG		Recommended a_p**	f_z			
			100%	70%	30%	20%
P1	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.032	0.032	0.036	0.048
P2	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.032	0.032	0.036	0.048
P3	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
P4	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
P5	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
P6	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.028	0.028	0.032	0.040
P7	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.028	0.028	0.032	0.040
P8	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
P11	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.028	0.028	0.032	0.040
M1	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.032	0.032	0.036	0.048
M2	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
M3	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.026	0.026	0.028	0.036
M4	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.022	0.022	0.024	0.030
M5	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.022	0.022	0.024	0.030
K1	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.032	0.032	0.036	0.048
K2	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
K3	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
K4	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
K5	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.026	0.026	0.030	0.036
K6	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.030	0.030	0.034	0.044
K7	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.026	0.026	0.030	0.036
N1	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.040	0.040	0.048	0.080
N2	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.040	0.040	0.048	0.080
N3	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.040	0.040	0.048	0.080
N11	MP10-1000.6HFZ3-MD08 MP3000	0.010	0.040	0.040	0.048	0.080
S1	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.022	0.022	0.024	0.030
S2	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.022	0.022	0.024	0.030
S3	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.020	0.020	0.022	0.028
S11	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.026	0.026	0.028	0.036
S12	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.026	0.026	0.028	0.036
S13	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.022	0.022	0.024	0.030
H5	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.022	0.022	0.024	0.030
H8	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.016	0.016	0.018	0.022
H11	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.022	0.022	0.024	0.030
H12	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.022	0.022	0.024	0.030
H21	MP10-1000.6HFZ3-MD08 MP3000	0.0085	0.016	0.016	0.018	0.022

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MP10 Highfeed milling – Cutting data v_c = (sf/min)

SMG	MP3000			
	100%	70%	30%	20%
P1	790	950	1150	1200
P2	760	930	1125	1175
P3	670	810	980	1025
P4	590	710	860	900
P5	570	690	820	870
P6	640	780	920	980
P7	600	730	870	920
P8	560	680	820	860
P11	590	710	840	900
M1	570	700	840	880
M2	475	580	680	730
M3	380	455	540	580
M4	295	355	415	440
M5	245	295	345	370
K1	610	740	890	930
K2	540	660	780	830
K3	460	560	660	700
K4	435	530	630	670
K5	265	320	385	410
K6	385	470	550	590
K7	340	410	495	520
N1	2275	2775	3300	3350
N2	1825	2225	2675	2700
N3	1225	1500	1775	1800
N11	1400	1700	2025	2075
S1	135	165	195	205
S2	110	135	155	165
S3	95	115	135	145
S11	190	230	275	290
S12	110	135	160	165
S13	90	105	125	135
H5	115	140	165	180
H8	120	145	175	185
H11	150	180	210	225
H12	225	270	320	340
H21	120	145	175	185

MP10 Slot milling – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	MP10-10012R04Z3-M03 MP3000	0.12	0.0017	0.0018	0.0028	0.0040
P2	MP10-10012R04Z3-M03 MP3000	0.12	0.0017	0.0019	0.0030	0.0040
P3	MP10-10012R04Z3-M03 MP3000	0.12	0.0016	0.0017	0.0028	0.0038
P4	MP10-10012R04Z3-M03 MP3000	0.12	0.0016	0.0017	0.0026	0.0038
P5	MP10-10012R04Z3-M03 MP3000	0.12	0.0016	0.0017	0.0026	0.0036
P6	MP10-10012R04Z3-M03 MP3000	0.12	0.0015	0.0017	0.0026	0.0036
P7	MP10-10012R04Z3-M03 MP3000	0.12	0.0015	0.0017	0.0026	0.0036
P8	MP10-10012R04Z3-M03 MP3000	0.12	0.0016	0.0017	0.0028	0.0038
P11	MP10-10012R04Z3-M03 MP3000	0.12	0.0015	0.0017	0.0026	0.0036
M1	MP10-10012R04Z3-E03 F40M	0.12	0.0017	0.0019	0.0030	0.0040
M2	MP10-10012R04Z3-E03 F40M	0.12	0.0016	0.0017	0.0026	0.0036
M3	MP10-10012R04Z3-E03 F40M	0.10	0.0013	0.0013	0.0022	0.0030
M4	MP10-10012R04Z3-E03 F40M	0.075	0.0011	0.0012	0.0018	0.0026
M5	MP10-10012R04Z3-E03 F40M	0.075	0.0011	0.0012	0.0018	0.0026
K1	MP10-10012R04Z3-M03 MP3000	0.12	0.0017	0.0019	0.0030	0.0040
K2	MP10-10012R04Z3-M03 MP3000	0.12	0.0016	0.0017	0.0026	0.0036
K3	MP10-10012R04Z3-M03 MP3000	0.12	0.0016	0.0017	0.0026	0.0036
K4	MP10-10012R04Z3-M03 MP3000	0.12	0.0016	0.0017	0.0026	0.0036
K5	MP10-10012R04Z3-M03 MP3000	0.12	0.0014	0.0015	0.0024	0.0032
K6	MP10-10012R04Z3-M03 MP3000	0.12	0.0016	0.0017	0.0026	0.0036
K7	MP10-10012R04Z3-M03 MP3000	0.12	0.0014	0.0015	0.0024	0.0032
N1	MP10-10012R04Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050
N2	MP10-10012R04Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050
N3	MP10-10012R04Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050
N11	MP10-10012R04Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050
S1	MP10-10012R04Z3-E03 F40M	0.075	0.0011	0.0012	0.0018	0.0026
S2	MP10-10012R04Z3-E03 F40M	0.075	0.0011	0.0012	0.0018	0.0026
S3	MP10-10012R04Z3-E03 F40M	0.075	0.0010	0.0011	0.0017	0.0024
S11	MP10-10012R04Z3-E03 F40M	0.10	0.0013	0.0013	0.0022	0.0030
S12	MP10-10012R04Z3-E03 F40M	0.10	0.0013	0.0013	0.0022	0.0030
S13	MP10-10012R04Z3-E03 F40M	0.075	0.0011	0.0012	0.0018	0.0026
H5	MP10-10012R04Z3-M03 MP3000	0.10	0.0010	0.0012	0.0017	0.0024
H8	MP10-10012R04Z3-M03 MP3000	0.10	0.00080	0.00085	0.0013	0.0019
H11	MP10-10012R04Z3-M03 MP3000	0.10	0.0010	0.0012	0.0017	0.0024
H12	MP10-10012R04Z3-M03 MP3000	0.10	0.0010	0.0012	0.0017	0.0024
H21	MP10-10012R04Z3-M03 MP3000	0.10	0.00080	0.00085	0.0013	0.0019

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MP10 Slot milling – Cutting data v_c = (sf/min)

	MP3000				F40M			
SMG	100%	30%	10%	5%	100%	30%	10%	5%
P1	880	1150	1350	1475	840	1075	1275	1375
P2	850	1100	1300	1425	810	1050	1225	1350
P3	750	970	1125	1250	710	910	1075	1175
P4	660	850	1000	1100	620	810	950	1025
P5	630	820	960	1050	590	780	910	990
P6	710	920	1075	1175	670	870	1025	1125
P7	670	870	1025	1125	640	820	960	1050
P8	630	810	950	1050	590	770	890	980
P11	650	850	990	1075	620	800	930	1025
M1	640	830	980	1075	650	840	1000	1075
M2	530	690	800	880	530	700	820	890
M3	415	540	640	690	425	550	650	700
M4	320	415	485	530	325	425	490	540
M5	270	345	400	440	270	355	410	445
K1	680	880	1025	1125	640	830	980	1075
K2	600	780	910	1000	560	740	860	940
K3	500	660	770	840	475	620	730	800
K4	480	630	740	810	455	590	690	760
K5	290	380	445	490	275	360	420	460
K6	425	550	650	710	400	520	610	670
K7	375	490	570	630	355	460	540	590
N1	2550	3325	3925	4250	2425	3150	3700	4025
N2	2075	2700	3175	3450	1950	2550	3000	3250
N3	1375	1800	2100	2300	1300	1700	2000	2175
N11	1575	2050	2400	2625	1500	1925	2275	2475
S1	150	195	225	245	155	200	230	250
S2	120	155	180	200	125	160	185	200
S3	105	135	160	175	105	140	160	175
S11	210	275	320	350	215	280	325	355
S12	120	160	185	200	125	160	190	205
S13	95	125	145	160	100	130	150	160
H5	130	165	190	210	130	165	195	215
H8	130	170	200	215	135	170	200	220
H11	165	210	245	270	165	210	245	270
H12	245	315	370	405	250	320	370	410
H21	130	170	200	215	135	170	200	220

MP10 Copy milling – Insert selection

SMG		Recommended a_p**	f_z				
			100%	30%	10%	5%	2%
P1	MP10-10012B90Z3-M03 MP3000	0.12	0.0024	0.0026	0.0040	0.0055	0.0095
P2	MP10-10012B90Z3-M03 MP3000	0.12	0.0024	0.0026	0.0040	0.0055	0.0095
P3	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0026	0.0038	0.0055	0.0085
P4	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050	0.0085
P5	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050	0.0085
P6	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0036	0.0050	0.0080
P7	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0036	0.0050	0.0080
P8	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0026	0.0038	0.0055	0.0085
P11	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0036	0.0050	0.0080
M1	MP10-10012B90Z3-E03 F40M	0.12	0.0024	0.0026	0.0040	0.0055	0.0095
M2	MP10-10012B90Z3-E03 F40M	0.12	0.0022	0.0024	0.0038	0.0050	0.0085
M3	MP10-10012B90Z3-E03 F40M	0.10	0.0017	0.0019	0.0030	0.0040	0.0065
M4	MP10-10012B90Z3-E03 F40M	0.075	0.0015	0.0017	0.0026	0.0036	0.0055
M5	MP10-10012B90Z3-E03 F40M	0.075	0.0015	0.0017	0.0026	0.0036	0.0055
K1	MP10-10012B90Z3-M03 MP3000	0.12	0.0024	0.0026	0.0040	0.0055	0.0095
K2	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050	0.0085
K3	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050	0.0085
K4	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050	0.0085
K5	MP10-10012B90Z3-M03 MP3000	0.12	0.0020	0.0022	0.0034	0.0048	0.0075
K6	MP10-10012B90Z3-M03 MP3000	0.12	0.0022	0.0024	0.0038	0.0050	0.0085
K7	MP10-10012B90Z3-M03 MP3000	0.12	0.0020	0.0022	0.0034	0.0048	0.0075
N1	MP10-10012B90Z3-M03 MP3000	0.12	0.0030	0.0034	0.0050	0.0070	0.012
N2	MP10-10012B90Z3-M03 MP3000	0.12	0.0030	0.0034	0.0050	0.0070	0.012
N3	MP10-10012B90Z3-M03 MP3000	0.12	0.0030	0.0034	0.0050	0.0070	0.012
N11	MP10-10012B90Z3-M03 MP3000	0.12	0.0030	0.0034	0.0050	0.0070	0.012
S1	MP10-10012B90Z3-E03 F40M	0.075	0.0015	0.0017	0.0026	0.0036	0.0055
S2	MP10-10012B90Z3-E03 F40M	0.075	0.0015	0.0017	0.0026	0.0036	0.0055
S3	MP10-10012B90Z3-E03 F40M	0.075	0.0014	0.0016	0.0024	0.0034	0.0050
S11	MP10-10012B90Z3-E03 F40M	0.10	0.0017	0.0019	0.0030	0.0040	0.0065
S12	MP10-10012B90Z3-E03 F40M	0.10	0.0017	0.0019	0.0030	0.0040	0.0065
S13	MP10-10012B90Z3-E03 F40M	0.075	0.0015	0.0017	0.0026	0.0036	0.0055
H5	MP10-10012B90Z3-M03 MP3000	0.10	0.0015	0.0016	0.0026	0.0034	0.0055
H8	MP10-10012B90Z3-M03 MP3000	0.10	0.0011	0.0013	0.0019	0.0026	0.0044
H11	MP10-10012B90Z3-M03 MP3000	0.10	0.0015	0.0016	0.0026	0.0034	0.0055
H12	MP10-10012B90Z3-M03 MP3000	0.10	0.0015	0.0016	0.0026	0.0034	0.0055
H21	MP10-10012B90Z3-M03 MP3000	0.10	0.0011	0.0013	0.0019	0.0026	0.0044

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

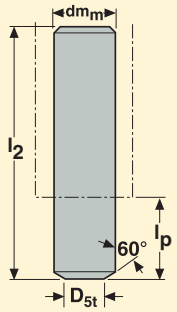
MP10 Copy milling – Cutting data v_c = (sf/min)

	MP3000					F40M				
SMG	100%	30%	10%	5%	2%	100%	30%	10%	5%	2%
P1	1175	1375	1600	1750	1925	1125	1300	1500	1650	1825
P2	1150	1325	1525	1700	1875	1100	1250	1450	1600	1775
P3	1000	1150	1325	1450	1625	950	1075	1250	1375	1550
P4	880	1025	1175	1300	1450	830	960	1125	1225	1350
P5	840	970	1125	1250	1375	800	920	1075	1175	1300
P6	950	1100	1275	1400	1550	890	1025	1200	1325	1475
P7	890	1025	1200	1325	1475	840	980	1125	1250	1375
P8	840	960	1125	1225	1375	800	910	1050	1150	1300
P11	870	1000	1175	1275	1425	820	950	1100	1200	1350
M1	860	990	1150	1275	1400	880	1000	1175	1300	1425
M2	700	810	950	1050	1150	720	830	960	1050	1175
M3	560	660	750	820	920	570	670	760	830	930
M4	435	510	570	620	700	445	520	580	630	720
M5	365	425	475	520	590	370	435	485	530	600
K1	910	1050	1225	1350	1500	860	990	1150	1275	1400
K2	800	920	1075	1175	1325	760	870	1025	1125	1250
K3	680	780	910	1000	1125	640	740	860	940	1050
K4	650	750	870	950	1075	610	710	820	900	1000
K5	390	450	530	580	650	370	425	500	540	610
K6	570	660	770	840	940	540	620	720	790	880
K7	500	580	680	740	830	470	550	640	700	780
N1	3500	3950	4625	5025	5600	3300	3750	4375	4750	5300
N2	2825	3200	3750	4050	4525	2675	3025	3525	3825	4275
N3	1875	2125	2500	2700	3025	1775	2025	2350	2550	2850
N11	2150	2425	2850	3100	3450	2025	2300	2700	2925	3250
S1	205	240	265	290	330	205	245	270	295	335
S2	165	190	215	235	265	165	195	220	240	270
S3	140	165	190	205	230	145	170	190	210	230
S11	285	335	375	415	465	290	345	385	420	475
S12	165	195	215	240	270	165	200	220	240	275
S13	130	155	175	190	210	135	155	175	190	215
H5	170	200	225	250	280	170	200	230	250	280
H8	175	205	235	255	290	175	210	235	260	290
H11	215	255	290	315	355	215	255	290	320	360
H12	325	385	435	480	540	330	390	440	480	540
H21	175	205	235	255	290	175	210	235	260	290

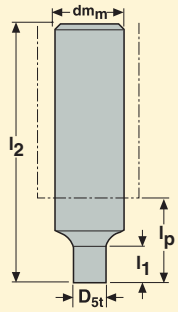
MP12 Shanks (Inch)

Steel and solid carbide shanks

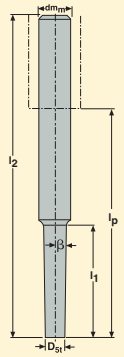
Design 1



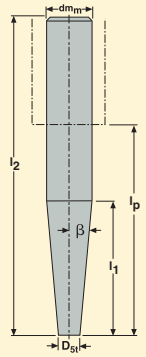
Design 2



Design 3



Design 4



- Cylindrical shank dm_m with tolerance h5, compatible for Shrinkfit.
- Max RPM 72700 r/min

EDP No.	Part No.	Connecting size	Dimensions in inch								lbs
			D_{5t}	dm_m	l_2	l_p	l_1	β°	Design		
44998	MP12 -0502.3-0.47.00	MP12	0.453	0.500	2.3	0.59	0.47	–	2	✓	0.2
44997	-0622.6-0.00.60	MP12	0.453	0.625	2.7	0.79	–	60	1	✓	0.2
44999	-0623.0-0.70.00	MP12	0.453	0.625	3.1	1.18	0.71	–	2	✓	0.2
45005	-0626.0-1.65.01	MP12	0.453	0.625	6.0	4.13	1.65	1	3	✓	0.4
45007	-0754.3-2.20.03	MP12	0.453	0.750	4.4	2.36	2.20	3	3	✓	0.4
45008	-0755.9-3.93.03	MP12	0.453	0.750	5.9	3.94	2.83	3	3	✓	0.7
45009	-0756.1-4.13.05	MP12	0.453	0.750	6.1	4.13	1.70	5	4	✓	0.7
45006	-0756.7-2.83.01	MP12	0.453	0.750	6.7	4.72	2.83	1	4	✓	0.7
18095	MP12 -0625.8-2.83.00-E	MP12	0.453	0.625	5.9	4.02	2.83	–	2	✓	0.7
18097	-0626.8-4.72.01-E	MP12	0.453	0.625	6.9	5.00	4.72	1	3	✓	0.9
18116	-0627.0-5.19.03-E	MP12	0.453	0.625	7.1	5.20	1.65	3	4	✓	1.1

...-E = Solid carbide shank

Spare Parts, not included. Must be ordered separately.

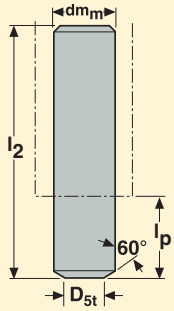
Inserts	Key	Replacement blade	Torque key
MP12	MP1016	MP00-12M	MP00-12.150

Torque value 133 in/lbs.
Blades are included with the torque key.

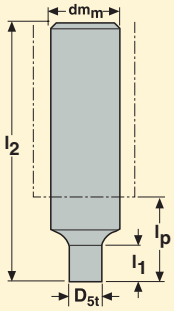
MP12 Shanks (Metric)

Steel and solid carbide shanks

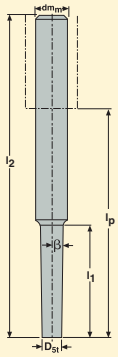
Design 1



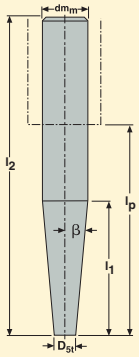
Design 2



Design 3



Design 4



- Cylindrical shank dm_m with tolerance h5, compatible for Shrinkfit.
- Max RPM 72700 r/min

EDP No.	Part No.	Connecting size	Dimensions in mm								lbs
			D_{5t}	dm_m	l_2	l_p	l_1	β°	Design		
51321	MP12 -12060-012.00	MP12	11.5	12	60	15	12	–	2	✓	0.2
51320	-16068-000.60	MP12	11.5	16	68	20	–	60	1	✓	0.2
51322	-16078-018.00	MP12	11.5	16	78	30	18	–	2	✓	0.2
51331	-16153-042.01	MP12	11.5	16	153	105	42	1	3	✓	0.4
51335	-20170-072.01	MP12	11.5	20	170	120	72	1	3	✓	0.7
51336	-20110-055.03	MP12	11.5	20	110	60	55	3	3	✓	0.4
51337	-20150-100.03	MP12	11.5	20	150	100	81.1	3	4	✓	0.7
51338	-20155-105.05	MP12	11.5	20	155	105	48.6	5	4	✓	0.9
69305	MP12 -16107-036.00-E	MP12	11.5	16	107	59	36	–	2	✓	0.7
69308	-16120-048.00-E	MP12	11.5	16	120	72	48	–	2	✓	0.7
69309	-16150-072.00-E	MP12	11.5	16	150	102	72	–	2	✓	0.7
69310	-16120-060.01-E	MP12	11.5	16	120	72	60	1	3	✓	0.7
69311	-16150-096.01-E	MP12	11.5	16	150	102	96	1	3	✓	0.9
69312	-16175-120.01-E	MP12	11.5	16	175	127	120	1	3	✓	0.9
69313	-16155-107.03-E	MP12	11.5	16	155	107	42.9	3	4	✓	0.9
69314	-16180-132.03-E	MP12	11.5	16	180	132	42.9	3	4	✓	1.1

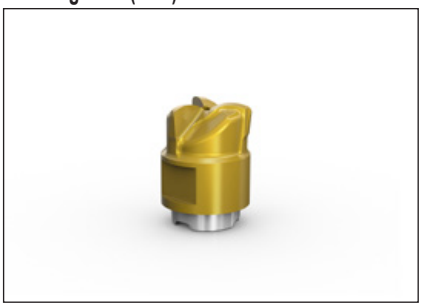
...-E = Solid carbide shank

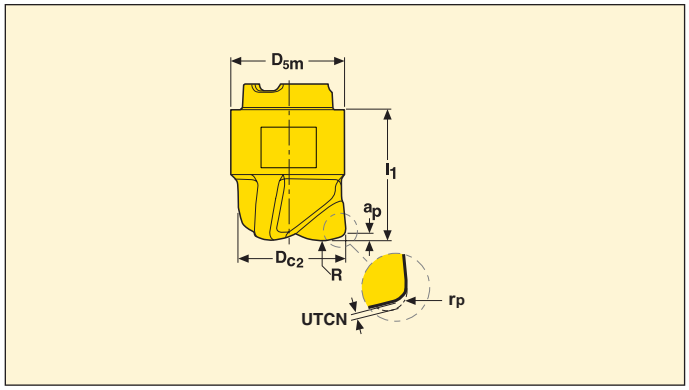
Spare Parts, not included. Must be ordered separately.

Inserts	Key	Replacement blade	Torque key
MP12	MP1016	MP00-12M	MP00-12.150

Torque value 133 in/lbs.
Blades are included with the torque key.

MP12 Highfeed (Inch)





- For insert selection and cutting data recommendations, see pages 402-403.

Z3

Part No.	Dimensions in inch							Zc*		Coated Grades		
	D_{c2}	R	r_p	D_{5m}	l_1	UTCN	a_p			MP3000	F40M	
MP12 -00.500-.31-HFZ3-MD10	0.500	0.295	0.065	0.453	0.512	0.013	0.028	3		76122		

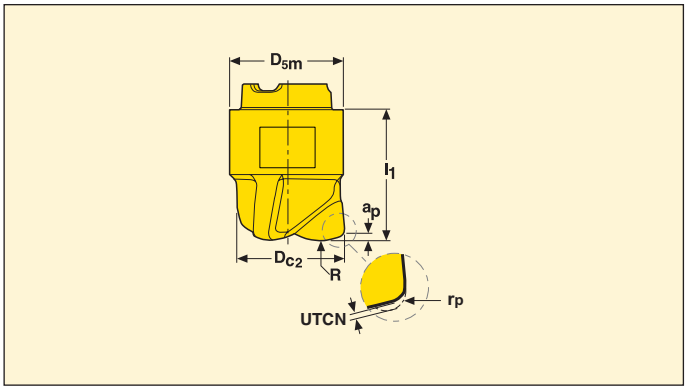
Please check availability in current price and stock-list.

* Effective number of flutes

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

MP12 Highfeed (Metric)

• For insert selection and cutting data recommendations, see pages 402-403.



Z3

Part No.	Dimensions in mm							Zc*		Coated Grades		
	Dc2	R	rp	D5m	l1	UTCN	ap			MP3000	F40M	
MP12 -1200.7HFZ3-MD10	12	7.5	1.66	11.5	13	0.33	0.7	3	✓	76120		

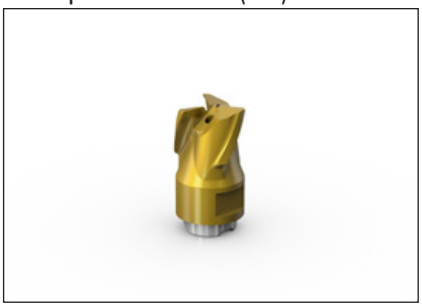
Please check availability in current price and stock-list.

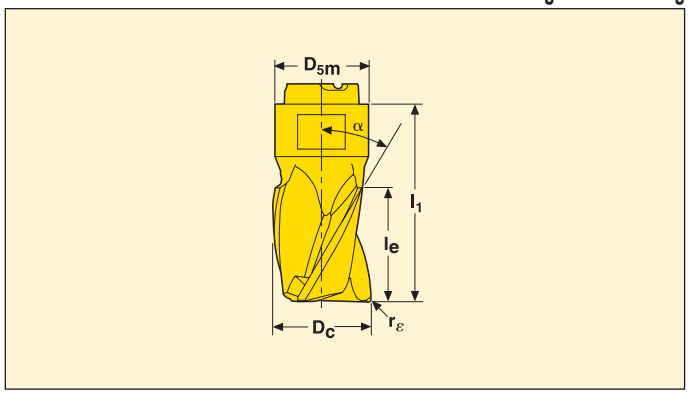
* Effective number of flutes

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

MP12 Square shoulder short (Inch)

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 404-405.

Z3

Z4

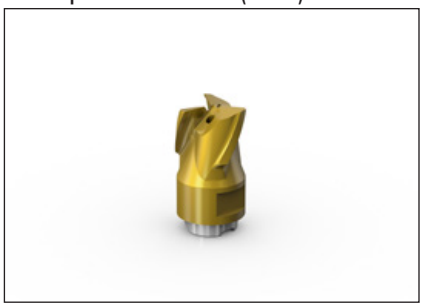
Part No.	Dimensions in inch						Zc*		Coated Grades		
	Dc	rε	le	D5m	l1	α°			MP3000	F40M	
MP12 -00.500-.31-R016Z3-E04	0.500	0.016	0.315	0.453	0.740	30	3			84097	
-00.500-.31-R016Z3-M04	0.500	0.016	0.315	0.453	0.740	30	3		84095		
-00.500-.31-R031Z3-E04	0.500	0.031	0.315	0.453	0.740	30	3			84098	
-00.500-.31-R031Z3-M04	0.500	0.031	0.315	0.453	0.740	30	3		84096		
-00.500-.31-R063Z3-E04	0.500	0.063	0.315	0.453	0.740	30	3			84099	
MP12 -00.500-.31-R016Z4-E03	0.500	0.016	0.315	0.453	0.740	50	4			84102	
-00.500-.31-R016Z4-M03	0.500	0.016	0.315	0.453	0.740	50	4		84100		
-00.500-.31-R031Z4-E03	0.500	0.031	0.315	0.453	0.740	50	4			84103	
-00.500-.31-R031Z4-M03	0.500	0.031	0.315	0.453	0.740	50	4		84121		

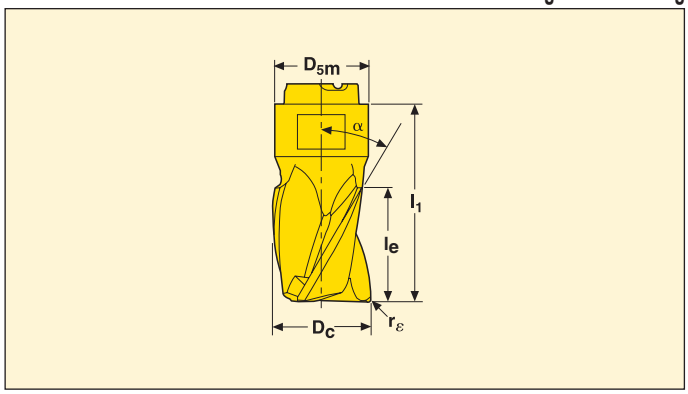
Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Square shoulder short (Metric)

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 404-405.

Z3

Z4

Part No.	Dc	rε	le	D5m	l1	α°	Zc*		Coated Grades MP3000	Coated Grades F40M
MP12 -11708KWZ3-E04	11.7	0.3	8.0	11.5	18.8	30	3	✓		84013
-12008R04Z3-E04	12.0	0.4	8.0	11.5	18.8	30	3	✓		83967
-12008R04Z3-M04	12.0	0.4	8.0	11.5	18.8	30	3	✓	83942	
-12008R05Z3-E04	12.0	0.5	8.0	11.5	18.8	30	3	✓		83976
-12008R08Z3-E04	12.0	0.8	8.0	11.5	18.8	30	3	✓		83977
-12008R08Z3-M04	12.0	0.8	8.0	11.5	18.8	30	3	✓	83944	
-12008R12Z3-E04	12.0	1.2	8.0	11.5	18.8	30	3	✓		83983
-12008R12Z3-M04	12.0	1.2	8.0	11.5	18.8	30	3	✓	83948	
-12008R16Z3-E04	12.0	1.6	8.0	11.5	18.8	30	3	✓		83984
-12008R20Z3-E04	12.0	2.0	8.0	11.5	18.8	30	3	✓		91634
-12008R24Z3-E04	12.0	2.4	8.0	11.5	18.8	30	3	✓		91635
-12008R31Z3-E04	12.0	3.1	8.0	11.5	18.8	30	3	✓		83993
MP12 -12008R04Z4-E03	12.0	0.4	8.0	11.5	18.8	50	4			84022
-12008R05Z4-E03	12.0	0.5	8.0	11.5	18.8	50	4			84023
-12008R08Z4-E03	12.0	0.8	8.0	11.5	18.8	50	4			84030
-12008R12Z4-E03	12.0	1.2	8.0	11.5	18.8	50	4			84031
-12008R16Z4-E03	12.0	1.6	8.0	11.5	18.8	50	4			84032
-12008R20Z4-E03	12.0	2.0	8.0	11.5	18.8	50	4			91636
-12008R24Z4-E03	12.0	2.4	8.0	11.5	18.8	50	4			91637
-12008R04Z4-M03	12.0	0.4	8.0	11.5	18.8	50	4		84014	
-12008R08Z4-M03	12.0	0.8	8.0	11.5	18.8	50	4		84015	
-12008R12Z4-M03	12.0	1.2	8.0	11.5	18.8	50	4		84016	
-12008R16Z4-M03	12.0	1.6	8.0	11.5	18.8	50	4		84017	

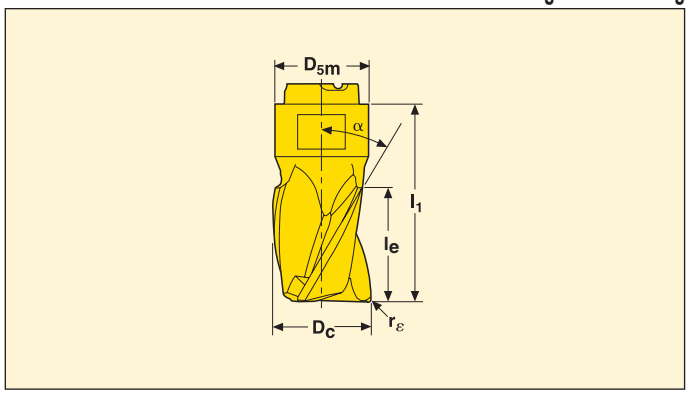
Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Square shoulder (Inch)

Slotting and contouring

- For insert selection and cutting data recommendations, see pages 404-405.



Z3

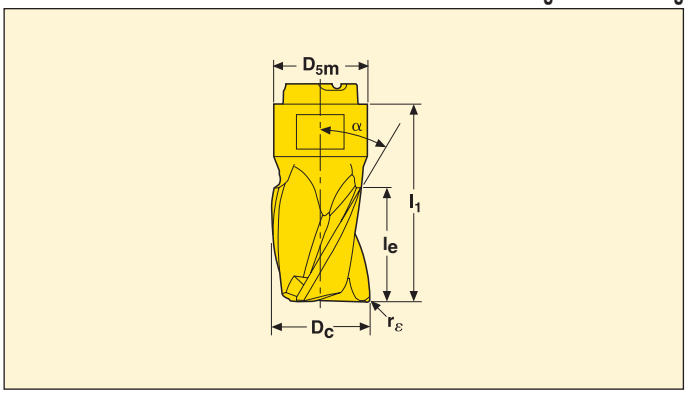
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M
	Dimensions in inch									
MP12 -00.500-.55-R016Z3-E04	0.500	0.016	0.453	0.945	30	0.551	3	✓		67095
-00.500-.55-R016Z3-M04	0.500	0.016	0.453	0.945	30	0.551	3	✓	45254	
-00.500-.55-R031Z3-E04	0.500	0.031	0.453	0.945	30	0.551	3	✓		67099
-00.500-.55-R031Z3-M04	0.500	0.031	0.453	0.945	30	0.551	3	✓	45255	
-00.500-.55-R063Z3-E04	0.500	0.063	0.453	0.945	30	0.551	3	✓		45256
-00.500-.55-R122Z3-E04	0.500	0.122	0.453	0.945	30	0.551	3	✓		45257

Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Square shoulder (Metric)

Slotting and contouring



- For insert selection and cutting data recommendations, see pages 404-405.

Z3

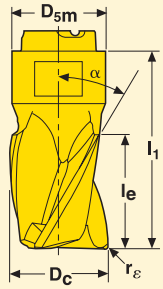
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M
MP12 -11714KWZ3-E04	11.7	0.3	11.5	24	30	14	3	✓		51850
-12014R04Z3-E04	12	0.4	11.5	24	30	14	3	✓		51733
-12014R04Z3-M04	12	0.4	11.5	24	30	14	3	✓	51732	
-12014R05Z3-E04	12	0.5	11.5	24	30	14	3	✓		67057
-12014R08Z3-E04	12	0.8	11.5	24	30	14	3	✓		51735
-12014R08Z3-M04	12	0.8	11.5	24	30	14	3	✓	51734	
-12014R12Z3-E04	12	1.2	11.5	24	30	14	3	✓		51737
-12014R12Z3-M04	12	1.2	11.5	24	30	14	3	✓	51736	
-12014R16Z3-E04	12	1.6	11.5	24	30	14	3	✓		51738
-12014R20Z3-E04	12	2.0	11.5	24	30	14	3	✓		51739
-12014R24Z3-E04	12	2.4	11.5	24	30	14	3	✓		51740
-12014R31Z3-E04	12	3.1	11.5	24	30	14	3	✓		51741

Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Square shoulder (Inch)

Contouring only



- For insert selection and cutting data recommendations, see pages 404-405.

Z4

Z6

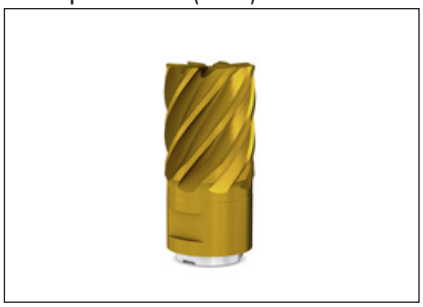
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
MP12 -00.500-.55-R016Z4-E03	0.500	0.016	0.453	0.945	50	0.551	4			45265	
-00.500-.55-R016Z4-M03	0.500	0.016	0.453	0.945	50	0.551	4		67096		
-00.500-.55-R031Z4-E03	0.500	0.031	0.453	0.945	50	0.551	4			45266	
-00.500-.55-R031Z4-M03	0.500	0.031	0.453	0.945	50	0.551	4		67100		
MP12 -00.500-.55-R016Z6-M03	0.500	0.016	0.453	0.945	40	0.551	6		67098		

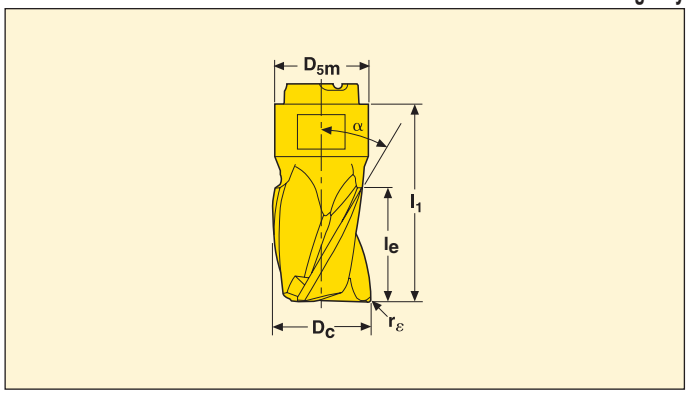
Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Square shoulder (Metric)

Contouring only





- For insert selection and cutting data recommendations, see pages 404-405.

Z4

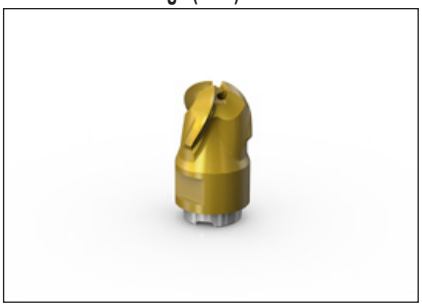
Z6

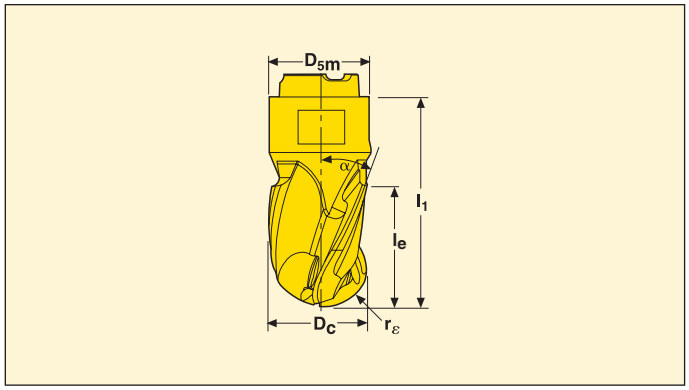
Part No.	Dimensions in mm						Zc*		Coated Grades	
	Dc	rε	D5m	l1	α°	le			MP3000	F40M
MP12 -12014R04Z4-E03	12	0.4	11.5	24	50	14	4			52030
-12014R04Z4-M03	12	0.4	11.5	24	50	14	4		67058	
-12014R05Z4-E03	12	0.5	11.5	24	50	14	4			67059
-12014R08Z4-E03	12	0.8	11.5	24	50	14	4			52031
-12014R08Z4-M03	12	0.8	11.5	24	50	14	4		67062	
-12014R12Z4-E03	12	1.2	11.5	24	50	14	4			52032
-12014R12Z4-M03	12	1.2	11.5	24	50	14	4		67063	
-12014R16Z4-E03	12	1.6	11.5	24	50	14	4			52033
-12014R20Z4-E03	12	2.0	11.5	24	50	14	4			67064
-12014R24Z4-E03	12	2.4	11.5	24	50	14	4			67065
MP12 -12014R04Z6-M03	12	0.4	11.5	24	40	14	6		67061	

Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Ball nose design (Inch)





- For insert selection and cutting data recommendations, see pages 406-407.

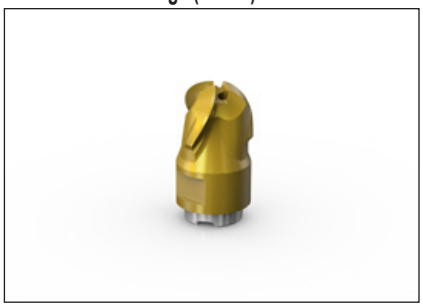
Z3

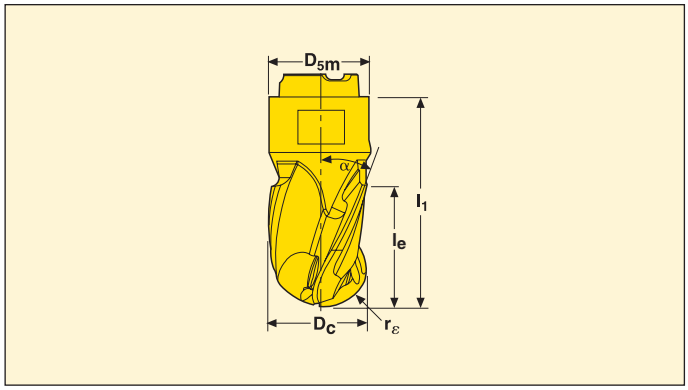
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
MP12 -00.500-.31-B90Z3-E04	0.500	0.250	0.453	0.740	30	0.315	3			13418	
-00.500-.31-B90Z3-M04	0.500	0.250	0.453	0.740	30	0.315	3		13419		

Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Ball nose design (Metric)





- For insert selection and cutting data recommendations, see pages 406-407.

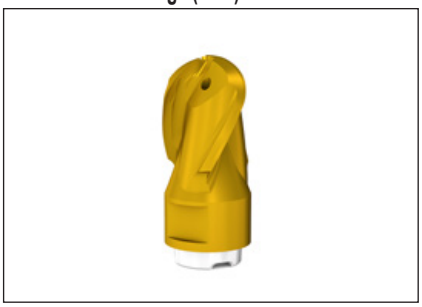
Z3

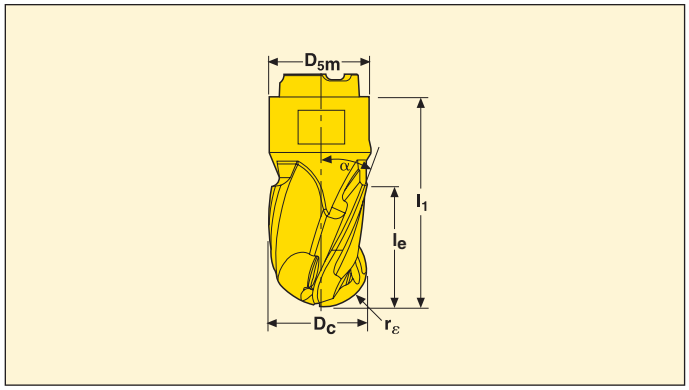
Part No.	Dimensions in mm						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP12 -12008B90Z3-E04	12.0	6.0	11.5	18.8	30	8.0	3	✓		13412	
-12008B90Z3-M04	12.0	6.0	11.5	18.8	30	8.0	3	✓	13413		

Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Ball nose design (Inch)





- For insert selection and cutting data recommendations, see pages 406-407.

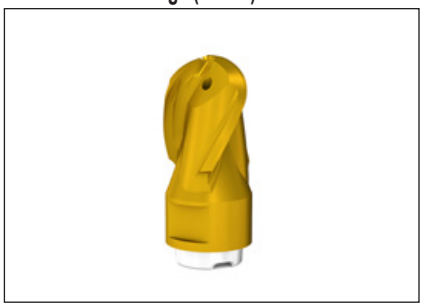
Z3

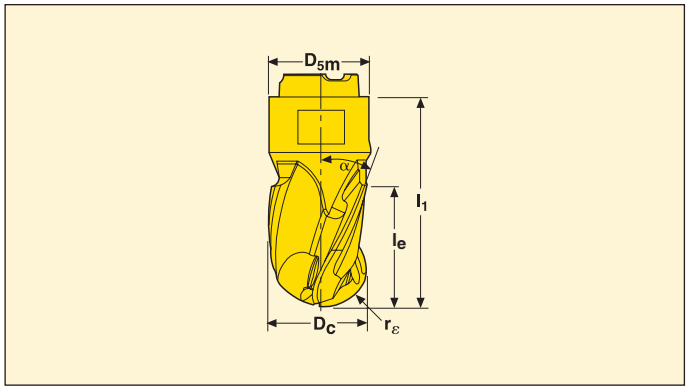
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
MP12 -00.500-.55-B90Z3-E04	0.500	0.250	0.453	0.945	30	0.551	3	✓		69560	
-00.500-.55-B90Z3-M04	0.500	0.250	0.453	0.945	30	0.551	3	✓	45297		

Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Ball nose design (Metric)





- For insert selection and cutting data recommendations, see pages 406-407.

Z3

Part No.	Dimensions in mm						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP12 -12014B90Z3-E04	12	6	11.5	24	30	14	3	✓		69549	
-12014B90Z3-M04	12	6	11.5	24	30	14	3	✓	52110		

Please check availability in current price and stock-list.

* Effective number of flutes

MP12 Highfeed milling – Insert selection

SMG		Recommended a_p**	f_z			
			100%	70%	30%	20%
P1	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.040	0.040	0.044	0.060
P2	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.040	0.040	0.048	0.060
P3	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.038	0.038	0.044	0.055
P4	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.038	0.038	0.044	0.055
P5	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
P6	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
P7	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
P8	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.038	0.038	0.044	0.055
P11	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
M1	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.040	0.040	0.048	0.060
M2	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
M3	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.032	0.032	0.036	0.044
M4	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.028	0.028	0.032	0.038
M5	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.028	0.028	0.032	0.038
K1	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.040	0.040	0.048	0.060
K2	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
K3	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
K4	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
K5	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.032	0.032	0.038	0.048
K6	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.036	0.036	0.040	0.050
K7	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.032	0.032	0.038	0.048
N1	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.050	0.050	0.060	0.095
N2	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.050	0.050	0.060	0.095
N3	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.050	0.050	0.060	0.095
N11	MP12-1200.7HFZ3-MD10 MP3000	0.012	0.050	0.050	0.060	0.095
S1	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.028	0.028	0.032	0.038
S2	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.028	0.028	0.032	0.038
S3	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.026	0.026	0.030	0.036
S11	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.032	0.032	0.036	0.044
S12	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.032	0.032	0.036	0.044
S13	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.028	0.028	0.032	0.038
H5	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.028	0.028	0.030	0.038
H8	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.020	0.020	0.024	0.028
H11	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.028	0.028	0.030	0.038
H12	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.028	0.028	0.030	0.038
H21	MP12-1200.7HFZ3-MD10 MP3000	0.010	0.020	0.020	0.024	0.028

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MP12 Highfeed milling – Cutting data v_c = (sf/min)

SMG	MP3000			
	100%	70%	30%	20%
P1	740	900	1075	1125
P2	720	880	1050	1100
P3	630	770	920	970
P4	560	670	810	850
P5	540	650	780	810
P6	600	730	880	910
P7	570	690	830	860
P8	530	640	780	810
P11	550	670	810	840
M1	540	660	780	830
M2	450	550	650	680
M3	360	430	520	550
M4	275	335	395	420
M5	230	280	330	350
K1	570	700	830	880
K2	510	620	740	770
K3	430	520	620	650
K4	410	500	600	620
K5	250	300	365	390
K6	365	440	520	550
K7	320	385	465	495
N1	2125	2575	3100	3150
N2	1725	2075	2500	2550
N3	1150	1400	1675	1700
N11	1300	1600	1900	1925
S1	130	155	185	195
S2	105	125	150	160
S3	90	110	130	140
S11	180	220	260	275
S12	105	125	150	155
S13	85	100	120	125
H5	110	135	160	170
H8	120	140	170	180
H11	140	170	200	215
H12	215	260	305	325
H21	120	140	170	180

MP12 Slot milling – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	MP12-12014R04Z3-M04 MP3000	0.16	0.0022	0.0024	0.0038	0.0050
P2	MP12-12014R04Z3-M04 MP3000	0.16	0.0022	0.0026	0.0038	0.0050
P3	MP12-12014R04Z3-M04 MP3000	0.16	0.0022	0.0024	0.0036	0.0050
P4	MP12-12014R04Z3-M04 MP3000	0.16	0.0022	0.0024	0.0036	0.0048
P5	MP12-12014R04Z3-M04 MP3000	0.16	0.0020	0.0022	0.0036	0.0048
P6	MP12-12014R04Z3-M04 MP3000	0.16	0.0020	0.0022	0.0034	0.0048
P7	MP12-12014R04Z3-M04 MP3000	0.16	0.0020	0.0022	0.0034	0.0048
P8	MP12-12014R04Z3-M04 MP3000	0.16	0.0022	0.0024	0.0036	0.0050
P11	MP12-12014R04Z3-M04 MP3000	0.16	0.0020	0.0022	0.0034	0.0048
M1	MP12-12014R04Z4-E03 F40M	0.16	0.0017	0.0019	0.0028	0.0040
M2	MP12-12014R04Z4-E03 F40M	0.16	0.0016	0.0017	0.0026	0.0036
M3	MP12-12014R04Z4-E03 F40M	0.12	0.0013	0.0013	0.0022	0.0030
M4	MP12-12014R04Z4-E03 F40M	0.10	0.0011	0.0012	0.0018	0.0026
M5	MP12-12014R04Z4-E03 F40M	0.10	0.0011	0.0012	0.0018	0.0026
K1	MP12-12014R04Z3-M04 MP3000	0.16	0.0022	0.0026	0.0038	0.0050
K2	MP12-12014R04Z3-M04 MP3000	0.16	0.0020	0.0022	0.0036	0.0048
K3	MP12-12014R04Z3-M04 MP3000	0.16	0.0020	0.0022	0.0036	0.0048
K4	MP12-12014R04Z3-M04 MP3000	0.16	0.0020	0.0022	0.0036	0.0048
K5	MP12-12014R04Z3-M04 MP3000	0.16	0.0019	0.0020	0.0032	0.0044
K6	MP12-12014R04Z3-M04 MP3000	0.16	0.0020	0.0022	0.0036	0.0048
K7	MP12-12014R04Z3-M04 MP3000	0.16	0.0019	0.0020	0.0032	0.0044
N1	MP12-12014R04Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065
N2	MP12-12014R04Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065
N3	MP12-12014R04Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065
N11	MP12-12014R04Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065
S1	MP12-12014R04Z3-E04 F40M	0.10	0.0014	0.0016	0.0024	0.0034
S2	MP12-12014R04Z3-E04 F40M	0.10	0.0014	0.0016	0.0024	0.0034
S3	MP12-12014R04Z3-E04 F40M	0.10	0.0013	0.0015	0.0022	0.0032
S11	MP12-12014R04Z3-E04 F40M	0.10	0.0017	0.0018	0.0028	0.0040
S12	MP12-12014R04Z3-E04 F40M	0.10	0.0017	0.0018	0.0028	0.0040
S13	MP12-12014R04Z3-E04 F40M	0.10	0.0014	0.0016	0.0024	0.0034
H5	MP12-12014R04Z3-M04 MP3000	0.12	0.0014	0.0015	0.0024	0.0034
H8	MP12-12014R04Z3-M04 MP3000	0.10	0.0011	0.0012	0.0018	0.0026
H11	MP12-12014R04Z3-M04 MP3000	0.12	0.0014	0.0015	0.0024	0.0034
H12	MP12-12014R04Z3-M04 MP3000	0.12	0.0014	0.0015	0.0024	0.0034
H21	MP12-12014R04Z3-M04 MP3000	0.10	0.0011	0.0012	0.0018	0.0026

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MP12 Slot milling – Cutting data v_c = (sf/min)

	MP3000				F40M			
SMG	100%	30%	10%	5%	100%	30%	10%	5%
P1	830	1075	1275	1400	790	1025	1200	1300
P2	810	1050	1225	1350	760	980	1175	1275
P3	700	910	1075	1175	660	860	1000	1100
P4	610	800	940	1050	580	760	890	980
P5	600	780	910	990	560	740	860	940
P6	670	870	1025	1125	630	830	970	1050
P7	630	820	960	1050	600	780	910	990
P8	590	760	900	980	550	720	850	920
P11	610	800	940	1025	580	760	890	970
M1	610	780	920	1000	620	790	940	1025
M2	500	650	760	830	510	660	770	840
M3	395	510	600	660	400	520	610	670
M4	305	395	460	500	310	405	470	510
M5	255	330	385	420	260	335	390	430
K1	640	820	980	1075	610	780	920	1000
K2	570	740	860	940	540	700	820	890
K3	480	630	730	800	455	590	690	750
K4	460	600	700	760	430	560	660	720
K5	275	360	420	460	260	340	395	435
K6	405	530	620	670	380	495	580	630
K7	350	465	540	590	330	435	510	560
N1	2375	3125	3675	4000	2225	2950	3475	3775
N2	1900	2525	2975	3225	1800	2375	2800	3050
N3	1275	1675	1975	2150	1200	1575	1875	2050
N11	1450	1925	2250	2475	1375	1800	2125	2325
S1	145	185	215	235	145	190	220	240
S2	115	150	175	190	115	150	175	195
S3	100	130	150	165	100	130	155	170
S11	200	260	305	335	205	265	310	340
S12	115	150	175	190	120	155	180	195
S13	90	120	140	150	95	120	140	155
H5	120	155	185	200	120	160	185	205
H8	125	165	190	210	125	165	190	210
H11	155	200	235	255	155	200	235	260
H12	230	300	350	385	235	305	355	390
H21	125	165	190	210	125	165	190	210

MP12 Copy milling – Insert selection

SMG		Recommended a_p**	f_z				
			100%	30%	10%	5%	2%
P1	MP12-12014B90Z3-M04 MP3000	0.16	0.0032	0.0034	0.0050	0.0075	0.013
P2	MP12-12014B90Z3-M04 MP3000	0.16	0.0032	0.0036	0.0055	0.0075	0.013
P3	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0034	0.0050	0.0070	0.012
P4	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0050	0.0070	0.012
P5	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065	0.011
P6	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065	0.011
P7	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065	0.011
P8	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0034	0.0050	0.0070	0.012
P11	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065	0.011
M1	MP12-12014B90Z3-E04 F40M	0.16	0.0032	0.0036	0.0055	0.0075	0.013
M2	MP12-12014B90Z3-E04 F40M	0.16	0.0030	0.0032	0.0048	0.0065	0.011
M3	MP12-12014B90Z3-E04 F40M	0.12	0.0024	0.0026	0.0040	0.0055	0.0085
M4	MP12-12014B90Z3-E04 F40M	0.10	0.0020	0.0022	0.0034	0.0048	0.0075
M5	MP12-12014B90Z3-E04 F40M	0.10	0.0020	0.0022	0.0034	0.0048	0.0075
K1	MP12-12014B90Z3-M04 MP3000	0.16	0.0032	0.0036	0.0055	0.0075	0.013
K2	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065	0.011
K3	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065	0.011
K4	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065	0.011
K5	MP12-12014B90Z3-M04 MP3000	0.16	0.0026	0.0028	0.0044	0.0065	0.010
K6	MP12-12014B90Z3-M04 MP3000	0.16	0.0030	0.0032	0.0048	0.0065	0.011
K7	MP12-12014B90Z3-M04 MP3000	0.16	0.0026	0.0028	0.0044	0.0065	0.010
N1	MP12-12014B90Z3-M04 MP3000	0.16	0.0040	0.0044	0.0065	0.0095	0.017
N2	MP12-12014B90Z3-M04 MP3000	0.16	0.0040	0.0044	0.0065	0.0095	0.017
N3	MP12-12014B90Z3-M04 MP3000	0.16	0.0040	0.0044	0.0065	0.0095	0.017
N11	MP12-12014B90Z3-M04 MP3000	0.16	0.0040	0.0044	0.0065	0.0095	0.017
S1	MP12-12014B90Z3-E04 F40M	0.10	0.0020	0.0022	0.0034	0.0048	0.0075
S2	MP12-12014B90Z3-E04 F40M	0.10	0.0020	0.0022	0.0034	0.0048	0.0075
S3	MP12-12014B90Z3-E04 F40M	0.10	0.0019	0.0020	0.0032	0.0044	0.0070
S11	MP12-12014B90Z3-E04 F40M	0.10	0.0024	0.0026	0.0040	0.0055	0.0085
S12	MP12-12014B90Z3-E04 F40M	0.10	0.0024	0.0026	0.0040	0.0055	0.0085
S13	MP12-12014B90Z3-E04 F40M	0.10	0.0020	0.0022	0.0034	0.0048	0.0075
H5	MP12-12014B90Z3-M04 MP3000	0.12	0.0020	0.0022	0.0034	0.0048	0.0075
H8	MP12-12014B90Z3-M04 MP3000	0.10	0.0015	0.0017	0.0026	0.0036	0.0055
H11	MP12-12014B90Z3-M04 MP3000	0.12	0.0020	0.0022	0.0034	0.0048	0.0075
H12	MP12-12014B90Z3-M04 MP3000	0.12	0.0020	0.0022	0.0034	0.0048	0.0075
H21	MP12-12014B90Z3-M04 MP3000	0.10	0.0015	0.0017	0.0026	0.0036	0.0055

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

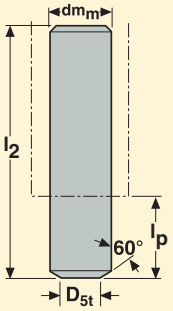
MP12 Copy milling – Cutting data v_c = (sf/min)

	MP3000					F40M				
SMG	100%	30%	10%	5%	2%	100%	30%	10%	5%	2%
P1	1100	1325	1500	1625	1825	1050	1250	1400	1550	1725
P2	1075	1275	1450	1600	1775	1025	1200	1375	1500	1675
P3	940	1100	1275	1375	1550	890	1050	1200	1300	1450
P4	830	980	1125	1225	1350	780	930	1050	1150	1275
P5	790	940	1075	1175	1325	750	880	1000	1100	1250
P6	890	1050	1200	1325	1475	840	990	1125	1250	1400
P7	840	990	1125	1250	1400	790	940	1075	1175	1325
P8	790	930	1075	1175	1300	750	870	1000	1100	1225
P11	810	960	1100	1200	1350	770	910	1050	1150	1275
M1	810	950	1100	1200	1325	820	960	1100	1200	1350
M2	660	780	890	980	1100	670	800	910	1000	1125
M3	540	630	720	780	870	550	640	730	790	880
M4	425	495	550	590	670	430	510	560	600	680
M5	355	415	455	495	560	360	420	465	500	570
K1	860	1000	1150	1250	1400	810	950	1100	1200	1325
K2	750	890	1025	1125	1250	710	840	960	1050	1175
K3	640	750	860	950	1050	600	710	810	890	1000
K4	610	720	820	900	1000	570	680	780	850	950
K5	370	440	500	540	610	350	415	470	510	580
K6	530	630	720	800	890	500	600	680	750	840
K7	475	560	640	700	780	445	530	600	660	740
N1	3250	3800	4350	4700	5250	3075	3600	4100	4450	4950
N2	2625	3075	3525	3800	4225	2475	2900	3325	3600	4000
N3	1750	2050	2350	2525	2825	1650	1925	2225	2400	2675
N11	2000	2350	2675	2900	3225	1900	2200	2525	2725	3050
S1	200	230	255	275	310	200	235	260	280	320
S2	160	185	205	225	250	160	190	210	225	255
S3	140	165	180	195	220	140	165	185	200	225
S11	280	325	360	395	440	285	330	370	400	445
S12	160	185	210	230	255	165	190	210	230	260
S13	130	150	165	180	200	130	155	170	180	205
H5	165	190	215	240	265	165	195	220	240	265
H8	170	200	225	245	275	175	205	230	250	280
H11	210	245	275	305	335	210	245	280	305	340
H12	315	365	415	460	510	320	370	420	465	510
H21	170	200	225	245	275	175	205	230	250	280

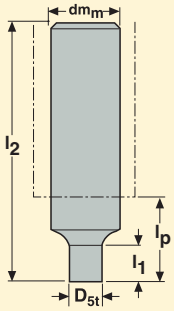
MP16 Shanks (Inch)

Steel and solid carbide shanks

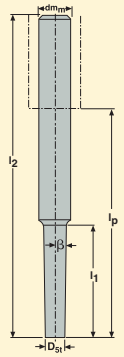
Design 1



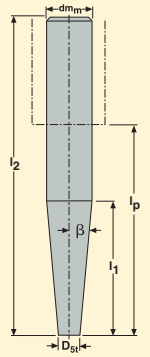
Design 2



Design 3



Design 4



- Cylindrical shank dm_m with tolerance h5, compatible for Shrinkfit.
- Max RPM 63600 r/min

EDP No.	Part No.	Connecting size	Dimensions in inch								lbs
			D_{5t}	dm_m	l_2	l_p	l_1	β°	Design		
45011	MP16 -0622.6-0.63.00	MP16	0.598	0.625	2.7	0.79	0.63	–	2	✓	0.2
45010	-0752.7-0.00.60	MP16	0.598	0.750	2.8	0.79	–	60	1	✓	1.5
45012	-0753.5-0.94.00	MP16	0.598	0.750	3.6	1.57	0.94	–	2	✓	0.4
45014	-0757.5-2.20.01	MP16	0.598	0.750	7.5	5.51	2.20	1	3	✓	0.9
45015	-0757.7-3.74.01	MP16	0.598	0.750	7.7	5.71	3.74	1	3	✓	0.9
45016	-1005.3-3.00.03	MP16	0.598	1.000	5.4	3.15	3.00	3	3	✓	0.9
45017	-1007.1-4.92.03	MP16	0.598	1.000	7.2	4.92	3.83	3	4	✓	1.3
45019	-1007.1-4.92.05	MP16	0.598	1.000	7.2	4.92	2.30	5	4	✓	0.4
18126	MP16 -0627.0-3.77.00-E	MP16	0.598	0.625	7.1	5.20	3.78	–	2	✓	1.1
18135	-0757.9-5.90.01-E	MP16	0.598	0.750	7.9	5.91	4.34	1	4	✓	1.5
18148	-0758.2-6.29.03-E	MP16	0.598	0.750	8.3	6.30	1.45	3	4	✓	1.8

...-E = Solid carbide shank

Spare Parts, not included. Must be ordered separately.

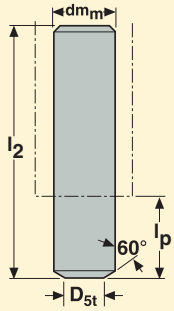
Inserts	Key	Replacement blade	Torque key
MP16	MP1016	MP00-16M	MP00-16.190

Torque value 168 in/lbs.
Blades are included with the torque key.

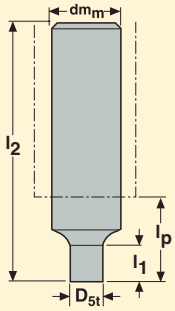
MP16 Shanks (Metric)

Steel and solid carbide shanks

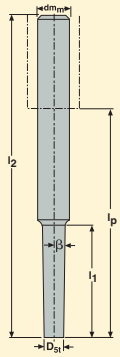
Design 1



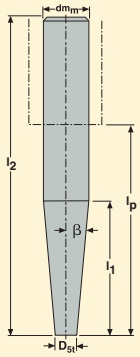
Design 2



Design 3



Design 4



- Cylindrical shank dm_m with tolerance h5, compatible for Shrinkfit.
- Max RPM 63600 r/min

EDP No.	Part No.	Connecting size	Dimensions in mm								lbs
			D_{5t}	dm_m	l_2	l_p	l_1	β°	Design		
51345	MP16 -16068-016.00	MP16	15.2	16	68	20	16	–	2	✓	0.2
51344	-20070-000.60	MP16	15.2	20	70	20	–	60	1	✓	0.4
51346	-20090-024.00	MP16	15.2	20	90	40	24	–	2	✓	0.4
51348	-20190-056.01	MP16	15.2	20	190	140	56	1	3	✓	0.9
51349	-20195-095.01	MP16	15.2	20	195	145	95	1	3	✓	0.9
51350	-25136-075.03	MP16	15.2	25	136	80	75	3	3	✓	0.9
51351	-25181-125.03	MP16	15.2	25	181	125	93.5	3	4	✓	1.3
51354	-25181-125.05	MP16	15.2	25	181	125	56	5	4	✓	1.3
69315	MP16 -16126-048.00-E	MP16	15.2	16	126	78	48	–	2	✓	0.9
69316	-16140-064.00-E	MP16	15.2	16	140	92	64	–	2	✓	0.9
69317	-16180-096.00-E	MP16	15.2	16	180	132	96	–	2	✓	1.1
69319	-20135-080.01-E	MP16	15.2	20	135	85	80	1	3	✓	1.1
69320	-20180-128.01-E	MP16	15.2	20	180	130	128	1	3	✓	1.5
69325	-20200-150.01-E	MP16	15.2	20	200	150	137.5	1	4	✓	1.8
69326	-20180-130.03-E	MP16	15.2	20	180	130	45.8	3	4	✓	1.8
69327	-20210-160.03-E	MP16	15.2	20	210	160	45.8	3	4	✓	2.0

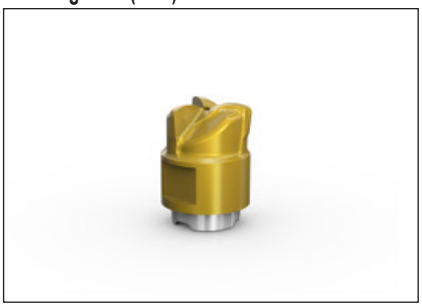
...-E = Solid carbide shank

Spare Parts, not included. Must be ordered separately.

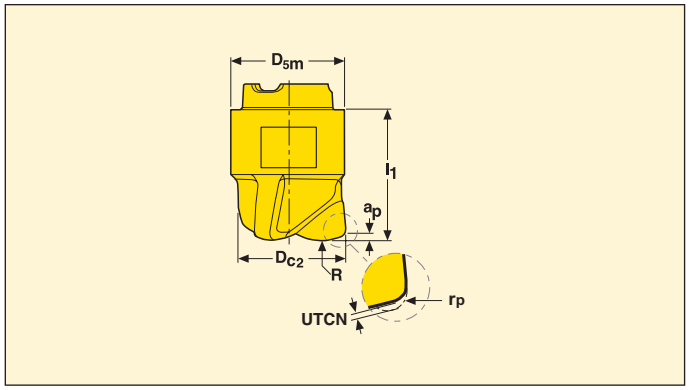
Inserts	Key	Replacement blade	Torque key
MP16	MP1016	MP00-16M	MP00-16.190

Torque value 168 in/lbs.
Blades are included with the torque key.

MP16 Highfeed (Inch)



- For insert selection and cutting data recommendations, see pages 422-423.



Z3

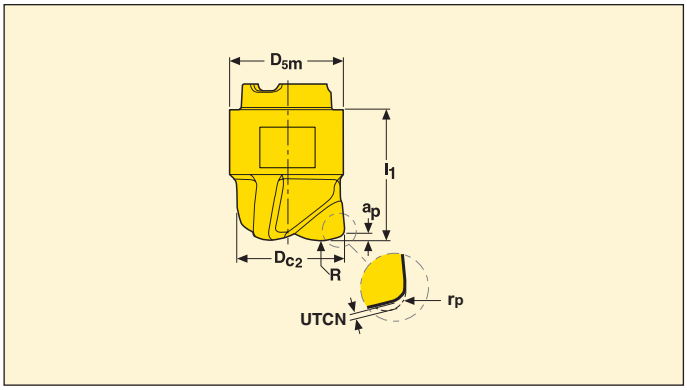
Part No.	Dimensions in inch							Zc*		Coated Grades		
	Dc2	R	rp	D5m	l1	UTCN	ap			MP3000	F40M	
MP16 -00.625-.39-HFZ3-MD12	0.625	0.307	0.070	0.606	0.748	0.018	0.035	3		76125		

Please check availability in current price and stock-list.

* Effective number of flutes

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

MP16 Highfeed (Metric)



- For insert selection and cutting data recommendations, see pages 422-423.

Z3

Part No.	Dimensions in mm							Z_c*		Coated Grades		
	D_{c2}	R	r_p	D_{5m}	l_1	UTCN	a_p			MP3000	F40M	
MP16 -1600.9HFZ3-MD12	16	7.8	1.79	15.4	19	0.46	0.9	3	✓	76127		

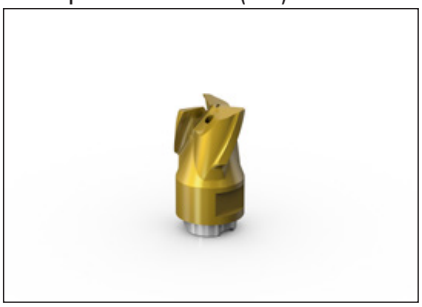
Please check availability in current price and stock-list.

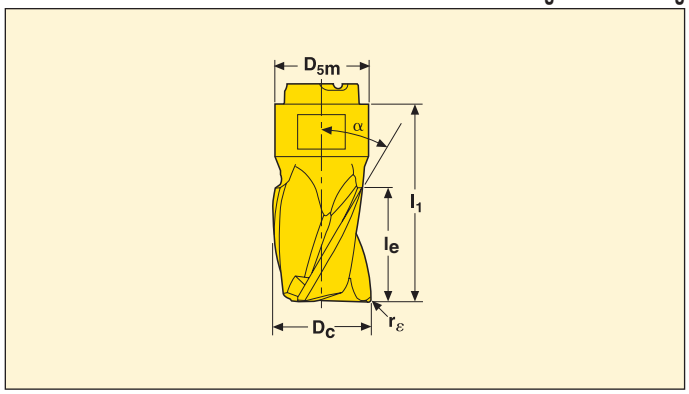
* Effective number of flutes

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

MP16 Square shoulder short (Inch)

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 424-425.

Z3

Z4

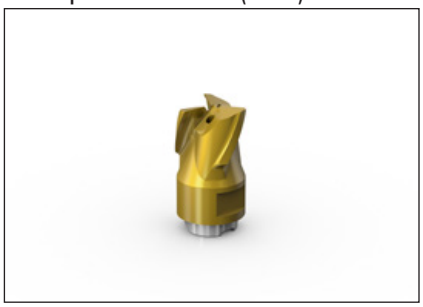
Part No.	Dimensions in inch						Zc*		Coated Grades		
	Dc	rε	le	D5m	l1	α°			MP3000	F40M	
MP16 -00.625-.39-R016Z3-E05	0.625	0.016	0.394	0.606	0.969	30	3			84107	
-00.625-.39-R016Z3-M05	0.625	0.016	0.394	0.606	0.969	30	3		84104		
-00.625-.39-R031Z3-E05	0.625	0.031	0.394	0.606	0.969	30	3			84108	
-00.625-.39-R031Z3-M05	0.625	0.031	0.394	0.606	0.969	30	3		84105		
-00.625-.39-R063Z3-E05	0.625	0.063	0.394	0.606	0.969	30	3			84109	
-00.625-.39-R063Z3-M05	0.625	0.063	0.394	0.606	0.969	30	3		84106		
-00.625-.39-R122Z3-E05	0.625	0.122	0.394	0.606	0.969	30	3			84110	
MP16 -00.625-.39-R016Z4-E04	0.625	0.016	0.394	0.606	0.969	50	4			84113	
-00.625-.39-R016Z4-M04	0.625	0.016	0.394	0.606	0.969	50	4		84111		
-00.625-.39-R031Z4-E04	0.625	0.031	0.394	0.606	0.969	50	4			84114	
-00.625-.39-R031Z4-M04	0.625	0.031	0.394	0.606	0.969	50	4		84112		

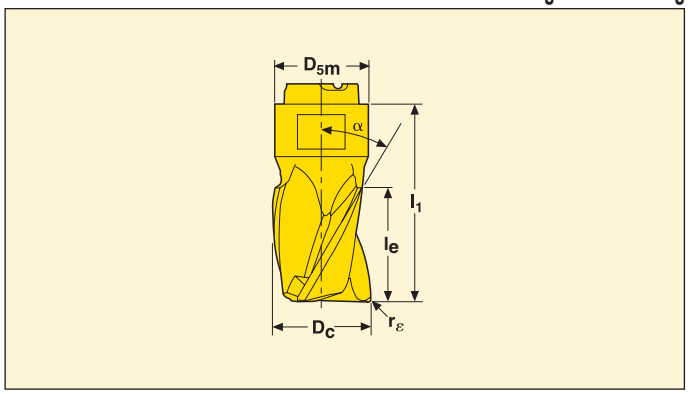
Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Square shoulder short (Metric)

Slotting and contouring





- For insert selection and cutting data recommendations, see pages 424-425.

Z3 

Z4 

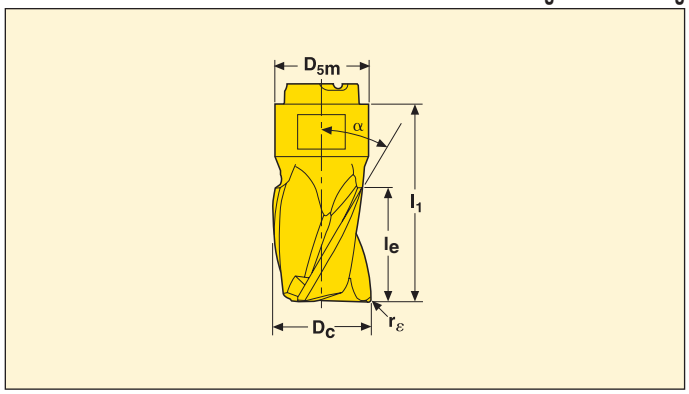
Part No.	Dc	rε	le	D5m	l1	α°	Zc*		Coated Grades MP3000	Coated Grades F40M
MP16 -15710KWZ3-E05	15.7	0.3	10.0	15.4	24.6	30	3	✓		84052
-16010R04Z3-E05	16.0	0.4	10.0	15.4	24.6	30	3	✓		84036
-16010R04Z3-M05	16.0	0.4	10.0	15.4	24.6	30	3	✓	84033	
-16010R05Z3-E05	16.0	0.5	10.0	15.4	24.6	30	3	✓		84037
-16010R08Z3-E05	16.0	0.8	10.0	15.4	24.6	30	3	✓		84039
-16010R08Z3-M05	16.0	0.8	10.0	15.4	24.6	30	3	✓	84034	
-16010R12Z3-E05	16.0	1.2	10.0	15.4	24.6	30	3	✓		84041
-16010R12Z3-M05	16.0	1.2	10.0	15.4	24.6	30	3	✓	84035	
-16010R16Z3-E05	16.0	1.6	10.0	15.4	24.6	30	3	✓		84043
-16010R20Z3-E05	16.0	2.0	10.0	15.4	24.6	30	3	✓		91638
-16010R24Z3-E05	16.0	2.4	10.0	15.4	24.6	30	3	✓		91639
-16010R31Z3-E05	16.0	3.1	10.0	15.4	24.6	30	3	✓		84048
MP16 -16010R04Z4-M04	16.0	0.4	10.0	15.4	24.6	50	4		84059	
-16010R08Z4-M04	16.0	0.8	10.0	15.4	24.6	50	4		84062	
-16010R12Z4-M04	16.0	1.2	10.0	15.4	24.6	50	4		84063	
-16010R16Z4-M04	16.0	1.6	10.0	15.4	24.6	50	4		84066	
-16010R04Z4-E04	16.0	0.4	10.0	15.4	24.6	50	4			84067
-16010R05Z4-E04	16.0	0.5	10.0	15.4	24.6	50	4			84069
-16010R08Z4-E04	16.0	0.8	10.0	15.4	24.6	50	4			84070
-16010R12Z4-E04	16.0	1.2	10.0	15.4	24.6	50	4			84071
-16010R16Z4-E04	16.0	1.6	10.0	15.4	24.6	50	4			84072
-16010R20Z4-E04	16.0	2.0	10.0	15.4	24.6	50	4			91642
-16010R24Z4-E04	16.0	2.4	10.0	15.4	24.6	50	4			91643
-16010R31Z4-E04	16.0	3.1	10.0	15.4	24.6	50	4			84073

Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Square shoulder (Inch)

Slotting and contouring



- For insert selection and cutting data recommendations, see pages 424-425.

Z3

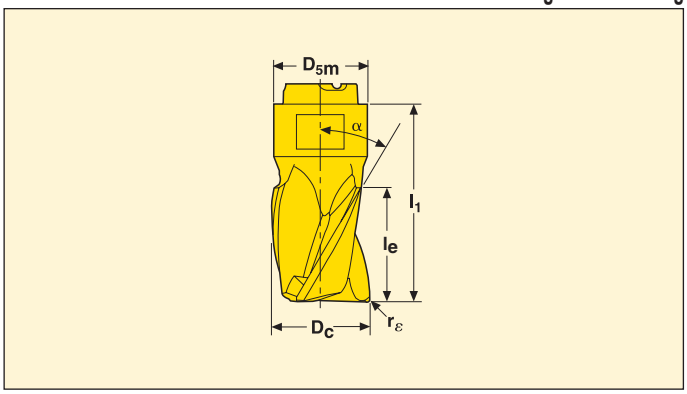
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
MP16 -00.625-.74-R016Z3-E05	0.625	0.016	0.606	1.283	30	0.748	3	✓		67101	
-00.625-.74-R016Z3-M05	0.625	0.016	0.606	1.283	30	0.748	3	✓	45258		
-00.625-.74-R031Z3-E05	0.625	0.031	0.606	1.283	30	0.748	3	✓		67105	
-00.625-.74-R031Z3-M05	0.625	0.031	0.606	1.283	30	0.748	3	✓	45259		
-00.625-.74-R063Z3-E05	0.625	0.063	0.606	1.283	30	0.748	3	✓		45260	
-00.625-.74-R122Z3-E05	0.625	0.122	0.606	1.283	30	0.748	3	✓		45261	
-00.630-.74-R016Z3-E05	0.630	0.016	0.606	1.283	30	0.748	3	✓		51744	

Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Square shoulder (Metric)

Slotting and contouring



- For insert selection and cutting data recommendations, see pages 424-425.

Z3

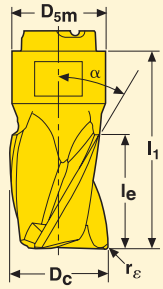
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M
MP16 -15719KWZ3-E05	15.7	0.3	15.4	32.6	30	19	3	✓		67074
-16019R04Z3-E05	16	0.4	15.4	32.6	30	19	3	✓		51744
-16019R04Z3-M05	16	0.4	15.4	32.6	30	19	3	✓	51742	
-16019R05Z3-E05	16	0.5	15.4	32.6	30	19	3	✓		67066
-16019R08Z3-E05	16	0.8	15.4	32.6	30	19	3	✓		51788
-16019R08Z3-M05	16	0.8	15.4	32.6	30	19	3	✓	51751	
-16019R12Z3-E05	16	1.2	15.4	32.6	30	19	3	✓		51790
-16019R12Z3-M05	16	1.2	15.4	32.6	30	19	3	✓	51789	
-16019R16Z3-E05	16	1.6	15.4	32.6	30	19	3	✓		51792
-16019R20Z3-E05	16	2.0	15.4	32.6	30	19	3	✓		51793
-16019R24Z3-E05	16	2.4	15.4	32.6	30	19	3	✓		51794
-16019R31Z3-E05	16	3.1	15.4	32.6	30	19	3	✓		51796

Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Square shoulder (Inch)

Contouring only



- For insert selection and cutting data recommendations, see pages 424-425.

Z4

Z6/Z8

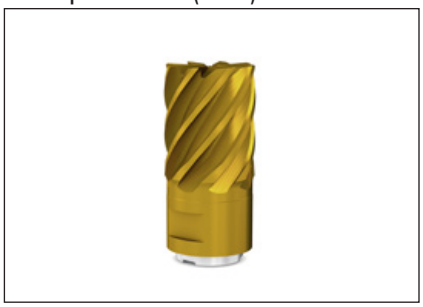
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
MP16 -00.625-.74-R016Z4-E04	0.625	0.016	0.606	1.283	50	0.748	4			45269	
-00.625-.74-R016Z4-M04	0.625	0.016	0.606	1.283	50	0.748	4		67102		
-00.625-.74-R031Z4-E04	0.625	0.031	0.606	1.283	50	0.748	4			45270	
-00.625-.74-R031Z4-M04	0.625	0.031	0.606	1.283	50	0.748	4		67106		
MP16 -00.625-.74-R016Z6-M04	0.625	0.016	0.606	1.283	40	0.748	6		45273		
MP16 -00.625-.74-R016Z8-M04	0.625	0.016	0.606	1.283	40	0.748	8		67104		

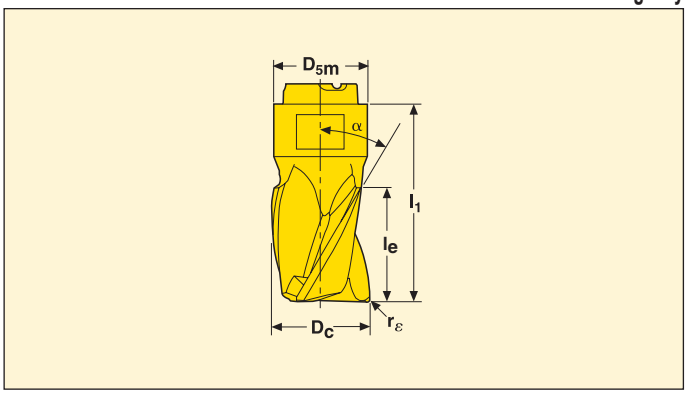
Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Square shoulder (Metric)

Contouring only





- For insert selection and cutting data recommendations, see pages 424-425.

Z4 

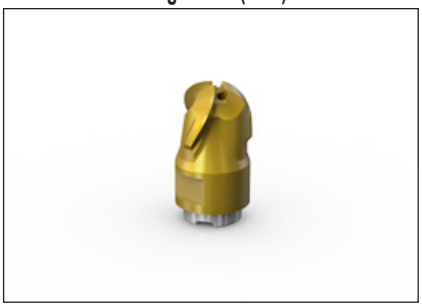
Z6/Z8 

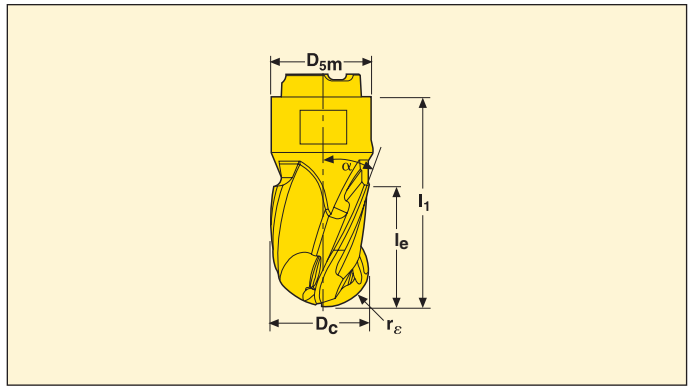
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
	Dimensions in mm										
MP16 -16019R04Z4-E04	16	0.4	15.4	32.6	50	19	4			52036	
-16019R04Z4-M04	16	0.4	15.4	32.6	50	19	4		67067		
-16019R05Z4-E04	16	0.5	15.4	32.6	50	19	4			67068	
-16019R08Z4-E04	16	0.8	15.4	32.6	50	19	4			52037	
-16019R08Z4-M04	16	0.8	15.4	32.6	50	19	4		67072		
-16019R12Z4-E04	16	1.2	15.4	32.6	50	19	4			52038	
-16019R12Z4-M04	16	1.2	15.4	32.6	50	19	4		67073		
-16019R16Z4-E04	16	1.6	15.4	32.6	50	19	4			52039	
-16019R20Z4-E04	16	2.0	15.4	32.6	50	19	4			52041	
-16019R24Z4-E04	16	2.4	15.4	32.6	50	19	4			52042	
MP16 -16019R04Z6-M04	16	0.4	15.4	32.6	40	19	6		67070		
MP16 -16019R04Z8-M04	16	0.4	15.4	32.6	40	19	8		67071		

Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Ball nose design short (Inch)





- For insert selection and cutting data recommendations, see pages 426-427.

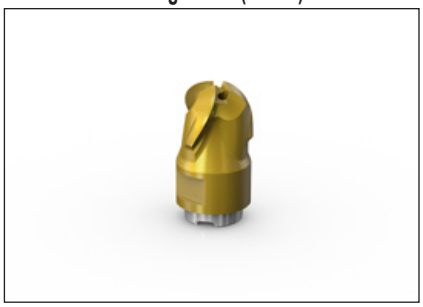
Z3

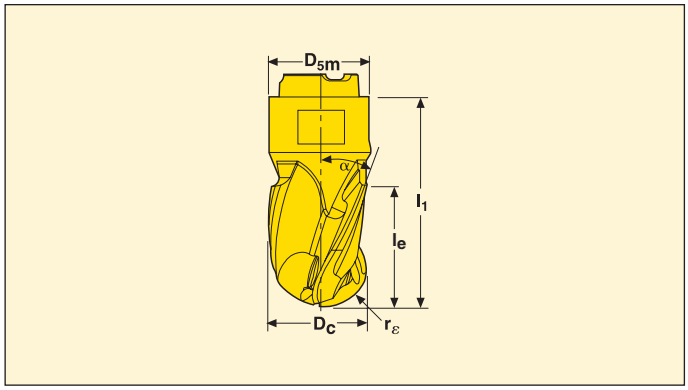
Part No.	Dimensions in inch						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP16 -00.625-.39-B90Z3-E05	0.625	0.312	0.606	0.969	30	0.394	3			13421	
-00.625-.39-B90Z3-M05	0.625	0.312	0.606	0.969	30	0.394	3		13422		

Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Ball nose design short (Metric)





- For insert selection and cutting data recommendations, see pages 426-427.

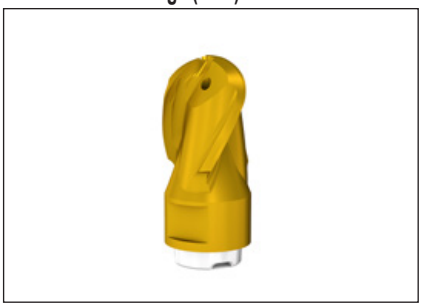
Z3

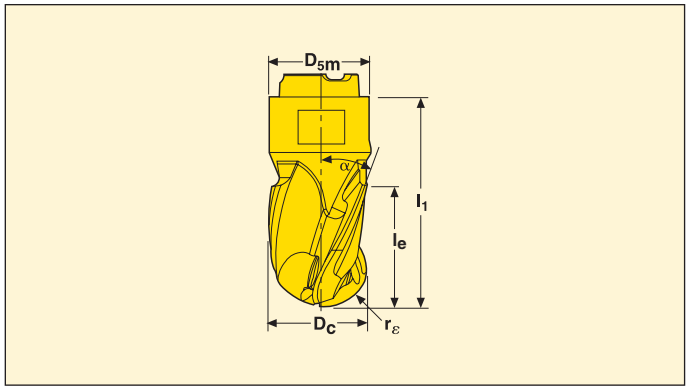
Part No.	Dimensions in mm						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP16 -16010B90Z3-E05	16.0	8.0	15.4	24.6	30	10.0	3	✓		13414	
-16010B90Z3-M05	16.0	8.0	15.4	24.6	30	10.0	3	✓	13415		

Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Ball nose design (Inch)





- For insert selection and cutting data recommendations, see pages 426-427.

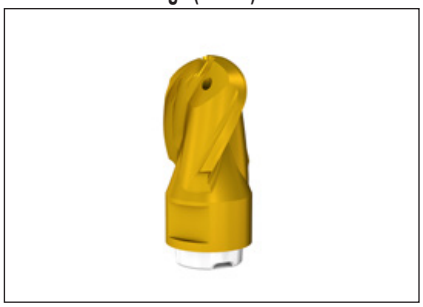
Z3

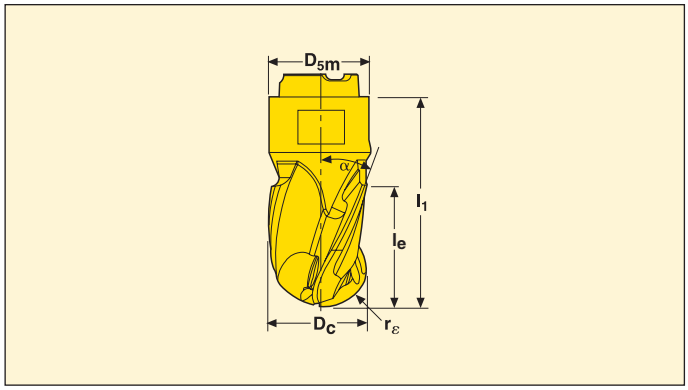
Part No.	Dc	rε	D5m	l1	α°	le	Zc*		Coated Grades MP3000	Coated Grades F40M	
MP16 -00.625-.74-B90Z3-E05	0.625	0.312	0.606	1.283	30	0.748	3	✓		69563	
-00.625-.74-B90Z3-M05	0.625	0.312	0.606	1.283	30	0.748	3	✓	45300		

Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Ball nose design (Metric)





- For insert selection and cutting data recommendations, see pages 426-427.

Z3

Part No.	Dimensions in mm						Zc*		Coated Grades		
	Dc	rε	D5m	l1	α°	le			MP3000	F40M	
MP16 -16019B90Z3-E05	16	8	15.4	32.6	30	19	3	✓		69551	
-16019B90Z3-M05	16	8	15.4	32.6	30	19	3	✓	52116		

Please check availability in current price and stock-list.

* Effective number of flutes

MP16 Highfeed milling – Insert selection

SMG		Recommended a_p**	f_z			
			100%	70%	30%	20%
P1	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.044	0.044	0.048	0.060
P2	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.044	0.044	0.048	0.065
P3	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.048	0.060
P4	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
P5	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
P6	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
P7	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
P8	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.048	0.060
P11	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
M1	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.044	0.044	0.048	0.065
M2	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
M3	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.034	0.034	0.038	0.048
M4	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.030	0.030	0.034	0.040
M5	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.030	0.030	0.034	0.040
K1	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.044	0.044	0.048	0.065
K2	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
K3	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
K4	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
K5	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.036	0.036	0.040	0.048
K6	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.040	0.040	0.044	0.055
K7	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.036	0.036	0.040	0.048
N1	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.055	0.055	0.065	0.085
N2	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.055	0.055	0.065	0.085
N3	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.055	0.055	0.065	0.085
N11	MP16-1600.9HFZ3-MD12 MP3000	0.015	0.055	0.055	0.065	0.085
S1	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.030	0.030	0.034	0.040
S2	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.030	0.030	0.034	0.040
S3	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.028	0.028	0.032	0.038
S11	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.034	0.034	0.038	0.048
S12	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.034	0.034	0.038	0.048
S13	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.030	0.030	0.034	0.040
H5	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.030	0.030	0.032	0.040
H7	MP16-1600.9HFZ3-MD12 MP3000	—	—	—	—	—
H11	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.030	0.030	0.032	0.040
H12	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.030	0.030	0.032	0.040
H21	MP16-1600.9HFZ3-MD12 MP3000	0.013	0.022	0.022	0.024	0.030

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MP16 Highfeed milling – Cutting data v_c = (sf/min)

SMG	MP3000			
	100%	70%	30%	20%
P1	690	830	1025	1075
P2	680	810	970	1050
P3	600	720	850	920
P4	530	630	750	810
P5	500	600	740	770
P6	560	680	830	870
P7	530	640	780	820
P8	500	600	720	770
P11	520	620	760	790
M1	510	610	730	780
M2	420	500	610	640
M3	340	405	485	510
M4	265	315	375	395
M5	220	260	310	330
K1	540	640	770	830
K2	475	570	700	730
K3	405	485	590	620
K4	385	460	560	590
K5	235	280	340	360
K6	340	405	495	520
K7	300	360	435	460
N1	2000	2375	2875	3000
N2	1600	1925	2325	2425
N3	1075	1275	1550	1625
N11	1225	1475	1775	1850
S1	125	145	175	185
S2	100	120	140	150
S3	85	105	125	130
S11	170	205	245	255
S12	100	120	140	145
S13	80	95	115	120
H5	105	125	150	160
H8	110	135	155	170
H11	130	160	190	200
H12	200	240	285	305
H21	110	135	155	170

MP16 Slot milling – Insert selection

SMG		Recommended a_p**	f_z			
			100%	30%	10%	5%
P1	MP16-16019R04Z3-M05 MP3000	0.20	0.0028	0.0030	0.0048	0.0065
P2	MP16-16019R04Z3-M05 MP3000	0.20	0.0028	0.0032	0.0048	0.0065
P3	MP16-16019R04Z3-M05 MP3000	0.20	0.0028	0.0030	0.0044	0.0065
P4	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0030	0.0044	0.0065
P5	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0028	0.0044	0.0060
P6	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0028	0.0044	0.0060
P7	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0028	0.0044	0.0060
P8	MP16-16019R04Z3-M05 MP3000	0.20	0.0028	0.0030	0.0044	0.0065
P11	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0028	0.0044	0.0060
M1	MP16-16019R04Z3-E05 F40M	0.20	0.0028	0.0032	0.0048	0.0065
M2	MP16-16019R04Z3-E05 F40M	0.20	0.0026	0.0028	0.0044	0.0060
M3	MP16-16019R04Z3-E05 F40M	0.16	0.0020	0.0022	0.0036	0.0048
M4	MP16-16019R04Z3-E05 F40M	0.12	0.0018	0.0020	0.0030	0.0044
M5	MP16-16019R04Z3-E05 F40M	0.12	0.0018	0.0020	0.0030	0.0044
K1	MP16-16019R04Z3-M05 MP3000	0.20	0.0028	0.0032	0.0048	0.0065
K2	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0028	0.0044	0.0060
K3	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0028	0.0044	0.0060
K4	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0028	0.0044	0.0060
K5	MP16-16019R04Z3-M05 MP3000	0.20	0.0024	0.0026	0.0040	0.0055
K6	MP16-16019R04Z3-M05 MP3000	0.20	0.0026	0.0028	0.0044	0.0060
K7	MP16-16019R04Z3-M05 MP3000	0.20	0.0024	0.0026	0.0040	0.0055
N1	MP16-16019R04Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085
N2	MP16-16019R04Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085
N3	MP16-16019R04Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085
N11	MP16-16019R04Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085
S1	MP16-16019R04Z3-E05 F40M	0.12	0.0018	0.0020	0.0030	0.0044
S2	MP16-16019R04Z3-E05 F40M	0.12	0.0018	0.0020	0.0030	0.0044
S3	MP16-16019R04Z3-E05 F40M	0.12	0.0017	0.0018	0.0028	0.0040
S11	MP16-16019R04Z3-E05 F40M	0.14	0.0020	0.0022	0.0036	0.0048
S12	MP16-16019R04Z3-E05 F40M	0.14	0.0020	0.0022	0.0036	0.0048
S13	MP16-16019R04Z3-E05 F40M	0.12	0.0018	0.0020	0.0030	0.0044
H5	MP16-16019R04Z3-M05 MP3000	0.16	0.0017	0.0019	0.0030	0.0040
H8	MP16-16019R04Z3-M05 MP3000	0.14	0.0013	0.0015	0.0022	0.0032
H11	MP16-16019R04Z3-M05 MP3000	0.16	0.0017	0.0019	0.0030	0.0040
H12	MP16-16019R04Z3-M05 MP3000	0.16	0.0017	0.0019	0.0030	0.0040
H21	MP16-16019R04Z3-M05 MP3000	0.14	0.0013	0.0015	0.0022	0.0032

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MP16 Slot milling – Cutting data v_c = (sf/min)

	MP3000				F40M			
SMG	100%	30%	10%	5%	100%	30%	10%	5%
P1	780	1025	1200	1325	740	970	1125	1250
P2	760	990	1175	1275	720	930	1100	1200
P3	660	860	1025	1100	620	810	970	1050
P4	590	760	900	980	550	720	850	920
P5	560	740	860	940	530	690	810	890
P6	630	830	970	1050	590	780	910	1000
P7	590	780	910	1000	560	740	860	950
P8	550	720	860	930	520	680	810	880
P11	580	760	880	970	540	710	840	920
M1	570	740	870	950	580	750	890	970
M2	470	610	720	790	475	620	730	800
M3	380	495	580	630	385	500	590	640
M4	290	380	440	480	295	385	450	490
M5	240	315	370	400	245	320	375	405
K1	600	780	920	1000	570	740	870	950
K2	530	700	820	900	500	660	770	850
K3	450	590	690	760	425	560	650	720
K4	430	560	660	720	405	530	620	680
K5	260	340	400	435	245	320	380	415
K6	380	495	580	640	355	470	550	600
K7	335	435	510	560	315	410	485	530
N1	2250	2925	3475	3750	2125	2775	3275	3550
N2	1825	2375	2800	3025	1700	2225	2650	2875
N3	1200	1575	1875	2025	1150	1500	1775	1900
N11	1375	1800	2125	2300	1300	1700	2025	2175
S1	135	175	205	225	140	180	210	230
S2	110	140	165	180	110	145	170	185
S3	95	125	145	160	95	125	150	160
S11	190	250	290	320	195	255	295	325
S12	110	145	170	185	115	145	170	185
S13	85	115	135	145	90	115	135	145
H5	115	150	175	195	115	150	175	195
H8	120	155	185	200	120	160	185	200
H11	145	190	225	245	150	195	225	250
H12	220	290	335	370	225	290	340	375
H21	120	155	185	200	120	160	185	200

MP16 Copy milling – Insert selection

SMG		Recommended a_p**	f_z				
			100%	30%	10%	5%	2%
P1	MP16-16019B90Z3-M05 MP3000	0.20	0.0040	0.0044	0.0065	0.0095	0.015
P2	MP16-16019B90Z3-M05 MP3000	0.20	0.0040	0.0044	0.0065	0.0095	0.016
P3	MP16-16019B90Z3-M05 MP3000	0.20	0.0038	0.0040	0.0065	0.0085	0.014
P4	MP16-16019B90Z3-M05 MP3000	0.20	0.0038	0.0040	0.0065	0.0085	0.014
P5	MP16-16019B90Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085	0.014
P6	MP16-16019B90Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085	0.014
P7	MP16-16019B90Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085	0.014
P8	MP16-16019B90Z3-M05 MP3000	0.20	0.0038	0.0040	0.0065	0.0085	0.014
P11	MP16-16019B90Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085	0.014
M1	MP16-16019B90Z3-E05 F40M	0.20	0.0040	0.0044	0.0065	0.0095	0.016
M2	MP16-16019B90Z3-E05 F40M	0.20	0.0036	0.0040	0.0060	0.0085	0.014
M3	MP16-16019B90Z3-E05 F40M	0.16	0.0030	0.0032	0.0048	0.0065	0.011
M4	MP16-16019B90Z3-E05 F40M	0.12	0.0026	0.0028	0.0044	0.0060	0.0095
M5	MP16-16019B90Z3-E05 F40M	0.12	0.0026	0.0028	0.0044	0.0060	0.0095
K1	MP16-16019B90Z3-M05 MP3000	0.20	0.0040	0.0044	0.0065	0.0095	0.016
K2	MP16-16019B90Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085	0.014
K3	MP16-16019B90Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085	0.014
K4	MP16-16019B90Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085	0.014
K5	MP16-16019B90Z3-M05 MP3000	0.20	0.0034	0.0036	0.0055	0.0075	0.013
K6	MP16-16019B90Z3-M05 MP3000	0.20	0.0036	0.0040	0.0060	0.0085	0.014
K7	MP16-16019B90Z3-M05 MP3000	0.20	0.0034	0.0036	0.0055	0.0075	0.013
N1	MP16-16019B90Z3-M05 MP3000	0.20	0.0050	0.0055	0.0085	0.012	0.020
N2	MP16-16019B90Z3-M05 MP3000	0.20	0.0050	0.0055	0.0085	0.012	0.020
N3	MP16-16019B90Z3-M05 MP3000	0.20	0.0050	0.0055	0.0085	0.012	0.020
N11	MP16-16019B90Z3-M05 MP3000	0.20	0.0050	0.0055	0.0085	0.012	0.020
S1	MP16-16019B90Z3-E05 F40M	0.12	0.0026	0.0028	0.0044	0.0060	0.0095
S2	MP16-16019B90Z3-E05 F40M	0.12	0.0026	0.0028	0.0044	0.0060	0.0095
S3	MP16-16019B90Z3-E05 F40M	0.12	0.0024	0.0026	0.0040	0.0055	0.0085
S11	MP16-16019B90Z3-E05 F40M	0.14	0.0030	0.0032	0.0048	0.0065	0.011
S12	MP16-16019B90Z3-E05 F40M	0.14	0.0030	0.0032	0.0048	0.0065	0.011
S13	MP16-16019B90Z3-E05 F40M	0.12	0.0026	0.0028	0.0044	0.0060	0.0095
H5	MP16-16019B90Z3-M05 MP3000	0.16	0.0026	0.0028	0.0040	0.0060	0.0095
H8	MP16-16019B90Z3-M05 MP3000	0.14	0.0019	0.0020	0.0032	0.0044	0.0070
H11	MP16-16019B90Z3-M05 MP3000	0.16	0.0026	0.0028	0.0040	0.0060	0.0095
H12	MP16-16019B90Z3-M05 MP3000	0.16	0.0026	0.0028	0.0040	0.0060	0.0095
H21	MP16-16019B90Z3-M05 MP3000	0.14	0.0019	0.0020	0.0032	0.0044	0.0070

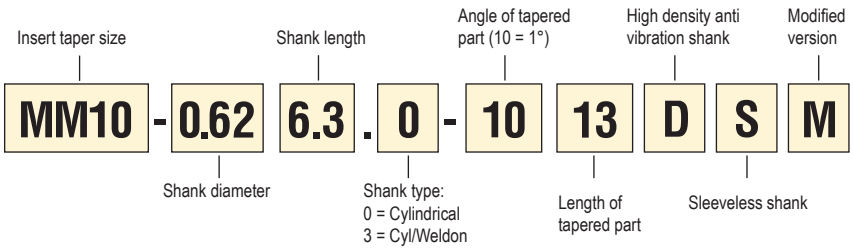
** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MP16 Copy milling – Cutting data v_c = (sf/min)

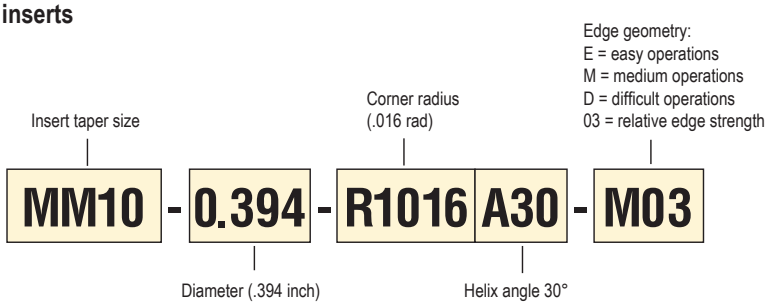
	MP3000					F40M				
SMG	100%	30%	10%	5%	2%	100%	30%	10%	5%	2%
P1	1075	1225	1425	1575	1725	1025	1175	1350	1475	1650
P2	1050	1200	1375	1525	1700	990	1125	1300	1450	1600
P3	910	1050	1200	1325	1475	860	1000	1150	1250	1400
P4	800	930	1075	1175	1300	760	880	1000	1100	1225
P5	780	890	1025	1125	1250	730	840	960	1050	1175
P6	870	1000	1150	1250	1400	820	940	1100	1175	1325
P7	820	940	1100	1175	1325	780	890	1025	1125	1250
P8	770	890	1025	1100	1250	730	840	960	1050	1175
P11	800	910	1075	1150	1300	750	860	1000	1100	1225
M1	790	900	1025	1150	1275	800	920	1050	1175	1275
M2	650	740	850	940	1050	660	760	860	950	1075
M3	530	610	680	750	840	540	620	690	760	850
M4	415	480	520	580	640	425	485	530	590	650
M5	350	400	435	480	530	355	405	445	490	540
K1	830	950	1100	1225	1350	790	900	1025	1150	1275
K2	740	840	970	1075	1200	700	800	910	1000	1125
K3	620	710	820	900	1000	590	670	770	850	950
K4	590	680	780	860	960	560	640	740	810	910
K5	355	415	480	520	580	340	390	455	495	550
K6	520	600	690	760	850	495	570	650	710	800
K7	455	530	610	670	740	430	500	580	630	700
N1	3125	3575	4100	4525	4975	2950	3375	3875	4275	4700
N2	2525	2875	3325	3650	4025	2375	2725	3125	3450	3800
N3	1675	1925	2200	2425	2675	1600	1825	2100	2300	2525
N11	1925	2200	2525	2775	3075	1825	2075	2375	2625	2900
S1	195	225	245	270	300	200	225	250	275	305
S2	155	180	195	215	240	160	185	200	220	245
S3	135	155	170	190	215	140	160	175	195	215
S11	270	315	345	380	425	275	320	350	385	430
S12	155	180	200	220	245	160	185	200	220	250
S13	125	145	160	175	190	130	145	160	175	195
H5	160	185	210	230	255	160	185	210	230	260
H8	170	195	220	240	270	170	200	220	245	270
H11	205	235	265	290	325	205	235	270	295	330
H12	305	355	405	440	495	310	355	405	440	500
H21	170	195	220	240	270	170	200	220	245	270

There is no ISO system available for cutters.
Parts of the code key vary for different cutter systems.

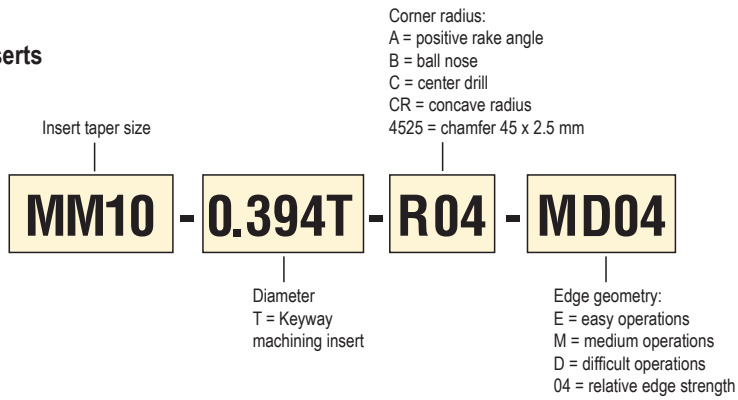
Code key shanks

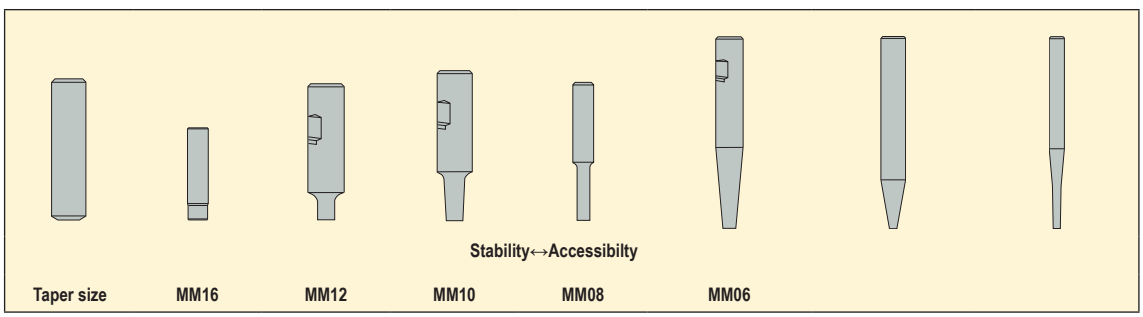


Code key 3-flute inserts



Code key 2-flute inserts





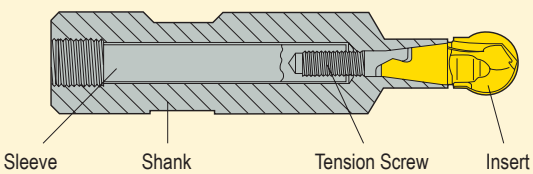
Insert styles and diameter range

Taper size	For slot milling, with 3 flutes	For keyway milling, with 3 flutes	For copy milling, with 3 flutes	For slot milling	For slot milling, with positive (= easy cutting) geometry	For square shoulder milling	For keyway milling
MM16	.625-.787	.618	.625-.787	.625-.787	.630-.787	.625-.630	.618-.630
MM12	.472-.500	.460	.472-.500	.472-.500	.472-.551	.472-.551	.460-.539
MM10	.375-.394	.375	.375-.394	.375-.394	.375-.394	.375-.394	.365-.386
MM08	.315	.307	.315	.315	.315	.315	.307
MM06	.236-.250	.228	.236-.250	.236-.250	.236	.236-.250	.228

Taper size	For center drilling	For chamfer milling	For milling of external radius	For copying with 90° cutting angle	For copying, with 120° cutting angle	For plunge milling	For highfeed
MM16	.630-.750	.630	–	.625-.787	.750-.787	.630	.630
MM12	.472	–	.472	.472-.551	.551-.630	.472-.551	.472
MM10	.394	.394	–	.375-.394	.472-.500	.394	.394
MM08	.315	.315	–	.315	.394	.315	.315
MM06	.236	.236	–	.236-.250	.315	.236	–

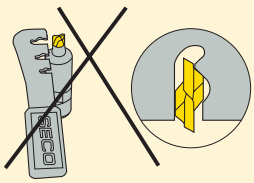
Mounting instructions for 2-flute Minimaster

During normal operation inserts are exchanged using the Minimaster wrench.

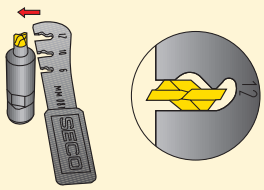


- The sleeve must be securely tightened in the shank before the tension screw and insert are fitted.
- If the wrench cannot be used for changing the insert (If the insert has broken off or jammed in the shank) , the sleeve can be released, which will also release the insert.
- Use Allen key (turn it anti-clockwise) to back off the sleeve until the insert is free.
- Re-tighten the sleeve in the shank before fitting the tension screw and the new insert.

For 3-flute Minimaster another key (MM0416) must be used. (Key grip on hexagonal part of the insert)



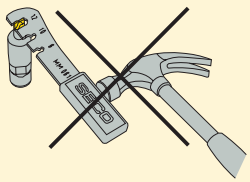
If the wrench is used on the wrong side damage will occur



Make sure the wrench is used correctly as shown. (numbers on key should face cutting edge)

Do not use excessive force to tighten! Normal handpower is sufficient.

35-141 in/lbs torque recommended. (depending on size)



Do not use excessive force!

Choice of shanks, inserts and cutting data.

1 - Select taper size
The design of the workpiece and the machining operations determines suitable taper size. Select the largest possible taper size for best strength and stability.

2 - Select insert
a. Use the tables beginning on page 20 to classify the workpiece material into a Seco material group.
b. Look up the pages for the selected taper size and choose a suitable insert in the insert selection table.

3 - Select shank
a. Look up the pages for the selected taper size and choose a suitable shank in the tool data table.
b. Always choose the shortest shank possible (to achieve best possible stability).

4 - Select cutting data
a. Cutting speed recommendations are found in the cutting data tables for each selected taper size. NOTE! Cutting data recommendations are based on stable conditions and might therefore need to be adjusted depending on the stability in the application (tooling, machine & workpiece fixturing). General rule for max a_p in slotting is Dc*0.3= Max a_p (See figure 1).
b. Feed and cutting speed recommendations are found in the cutting speed tables for the selected taper size and type.
c. Maximum RPM that for safety reasons should never be exceeded, are shown on page 517.
d. Feed per tooth recommendations are found in the selection tables for each selected taper size.
e. If the cutter is not fully engaged the feed per tooth and the cutting speed should be increased compared to the recommendations for a fully engaged cutter. The reason for that is to keep the average chip thickness and the working temperature in the cutting zone.
f. Divide the radial depth of cut with the cutter diameter to get the actual cutter engagement percentage(a_e/D_c%), for ball nose cutters use the effective working diameter D_w instead of D_c (See figure 2 & 3).
g. Use the the percentage to get a correct feed per tooth and cutting speed recommendation.

5 - For Copy milling
a. When milling in corners and bottoms of cavities the feed rate should be reduced due to the increase of the average chip thickness. Use the feed per tooth recommendations for a fully engaged cutter.
b. When step down copying with an angle of more than 40° or step up copying with an angle bigger than 30° in combination with small depth of cut, use the diameter (D_c).

6 - General
a. When calculating feed per revolution and feed speed, always use the z_c-value. That is the effective number of teeth to use for cutting data calculations. The zc-value can be found in the insert selection table.
b. NOTE: There will be a deterioration in the surface finish on the workpiece when the feed rate is increased (See figure 5 & 6).

Figure 1

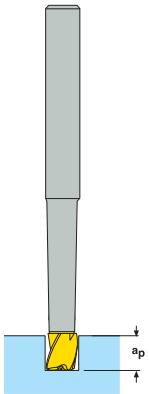


Figure 2

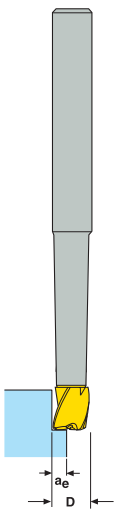


Figure 3

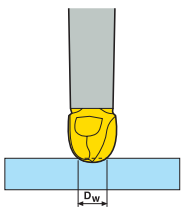


Figure 4

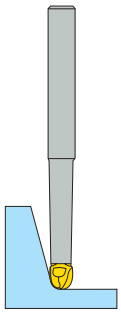


Figure 5

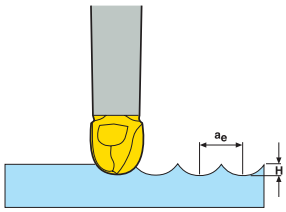
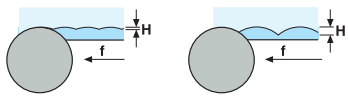


Figure 6



Custom versions of 2 flute Minimaster® inserts

We offer Minimaster inserts of custom design at fixed delivery times in grades T60M and F30M.

The geometries that can be considered as production standard are shown below. All important dimensions in each figure must be specified.

Dimension limitations for all versions

MM06	D=	0.189 - 0.244 inch
MM08	D=	0.245 - 0.323 inch
MM10	D=	0.324 - 0.401 inch
MM12	D=	0.402 - 0.559 inch
MM16	D=	0.560 - 0.795 inch

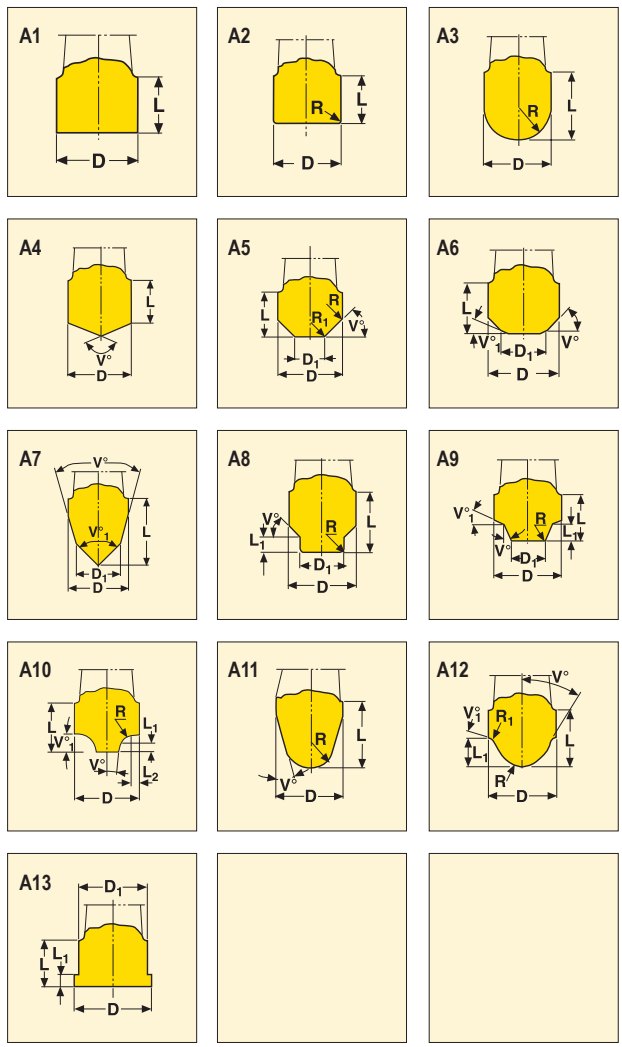
Cutting edge length “L” is related to the blanks used. For approximate maximum cutting length – see measure “L” for nearest standard shape.

Delivery time
2 working weeks after receipt of order.

Other shapes per drawing can also be quoted.

Please specify if you have any special tolerance requirements.

If the insert is to be used for drilling blind holes and a flat bottom surface is required, please state it on request/order.



Enquiry / Order example

Quantity	Grade	Type	Size	L	L_1	L_2	V°	V_1°	D	D_1	R	R_1
10	T60M	A15	MM12	Std	.157	–	20°	45°	.551	.394	.063	

Please enter the following information and enclose a copy of this sheet with your enquiry/ order

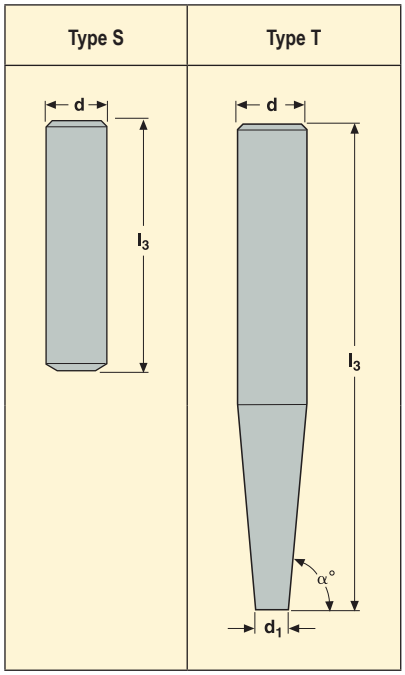
Quantity	Grade	Type	Size	L	L_1	L_2	V°	V_1°	D	D_1	R	R_1
Special tolerance requirements.												

Custom versions of Minimaster® shanks

Minimaster holders with dimensions outside the stock standard program can be produced in a standard concept within the dimension range below.
Type S for short overhang in a rigid design (keyway type). Type T intended for long reach applications (tapered shank).

Dimension Range

Taper size	L_3 min	L_3 max	d min	d max
MM06	1.57	11.81	.394	1.25
MM08	1.65	11.81	.394	1.25
MM10	1.81	11.81	.394	1.25
MM12	2.20	11.81	.472	1.25
MM16	2.95	11.81	.630	1.25



Dimension d_1 refers to standard dimensions

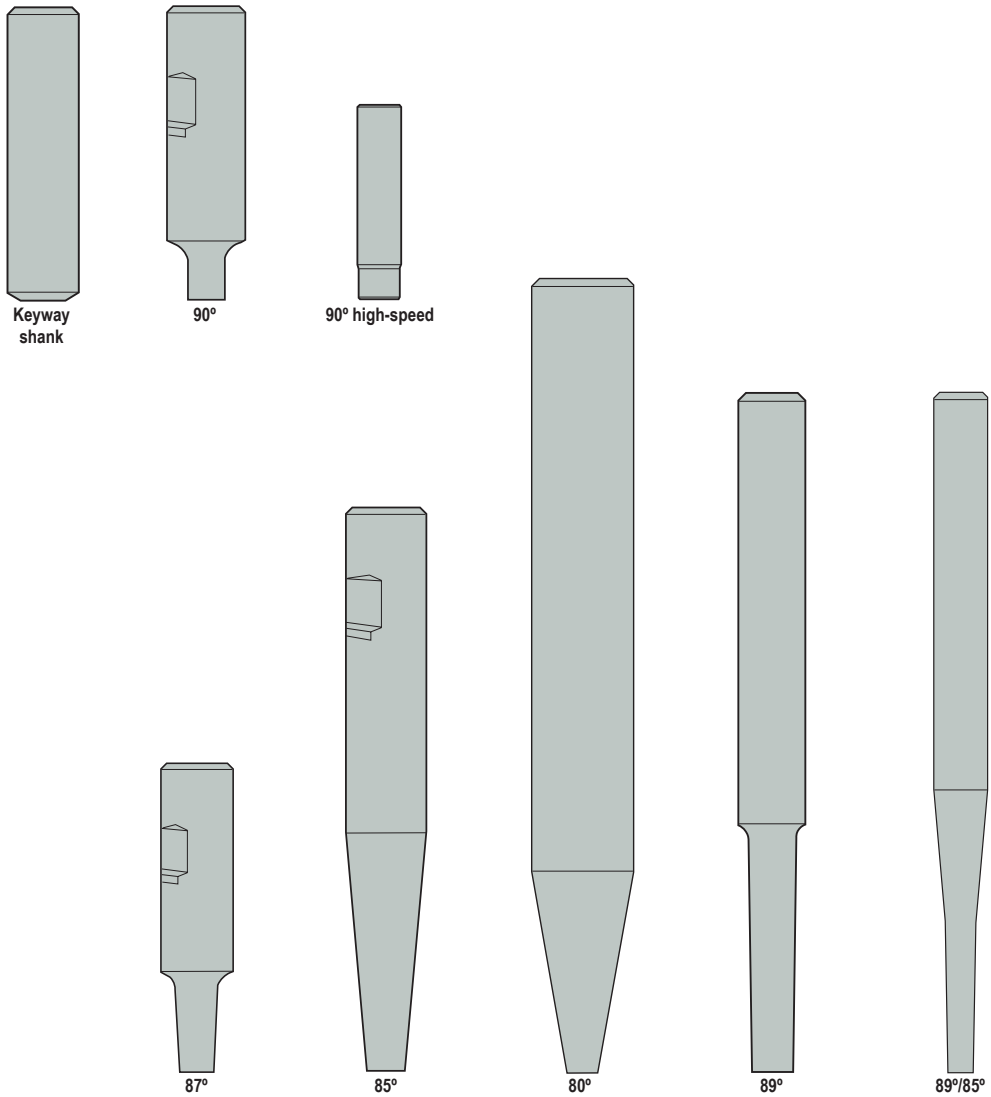
Code Key/ Order example

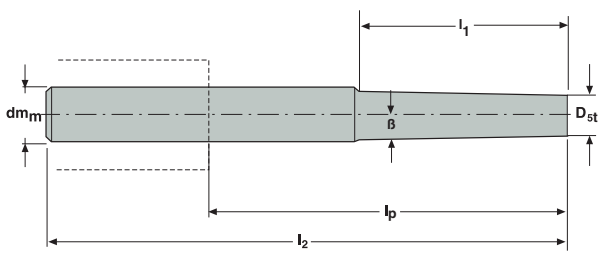
T	-	MM06	-	.500	3.15	-	0	-	15	1.25	D	-	B120
1		2		3	4		5		6	7	8		9

1. Shank type
   S = Straight type
   T = Tapered type
2. Taper size
3. Diameter (d)
4. Overall length (L3)
5. Mounting type
   0 = Cylindrical
   3 = Cyl/ Weldon
6. Angle of tapered part a°
   For type S = 00
   For type T = Angle of tapered part
   or straight part (90°-shank)
7. Length of tapered part
8. Material
   D = High density anti vibration material
   S = Steel
9. For insert type B120 only

Order form

Qty.		1	-	2	-	3	4	-	5	-	6	7	8	-	9





Cutting data for MM06 is shown on pages 440-449.
Max RPM and torque values are shown on page 517.

For MM06 inserts

Shank design	EDP No.	Part No.	Dimensions in inch						lbs	Spare part no.
			D_{5t}	dm_m	β°	l_1	l_2	l_p		
Keyway	96106	**MM06 50-2.6-0-0000**	0.224	0.500	60	–	2.559	0.787	0.2	1
90° high speed	96107	**MM06 38-1.6-0-0002**	0.224	0.375	–	0.276	1.575	0.276	0.2	2
90°	96108	**MM06 50-2.8-3-0002**	0.224	0.500	–	0.197	2.756	0.984	0.2	1
90°	35064	**62-3.5-0-0004DS****	0.224	0.625	–	0.472	3.543	1.654	0.7	3
90°	35065	**62-3.7-0-0009DS****	0.224	0.625	–	0.945	3.740	1.850	0.7	3
87°	96116	**MM06 62-3.0-3-3003**	0.224	0.625	3	0.354	2.953	1.063	0.2	1
85°	96117	**MM06 62-4.3-3-5022**	0.224	0.625	5	2.291	4.331	2.441	0.4	4
80°	96118	**MM06 25-10.0-0-10029**	0.224	1.250	10	2.906	9.843	7.480	2.6	4
89°	96111	**MM06 62-5.5-0-1007**	0.224	0.625	1	0.787	5.512	3.622	0.4	5
89°	96112	**62-5.5-0-1013**	0.224	0.625	1	1.378	5.512	3.622	0.4	6
89°	35066	**62-5.5-0-1013DS****	0.224	0.625	1	1.378	5.512	3.622	0.9	3
89°	96114	**62-5.5-0-1019**	0.224	0.625	1	1.969	5.512	3.622	0.4	6
89°	35067	**62-5.5-0-1019DS****	0.224	0.625	1	1.969	5.512	3.622	0.7	3
89° / 85°*	35068	**MM06 75-10.0-0-1013DS****	0.224	0.750	1	1.378	9.843	7.874	2.0	3

* For design 9, the l_1 value is valid on the 89° tapered part.

** High density, anti-vibration shank, for semi-finishing and finishing only.

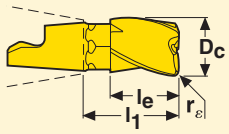
Spare Parts, included in delivery.

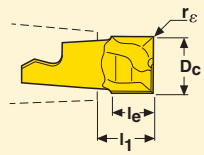
Spare part no.	Sleeve	Tension screw
1	MM-035046	MM06-03518
2	MM-035023	MM06-03518
3	–	MM06-03518
4	MM-035091	MM06-03518
5	MM-035046	MM06-03544
6	MM-035046	MM06-03564

Please check availability in current price and stock-list.

For wrench types, see insert pages.
For torque keys and values, see page 517.
Allen key (H05-4) for sleeve and wrench ordered separately.

Slot milling/ square shoulder milling



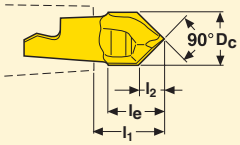


Insert type	Part No.	Dimensions in inch				Zc	Wrench**	Coated Grades			
		Dc	rε	le	l1			T60M	F15M	F30M	F40M
3-flute	MM06 -0.236-A30-E02	0.236	–	0.295	0.390	3*	MM0416			23708	
3-flute	-0.236-R020A30-M02	0.236	0.020	0.295	0.390	3*	MM0416				23709
3-flute	-0.236-R040A30-E02	0.236	0.039	0.295	0.390	3*	MM0416			23710	
3-flute	-0.236-R040A30-M02	0.236	0.039	0.295	0.390	3*	MM0416				23711
3-flute	-0.236-R040A30-D02	0.236	0.039	0.295	0.390	3*	MM0416			38207	
3-flute	-0.236-R080A30-M02	0.236	0.079	0.295	0.390	3*	MM0416				23712
3-flute	MM06 -0.250-A30-E02	0.250	–	0.295	0.390	3*	MM0416			23735	
3-flute	-0.250-R016A30-M02	0.250	0.016	0.295	0.390	3*	MM0416				23736
3-flute	-0.250-R031A30-M02	0.250	0.031	0.295	0.390	3*	MM0416				23737
3-flute	-0.250-R031A30-D02	0.250	0.031	0.295	0.390	3*	MM0416			38232	
2-flute	MM06 -0.236-M02	0.236	–	0.161	0.200	2	MM0612	80703			
2-flute	-0.236-R1-MD02	0.236	0.016	0.161	0.200	2	MM0612	80704		04771	
2-flute	-0.236-R2.5-MD02	0.236	0.039	0.161	0.199	2	MM0612			08030	
2-flute	-0.236-R5-MD02	0.236	0.079	0.161	0.199	2	MM0612			12962	
2-flute	MM06 -0.250-R1-MD02	0.250	0.016	0.161	0.200	2	MM0612	93741			
2-flute	-0.250-M02	0.250	–	0.161	0.200	2	MM0612	93740			
Keyway 3-flute	MM06 -0.228-R008A30-M02	0.228	0.008	0.295	0.390	3*	MM0612				23713
Keyway 2-flute	-0.228T-R0.5-D02	0.228	0.008	0.161	0.200	2	MM0612	80702			

* = z_c – value 1 in drilling.

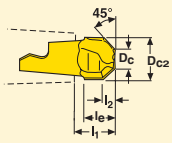
** Wrench not included, must be ordered separately.

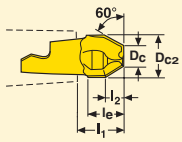
Center drilling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	l_e	l_1	l_2			T60M	F15M	F30M	F40M
90°	**MM06 -0.236-C90-M02**	0.236	0.236	0.280	0.113	2	MM0612	80706			
120°	**MM06 -0.236-C120-M02**	0.236	0.247	0.283	0.063	2	MM0612	80707			

Chamfering

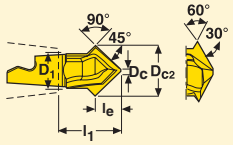




Insert type	Part No.	Dimensions in inch					Z_c	Wrench**	Coated Grades			
		D_c	D_{c2}	l_e	l_1	l_2			T60M	F15M	F30M	F40M
45°	**MM06 -0.236-45.15-E02**	0.071	0.236	0.157	0.201	0.083	2	MM0612	80705			
60°	**MM06 -0.236-60.15-E02**	0.124	0.236	0.181	0.226	0.094	2	MM0612	83754			

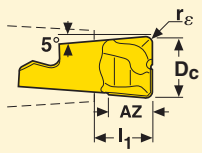
** Wrench not included, must be ordered separately.

Double chamfering



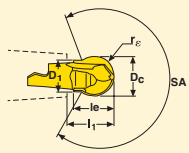
Insert type	Part No.	Dimensions in inch					Zc	Wrench**	Coated			
									Grades			
		Dc	Dc2	le	l1	R			T60M	F15M	F30M	F40M
45°	MM06 -0.315-D4510P-M02	0.024	0.315	0.146	0.335	0.236	2	MM0612		23791		

Plunge milling



Insert type	Part No.	Dimensions in inch				Zc	Wrench**	Coated			
								Grades			
		Dc	rε	AZ	l1			T60M	F15M	F30M	F40M
2-flute	MM06 -0.236-R040-PL-MD02	0.236	0.039	0.169	0.200	2	MM0612			23780	

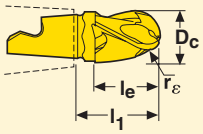
Precision inserts for semi-finishing in all materials

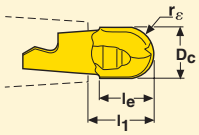


Insert type	Part No.	Dimensions in inch						Zc	Wrench**	Coated			
										Grades			
		Dc	rε	le	l1	D1	SA°			T60M	F15M	F30M	F40M
2-flute	MM06 -0.315-B120PF-M01	0.315	0.157	0.315	0.344	0.236	263.0	2	MM0612		83759		
2-flute	-0.315-B120P-M03	0.315	0.157	0.315	0.344	0.236	263.0	2	MM0612			83494	

** Wrench not included, must be ordered separately.

Copy milling





Insert type	Part No.	Dimensions in inch D_c	r_ε	l_e	l_1	Z_c	Wrench**	Coated Grades T60M	F15M	F30M	F40M
3-flute	MM06 -0.236-B90A30-E02	0.236	0.118	0.294	0.388	3*	MM0416			90539	
3-flute	-0.236-B90A30-M02	0.236	0.118	0.294	0.388	3*	MM0416				90545
3-flute	-0.236-B90A30-D02	0.236	0.118	0.294	0.388	3*	MM0416			90558	
3-flute	-0.250-B90A30-E02	0.250	0.125	0.294	0.388	3*	MM0416			31574	
3-flute	-0.250-B90A30-M02	0.250	0.125	0.294	0.388	3*	MM0416				31575
3-flute	-0.250-B90A30-D02	0.250	0.125	0.294	0.388	3*	MM0416			31576	
2-flute	MM06 -0.236-B90-MD02	0.236	0.118	0.242	0.278	2	MM0612	82069		80708	
2-flute	-0.236-B90S-E02	0.236	0.118	0.242	0.278	2	MM0612			80710	
2-flute	-0.250-B90S-E02	0.250	0.125	0.249	0.285	2	MM0612			93748	
2-flute	MM06 -0.236-B90P-M02	0.236	0.118	0.206	0.277	2	MM0612			80709	
2-flute	-0.250-B90P-M02	0.250	0.125	0.213	0.284	2	MM0612			93747	
2-flute	-0.236-B90PF-M01	0.236	0.118	0.206	0.277	2	MM0612		92167		

* = z_c – value 1 in drilling.

** Wrench not included, must be ordered separately.

MM06 – General insert selection

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM06-06007-R05A30-M02 F40M	0.050	0.0012	0.0012	0.0015	0.0020
P2	MM06-06007-R05A30-M02 F40M	0.050	0.0012	0.0013	0.0015	0.0020
P3	MM06-06007-R05A30-M02 F40M	0.050	0.0012	0.0012	0.0014	0.0019
P4	MM06-06007-R05A30-M02 F40M	0.050	0.0011	0.0012	0.0014	0.0019
P5	MM06-06007-R05A30-M02 F40M	0.050	0.0011	0.0011	0.0014	0.0018
P6	MM06-06007-R05A30-M02 F40M	0.050	0.0011	0.0011	0.0013	0.0018
P7	MM06-06007-R05A30-M02 F40M	0.050	0.0011	0.0011	0.0013	0.0018
P8	MM06-06007-R05A30-M02 F40M	0.050	0.0012	0.0012	0.0014	0.0019
P11	MM06-06007-R05A30-M02 F40M	0.050	0.0011	0.0011	0.0013	0.0018
M1	MM06-06007-R05A30-M02 F40M	0.050	0.0012	0.0013	0.0015	0.0020
M2	MM06-06007-R05A30-M02 F40M	0.050	0.0011	0.0011	0.0014	0.0018
M3	MM06-06007-R05A30-M02 F40M	0.040	0.00095	0.00095	0.0012	0.0015
M4	MM06-06007-R05A30-M02 F40M	0.030	0.00085	0.00085	0.0011	0.0014
M5	MM06-06007-R05A30-M02 F40M	0.030	0.00085	0.00085	0.0011	0.0014
K1	MM06-06007-R10A30-D02 F30M	0.050	0.0014	0.0015	0.0018	0.0024
K2	MM06-06007-R10A30-D02 F30M	0.050	0.0013	0.0013	0.0017	0.0022
K3	MM06-06007-R10A30-D02 F30M	0.050	0.0013	0.0013	0.0017	0.0022
K4	MM06-06007-R10A30-D02 F30M	0.050	0.0013	0.0013	0.0017	0.0022
K5	MM06-06007-R10A30-D02 F30M	0.050	0.0012	0.0012	0.0015	0.0020
K6	MM06-06007-R10A30-D02 F30M	0.050	0.0013	0.0013	0.0017	0.0022
K7	MM06-06007-R10A30-D02 F30M	0.050	0.0012	0.0012	0.0015	0.0020
N1	MM06-06007-R10A30-E02 F30M	0.050	0.0018	0.0019	0.0024	0.0032
N2	MM06-06007-R10A30-E02 F30M	0.050	0.0018	0.0019	0.0024	0.0032
N3	MM06-06007-R10A30-E02 F30M	0.050	0.0018	0.0019	0.0024	0.0032
N11	MM06-06007-R10A30-E02 F30M	0.050	0.0018	0.0019	0.0024	0.0032
S1	MM06-06007-R10A30-D02 F30M	0.030	0.0012	0.0012	0.0014	0.0020
S2	MM06-06007-R10A30-D02 F30M	0.030	0.0012	0.0012	0.0014	0.0020
S3	MM06-06007-R10A30-D02 F30M	0.030	0.0011	0.0011	0.0013	0.0018
S11	MM06-06007-R05A30-M02 F40M	0.036	0.00095	0.00095	0.0012	0.0016
S12	MM06-06007-R05A30-M02 F40M	0.036	0.00095	0.00095	0.0012	0.0016
S13	MM06-06007-R05A30-M02 F40M	0.030	0.00085	0.00085	0.0011	0.0014
H5	MM06-06007-R10A30-D02 F30M	0.040	0.00095	0.0010	0.0013	0.0017
H8	MM06-06007-R10A30-D02 F30M	0.036	0.00080	0.00080	0.0010	0.0013
H11	MM06-06007-R10A30-D02 F30M	0.040	0.00095	0.0010	0.0013	0.0017
H12	MM06-06007-R10A30-D02 F30M	0.040	0.00095	0.0010	0.0013	0.0017
H21	MM06-06007-R10A30-D02 F30M	0.036	0.00080	0.00080	0.0010	0.0013

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM06 – General cutting data (sf/min)

	F30M				F40M				T60M			
SMG	100%	40%	20%	10%	100%	40%	20%	10%	100%	40%	20%	10%
P1	1000	1225	1400	1525	930	1150	1275	1400	820	980	1125	1250
P2	980	1200	1350	1475	900	1125	1225	1350	800	950	1100	1200
P3	850	1025	1175	1275	780	960	1075	1175	690	820	950	1050
P4	750	920	1025	1125	690	850	940	1050	610	730	840	920
P5	720	880	990	1075	660	810	910	990	590	700	800	880
P6	810	990	1100	1225	740	910	1025	1125	660	780	900	990
P7	760	930	1050	1150	700	860	960	1050	620	740	850	940
P8	710	870	980	1075	660	800	900	990	580	690	800	880
P11	740	900	1025	1125	680	840	930	1025	600	720	820	910
M1	790	960	1075	1200	730	900	990	1100	650	770	880	970
M2	650	790	890	980	590	730	820	890	530	630	720	800
M3	500	620	690	770	465	580	640	700	405	475	550	620
M4	375	465	530	580	355	435	485	540	300	350	405	470
M5	315	385	440	485	295	360	405	445	250	295	335	390
K1	780	950	1075	1175	720	880	980	1075	630	760	870	950
K2	680	830	940	1025	630	770	860	940	560	660	760	840
K3	580	710	790	870	530	650	730	800	470	560	640	710
K4	550	670	760	830	510	620	700	760	450	530	610	680
K5	330	410	460	500	305	375	420	460	270	320	370	405
K6	485	590	670	730	445	550	610	670	395	470	540	600
K7	425	520	590	640	390	480	530	590	345	410	475	520
N1	2950	3625	4075	4450	2725	3325	3725	4100	2425	2875	3325	3675
N2	2375	2925	3275	3600	2200	2700	3000	3325	1950	2325	2700	2975
N3	1600	1950	2200	2400	1475	1800	2000	2225	1300	1550	1800	1975
N11	1825	2225	2500	2725	1675	2050	2300	2525	1500	1775	2050	2250
S1	175	215	245	270	165	200	225	250	140	165	190	220
S2	140	175	200	220	135	165	180	200	115	130	150	175
S3	125	150	170	190	115	140	160	175	100	115	130	150
S11	250	310	350	385	235	290	325	355	200	235	275	315
S12	145	180	205	225	135	165	185	205	115	135	160	180
S13	115	140	160	175	105	130	145	160	90	105	120	140
H5	150	185	210	230	140	170	190	210	—	—	—	—
H8	155	190	215	235	145	175	195	215	—	—	—	—
H11	190	235	265	290	175	220	245	265	—	—	—	—
H12	290	355	400	440	270	330	370	405	—	—	—	—
H21	155	190	215	235	145	175	195	215	—	—	—	—

MM06 Z2-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM06-06006-B90PF-M01 F15M	0.10	0.0011	0.0013	0.0018	0.0030
P2	MM06-06006-B90PF-M01 F15M	0.10	0.0011	0.0013	0.0019	0.0030
P3	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0013	0.0017	0.0028
P4	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0013	0.0017	0.0028
P5	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
P6	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
P7	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
P8	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0013	0.0017	0.0028
P11	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
M1	MM06-06006-B90PF-M01 F15M	0.10	0.0011	0.0013	0.0019	0.0030
M2	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
M3	MM06-06006-B90PF-M01 F15M	0.080	0.00080	0.00095	0.0013	0.0022
M4	MM06-06006-B90PF-M01 F15M	0.065	0.00070	0.00085	0.0012	0.0019
M5	MM06-06006-B90PF-M01 F15M	0.065	0.00070	0.00085	0.0012	0.0019
K1	MM06-06006-B90PF-M01 F15M	0.10	0.0011	0.0013	0.0019	0.0030
K2	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
K3	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
K4	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
K5	MM06-06006-B90PF-M01 F15M	0.10	0.00095	0.0011	0.0015	0.0024
K6	MM06-06006-B90PF-M01 F15M	0.10	0.0010	0.0012	0.0017	0.0028
K7	MM06-06006-B90PF-M01 F15M	0.10	0.00095	0.0011	0.0015	0.0024
N1	MM06-06006-B90PF-M01 F15M	0.10	0.0014	0.0017	0.0024	0.0038
N2	MM06-06006-B90PF-M01 F15M	0.10	0.0014	0.0017	0.0024	0.0038
N3	MM06-06006-B90PF-M01 F15M	0.10	0.0014	0.0017	0.0024	0.0038
N11	MM06-06006-B90PF-M01 F15M	0.10	0.0014	0.0017	0.0024	0.0038
S1	MM06-06006-B90PF-M01 F15M	0.065	0.00070	0.00085	0.0012	0.0019
S2	MM06-06006-B90PF-M01 F15M	0.065	0.00070	0.00085	0.0012	0.0019
S3	MM06-06006-B90PF-M01 F15M	0.065	0.00065	0.00080	0.0011	0.0017
S11	MM06-06006-B90PF-M01 F15M	0.070	0.00080	0.00095	0.0013	0.0022
S12	MM06-06006-B90PF-M01 F15M	0.070	0.00080	0.00095	0.0013	0.0022
S13	MM06-06006-B90PF-M01 F15M	0.065	0.00070	0.00085	0.0012	0.0019
H5	MM06-06006-B90PF-M01 F15M	0.080	0.00070	0.00080	0.0011	0.0018
H8	MM06-06006-B90PF-M01 F15M	0.070	0.00050	0.00065	0.00085	0.0013
H11	MM06-06006-B90PF-M01 F15M	0.080	0.00070	0.00080	0.0011	0.0018
H12	MM06-06006-B90PF-M01 F15M	0.080	0.00070	0.00080	0.0011	0.0018
H21	MM06-06006-B90PF-M01 F15M	0.070	0.00050	0.00065	0.00085	0.0013

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM06 Z2-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM06-06006-B90S-E02 F30M	0.10	0.0016	0.0016	0.0020	0.0026
P2	MM06-06006-B90S-E02 F30M	0.10	0.0016	0.0017	0.0020	0.0028
P3	MM06-06006-B90S-E02 F30M	0.10	0.0015	0.0016	0.0019	0.0026
P4	MM06-06006-B90-MD02 F30M	0.10	0.0015	0.0015	0.0019	0.0026
P5	MM06-06006-B90-MD02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
P6	MM06-06006-B90-MD02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
P7	MM06-06006-B90-MD02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
P8	MM06-06006-B90-MD02 F30M	0.10	0.0015	0.0016	0.0019	0.0026
P11	MM06-06006-B90-MD02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
M1	MM06-06006-B90S-E02 F30M	0.10	0.0016	0.0017	0.0020	0.0028
M2	MM06-06006-B90S-E02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
M3	MM06-06006-B90S-E02 F30M	0.080	0.0012	0.0012	0.0014	0.0020
M4	MM06-06006-B90-MD02 F30M	0.065	0.0010	0.0010	0.0013	0.0017
M5	MM06-06006-B90-MD02 F30M	0.065	0.0010	0.0010	0.0013	0.0017
K1	MM06-06006-B90S-E02 F30M	0.10	0.0016	0.0017	0.0020	0.0028
K2	MM06-06006-B90S-E02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
K3	MM06-06006-B90S-E02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
K4	MM06-06006-B90S-E02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
K5	MM06-06006-B90S-E02 F30M	0.10	0.0013	0.0013	0.0017	0.0022
K6	MM06-06006-B90-MD02 F30M	0.10	0.0014	0.0015	0.0018	0.0024
K7	MM06-06006-B90-MD02 F30M	0.10	0.0013	0.0013	0.0017	0.0022
N1	MM06-06006-B90S-E02 F30M	0.10	0.0020	0.0022	0.0026	0.0034
N2	MM06-06006-B90S-E02 F30M	0.10	0.0020	0.0022	0.0026	0.0034
N3	MM06-06006-B90S-E02 F30M	0.10	0.0020	0.0022	0.0026	0.0034
N11	MM06-06006-B90S-E02 F30M	0.10	0.0020	0.0022	0.0026	0.0034
S1	MM06-06006-B90-MD02 F30M	0.065	0.0010	0.0010	0.0013	0.0017
S2	MM06-06006-B90-MD02 F30M	0.065	0.0010	0.0010	0.0013	0.0017
S3	MM06-06006-B90-MD02 F30M	0.065	0.00095	0.00095	0.0012	0.0016
S11	MM06-06006-B90-MD02 F30M	0.070	0.0012	0.0012	0.0014	0.0020
S12	MM06-06006-B90-MD02 F30M	0.070	0.0012	0.0012	0.0014	0.0020
S13	MM06-06006-B90-MD02 F30M	0.065	0.0010	0.0010	0.0013	0.0017
H5	MM06-06006-B90-MD02 F30M	0.080	0.0010	0.0010	0.0013	0.0017
H8	MM06-06006-B90-MD02 F30M	0.070	0.00075	0.00080	0.00095	0.0013
H11	MM06-06006-B90-MD02 F30M	0.080	0.0010	0.0010	0.0013	0.0017
H12	MM06-06006-B90-MD02 F30M	0.080	0.0010	0.0010	0.0013	0.0017
H21	MM06-06006-B90-MD02 F30M	0.070	0.00075	0.00080	0.00095	0.0013

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM06 Z2-Copy – Insert selection – Semi finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM06-06006-B90P-M02 F30M	0.10	0.0022	0.0026	0.0038	0.0065
P2	MM06-06006-B90P-M02 F30M	0.10	0.0022	0.0028	0.0038	0.0065
P3	MM06-06006-B90P-M02 F30M	0.10	0.0022	0.0026	0.0036	0.0060
P4	MM06-06006-B90P-M02 F30M	0.10	0.0022	0.0026	0.0036	0.0060
P5	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
P6	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
P7	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
P8	MM06-06006-B90P-M02 F30M	0.10	0.0022	0.0026	0.0036	0.0060
P11	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
M1	MM06-06006-B90P-M02 F30M	0.10	0.0022	0.0028	0.0038	0.0065
M2	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
M3	MM06-06006-B90P-M02 F30M	0.080	0.0017	0.0020	0.0028	0.0044
M4	MM06-06006-B90P-M02 F30M	0.065	0.0014	0.0017	0.0024	0.0038
M5	MM06-06006-B90P-M02 F30M	0.065	0.0014	0.0017	0.0024	0.0038
K1	MM06-06006-B90P-M02 F30M	0.10	0.0022	0.0028	0.0038	0.0065
K2	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
K3	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
K4	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
K5	MM06-06006-B90P-M02 F30M	0.10	0.0018	0.0022	0.0032	0.0050
K6	MM06-06006-B90P-M02 F30M	0.10	0.0020	0.0024	0.0034	0.0055
K7	MM06-06006-B90P-M02 F30M	0.10	0.0018	0.0022	0.0032	0.0050
N1	MM06-06006-B90P-M02 F30M	0.10	0.0030	0.0034	0.0048	0.0080
N2	MM06-06006-B90P-M02 F30M	0.10	0.0030	0.0034	0.0048	0.0080
N3	MM06-06006-B90P-M02 F30M	0.10	0.0030	0.0034	0.0048	0.0080
N11	MM06-06006-B90P-M02 F30M	0.10	0.0030	0.0034	0.0048	0.0080
S1	MM06-06006-B90P-M02 F30M	0.065	0.0014	0.0017	0.0024	0.0038
S2	MM06-06006-B90P-M02 F30M	0.065	0.0014	0.0017	0.0024	0.0038
S3	MM06-06006-B90P-M02 F30M	0.065	0.0013	0.0016	0.0022	0.0036
S11	MM06-06006-B90P-M02 F30M	0.070	0.0017	0.0020	0.0028	0.0044
S12	MM06-06006-B90P-M02 F30M	0.070	0.0017	0.0020	0.0028	0.0044
S13	MM06-06006-B90P-M02 F30M	0.065	0.0014	0.0017	0.0024	0.0038
H5	MM06-06006-B90P-M02 F30M	0.080	0.0014	0.0017	0.0024	0.0038
H8	MM06-06006-B90P-M02 F30M	0.070	0.0010	0.0013	0.0017	0.0028
H11	MM06-06006-B90P-M02 F30M	0.080	0.0014	0.0017	0.0024	0.0038
H12	MM06-06006-B90P-M02 F30M	0.080	0.0014	0.0017	0.0024	0.0038
H21	MM06-06006-B90P-M02 F30M	0.070	0.0010	0.0013	0.0017	0.0028

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM06 – Cutting data, 2-flute copy milling

MM06 Z2-Copy – Cutting data (sf/min)

	F15M					F30M					T60M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1375	1775	1975	2150	2400	1200	1525	1700	1850	2075	970	1250	1375	1500	1675
P2	1350	1725	1900	2100	2350	1175	1475	1625	1800	2000	940	1200	1325	1450	1625
P3	1175	1500	1650	1800	2025	1000	1300	1425	1550	1725	820	1050	1150	1250	1400
P4	1025	1325	1450	1600	1800	890	1150	1250	1375	1550	720	920	1025	1125	1250
P5	980	1275	1400	1525	1700	850	1100	1200	1325	1475	690	890	970	1075	1200
P6	1100	1425	1575	1700	1925	960	1225	1350	1475	1650	780	1000	1100	1200	1350
P7	1050	1350	1475	1625	1800	910	1150	1275	1400	1550	730	940	1050	1125	1275
P8	980	1275	1400	1525	1700	850	1100	1200	1300	1450	690	880	970	1050	1175
P11	1000	1300	1450	1575	1750	880	1125	1250	1350	1525	710	910	1000	1100	1225
M1	1075	1400	1550	1675	1900	940	1200	1325	1450	1600	760	970	1075	1175	1300
M2	880	1150	1250	1375	1550	770	990	1075	1175	1325	620	800	870	960	1075
M3	690	890	970	1050	1200	610	790	850	930	1050	495	640	690	750	850
M4	520	670	730	800	900	470	600	650	710	790	380	490	520	570	640
M5	430	560	610	670	750	395	500	540	590	660	320	405	435	480	530
K1	1075	1375	1525	1650	1850	920	1175	1300	1425	1575	750	950	1050	1150	1275
K2	930	1200	1325	1450	1625	810	1050	1125	1250	1400	660	840	920	1000	1125
K3	790	1025	1125	1225	1375	690	880	960	1050	1175	560	710	780	860	960
K4	750	970	1075	1175	1300	660	840	920	1000	1125	530	680	740	820	910
K5	450	580	640	700	790	395	510	560	610	680	320	410	455	495	550
K6	660	850	940	1025	1150	580	740	810	890	990	465	600	650	720	810
K7	580	750	820	900	1000	500	650	720	780	870	405	530	580	630	700
N1	4125	5325	5875	6425	7175	3550	4500	4975	5450	6025	2875	3650	4025	4400	4875
N2	3325	4300	4725	5200	5800	2850	3625	4000	4400	4850	2325	2950	3250	3550	3925
N3	2225	2875	3150	3450	3875	1900	2425	2675	2925	3250	1550	1950	2175	2375	2625
N11	2550	3275	3600	3950	4425	2175	2775	3050	3350	3700	1750	2250	2475	2700	3000
S1	240	310	340	375	420	220	280	300	330	370	180	230	245	270	300
S2	195	250	275	300	340	175	225	245	265	300	145	185	195	215	240
S3	170	215	240	260	295	155	195	210	230	260	125	160	170	190	210
S11	350	450	490	540	600	310	395	430	470	530	255	320	350	380	425
S12	200	260	285	310	350	180	230	250	270	305	145	185	200	220	245
S13	155	200	220	240	270	140	180	195	215	240	115	145	160	175	195
H5	205	265	290	315	355	180	235	255	280	315	—	—	—	—	—
H8	205	265	290	315	355	185	240	260	285	320	—	—	—	—	—
H11	260	335	365	400	450	230	300	325	355	400	—	—	—	—	—
H12	390	500	550	610	680	350	450	490	530	600	—	—	—	—	—
H21	205	265	290	315	355	185	240	260	285	320	—	—	—	—	—

MM06 Z3-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0026	0.0038	0.0065
P2	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0028	0.0038	0.0065
P3	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0026	0.0036	0.0060
P4	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0026	0.0036	0.0060
P5	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
P6	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
P7	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
P8	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0026	0.0036	0.0060
P11	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
M1	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0028	0.0038	0.0065
M2	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
M3	MM06-06007-B90A30-E02 F30M	0.040	0.0017	0.0020	0.0028	0.0044
M4	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
M5	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
K1	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0028	0.0038	0.0065
K2	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
K3	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
K4	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
K5	MM06-06007-B90A30-E02 F30M	0.050	0.0018	0.0022	0.0032	0.0050
K6	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
K7	MM06-06007-B90A30-E02 F30M	0.050	0.0018	0.0022	0.0032	0.0050
N1	MM06-06007-B90A30-E02 F30M	0.050	0.0030	0.0034	0.0048	0.0080
N2	MM06-06007-B90A30-E02 F30M	0.050	0.0030	0.0034	0.0048	0.0080
N3	MM06-06007-B90A30-E02 F30M	0.050	0.0030	0.0034	0.0048	0.0080
N11	MM06-06007-B90A30-E02 F30M	0.050	0.0030	0.0034	0.0048	0.0080
S1	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
S2	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
S3	MM06-06007-B90A30-E02 F30M	0.030	0.0013	0.0016	0.0022	0.0036
S11	MM06-06007-B90A30-E02 F30M	0.036	0.0017	0.0020	0.0028	0.0044
S12	MM06-06007-B90A30-E02 F30M	0.036	0.0017	0.0020	0.0028	0.0044
S13	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
H5	MM06-06007-B90A30-E02 F30M	0.040	0.0014	0.0017	0.0024	0.0038
H8	MM06-06007-B90A30-E02 F30M	0.036	0.0010	0.0013	0.0017	0.0028
H11	MM06-06007-B90A30-E02 F30M	0.040	0.0014	0.0017	0.0024	0.0038
H12	MM06-06007-B90A30-E02 F30M	0.040	0.0014	0.0017	0.0024	0.0038
H21	MM06-06007-B90A30-E02 F30M	0.036	0.0010	0.0013	0.0017	0.0028

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM06 Z3-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM06-06007-B90A30-M02 F40M	0.050	0.0016	0.0016	0.0020	0.0026
P2	MM06-06007-B90A30-M02 F40M	0.050	0.0016	0.0017	0.0020	0.0028
P3	MM06-06007-B90A30-M02 F40M	0.050	0.0015	0.0016	0.0019	0.0026
P4	MM06-06007-B90A30-M02 F40M	0.050	0.0015	0.0015	0.0019	0.0026
P5	MM06-06007-B90A30-M02 F40M	0.050	0.0014	0.0015	0.0018	0.0024
P6	MM06-06007-B90A30-M02 F40M	0.050	0.0014	0.0015	0.0018	0.0024
P7	MM06-06007-B90A30-M02 F40M	0.050	0.0014	0.0015	0.0018	0.0024
P8	MM06-06007-B90A30-M02 F40M	0.050	0.0015	0.0016	0.0019	0.0026
P11	MM06-06007-B90A30-M02 F40M	0.050	0.0014	0.0015	0.0018	0.0024
M1	MM06-06007-B90A30-M02 F40M	0.050	0.0016	0.0017	0.0020	0.0028
M2	MM06-06007-B90A30-M02 F40M	0.050	0.0014	0.0015	0.0018	0.0024
M3	MM06-06007-B90A30-M02 F40M	0.040	0.0012	0.0012	0.0014	0.0020
M4	MM06-06007-B90A30-M02 F40M	0.030	0.0010	0.0010	0.0013	0.0017
M5	MM06-06007-B90A30-M02 F40M	0.030	0.0010	0.0010	0.0013	0.0017
K1	MM06-06007-B90A30-E02 F30M	0.050	0.0016	0.0017	0.0020	0.0028
K2	MM06-06007-B90A30-E02 F30M	0.050	0.0014	0.0015	0.0018	0.0024
K3	MM06-06007-B90A30-E02 F30M	0.050	0.0014	0.0015	0.0018	0.0024
K4	MM06-06007-B90A30-E02 F30M	0.050	0.0014	0.0015	0.0018	0.0024
K5	MM06-06407-B90A30-D02 F30M	0.050	0.0013	0.0013	0.0017	0.0022
K6	MM06-06407-B90A30-D02 F30M	0.050	0.0014	0.0015	0.0018	0.0024
K7	MM06-06407-B90A30-D02 F30M	0.050	0.0013	0.0013	0.0017	0.0022
N1	MM06-06407-B90A30-E02 F30M	0.050	0.0020	0.0022	0.0026	0.0034
N2	MM06-06407-B90A30-E02 F30M	0.050	0.0020	0.0022	0.0026	0.0034
N3	MM06-06407-B90A30-E02 F30M	0.050	0.0020	0.0022	0.0026	0.0034
N11	MM06-06407-B90A30-E02 F30M	0.050	0.0020	0.0022	0.0026	0.0034
S1	MM06-06407-B90A30-D02 F30M	0.030	0.0010	0.0010	0.0013	0.0017
S2	MM06-06407-B90A30-D02 F30M	0.030	0.0010	0.0010	0.0013	0.0017
S3	MM06-06407-B90A30-D02 F30M	0.030	0.00095	0.00095	0.0012	0.0016
S11	MM06-06007-R05A30-M02 F40M	0.036	0.00095	0.00095	0.0012	0.0016
S12	MM06-06007-R05A30-M02 F40M	0.036	0.00095	0.00095	0.0012	0.0016
S13	MM06-06007-R05A30-M02 F40M	0.030	0.00085	0.00085	0.0011	0.0014
H5	MM06-06407-B90A30-D02 F30M	0.040	0.0010	0.0010	0.0013	0.0017
H8	MM06-06407-B90A30-D02 F30M	0.036	0.00075	0.00080	0.00095	0.0013
H11	MM06-06407-B90A30-D02 F30M	0.040	0.0010	0.0010	0.0013	0.0017
H12	MM06-06407-B90A30-D02 F30M	0.040	0.0010	0.0010	0.0013	0.0017
H21	MM06-06407-B90A30-D02 F30M	0.036	0.00075	0.00080	0.00095	0.0013

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM06 Z3-Copy – Insert selection – Semi finishing

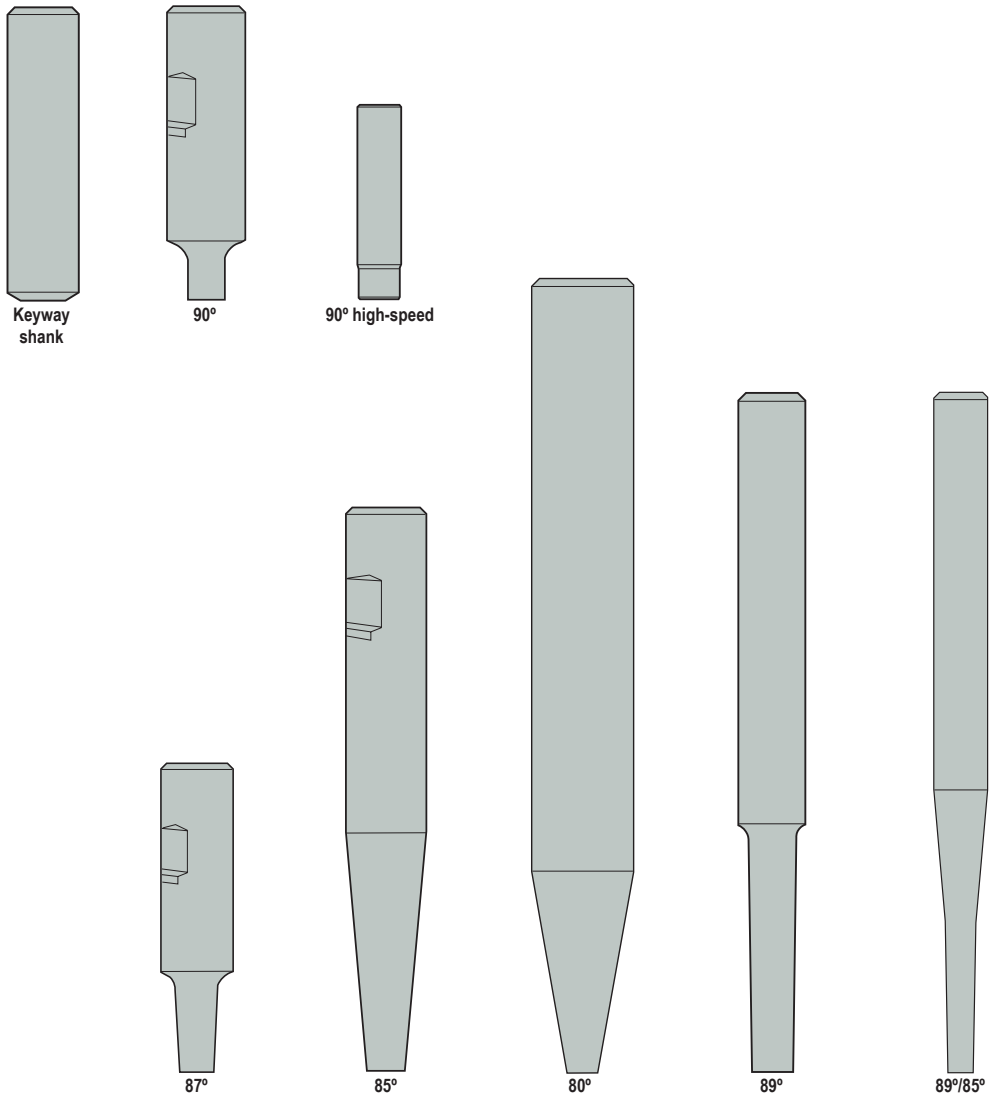
SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0026	0.0038	0.0065
P2	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0028	0.0038	0.0065
P3	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0026	0.0036	0.0060
P4	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0026	0.0036	0.0060
P5	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
P6	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
P7	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
P8	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0026	0.0036	0.0060
P11	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
M1	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0028	0.0038	0.0065
M2	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
M3	MM06-06007-B90A30-E02 F30M	0.040	0.0017	0.0020	0.0028	0.0044
M4	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
M5	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
K1	MM06-06007-B90A30-E02 F30M	0.050	0.0022	0.0028	0.0038	0.0065
K2	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
K3	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
K4	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
K5	MM06-06007-B90A30-E02 F30M	0.050	0.0018	0.0022	0.0032	0.0050
K6	MM06-06007-B90A30-E02 F30M	0.050	0.0020	0.0024	0.0034	0.0055
K7	MM06-06007-B90A30-E02 F30M	0.050	0.0018	0.0022	0.0032	0.0050
N1	MM06-06007-B90A30-E02 F30M	0.050	0.0030	0.0034	0.0048	0.0080
N2	MM06-06007-B90A30-E02 F30M	0.050	0.0030	0.0034	0.0048	0.0080
N3	MM06-06007-B90A30-E02 F30M	0.050	0.0030	0.0034	0.0048	0.0080
N11	MM06-06007-B90A30-E02 F30M	0.050	0.0030	0.0034	0.0048	0.0080
S1	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
S2	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
S3	MM06-06407-B90A30-D02 F30M	0.030	0.0013	0.0016	0.0022	0.0036
S11	MM06-06007-B90A30-E02 F30M	0.036	0.0017	0.0020	0.0028	0.0044
S12	MM06-06007-B90A30-E02 F30M	0.036	0.0017	0.0020	0.0028	0.0044
S13	MM06-06007-B90A30-E02 F30M	0.030	0.0014	0.0017	0.0024	0.0038
H5	MM06-06407-B90A30-E02 F30M	0.040	0.0014	0.0017	0.0024	0.0038
H8	MM06-06407-B90A30-E02 F30M	0.036	0.0010	0.0013	0.0017	0.0028
H11	MM06-06407-B90A30-E02 F30M	0.040	0.0014	0.0017	0.0024	0.0038
H12	MM06-06407-B90A30-E02 F30M	0.040	0.0014	0.0017	0.0024	0.0038
H21	MM06-06407-B90A30-E02 F30M	0.036	0.0010	0.0013	0.0017	0.0028

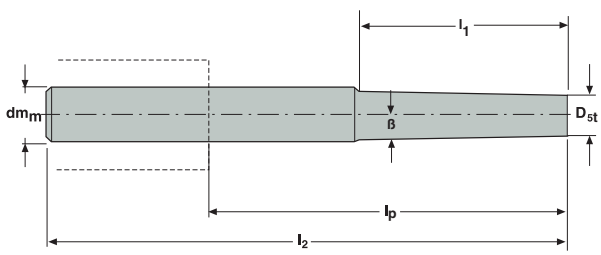
** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM06 – Cutting data, 3-flute copy milling

MM06 Z3-Copy – Cutting data (sf/min)

	F30M					F40M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1275	1525	1675	1850	2050	1200	1450	1600	1750	1950
P2	1225	1475	1625	1775	1975	1175	1400	1550	1700	1900
P3	1075	1275	1400	1550	1725	1025	1225	1350	1475	1650
P4	940	1125	1250	1350	1525	900	1075	1200	1300	1450
P5	900	1075	1200	1300	1450	860	1025	1150	1250	1375
P6	1025	1225	1350	1475	1650	960	1150	1275	1400	1575
P7	960	1150	1275	1400	1550	910	1100	1200	1325	1475
P8	900	1075	1175	1300	1450	860	1025	1125	1225	1375
P11	930	1125	1225	1350	1525	880	1075	1175	1275	1450
M1	1000	1175	1325	1425	1600	950	1125	1250	1375	1525
M2	810	980	1075	1175	1300	770	930	1025	1125	1250
M3	630	760	840	930	1025	600	730	800	880	990
M4	475	600	640	700	790	455	570	610	670	750
M5	395	495	530	580	660	380	475	510	560	620
K1	980	1175	1300	1400	1575	930	1100	1225	1350	1500
K2	860	1025	1125	1250	1375	820	980	1075	1175	1325
K3	720	870	960	1050	1175	690	830	920	1000	1100
K4	690	830	920	1000	1125	660	790	870	960	1050
K5	415	500	550	600	680	395	480	530	570	650
K6	610	730	810	880	980	580	700	770	840	940
K7	530	640	710	770	870	500	610	670	740	830
N1	3800	4450	4950	5375	5975	3625	4250	4700	5125	5675
N2	3075	3600	4000	4350	4825	2925	3425	3800	4150	4600
N3	2050	2400	2650	2900	3225	1950	2275	2525	2750	3050
N11	2350	2750	3050	3300	3675	2225	2600	2900	3150	3500
S1	220	280	300	325	365	210	265	285	310	350
S2	180	225	240	265	295	170	215	230	250	280
S3	155	195	210	230	255	145	185	200	220	245
S11	320	395	425	470	520	305	375	405	445	500
S12	185	225	245	270	300	175	215	235	255	285
S13	145	180	190	210	235	135	170	185	200	225
H5	185	230	250	275	310	180	215	240	265	295
H8	185	235	260	285	315	180	225	245	270	300
H11	240	290	320	350	395	225	275	305	335	375
H12	360	440	485	530	600	340	415	460	510	570
H21	185	235	260	285	315	180	225	245	270	300





Cutting data for MM08 is shown on pages 456-465.
Max RPM and torque values are shown on page 517.

For MM08 inserts

Shank design	EDP No.	Part No.	Dimensions in inch						lbs	Spare part no.
			D_{5t}	dm_m	β°	l_1	l_2	l_p		
Keyway	54599	**MM08 50-2.6-0-0000**	0.299	0.500	60	–	2.559	0.787	0.2	1
90° high speed	96119	**MM08 38-1.6-0-0002**	0.299	0.375	–	0.276	1.575	0.276	0.2	2
90°	54600	**MM08 62-2.8-3-0003**	0.299	0.625	–	0.299	2.756	0.866	0.2	1
90°	35069	**62-3.3-0-0006DS****	0.299	0.625	–	0.630	3.346	1.457	0.7	3
90°	35070	**62-4.0-0-0012DS****	0.299	0.625	–	1.260	3.937	2.047	0.7	3
87°	54601	**MM08 62-3.0-3-3004**	0.299	0.625	3	0.472	2.953	1.063	0.2	1
85°	54602	**MM08 62-4.7-3-5018**	0.299	0.625	5	1.850	4.724	2.835	0.4	4
89°	54604	**MM08 62-5.9-0-1011**	0.299	0.625	1	1.181	5.906	4.016	0.4	6
89°	54605	**62-5.9-0-1019**	0.299	0.625	1	1.969	5.906	4.016	0.4	7
89°	35072	**62-5.9-0-1019DS****	0.299	0.625	1	1.969	5.906	4.016	0.9	3
89°	54606	**62-5.9-0-1027**	0.299	0.625	1	2.756	5.906	4.016	0.4	7
89°	35074	**62-5.9-0-1027DS****	0.299	0.625	1	2.756	5.906	4.016	0.7	3
89° / 85°*	35076	**MM08 75-10.0-0-1019DS****	0.299	0.750	1	1.969	9.843	7.874	2.0	3

* For design 9, the l_1 value is valid on the 89° tapered part.

** High density, anti-vibration shank, for semi-finishing and finishing only.

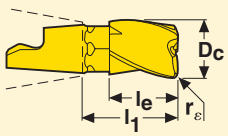
Spare Parts, included in delivery.

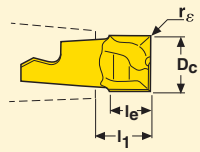
Spare part no.	Sleeve	Tension screw
1	MM-05044	MM08-0524
2	MM-05019	MM08-0524
3	–	MM08-0524
4	MM-05044	MM08-0543
6	MM-05044	MM08-0543
7	MM-05044	MM08-0582

Please check availability in current price and stock-list.

For wrench types, see insert pages.
For torque keys and values, see page 517.
Allen key (H05-4) for sleeve and wrench ordered separately.

Slot milling/ square shoulder milling



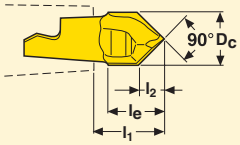


Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	r_ε	l_e	l_1			T60M	F15M	F30M	F40M
3-flute	MM08 -0.315-A30-E03	0.315	–	0.394	0.512	3*	MM0416			23714	
3-flute	-0.315-R020A30-M03	0.315	0.020	0.394	0.512	3*	MM0416				23715
3-flute	-0.315-R040A30-D03	0.315	0.039	0.394	0.512	3*	MM0416			38208	
3-flute	-0.315-R040A30-E03	0.315	0.039	0.394	0.512	3*	MM0416			23716	
3-flute	-0.315-R040A30-M03	0.315	0.039	0.394	0.512	3*	MM0416				23717
3-flute	-0.315-R080A30-M03	0.315	0.079	0.394	0.512	3*	MM0416				23718
3-flute	-0.315-R118A30-M03	0.315	0.118	0.394	0.512	3*	MM0416				23719
2-flute	MM08 -0.315-M03	0.315	–	0.217	0.268	2	MM0612	34247			
2-flute	-0.315-R1-MD03	0.315	0.016	0.217	0.267	2	MM0612	34248		81333	
2-flute	-0.315-R1P-M02	0.315	0.016	0.213	0.264	2	MM0612			84029	
2-flute	-0.315-R2.5-MD03	0.315	0.039	0.216	0.267	2	MM0612			81695	
2-flute	MM08 -0.315-R1A8-E03	0.315	0.016	0.213	0.264	2	MM0612	34599		83495	
2-flute	-0.315-R7.5A8-E03	0.315	0.118	0.209	0.262	2	MM0612			83496	
Keyway 3-flute	MM08 -0.307-R008A30-M03	0.307	0.008	0.394	0.512	3*	MM0416				23721
Keyway 2-flute	MM08 -0.307T-R0.5-D03	0.307	0.008	0.216	0.267	2	MM0612	34244			

* = z_c – value 1 in drilling.

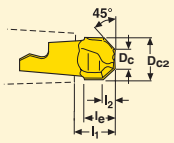
** Wrench not included, must be ordered separately.

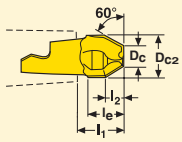
Center drilling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	l_e	l_1	l_2			T60M	F15M	F30M	F40M
90°	MM08 -0.315-C90-M03	0.315	0.315	0.374	0.149	2	MM0612	34245			
120°	MM08 -0.315-C120-M03	0.315	0.328	0.372	0.085	2	MM0612	34249			

Chamfering

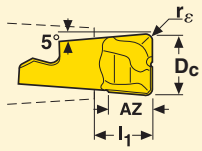




Insert type	Part No.	Dimensions in inch					Z_c	Wrench**	Coated Grades			
		D_c	D_{c2}	l_e	l_1	l_2			T60M	F15M	F30M	F40M
45°	MM08 -0.315-45.08-E03	0.152	0.315	0.217	0.264	0.079	2	MM0612	34543			
60°	MM08 -0.315-60.13-E03	0.165	0.315	0.254	0.302	0.130	2	MM0612	34546			

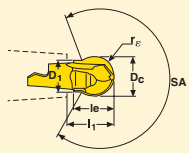
** Wrench not included, must be ordered separately.

Plunge milling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	r_ε	AZ	l_1			T60M	F15M	F30M	F40M
2-flute	**MM08 -0.315-R040-PL-MD03**	0.315	0.039	0.224	0.267	2	MM0612			23781	

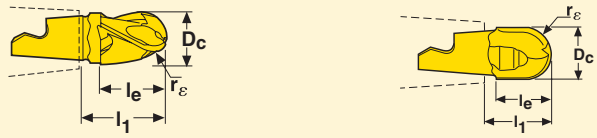
Precision inserts for semi-finishing in all materials



Insert type	Part No.	Dimensions in inch						Z_c	Wrench**	Coated Grades			
		D_c	r_ε	l_e	l_1	D_1	SA°			T60M	F15M	F30M	F40M
2-flute	**MM08 -0.394-B120PF-M02**	0.394	.197	0.394	0.432	0.315	254.0	2	MM0612		83758		
2-flute	**-0.394-B120P-M04**	0.394	.197	0.394	0.432	0.315	254.0	2	MM0612			83493	

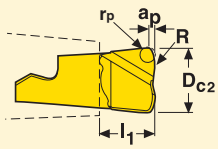
** Wrench not included, must be ordered separately.

Copy milling



Insert type	Part No.	Dimensions in inch				Zc	Wrench**	Coated Grades			
		Dc	rε	le	l1			T60M	F15M	F30M	F40M
3-flute	MM08 -0.315-B90A30-E03	0.315	0.157	0.394	0.512	3*	MM0416			96008	
3-flute	-0.315-B90A30-M03	0.315	0.157	0.394	0.512	3*	MM0416				96009
3-flute	-0.315-B90A30-D03	0.315	0.157	0.394	0.512	3*	MM0416			96010	
2-flute	MM08 -0.315-B90-MD03	0.315	0.157	0.322	0.371	2	MM0612	34250		68812	
2-flute	-0.315-B90S-E03	0.315	0.157	0.322	0.371	2	MM0612			69355	
2-flute	-0.315-B90P-M03	0.315	0.157	0.275	0.370	2	MM0612			68813	
2-flute	-0.315-B90PF-M01	0.315	0.157	0.275	0.370	2	MM0612		92168		

Highfeed



Insert type	Part No.	Dimensions in inch					Zc	Wrench**	Coated Grades			
		ap	Dc2	rp	R	l1			T60M	F15M	F30M	F40M
2-flute	MM08 -08.40-HF-MD06	0.015	0.315	0.035	0.157	0.269	2	MM0612			04581	

* = z_c – value 1 in drilling.

** Wrench not included, must be ordered separately.

MM08 – General insert selection

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM08-08009-R05A30-M03 F40M	0.070	0.0017	0.0017	0.0022	0.0030
P2	MM08-08009-R05A30-M03 F40M	0.070	0.0017	0.0018	0.0022	0.0030
P3	MM08-08009-R05A30-M03 F40M	0.070	0.0017	0.0017	0.0022	0.0028
P4	MM08-08009-R05A30-M03 F40M	0.070	0.0017	0.0017	0.0020	0.0028
P5	MM08-08009-R05A30-M03 F40M	0.070	0.0016	0.0017	0.0020	0.0028
P6	MM08-08009-R05A30-M03 F40M	0.070	0.0016	0.0016	0.0020	0.0026
P7	MM08-08009-R05A30-M03 F40M	0.070	0.0016	0.0016	0.0020	0.0026
P8	MM08-08009-R05A30-M03 F40M	0.070	0.0017	0.0017	0.0022	0.0028
P11	MM08-08009-R05A30-M03 F40M	0.070	0.0016	0.0016	0.0020	0.0026
M1	MM08-08009-R05A30-M03 F40M	0.070	0.0017	0.0018	0.0022	0.0030
M2	MM08-08009-R05A30-M03 F40M	0.070	0.0016	0.0017	0.0020	0.0028
M3	MM08-08009-R05A30-M03 F40M	0.055	0.0013	0.0013	0.0017	0.0022
M4	MM08-08009-R05A30-M03 F40M	0.040	0.0012	0.0013	0.0015	0.0020
M5	MM08-08009-R05A30-M03 F40M	0.040	0.0012	0.0013	0.0015	0.0020
K1	MM08-08009-R10A30-E03 F30M	0.070	0.0020	0.0020	0.0024	0.0034
K2	MM08-08009-R10A30-E03 F30M	0.070	0.0017	0.0018	0.0022	0.0030
K3	MM08-08009-R10A30-E03 F30M	0.070	0.0017	0.0018	0.0022	0.0030
K4	MM08-08009-R10A30-E03 F30M	0.070	0.0017	0.0018	0.0022	0.0030
K5	MM08-08009-R10A30-D03 F30M	0.070	0.0016	0.0017	0.0020	0.0028
K6	MM08-08009-R10A30-D03 F30M	0.070	0.0017	0.0018	0.0022	0.0030
K7	MM08-08009-R10A30-D03 F30M	0.070	0.0016	0.0017	0.0020	0.0028
N1	MM08-08009-R10A30-E03 F30M	0.070	0.0026	0.0026	0.0032	0.0044
N2	MM08-08009-R10A30-E03 F30M	0.070	0.0026	0.0026	0.0032	0.0044
N3	MM08-08009-R10A30-E03 F30M	0.070	0.0026	0.0026	0.0032	0.0044
N11	MM08-08009-R10A30-E03 F30M	0.070	0.0026	0.0026	0.0032	0.0044
S1	MM08-08009-R10A30-D03 F30M	0.040	0.0015	0.0016	0.0019	0.0026
S2	MM08-08009-R10A30-D03 F30M	0.040	0.0015	0.0016	0.0019	0.0026
S3	MM08-08009-R10A30-D03 F30M	0.040	0.0014	0.0014	0.0017	0.0024
S11	MM08-08009-R05A30-M03 F40M	0.050	0.0013	0.0013	0.0017	0.0022
S12	MM08-08009-R05A30-M03 F40M	0.050	0.0013	0.0013	0.0017	0.0022
S13	MM08-08009-R05A30-M03 F40M	0.040	0.0012	0.0013	0.0015	0.0020
H5	MM08-08009-R10A30-E03 F30M	0.055	0.0013	0.0013	0.0016	0.0022
H8	MM08-08009-R10A30-E03 F30M	0.050	0.0010	0.0010	0.0013	0.0017
H11	MM08-08009-R10A30-E03 F30M	0.055	0.0013	0.0013	0.0016	0.0022
H12	MM08-08009-R10A30-E03 F30M	0.055	0.0013	0.0013	0.0016	0.0022
H21	MM08-08009-R10A30-E03 F30M	0.050	0.0010	0.0010	0.0013	0.0017

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM08 – General Cutting data (sf/min)

	F30M				F40M				T60M			
SMG	100%	40%	20%	10%	100%	40%	20%	10%	100%	40%	20%	10%
P1	930	1150	1275	1400	860	1050	1175	1300	680	810	940	1050
P2	900	1100	1250	1350	830	1025	1150	1275	660	790	910	1000
P3	780	960	1075	1175	720	900	1000	1100	580	680	790	870
P4	690	850	950	1050	640	790	880	970	510	610	700	780
P5	660	820	910	1000	610	750	840	930	485	580	670	740
P6	750	920	1025	1125	690	850	950	1050	540	650	750	830
P7	700	860	970	1075	650	800	900	980	510	620	710	790
P8	660	810	910	990	610	750	840	910	485	570	660	730
P11	680	840	940	1025	630	780	870	950	500	600	690	760
M1	720	900	1000	1100	670	830	920	1025	530	640	740	810
M2	600	730	820	900	550	680	750	830	435	520	600	670
M3	470	580	650	710	435	540	600	650	340	405	470	530
M4	355	440	495	540	335	410	460	500	260	295	340	405
M5	295	365	415	455	280	345	385	420	215	245	285	340
K1	710	880	980	1075	660	810	900	1000	520	620	720	790
K2	630	770	870	950	580	710	800	880	460	550	640	700
K3	530	660	730	810	490	600	670	740	390	465	540	600
K4	510	630	700	770	470	580	640	710	370	445	510	570
K5	310	380	420	465	285	350	390	430	225	270	310	345
K6	450	550	620	680	415	510	570	630	325	395	455	500
K7	395	485	540	590	365	450	500	550	290	345	400	445
N1	2725	3350	3725	4050	2500	3100	3425	3775	1950	2300	2700	2975
N2	2200	2700	3000	3275	2025	2500	2750	3050	1575	1875	2200	2400
N3	1475	1800	2000	2175	1350	1675	1850	2025	1050	1250	1450	1600
N11	1675	2050	2275	2500	1550	1900	2100	2325	1200	1425	1675	1825
S1	165	205	230	255	155	190	215	235	120	135	160	190
S2	135	165	185	205	125	155	175	190	95	110	130	155
S3	115	145	160	180	110	135	150	165	85	95	115	135
S11	235	290	330	360	220	270	300	330	170	200	230	270
S12	135	170	190	205	125	155	175	190	100	115	135	155
S13	105	130	150	165	100	125	140	150	80	90	105	125
H5	140	175	195	215	130	160	180	200	—	—	—	—
H8	145	180	200	220	135	165	185	205	—	—	—	—
H11	180	220	250	270	165	205	230	250	—	—	—	—
H12	275	335	375	410	255	310	345	380	—	—	—	—
H21	145	180	200	220	135	165	185	205	—	—	—	—

MM08 Z2-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM08-08008-B90PF-M01 F15M	0.14	0.0011	0.0013	0.0018	0.0030
P2	MM08-08008-B90PF-M01 F15M	0.14	0.0011	0.0013	0.0018	0.0030
P3	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0013	0.0017	0.0028
P4	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0013	0.0017	0.0028
P5	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0028
P6	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0026
P7	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0026
P8	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0013	0.0017	0.0028
P11	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0026
M1	MM08-08008-B90PF-M01 F15M	0.14	0.0011	0.0013	0.0018	0.0030
M2	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0028
M3	MM08-08008-B90PF-M01 F15M	0.10	0.00080	0.00095	0.0013	0.0022
M4	MM08-08008-B90PF-M01 F15M	0.080	0.00070	0.00085	0.0012	0.0018
M5	MM08-08008-B90PF-M01 F15M	0.080	0.00070	0.00085	0.0012	0.0018
K1	MM08-08008-B90PF-M01 F15M	0.14	0.0011	0.0013	0.0018	0.0030
K2	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0028
K3	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0028
K4	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0028
K5	MM08-08008-B90PF-M01 F15M	0.14	0.00095	0.0011	0.0015	0.0024
K6	MM08-08008-B90PF-M01 F15M	0.14	0.0010	0.0012	0.0017	0.0028
K7	MM08-08008-B90PF-M01 F15M	0.14	0.00095	0.0011	0.0015	0.0024
N1	MM08-08008-B90PF-M01 F15M	0.14	0.0014	0.0017	0.0024	0.0038
N2	MM08-08008-B90PF-M01 F15M	0.14	0.0014	0.0017	0.0024	0.0038
N3	MM08-08008-B90PF-M01 F15M	0.14	0.0014	0.0017	0.0024	0.0038
N11	MM08-08008-B90PF-M01 F15M	0.14	0.0014	0.0017	0.0024	0.0038
S1	MM08-08008-B90PF-M01 F15M	0.080	0.00070	0.00085	0.0012	0.0018
S2	MM08-08008-B90PF-M01 F15M	0.080	0.00070	0.00085	0.0012	0.0018
S3	MM08-08008-B90PF-M01 F15M	0.080	0.00065	0.00080	0.0011	0.0017
S11	MM08-08008-B90PF-M01 F15M	0.10	0.00080	0.00095	0.0013	0.0022
S12	MM08-08008-B90PF-M01 F15M	0.10	0.00080	0.00095	0.0013	0.0022
S13	MM08-08008-B90PF-M01 F15M	0.080	0.00070	0.00085	0.0012	0.0018
H5	MM08-08008-B90PF-M01 F15M	0.10	0.00070	0.00080	0.0011	0.0018
H8	MM08-08008-B90PF-M01 F15M	0.10	0.00050	0.00065	0.00085	0.0013
H11	MM08-08008-B90PF-M01 F15M	0.10	0.00070	0.00080	0.0011	0.0018
H12	MM08-08008-B90PF-M01 F15M	0.10	0.00070	0.00080	0.0011	0.0018
H21	MM08-08008-B90PF-M01 F15M	0.10	0.00050	0.00065	0.00085	0.0013

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM08 Z2-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM08-08008-B90S-E03 F30M	0.14	0.0024	0.0024	0.0030	0.0040
P2	MM08-08008-B90S-E03 F30M	0.14	0.0024	0.0024	0.0030	0.0040
P3	MM08-08008-B90S-E03 F30M	0.14	0.0022	0.0024	0.0028	0.0038
P4	MM08-08008-B90-MD03 F30M	0.14	0.0022	0.0022	0.0028	0.0038
P5	MM08-08008-B90-MD03 F30M	0.14	0.0022	0.0022	0.0028	0.0038
P6	MM08-08008-B90-MD03 F30M	0.14	0.0022	0.0022	0.0028	0.0036
P7	MM08-08008-B90-MD03 F30M	0.14	0.0022	0.0022	0.0028	0.0036
P8	MM08-08008-B90-MD03 F30M	0.14	0.0022	0.0024	0.0028	0.0038
P11	MM08-08008-B90-MD03 F30M	0.14	0.0022	0.0022	0.0028	0.0036
M1	MM08-08008-B90S-E03 F30M	0.14	0.0024	0.0024	0.0030	0.0040
M2	MM08-08008-B90S-E03 F30M	0.14	0.0022	0.0022	0.0028	0.0038
M3	MM08-08008-B90S-E03 F30M	0.10	0.0017	0.0018	0.0022	0.0030
M4	MM08-08008-B90-MD03 F30M	0.080	0.0015	0.0016	0.0019	0.0026
M5	MM08-08008-B90-MD03 F30M	0.080	0.0015	0.0016	0.0019	0.0026
K1	MM08-08008-B90S-E03 F30M	0.14	0.0024	0.0024	0.0030	0.0040
K2	MM08-08008-B90S-E03 F30M	0.14	0.0022	0.0022	0.0028	0.0038
K3	MM08-08008-B90S-E03 F30M	0.14	0.0022	0.0022	0.0028	0.0038
K4	MM08-08008-B90S-E03 F30M	0.14	0.0022	0.0022	0.0028	0.0038
K5	MM08-08008-B90-MD03 F30M	0.14	0.0020	0.0020	0.0024	0.0034
K6	MM08-08008-B90-MD03 F30M	0.14	0.0022	0.0022	0.0028	0.0038
K7	MM08-08008-B90-MD03 F30M	0.14	0.0020	0.0020	0.0024	0.0034
N1	MM08-08008-B90S-E03 F30M	0.14	0.0030	0.0032	0.0038	0.0050
N2	MM08-08008-B90S-E03 F30M	0.14	0.0030	0.0032	0.0038	0.0050
N3	MM08-08008-B90S-E03 F30M	0.14	0.0030	0.0032	0.0038	0.0050
N11	MM08-08008-B90S-E03 F30M	0.14	0.0030	0.0032	0.0038	0.0050
S1	MM08-08008-B90-MD03 F30M	0.080	0.0015	0.0016	0.0019	0.0026
S2	MM08-08008-B90-MD03 F30M	0.080	0.0015	0.0016	0.0019	0.0026
S3	MM08-08008-B90-MD03 F30M	0.080	0.0014	0.0014	0.0017	0.0024
S11	MM08-08008-B90-MD03 F30M	0.10	0.0017	0.0018	0.0022	0.0030
S12	MM08-08008-B90-MD03 F30M	0.10	0.0017	0.0018	0.0022	0.0030
S13	MM08-08008-B90-MD03 F30M	0.080	0.0015	0.0016	0.0019	0.0026
H5	MM08-08008-B90-MD03 F30M	0.10	0.0015	0.0015	0.0019	0.0026
H8	MM08-08008-B90-MD03 F30M	0.10	0.0011	0.0012	0.0014	0.0019
H11	MM08-08008-B90-MD03 F30M	0.10	0.0015	0.0015	0.0019	0.0026
H12	MM08-08008-B90-MD03 F30M	0.10	0.0015	0.0015	0.0019	0.0026
H21	MM08-08008-B90-MD03 F30M	0.10	0.0011	0.0012	0.0014	0.0019

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM08 Z2-Copy – Insert selection – Semi finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM08-08008-B90P-M03 F30M	0.14	0.0034	0.0040	0.0055	0.0095
P2	MM08-08008-B90P-M03 F30M	0.14	0.0034	0.0040	0.0055	0.0095
P3	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0055	0.0085
P4	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0050	0.0085
P5	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0050	0.0085
P6	MM08-08008-B90P-M03 F30M	0.14	0.0030	0.0036	0.0050	0.0085
P7	MM08-08008-B90P-M03 F30M	0.14	0.0030	0.0036	0.0050	0.0085
P8	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0055	0.0085
P11	MM08-08008-B90P-M03 F30M	0.14	0.0030	0.0036	0.0050	0.0085
M1	MM08-08008-B90P-M03 F30M	0.14	0.0034	0.0040	0.0055	0.0095
M2	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0050	0.0085
M3	MM08-08008-B90P-M03 F30M	0.10	0.0024	0.0030	0.0040	0.0065
M4	MM08-08008-B90P-M03 F30M	0.080	0.0022	0.0026	0.0036	0.0060
M5	MM08-08008-B90P-M03 F30M	0.080	0.0022	0.0026	0.0036	0.0060
K1	MM08-08008-B90P-M03 F30M	0.14	0.0034	0.0040	0.0055	0.0095
K2	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0050	0.0085
K3	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0050	0.0085
K4	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0050	0.0085
K5	MM08-08008-B90P-M03 F30M	0.14	0.0028	0.0034	0.0048	0.0075
K6	MM08-08008-B90P-M03 F30M	0.14	0.0032	0.0038	0.0050	0.0085
K7	MM08-08008-B90P-M03 F30M	0.14	0.0028	0.0034	0.0048	0.0075
N1	MM08-08008-B90P-M03 F30M	0.14	0.0044	0.0050	0.0075	0.013
N2	MM08-08008-B90P-M03 F30M	0.14	0.0044	0.0050	0.0075	0.013
N3	MM08-08008-B90P-M03 F30M	0.14	0.0044	0.0050	0.0075	0.013
N11	MM08-08008-B90P-M03 F30M	0.14	0.0044	0.0050	0.0075	0.013
S1	MM08-08008-B90P-M03 F30M	0.080	0.0022	0.0026	0.0036	0.0060
S2	MM08-08008-B90P-M03 F30M	0.080	0.0022	0.0026	0.0036	0.0060
S3	MM08-08008-B90P-M03 F30M	0.080	0.0020	0.0024	0.0034	0.0055
S11	MM08-08008-B90P-M03 F30M	0.10	0.0024	0.0030	0.0040	0.0065
S12	MM08-08008-B90P-M03 F30M	0.10	0.0024	0.0030	0.0040	0.0065
S13	MM08-08008-B90P-M03 F30M	0.080	0.0022	0.0026	0.0036	0.0060
H5	MM08-08008-B90P-M03 F30M	0.10	0.0022	0.0026	0.0036	0.0055
H8	MM08-08008-B90P-M03 F30M	0.10	0.0016	0.0019	0.0026	0.0044
H11	MM08-08008-B90P-M03 F30M	0.10	0.0022	0.0026	0.0036	0.0055
H12	MM08-08008-B90P-M03 F30M	0.10	0.0022	0.0026	0.0036	0.0055
H21	MM08-08008-B90P-M03 F30M	0.10	0.0016	0.0019	0.0026	0.0044

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM08 – Cutting data, 2-flute copy milling

MM08 Z2-Copy – Cutting data (sf/min)

	F15M					F30M					T60M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1375	1775	1975	2150	2425	1125	1450	1600	1725	1925	900	1175	1275	1400	1550
P2	1350	1725	1925	2100	2350	1075	1400	1525	1675	1875	880	1125	1250	1350	1500
P3	1150	1500	1650	1800	2025	950	1200	1325	1475	1625	770	980	1075	1200	1325
P4	1025	1325	1450	1600	1800	840	1075	1175	1300	1425	680	870	960	1050	1150
P5	980	1275	1400	1525	1725	800	1025	1125	1225	1375	650	830	910	1000	1125
P6	1100	1425	1575	1725	1925	900	1150	1275	1375	1550	730	930	1025	1125	1250
P7	1025	1350	1475	1625	1825	850	1075	1200	1300	1475	680	880	970	1050	1175
P8	980	1275	1400	1525	1700	800	1025	1125	1225	1375	650	820	910	1000	1100
P11	1000	1300	1425	1575	1775	820	1050	1175	1275	1425	660	850	940	1025	1150
M1	1075	1400	1550	1700	1900	880	1125	1225	1350	1500	710	910	1000	1100	1225
M2	880	1150	1250	1375	1550	720	920	1025	1100	1250	580	750	820	900	1000
M3	690	890	970	1075	1200	590	740	810	880	990	480	600	650	710	800
M4	520	670	730	800	900	460	580	610	680	760	375	470	495	550	610
M5	430	560	610	670	750	385	485	510	560	630	310	395	415	455	510
K1	1075	1375	1525	1650	1875	860	1100	1225	1325	1475	700	900	980	1075	1200
K2	930	1200	1325	1450	1625	760	970	1075	1175	1325	610	790	870	950	1075
K3	790	1025	1125	1225	1375	640	820	910	990	1100	520	670	730	800	900
K4	750	970	1075	1175	1325	610	790	870	950	1050	495	640	700	770	860
K5	450	580	640	700	790	370	475	530	570	640	300	385	425	460	520
K6	660	850	940	1025	1150	540	690	760	830	930	435	560	620	670	760
K7	570	740	820	900	1000	475	610	670	730	820	385	490	550	590	670
N1	4100	5325	5850	6400	7200	3275	4175	4600	5000	5575	2650	3375	3725	4050	4500
N2	3325	4300	4725	5175	5825	2650	3375	3700	4050	4500	2150	2725	3000	3275	3650
N3	2225	2875	3150	3450	3875	1750	2250	2475	2700	3000	1425	1825	2000	2175	2425
N11	2525	3275	3600	3950	4425	2000	2575	2825	3075	3425	1625	2075	2275	2500	2775
S1	240	310	340	375	420	215	270	285	315	350	175	220	230	255	285
S2	195	250	275	300	340	175	220	230	255	285	140	175	185	205	230
S3	170	215	240	260	295	150	190	200	220	245	120	155	165	180	200
S11	350	450	490	540	600	300	380	410	445	500	240	310	330	360	405
S12	200	260	285	310	350	175	220	235	255	290	140	180	190	205	235
S13	155	200	220	240	270	140	175	185	205	230	115	140	150	165	185
H5	205	260	290	315	355	175	220	245	265	295	—	—	—	—	—
H8	205	265	290	315	355	180	235	250	275	310	—	—	—	—	—
H11	260	335	365	400	450	225	285	310	335	375	—	—	—	—	—
H12	390	500	550	610	680	340	425	470	510	570	—	—	—	—	—
H21	205	265	290	315	355	180	235	250	275	310	—	—	—	—	—

MM08 Z3-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM08-08009-B90A30-E03 F30M	0.070	0.0034	0.0040	0.0055	0.0095
P2	MM08-08009-B90A30-E03 F30M	0.070	0.0034	0.0040	0.0055	0.0095
P3	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0055	0.0085
P4	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
P5	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
P6	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0036	0.0050	0.0085
P7	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0036	0.0050	0.0085
P8	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0055	0.0085
P11	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0036	0.0050	0.0085
M1	MM08-08009-B90A30-E03 F30M	0.070	0.0034	0.0040	0.0055	0.0095
M2	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
M3	MM08-08009-B90A30-E03 F30M	0.055	0.0024	0.0030	0.0040	0.0065
M4	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
M5	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
K1	MM08-08009-B90A30-E03 F30M	0.070	0.0034	0.0040	0.0055	0.0095
K2	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
K3	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
K4	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
K5	MM08-08009-B90A30-E03 F30M	0.070	0.0028	0.0034	0.0048	0.0075
K6	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
K7	MM08-08009-B90A30-E03 F30M	0.070	0.0028	0.0034	0.0048	0.0075
N1	MM08-08009-B90A30-E03 F30M	0.070	0.0044	0.0050	0.0075	0.013
N2	MM08-08009-B90A30-E03 F30M	0.070	0.0044	0.0050	0.0075	0.013
N3	MM08-08009-B90A30-E03 F30M	0.070	0.0044	0.0050	0.0075	0.013
N11	MM08-08009-B90A30-E03 F30M	0.070	0.0044	0.0050	0.0075	0.013
S1	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
S2	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
S3	MM08-08009-B90A30-E03 F30M	0.040	0.0020	0.0024	0.0034	0.0055
S11	MM08-08009-B90A30-E03 F30M	0.050	0.0024	0.0030	0.0040	0.0065
S12	MM08-08009-B90A30-E03 F30M	0.050	0.0024	0.0030	0.0040	0.0065
S13	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
H5	MM08-08009-B90A30-E03 F30M	0.055	0.0022	0.0026	0.0036	0.0055
H8	MM08-08009-B90A30-E03 F30M	0.050	0.0016	0.0019	0.0026	0.0044
H11	MM08-08009-B90A30-E03 F30M	0.055	0.0022	0.0026	0.0036	0.0055
H12	MM08-08009-B90A30-E03 F30M	0.055	0.0022	0.0026	0.0036	0.0055
H21	MM08-08009-B90A30-E03 F30M	0.050	0.0016	0.0019	0.0026	0.0044

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM08 Z3-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM08-08009-B90A30-M03 F40M	0.070	0.0024	0.0024	0.0030	0.0040
P2	MM08-08009-B90A30-M03 F40M	0.070	0.0024	0.0024	0.0030	0.0040
P3	MM08-08009-B90A30-M03 F40M	0.070	0.0022	0.0024	0.0028	0.0038
P4	MM08-08009-B90A30-M03 F40M	0.070	0.0022	0.0022	0.0028	0.0038
P5	MM08-08009-B90A30-M03 F40M	0.070	0.0022	0.0022	0.0028	0.0038
P6	MM08-08009-B90A30-M03 F40M	0.070	0.0022	0.0022	0.0028	0.0036
P7	MM08-08009-B90A30-M03 F40M	0.070	0.0022	0.0022	0.0028	0.0036
P8	MM08-08009-B90A30-M03 F40M	0.070	0.0022	0.0024	0.0028	0.0038
P11	MM08-08009-B90A30-M03 F40M	0.070	0.0022	0.0022	0.0028	0.0036
M1	MM08-08009-B90A30-M03 F40M	0.070	0.0024	0.0024	0.0030	0.0040
M2	MM08-08009-B90A30-M03 F40M	0.070	0.0022	0.0022	0.0028	0.0038
M3	MM08-08009-B90A30-M03 F40M	0.055	0.0017	0.0018	0.0022	0.0030
M4	MM08-08009-B90A30-M03 F40M	0.040	0.0015	0.0016	0.0019	0.0026
M5	MM08-08009-B90A30-M03 F40M	0.040	0.0015	0.0016	0.0019	0.0026
K1	MM08-08009-B90A30-E03 F30M	0.070	0.0024	0.0024	0.0030	0.0040
K2	MM08-08009-B90A30-E03 F30M	0.070	0.0022	0.0022	0.0028	0.0038
K3	MM08-08009-B90A30-E03 F30M	0.070	0.0022	0.0022	0.0028	0.0038
K4	MM08-08009-B90A30-E03 F30M	0.070	0.0022	0.0022	0.0028	0.0038
K5	MM08-08009-B90A30-D03 F30M	0.070	0.0020	0.0020	0.0024	0.0034
K6	MM08-08009-B90A30-D03 F30M	0.070	0.0022	0.0022	0.0028	0.0038
K7	MM08-08009-B90A30-D03 F30M	0.070	0.0020	0.0020	0.0024	0.0034
N1	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0032	0.0038	0.0050
N2	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0032	0.0038	0.0050
N3	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0032	0.0038	0.0050
N11	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0032	0.0038	0.0050
S1	MM08-08009-B90A30-D03 F30M	0.040	0.0015	0.0016	0.0019	0.0026
S2	MM08-08009-B90A30-D03 F30M	0.040	0.0015	0.0016	0.0019	0.0026
S3	MM08-08009-B90A30-D03 F30M	0.040	0.0014	0.0014	0.0017	0.0024
S11	MM08-08009-B90A30-M03 F40M	0.050	0.0017	0.0018	0.0022	0.0030
S12	MM08-08009-B90A30-M03 F40M	0.050	0.0017	0.0018	0.0022	0.0030
S13	MM08-08009-B90A30-M03 F40M	0.040	0.0015	0.0016	0.0019	0.0026
H5	MM08-08009-B90A30-D03 F30M	0.055	0.0015	0.0015	0.0019	0.0026
H8	MM08-08009-B90A30-D03 F30M	0.050	0.0011	0.0012	0.0014	0.0019
H11	MM08-08009-B90A30-D03 F30M	0.055	0.0015	0.0015	0.0019	0.0026
H12	MM08-08009-B90A30-D03 F30M	0.055	0.0015	0.0015	0.0019	0.0026
H21	MM08-08009-B90A30-D03 F30M	0.050	0.0011	0.0012	0.0014	0.0019

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

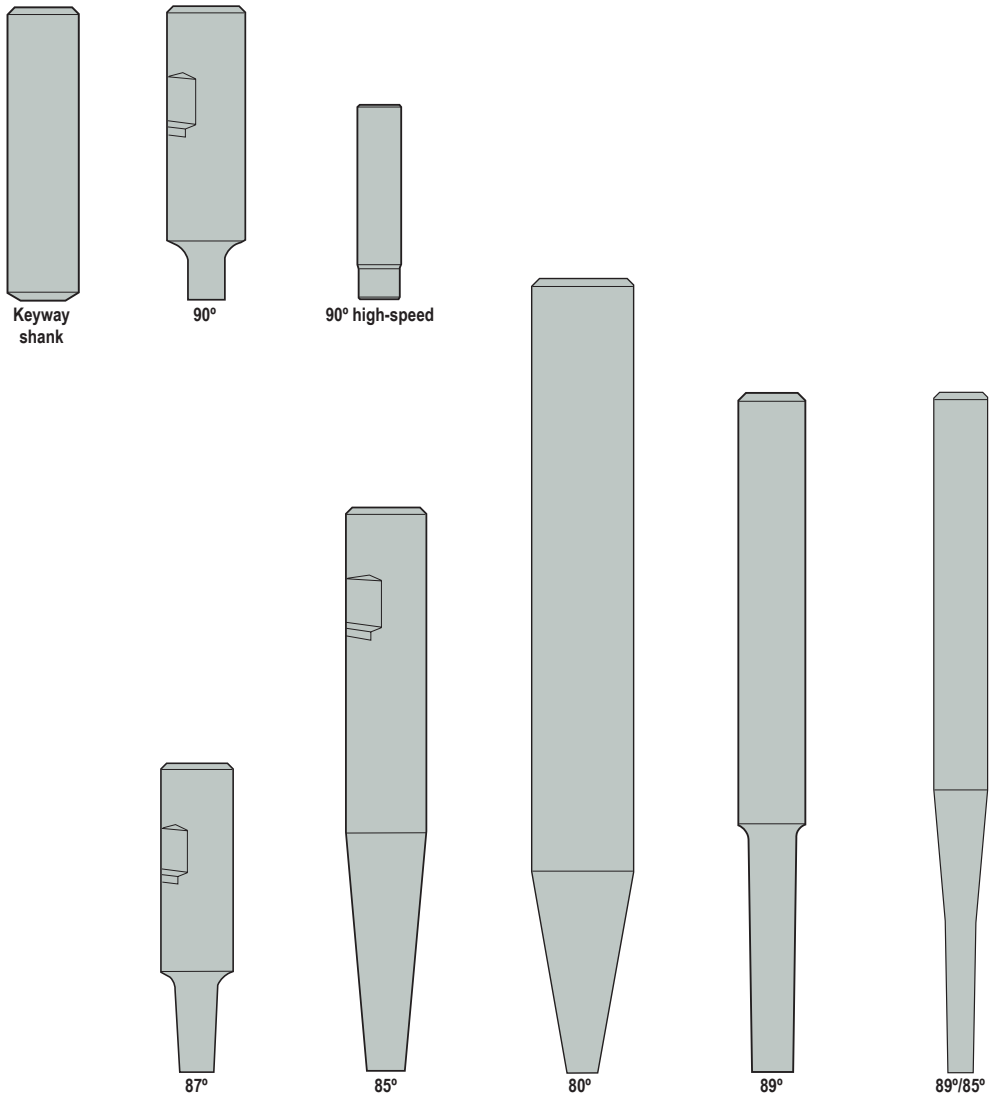
MM08 Z3-Copy – Insert selection – Semi finishing

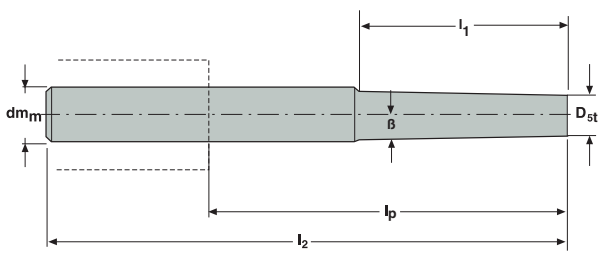
SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM08-08009-B90A30-E03 F30M	0.070	0.0034	0.0040	0.0055	0.0095
P2	MM08-08009-B90A30-E03 F30M	0.070	0.0034	0.0040	0.0055	0.0095
P3	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0055	0.0085
P4	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
P5	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
P6	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0036	0.0050	0.0085
P7	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0036	0.0050	0.0085
P8	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0055	0.0085
P11	MM08-08009-B90A30-E03 F30M	0.070	0.0030	0.0036	0.0050	0.0085
M1	MM08-08009-B90A30-E03 F30M	0.070	0.0034	0.0040	0.0055	0.0095
M2	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
M3	MM08-08009-B90A30-E03 F30M	0.055	0.0024	0.0030	0.0040	0.0065
M4	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
M5	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
K1	MM08-08009-B90A30-E03 F30M	0.070	0.0034	0.0040	0.0055	0.0095
K2	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
K3	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
K4	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
K5	MM08-08009-B90A30-E03 F30M	0.070	0.0028	0.0034	0.0048	0.0075
K6	MM08-08009-B90A30-E03 F30M	0.070	0.0032	0.0038	0.0050	0.0085
K7	MM08-08009-B90A30-E03 F30M	0.070	0.0028	0.0034	0.0048	0.0075
N1	MM08-08009-B90A30-E03 F30M	0.070	0.0044	0.0050	0.0075	0.013
N2	MM08-08009-B90A30-E03 F30M	0.070	0.0044	0.0050	0.0075	0.013
N3	MM08-08009-B90A30-E03 F30M	0.070	0.0044	0.0050	0.0075	0.013
N11	MM08-08009-B90A30-E03 F30M	0.070	0.0044	0.0050	0.0075	0.013
S1	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
S2	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
S3	MM08-08009-B90A30-D03 F30M	0.040	0.0020	0.0024	0.0034	0.0055
S11	MM08-08009-B90A30-E03 F30M	0.050	0.0024	0.0030	0.0040	0.0065
S12	MM08-08009-B90A30-E03 F30M	0.050	0.0024	0.0030	0.0040	0.0065
S13	MM08-08009-B90A30-E03 F30M	0.040	0.0022	0.0026	0.0036	0.0060
H5	MM08-08009-B90A30-E03 F30M	0.055	0.0022	0.0026	0.0036	0.0055
H8	MM08-08009-B90A30-E03 F30M	0.050	0.0016	0.0019	0.0026	0.0044
H11	MM08-08009-B90A30-E03 F30M	0.055	0.0022	0.0026	0.0036	0.0055
H12	MM08-08009-B90A30-E03 F30M	0.055	0.0022	0.0026	0.0036	0.0055
H21	MM08-08009-B90A30-E03 F30M	0.050	0.0016	0.0019	0.0026	0.0044

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM08 Z3-Copy – Cutting data (sf/min)

	F30M					F40M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1225	1425	1575	1725	1925	1150	1350	1500	1650	1825
P2	1175	1375	1525	1650	1850	1125	1325	1450	1575	1775
P3	1025	1200	1325	1450	1625	980	1125	1250	1375	1550
P4	910	1075	1175	1275	1425	860	1025	1125	1225	1350
P5	870	1025	1125	1225	1375	820	970	1075	1150	1300
P6	970	1150	1250	1400	1550	930	1075	1200	1325	1475
P7	920	1075	1200	1325	1450	870	1025	1125	1250	1375
P8	870	1000	1100	1225	1350	820	950	1050	1150	1300
P11	890	1050	1150	1275	1425	850	1000	1100	1225	1350
M1	960	1125	1225	1350	1500	910	1075	1175	1275	1425
M2	780	910	1000	1100	1225	740	870	960	1050	1175
M3	620	720	790	870	970	590	690	760	830	930
M4	475	570	610	670	750	450	540	580	630	710
M5	395	475	510	560	620	375	450	480	530	590
K1	940	1100	1200	1325	1475	890	1050	1150	1250	1400
K2	820	960	1075	1150	1300	780	920	1025	1100	1250
K3	700	820	900	980	1100	660	780	860	930	1050
K4	660	780	860	940	1050	630	740	820	890	1000
K5	400	470	520	570	640	380	450	495	540	610
K6	580	690	760	820	930	560	650	720	780	880
K7	510	600	660	730	820	485	570	630	700	780
N1	3600	4150	4525	4975	5500	3450	3950	4325	4750	5225
N2	2925	3350	3675	4025	4425	2775	3175	3500	3825	4225
N3	1950	2225	2450	2675	2950	1850	2125	2325	2550	2825
N11	2225	2550	2800	3075	3375	2125	2425	2650	2925	3225
S1	220	265	285	310	350	210	255	270	295	330
S2	180	215	230	250	280	170	205	215	240	265
S3	155	185	200	220	245	145	180	190	210	235
S11	315	370	405	440	490	300	355	385	420	470
S12	180	215	235	255	285	175	205	220	240	270
S13	145	170	185	200	225	135	165	175	190	215
H5	185	215	240	265	295	175	205	230	250	280
H8	185	230	250	270	305	175	215	235	260	290
H11	235	275	305	335	375	225	260	290	320	360
H12	355	415	460	510	570	335	395	440	485	540
H21	185	230	250	270	305	175	215	235	260	290





Cutting data for MM10 is shown on pages 472-481.
Max RPM and torque values are shown on page 517.

For MM10 inserts

Shank design	EDP No.	Part No.	Dimensions in inch						lbs	Spare part no.
			D_{5t}	dm_m	β°	l_1	l_2	l_p		
Keyway	05069	**MM10 -0.62-2.6-0-0000**	0.374	0.625	60	–	2.559	0.669	0.2	1
90° high speed	96126	**MM10 -0.38-1.8-0-0002**	0.360	0.375	–	0.276	1.772	0.276	0.2	2
90°	15052	**MM10 -0.75-3.0-3-0004**	0.360	0.750	–	0.394	2.953	0.984	0.4	3
90°	35082	**-0.75-3.3-0-0007DS****	0.360	0.750	–	0.787	3.346	1.378	0.7	4
90°	35083	**-0.75-4.1-0-0015DS****	0.360	0.750	–	1.575	4.134	2.165	0.9	4
87°	15053	**MM10 -0.75-3.3-3-3009**	0.374	0.750	3	0.906	3.346	1.378	0.4	3
85°	15054	**MM10 -0.75-5.5-3-5021**	0.374	0.750	5	2.150	5.512	3.543	0.7	5
80°	96132	**MM10 -1.25-10.0-0-10024**	0.374	1.250	10	2.484	9.843	7.480	2.9	5
89°	54607	**MM10 -0.62-6.3-0-1013**	0.360	0.625	1	1.378	6.299	4.409	0.4	6
89°	54608	**-0.62-6.3-0-1021**	0.360	0.625	1	2.165	6.299	4.409	0.4	7
89°	35079	**-0.62-6.3-0-1021DS****	0.360	0.625	1	2.165	6.299	4.409	0.9	4
89°	54609	**-0.62-6.3-0-1029**	0.360	0.625	1	2.953	6.299	4.409	0.4	7
89°	35080	**-0.62-6.3-0-1029DS****	0.360	0.625	1	2.953	6.299	4.409	0.9	4
89° / 85°*	35081	**MM10 -0.75-10.0-0-1021DS****	0.360	0.750	1	2.165	9.843	7.874	2.0	4

* For design 9, the l_1 value is valid on the 89° tapered part.

** High density, anti-vibration shank, for semi-finishing and finishing only.

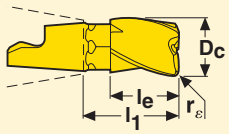
Spare Parts, included in delivery.

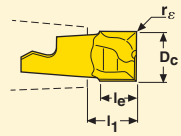
Spare part no.	Sleeve	Tension screw
1	MM-06032	MM10-0627
2	MM-06020	MM10-0627
3	MM-06048	MM10-0627
4	–	MM10-061027
5	MM-06116	MM10-0627
6	MM-06048	MM10-0651
7	MM-06032	MM10-0688

Please check availability in current price and stock-list.

For wrench types, see insert pages.
For torque keys and values, see page 517.
Allen key (6SMS795) for sleeve and wrench ordered separately.

Slot milling/ square shoulder milling



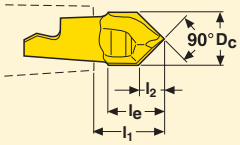


Insert type	Part No.	Dimensions in inch D_c	r_ε	l_e	l_1	Z_c	Wrench**	Coated Grades T60M	F15M	F30M	F40M
3-flute	MM10 -0.394-A30-E03	0.394	–	0.467	0.619	3*	MM0416			94840	
3-flute	-0.394-R020A30-M03	0.394	0.020	0.467	0.619	3*	MM0416				94843
3-flute	-0.394-R040A30-D03	0.394	0.039	0.467	0.619	3*	MM0416			52240	
3-flute	-0.394-R040A30-E03	0.394	0.039	0.467	0.619	3*	MM0416			94841	
3-flute	-0.394-R040A30-M03	0.394	0.039	0.467	0.619	3*	MM0416				05902
3-flute	-0.394-R080A30-M03	0.394	0.079	0.467	0.619	3*	MM0416				94844
3-flute	-0.394-R118A30-E03	0.394	0.118	0.467	0.619	3*	MM0416			52073	
3-flute	-0.394-R118A30-M03	0.394	0.118	0.467	0.619	3*	MM0416				94845
3-flute	-0.375-A30-E03	0.375	–	0.467	0.619	3*	MM0416			95854	
3-flute	-0.375-R016A30-M03	0.375	0.016	0.467	0.619	3*	MM0416				23660
3-flute	-0.375-R031A30-D03	0.375	0.031	0.467	0.619	3*	MM0416			38230	
3-flute	-0.375-R031A30-M03	0.375	0.031	0.467	0.619	3*	MM0416				23661
3-flute	-0.375-R062A30-M03	0.375	0.063	0.467	0.619	3*	MM0416				23662
3-flute	-0.375-R125A30-M03	0.375	0.125	0.467	0.619	3*	MM0416				23663
2-flute	MM10 -0.394-M03	0.394	–	0.270	0.335	2	MM0612	18865			
2-flute	-0.394-R1-MD04	0.394	0.016	0.270	0.334	2	MM0612	17027		81335	
2-flute	-0.394-R1P-M03	0.394	0.016	0.266	0.330	2	MM0612			84027	
2-flute	-0.394-R2.5-MD04	0.394	0.039	0.270	0.334	2	MM0612	03753		81337	
2-flute	-0.394-R5-MD04	0.394	0.079	0.269	0.333	2	MM0612	19873		83588	
2-flute	-0.394-R7.5-MD04	0.394	0.118	0.268	0.332	2	MM0612			83589	
2-flute	-0.375-M03	0.375	–	0.270	0.335	2	MM0612	34266			
2-flute	-0.375-R1-MD04	0.375	0.016	0.270	0.334	2	MM0612	34267			
2-flute	-0.375-R8.0-MD04	0.375	0.125	0.270	0.332	2	MM0612			93754	
2-flute	-0.394-R1A8-E03	0.394	0.016	0.260	0.332	2	MM0612	34551		83497	
2-flute	-0.375-R2A8-E03	0.375	0.031	0.260	0.330	2	MM0612			93753	
Keyway 3-flute	MM10 -0.375-R012A30-M03	0.375	0.012	0.467	0.619	3*	MM0416				12961
Keyway 2-flute	-0.365T-R0.5-D04	0.365	0.008	0.270	0.334	2	MM0612	93752			
Keyway 2-flute	-0.386T-R0.8-D04	0.386	0.012	0.270	0.334	2	MM0612	17223			

* = z_c – value 1 in drilling.

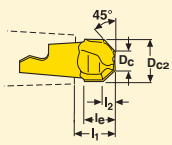
** Wrench not included, must be ordered separately.

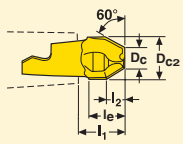
Center drilling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	l_e	l_1	l_2			T60M	F15M	F30M	F40M
90°	**MM10 -0.394-C90-M03**	0.394	0.394	0.465	0.185	2	MM0612	01394			
120°	**MM10 -0.394-C120-M03**	0.394	0.409	0.465	0.106	2	MM0612	04537			

Chamfering

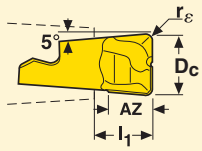




Insert type	Part No.	Dimensions in inch					Z_c	Wrench**	Coated Grades			
		D_c	D_{c2}	l_e	l_1	l_2			T60M	F15M	F30M	F40M
45°	**MM10 -0.394-45.10-E03**	0.190	0.394	0.273	0.334	0.102	2	MM0612	03764			
60°	**MM10 -0.394-60.16-E03**	0.206	0.394	0.317	0.378	0.165	2	MM0612	04993			

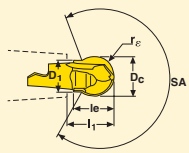
** Wrench not included, must be ordered separately.

Plunge milling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	r_ε	AZ	l_1			T60M	F15M	F30M	F40M
2-flute	**MM10 -0.394-R040-PL-MD04**	0.394	0.039	0.280	0.334	2	MM0612			23782	
2-flute	**MM10 -0.394-R040-PLP-M03**	0.394	0.039	0.268	0.330	2	MM0612			23789	

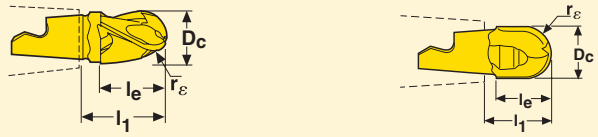
Precision inserts for semi-finishing in all materials



Insert type	Part No.	Dimensions in inch						Z_c	Wrench**	Coated Grades			
		D_c	r_ε	l_e	l_1	D_1	SA°			T60M	F15M	F30M	F40M
2-flute	**MM10 -0.472-B120PF-M02**	0.472	0.236	0.472	0.520	0.394	247.0	2	MM0612		83757		
2-flute	**MM10 -0.500-B120PF-M03**	0.500	0.250	0.488	0.534	0.394	256.0	2	MM1420		93761		
2-flute	**MM10 -0.472-B120P-M05**	0.472	0.236	0.472	0.520	0.394	247.0	2	MM0612			83492	
2-flute	**MM10 -0.500-B120P-M05**	0.500	0.250	0.488	0.534	0.394	256.0	2	MM1420			93760	

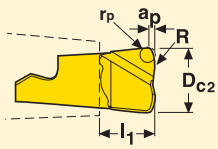
** Wrench not included, must be ordered separately.

Copy milling



Insert type	Part No.	Dimensions in inch				Zc	Wrench**	Coated Grades			
		Dc	rε	le	l1			T60M	F15M	F30M	F40M
3-flute	MM10 -0.394-B90A30-E03	0.394	0.197	0.467	0.619	3*	MM0416			96002	
3-flute	-0.394-B90A30-M03	0.394	0.197	0.467	0.619	3*	MM0416				96003
3-flute	-0.394-B90A30-D03	0.394	0.197	0.467	0.619	3*	MM0416			96004	
3-flute	-0.375-B90A30-E03	0.375	0.188	0.467	0.619	3*	MM0416			30822	
3-flute	-0.375-B90A30-M03	0.375	0.188	0.467	0.619	3*	MM0416				30823
3-flute	-0.375-B90A30-D03	0.375	0.188	0.467	0.619	3*	MM0416			30824	
2-flute	MM10 -0.394-B90-MD04	0.394	0.197	0.403	0.463	2	MM0612	19241		68362	
2-flute	-0.394-B90S-E04	0.394	0.197	0.403	0.463	2	MM0612			69356	
2-flute	-0.375-B90S-E04	0.375	0.188	0.403	0.463	2	MM0612			93756	
2-flute	-0.394-B90P-M04	0.394	0.197	0.344	0.462	2	MM0612			68357	
2-flute	-0.394-B90PF-M02	0.394	0.197	0.344	0.462	2	MM0612		92169		
2-flute	-0.375-B90P-M04	0.375	0.188	0.344	0.462	2	MM0612	52645		86948	

Highfeed



Insert type	Part No.	Dimensions in inch					Zc	Wrench**	Coated Grades			
		ap	Dc2	rp	R	l1			T60M	F15M	F30M	F40M
2-flute	MM10 -10.50-HF-MD08	0.017	0.394	0.044	0.197	0.335	2	MM0612		04582	04583	

* = z_c – value 1 in drilling.

** Wrench not included, must be ordered separately.

MM10 – General insert selection

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM10-10012-R05A30-M03 F40M	0.080	0.0017	0.0017	0.0022	0.0030
P2	MM10-10012-R05A30-M03 F40M	0.080	0.0017	0.0018	0.0022	0.0030
P3	MM10-10012-R05A30-M03 F40M	0.080	0.0017	0.0017	0.0020	0.0028
P4	MM10-10012-R05A30-M03 F40M	0.080	0.0016	0.0017	0.0020	0.0028
P5	MM10-10012-R05A30-M03 F40M	0.080	0.0016	0.0016	0.0020	0.0026
P6	MM10-10012-R05A30-M03 F40M	0.080	0.0016	0.0016	0.0020	0.0026
P7	MM10-10012-R05A30-M03 F40M	0.080	0.0016	0.0016	0.0020	0.0026
P8	MM10-10012-R05A30-M03 F40M	0.080	0.0017	0.0017	0.0020	0.0028
P11	MM10-10012-R05A30-M03 F40M	0.080	0.0016	0.0016	0.0020	0.0026
M1	MM10-10012-R05A30-M03 F40M	0.080	0.0017	0.0018	0.0022	0.0030
M2	MM10-10012-R05A30-M03 F40M	0.080	0.0016	0.0016	0.0020	0.0026
M3	MM10-10012-R05A30-M03 F40M	0.065	0.0013	0.0013	0.0016	0.0022
M4	MM10-10012-R05A30-M03 F40M	0.050	0.0012	0.0012	0.0014	0.0020
M5	MM10-10012-R05A30-M03 F40M	0.050	0.0012	0.0012	0.0014	0.0020
K1	MM10-10012-R10A30-E03 F30M	0.080	0.0019	0.0019	0.0024	0.0032
K2	MM10-10012-R10A30-E03 F30M	0.080	0.0017	0.0017	0.0022	0.0030
K3	MM10-10012-R10A30-E03 F30M	0.080	0.0017	0.0017	0.0022	0.0030
K4	MM10-10012-R10A30-E03 F30M	0.080	0.0017	0.0017	0.0022	0.0030
K5	MM10-10012-R10A30-D03 F30M	0.080	0.0016	0.0016	0.0020	0.0026
K6	MM10-10012-R10A30-D03 F30M	0.080	0.0017	0.0017	0.0022	0.0030
K7	MM10-10012-R10A30-D03 F30M	0.080	0.0016	0.0016	0.0020	0.0026
N1	MM10-10012-R10A30-E03 F30M	0.080	0.0024	0.0024	0.0030	0.0040
N2	MM10-10012-R10A30-E03 F30M	0.080	0.0024	0.0024	0.0030	0.0040
N3	MM10-10012-R10A30-E03 F30M	0.080	0.0024	0.0024	0.0030	0.0040
N11	MM10-10012-R10A30-E03 F30M	0.080	0.0024	0.0024	0.0030	0.0040
S1	MM10-10012-R10A30-D03 F30M	0.050	0.0013	0.0014	0.0017	0.0024
S2	MM10-10012-R10A30-D03 F30M	0.050	0.0013	0.0014	0.0017	0.0024
S3	MM10-10012-R10A30-D03 F30M	0.050	0.0013	0.0013	0.0016	0.0022
S11	MM10-10012-R05A30-M03 F40M	0.060	0.0013	0.0013	0.0017	0.0022
S12	MM10-10012-R05A30-M03 F40M	0.060	0.0013	0.0013	0.0017	0.0022
S13	MM10-10012-R05A30-M03 F40M	0.050	0.0012	0.0012	0.0014	0.0020
H5	MM10-10012-R10A30-D03 F30M	0.065	0.0013	0.0013	0.0015	0.0020
H8	MM10-10012-R10A30-D03 F30M	0.060	0.00095	0.00095	0.0012	0.0016
H11	MM10-10012-R10A30-D03 F30M	0.065	0.0013	0.0013	0.0015	0.0020
H12	MM10-10012-R10A30-D03 F30M	0.065	0.0013	0.0013	0.0015	0.0020
H21	MM10-10012-R10A30-D03 F30M	0.060	0.00095	0.00095	0.0012	0.0016

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM10 – General cutting data (sf/min)

	F30M				F40M				T60M			
SMG	100%	40%	20%	10%	100%	40%	20%	10%	100%	40%	20%	10%
P1	910	1125	1250	1400	850	1050	1175	1300	670	810	940	1050
P2	890	1100	1225	1350	830	1025	1125	1250	650	790	910	1000
P3	770	960	1075	1175	720	890	990	1075	570	680	800	870
P4	690	840	940	1050	630	780	870	960	500	610	700	780
P5	650	810	900	990	610	750	830	920	480	580	670	740
P6	730	910	1000	1125	680	840	940	1025	540	660	750	830
P7	690	860	950	1050	640	800	890	980	510	620	710	790
P8	650	800	900	980	600	750	830	910	480	570	670	730
P11	670	830	920	1025	630	770	860	950	495	600	690	760
M1	720	880	980	1075	670	820	910	1025	530	640	730	810
M2	590	730	810	890	550	680	750	830	435	530	600	670
M3	465	570	640	700	435	540	590	660	345	400	470	530
M4	355	435	490	540	330	410	455	500	260	295	350	405
M5	295	365	410	450	275	340	380	415	215	245	290	340
K1	710	870	970	1050	650	810	900	1000	520	630	720	790
K2	620	770	850	940	580	710	790	870	455	550	630	700
K3	530	650	720	800	490	600	670	740	385	470	540	600
K4	500	620	690	760	465	580	640	710	370	450	510	570
K5	305	375	420	460	280	350	390	425	225	270	315	345
K6	440	550	610	670	410	510	560	620	325	395	450	500
K7	390	480	540	590	360	445	495	540	285	350	405	445
N1	2675	3275	3650	4000	2475	3075	3400	3750	1950	2325	2700	2975
N2	2150	2650	2950	3250	2000	2475	2725	3050	1575	1875	2175	2400
N3	1450	1775	1975	2150	1325	1650	1825	2025	1050	1250	1450	1600
N11	1650	2025	2250	2475	1525	1900	2075	2325	1200	1425	1650	1850
S1	165	205	230	250	155	190	215	235	120	135	160	190
S2	135	165	185	205	125	155	170	190	95	110	130	155
S3	115	140	160	175	110	135	150	165	85	95	115	135
S11	235	290	325	355	220	270	300	335	170	200	235	265
S12	135	165	185	205	125	155	175	190	100	115	135	155
S13	105	130	150	165	100	125	140	150	80	90	105	125
H5	140	175	195	210	130	160	180	195	—	—	—	—
H8	145	180	200	220	135	165	185	205	—	—	—	—
H11	180	220	245	270	165	205	225	250	—	—	—	—
H12	270	330	370	410	250	310	345	380	—	—	—	—
H21	145	180	200	220	135	165	185	205	—	—	—	—

MM10 Z2-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM10-10010-B90PF-M02 F15M	0.18	0.0011	0.0013	0.0018	0.0030
P2	MM10-10010-B90PF-M02 F15M	0.18	0.0011	0.0013	0.0018	0.0030
P3	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0013	0.0017	0.0028
P4	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0013	0.0017	0.0028
P5	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
P6	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
P7	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
P8	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0013	0.0017	0.0028
P11	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
M1	MM10-10010-B90PF-M02 F15M	0.18	0.0011	0.0013	0.0018	0.0030
M2	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
M3	MM10-10010-B90PF-M02 F15M	0.14	0.00080	0.00095	0.0013	0.0022
M4	MM10-10010-B90PF-M02 F15M	0.10	0.00070	0.00085	0.0012	0.0018
M5	MM10-10010-B90PF-M02 F15M	0.10	0.00070	0.00085	0.0012	0.0018
K1	MM10-10010-B90PF-M02 F15M	0.18	0.0011	0.0013	0.0018	0.0030
K2	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
K3	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
K4	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
K5	MM10-10010-B90PF-M02 F15M	0.18	0.00095	0.0011	0.0015	0.0024
K6	MM10-10010-B90PF-M02 F15M	0.18	0.0010	0.0012	0.0017	0.0026
K7	MM10-10010-B90PF-M02 F15M	0.18	0.00095	0.0011	0.0015	0.0024
N1	MM10-10010-B90PF-M02 F15M	0.18	0.0014	0.0017	0.0024	0.0038
N2	MM10-10010-B90PF-M02 F15M	0.18	0.0014	0.0017	0.0024	0.0038
N3	MM10-10010-B90PF-M02 F15M	0.18	0.0014	0.0017	0.0024	0.0038
N11	MM10-10010-B90PF-M02 F15M	0.18	0.0014	0.0017	0.0024	0.0038
S1	MM10-10010-B90PF-M02 F15M	0.10	0.00070	0.00085	0.0012	0.0018
S2	MM10-10010-B90PF-M02 F15M	0.10	0.00070	0.00085	0.0012	0.0018
S3	MM10-10010-B90PF-M02 F15M	0.10	0.00065	0.00080	0.0011	0.0017
S11	MM10-10010-B90PF-M02 F15M	0.12	0.00080	0.00095	0.0013	0.0022
S12	MM10-10010-B90PF-M02 F15M	0.12	0.00080	0.00095	0.0013	0.0022
S13	MM10-10010-B90PF-M02 F15M	0.10	0.00070	0.00085	0.0012	0.0018
H5	MM10-10010-B90PF-M02 F15M	0.14	0.00070	0.00080	0.0011	0.0018
H8	MM10-10010-B90PF-M02 F15M	0.12	0.00050	0.00065	0.00085	0.0013
H11	MM10-10010-B90PF-M02 F15M	0.14	0.00070	0.00080	0.0011	0.0018
H12	MM10-10010-B90PF-M02 F15M	0.14	0.00070	0.00080	0.0011	0.0018
H21	MM10-10010-B90PF-M02 F15M	0.12	0.00050	0.00065	0.00085	0.0013

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM10 Z2-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM10-10010-B90S-E04 F30M	0.18	0.0032	0.0032	0.0040	0.0050
P2	MM10-10010-B90S-E04 F30M	0.18	0.0032	0.0034	0.0040	0.0055
P3	MM10-10010-B90S-E04 F30M	0.18	0.0030	0.0032	0.0038	0.0050
P4	MM10-10010-B90-MD04 F30M	0.18	0.0030	0.0030	0.0038	0.0050
P5	MM10-10010-B90-MD04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
P6	MM10-10010-B90-MD04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
P7	MM10-10010-B90-MD04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
P8	MM10-10010-B90-MD04 F30M	0.18	0.0030	0.0032	0.0038	0.0050
P11	MM10-10010-B90-MD04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
M1	MM10-10010-B90S-E04 F30M	0.18	0.0032	0.0034	0.0040	0.0055
M2	MM10-10010-B90S-E04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
M3	MM10-10010-B90S-E04 F30M	0.14	0.0024	0.0024	0.0030	0.0040
M4	MM10-10010-B90-MD04 F30M	0.10	0.0020	0.0022	0.0026	0.0034
M5	MM10-10010-B90-MD04 F30M	0.10	0.0020	0.0022	0.0026	0.0034
K1	MM10-10010-B90S-E04 F30M	0.18	0.0032	0.0034	0.0040	0.0055
K2	MM10-10010-B90S-E04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
K3	MM10-10010-B90S-E04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
K4	MM10-10010-B90S-E04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
K5	MM10-10010-B90-MD04 F30M	0.18	0.0026	0.0028	0.0034	0.0044
K6	MM10-10010-B90-MD04 F30M	0.18	0.0030	0.0030	0.0036	0.0048
K7	MM10-10010-B90-MD04 F30M	0.18	0.0026	0.0028	0.0034	0.0044
N1	MM10-10010-B90S-E04 F30M	0.18	0.0040	0.0044	0.0050	0.0065
N2	MM10-10010-B90S-E04 F30M	0.18	0.0040	0.0044	0.0050	0.0065
N3	MM10-10010-B90S-E04 F30M	0.18	0.0040	0.0044	0.0050	0.0065
N11	MM10-10010-B90S-E04 F30M	0.18	0.0040	0.0044	0.0050	0.0065
S1	MM10-10010-B90S-E04 F30M	0.10	0.0020	0.0022	0.0026	0.0034
S2	MM10-10010-B90S-E04 F30M	0.10	0.0020	0.0022	0.0026	0.0034
S3	MM10-10010-B90S-E04 F30M	0.10	0.0019	0.0019	0.0024	0.0032
S11	MM10-10010-B90S-E04 F30M	0.12	0.0024	0.0024	0.0030	0.0040
S12	MM10-10010-B90S-E04 F30M	0.12	0.0024	0.0024	0.0030	0.0040
S13	MM10-10010-B90S-E04 F30M	0.10	0.0020	0.0022	0.0026	0.0034
H5	MM10-10010-B90-MD04 F30M	0.14	0.0020	0.0020	0.0026	0.0034
H8	MM10-10010-B90-MD04 F30M	0.12	0.0015	0.0016	0.0019	0.0026
H11	MM10-10010-B90-MD04 F30M	0.14	0.0020	0.0020	0.0026	0.0034
H12	MM10-10010-B90-MD04 F30M	0.14	0.0020	0.0020	0.0026	0.0034
H21	MM10-10010-B90-MD04 F30M	0.12	0.0015	0.0016	0.0019	0.0026

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM10 Z2-Copy – Insert selection – Semi finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM10-10010-B90P-M04 F30M	0.18	0.0044	0.0050	0.0075	0.013
P2	MM10-10010-B90P-M04 F30M	0.18	0.0044	0.0055	0.0075	0.013
P3	MM10-10010-B90P-M04 F30M	0.18	0.0044	0.0050	0.0070	0.012
P4	MM10-10010-B90P-M04 F30M	0.18	0.0044	0.0050	0.0070	0.012
P5	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.012
P6	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.011
P7	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.011
P8	MM10-10010-B90P-M04 F30M	0.18	0.0044	0.0050	0.0070	0.012
P11	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.011
M1	MM10-10010-B90P-M04 F30M	0.18	0.0044	0.0055	0.0075	0.013
M2	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.012
M3	MM10-10010-B90P-M04 F30M	0.14	0.0034	0.0040	0.0055	0.0085
M4	MM10-10010-B90P-M04 F30M	0.10	0.0028	0.0034	0.0048	0.0080
M5	MM10-10010-B90P-M04 F30M	0.10	0.0028	0.0034	0.0048	0.0080
K1	MM10-10010-B90P-M04 F30M	0.18	0.0044	0.0055	0.0075	0.013
K2	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.012
K3	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.012
K4	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.012
K5	MM10-10010-B90P-M04 F30M	0.18	0.0038	0.0044	0.0065	0.010
K6	MM10-10010-B90P-M04 F30M	0.18	0.0040	0.0048	0.0065	0.012
K7	MM10-10010-B90P-M04 F30M	0.18	0.0038	0.0044	0.0065	0.010
N1	MM10-10010-B90P-M04 F30M	0.18	0.0060	0.0065	0.0095	0.017
N2	MM10-10010-B90P-M04 F30M	0.18	0.0060	0.0065	0.0095	0.017
N3	MM10-10010-B90P-M04 F30M	0.18	0.0060	0.0065	0.0095	0.017
N11	MM10-10010-B90P-M04 F30M	0.18	0.0060	0.0065	0.0095	0.017
S1	MM10-10010-B90P-M04 F30M	0.10	0.0028	0.0034	0.0048	0.0080
S2	MM10-10010-B90P-M04 F30M	0.10	0.0028	0.0034	0.0048	0.0080
S3	MM10-10010-B90P-M04 F30M	0.10	0.0026	0.0032	0.0044	0.0070
S11	MM10-10010-B90P-M04 F30M	0.12	0.0034	0.0040	0.0055	0.0085
S12	MM10-10010-B90P-M04 F30M	0.12	0.0034	0.0040	0.0055	0.0085
S13	MM10-10010-B90P-M04 F30M	0.10	0.0028	0.0034	0.0048	0.0080
H5	MM10-10010-B90P-M04 F30M	0.14	0.0028	0.0034	0.0048	0.0075
H8	MM10-10010-B90P-M04 F30M	0.12	0.0022	0.0026	0.0036	0.0055
H11	MM10-10010-B90P-M04 F30M	0.14	0.0028	0.0034	0.0048	0.0075
H12	MM10-10010-B90P-M04 F30M	0.14	0.0028	0.0034	0.0048	0.0075
H21	MM10-10010-B90P-M04 F30M	0.12	0.0022	0.0026	0.0036	0.0055

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM10 – Cutting data, 2-flute copy milling

MM10 Z2-Copy – Cutting data (sf/min)

	F15M					F30M					T60M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1375	1800	1975	2150	2425	1050	1375	1500	1650	1825	850	1100	1225	1325	1475
P2	1350	1725	1900	2100	2350	1025	1325	1450	1575	1750	830	1075	1175	1275	1425
P3	1150	1500	1650	1825	2025	890	1150	1275	1375	1525	720	930	1025	1125	1250
P4	1025	1325	1450	1600	1800	790	1025	1100	1225	1350	640	820	900	990	1100
P5	980	1275	1400	1525	1725	750	970	1075	1175	1300	610	790	870	950	1050
P6	1100	1425	1575	1725	1925	840	1100	1225	1325	1475	680	880	980	1075	1200
P7	1025	1350	1475	1625	1825	790	1025	1150	1250	1375	640	830	930	1000	1125
P8	970	1275	1400	1525	1700	750	960	1050	1150	1300	610	780	860	940	1050
P11	1000	1300	1425	1575	1775	770	1000	1100	1200	1350	630	810	900	980	1100
M1	1075	1400	1550	1675	1900	830	1050	1175	1275	1425	670	860	940	1025	1150
M2	880	1125	1250	1375	1550	680	870	970	1050	1175	550	710	790	850	950
M3	690	890	970	1050	1200	560	700	770	840	940	455	570	620	680	760
M4	520	670	730	800	900	450	560	590	640	720	365	450	475	520	580
M5	430	560	610	670	750	375	465	490	540	600	305	375	395	435	485
K1	1050	1375	1500	1650	1850	810	1050	1150	1250	1400	660	840	930	1025	1125
K2	930	1200	1325	1450	1625	710	920	1025	1125	1250	580	750	830	900	1000
K3	780	1025	1125	1225	1375	600	780	870	940	1050	490	630	700	760	850
K4	750	970	1075	1175	1325	580	750	830	900	1000	465	600	670	730	810
K5	450	580	640	700	790	350	455	500	550	610	285	370	405	445	490
K6	660	850	940	1025	1150	510	660	730	790	880	410	530	590	640	720
K7	570	750	820	900	1000	450	580	640	700	780	365	470	520	570	630
N1	4100	5325	5850	6425	7225	3050	3925	4325	4750	5225	2475	3175	3500	3850	4225
N2	3300	4300	4725	5175	5825	2475	3150	3500	3825	4225	2000	2550	2825	3100	3425
N3	2200	2875	3150	3450	3875	1650	2100	2325	2550	2800	1325	1700	1875	2075	2275
N11	2525	3275	3600	3950	4450	1875	2400	2675	2925	3225	1525	1950	2150	2375	2600
S1	240	310	340	375	420	210	260	275	300	335	170	210	220	245	270
S2	195	250	275	300	340	170	210	220	240	270	135	170	180	195	220
S3	170	215	240	260	295	145	180	195	210	235	120	150	155	170	190
S11	350	450	490	540	600	290	360	390	420	475	235	295	315	340	385
S12	200	260	285	310	350	165	210	225	245	275	135	170	180	195	220
S13	155	200	220	240	270	135	170	175	195	215	110	135	145	155	175
H5	200	260	290	315	355	170	210	235	255	285	—	—	—	—	—
H8	205	265	290	315	355	180	225	240	265	295	—	—	—	—	—
H11	260	335	365	400	450	215	270	295	320	365	—	—	—	—	—
H12	390	500	550	610	680	325	405	450	485	550	—	—	—	—	—
H21	205	265	290	315	355	180	225	240	265	295	—	—	—	—	—

MM10 Z3-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM10-10012-B90A30-E03 F30M	0.080	0.0034	0.0040	0.0055	0.0095
P2	MM10-10012-B90A30-E03 F30M	0.080	0.0034	0.0040	0.0055	0.0095
P3	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0055	0.0085
P4	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
P5	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
P6	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0036	0.0050	0.0080
P7	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0036	0.0050	0.0080
P8	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0055	0.0085
P11	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0036	0.0050	0.0080
M1	MM10-10012-B90A30-E03 F30M	0.080	0.0034	0.0040	0.0055	0.0095
M2	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
M3	MM10-10012-B90A30-E03 F30M	0.065	0.0024	0.0030	0.0040	0.0065
M4	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
M5	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
K1	MM10-10012-B90A30-E03 F30M	0.080	0.0034	0.0040	0.0055	0.0095
K2	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
K3	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
K4	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
K5	MM10-10012-B90A30-E03 F30M	0.080	0.0028	0.0034	0.0048	0.0075
K6	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
K7	MM10-10012-B90A30-E03 F30M	0.080	0.0028	0.0034	0.0048	0.0075
N1	MM10-10012-B90A30-E03 F30M	0.080	0.0044	0.0050	0.0070	0.012
N2	MM10-10012-B90A30-E03 F30M	0.080	0.0044	0.0050	0.0070	0.012
N3	MM10-10012-B90A30-E03 F30M	0.080	0.0044	0.0050	0.0070	0.012
N11	MM10-10012-B90A30-E03 F30M	0.080	0.0044	0.0050	0.0070	0.012
S1	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
S2	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
S3	MM10-10012-B90A30-E03 F30M	0.050	0.0020	0.0024	0.0034	0.0050
S11	MM10-10012-B90A30-E03 F30M	0.060	0.0024	0.0030	0.0040	0.0065
S12	MM10-10012-B90A30-E03 F30M	0.060	0.0024	0.0030	0.0040	0.0065
S13	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
H5	MM10-10012-B90A30-E03 F30M	0.065	0.0022	0.0026	0.0034	0.0055
H8	MM10-10012-B90A30-E03 F30M	0.060	0.0016	0.0019	0.0026	0.0044
H11	MM10-10012-B90A30-E03 F30M	0.065	0.0022	0.0026	0.0034	0.0055
H12	MM10-10012-B90A30-E03 F30M	0.065	0.0022	0.0026	0.0034	0.0055
H21	MM10-10012-B90A30-E03 F30M	0.060	0.0016	0.0019	0.0026	0.0044

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM10 Z3-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM10-10012-B90A30-M03 F40M	0.080	0.0024	0.0024	0.0030	0.0040
P2	MM10-10012-B90A30-M03 F40M	0.080	0.0024	0.0024	0.0030	0.0040
P3	MM10-10012-B90A30-M03 F40M	0.080	0.0022	0.0024	0.0028	0.0038
P4	MM10-10012-B90A30-M03 F40M	0.080	0.0022	0.0022	0.0028	0.0038
P5	MM10-10012-B90A30-M03 F40M	0.080	0.0022	0.0022	0.0028	0.0038
P6	MM10-10012-B90A30-M03 F40M	0.080	0.0022	0.0022	0.0028	0.0036
P7	MM10-10012-B90A30-M03 F40M	0.080	0.0022	0.0022	0.0028	0.0036
P8	MM10-10012-B90A30-M03 F40M	0.080	0.0022	0.0024	0.0028	0.0038
P11	MM10-10012-B90A30-M03 F40M	0.080	0.0022	0.0022	0.0028	0.0036
M1	MM10-10012-B90A30-M03 F40M	0.080	0.0024	0.0024	0.0030	0.0040
M2	MM10-10012-B90A30-M03 F40M	0.080	0.0022	0.0022	0.0028	0.0038
M3	MM10-10012-B90A30-M03 F40M	0.065	0.0017	0.0018	0.0022	0.0030
M4	MM10-10012-B90A30-M03 F40M	0.050	0.0015	0.0016	0.0019	0.0026
M5	MM10-10012-B90A30-M03 F40M	0.050	0.0015	0.0016	0.0019	0.0026
K1	MM10-10012-B90A30-E03 F30M	0.080	0.0024	0.0024	0.0030	0.0040
K2	MM10-10012-B90A30-E03 F30M	0.080	0.0022	0.0022	0.0028	0.0038
K3	MM10-10012-B90A30-E03 F30M	0.080	0.0022	0.0022	0.0028	0.0038
K4	MM10-10012-B90A30-E03 F30M	0.080	0.0022	0.0022	0.0028	0.0038
K5	MM10-10012-B90A30-D03 F30M	0.080	0.0020	0.0020	0.0024	0.0034
K6	MM10-10012-B90A30-D03 F30M	0.080	0.0022	0.0022	0.0028	0.0038
K7	MM10-10012-B90A30-D03 F30M	0.080	0.0020	0.0020	0.0024	0.0034
N1	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0032	0.0038	0.0050
N2	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0032	0.0038	0.0050
N3	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0032	0.0038	0.0050
N11	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0032	0.0038	0.0050
S1	MM10-10012-B90A30-D03 F30M	0.050	0.0015	0.0016	0.0019	0.0026
S2	MM10-10012-B90A30-D03 F30M	0.050	0.0015	0.0016	0.0019	0.0026
S3	MM10-10012-B90A30-D03 F30M	0.050	0.0014	0.0014	0.0017	0.0024
S11	MM10-10012-B90A30-M03 F40M	0.060	0.0017	0.0018	0.0022	0.0030
S12	MM10-10012-B90A30-M03 F40M	0.060	0.0017	0.0018	0.0022	0.0030
S13	MM10-10012-B90A30-M03 F40M	0.050	0.0015	0.0016	0.0019	0.0026
H5	MM10-10012-B90A30-D03 F30M	0.065	0.0015	0.0015	0.0018	0.0026
H8	MM10-10012-B90A30-D03 F30M	0.060	0.0011	0.0012	0.0014	0.0019
H11	MM10-10012-B90A30-D03 F30M	0.065	0.0015	0.0015	0.0018	0.0026
H12	MM10-10012-B90A30-D03 F30M	0.065	0.0015	0.0015	0.0018	0.0026
H21	MM10-10012-B90A30-D03 F30M	0.060	0.0011	0.0012	0.0014	0.0019

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM10 Z3-Copy – Insert selection – Semi finishing

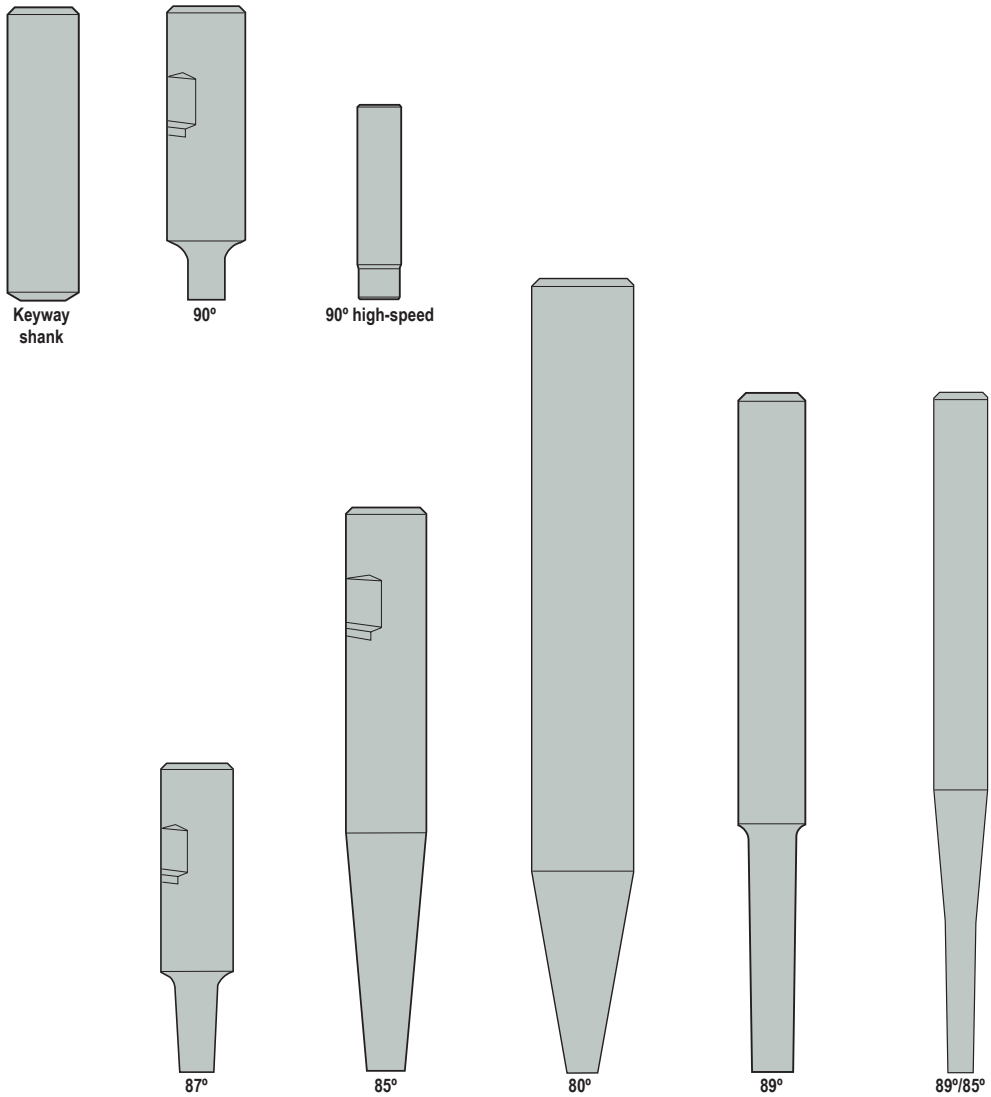
SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM10-10012-B90A30-E03 F30M	0.080	0.0034	0.0040	0.0055	0.0095
P2	MM10-10012-B90A30-E03 F30M	0.080	0.0034	0.0040	0.0055	0.0095
P3	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0055	0.0085
P4	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
P5	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
P6	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0036	0.0050	0.0080
P7	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0036	0.0050	0.0080
P8	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0055	0.0085
P11	MM10-10012-B90A30-E03 F30M	0.080	0.0030	0.0036	0.0050	0.0080
M1	MM10-10012-B90A30-E03 F30M	0.080	0.0034	0.0040	0.0055	0.0095
M2	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
M3	MM10-10012-B90A30-E03 F30M	0.065	0.0024	0.0030	0.0040	0.0065
M4	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
M5	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
K1	MM10-10012-B90A30-E03 F30M	0.080	0.0034	0.0040	0.0055	0.0095
K2	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
K3	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
K4	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
K5	MM10-10012-B90A30-E03 F30M	0.080	0.0028	0.0034	0.0048	0.0075
K6	MM10-10012-B90A30-E03 F30M	0.080	0.0032	0.0038	0.0050	0.0085
K7	MM10-10012-B90A30-E03 F30M	0.080	0.0028	0.0034	0.0048	0.0075
N1	MM10-10012-B90A30-E03 F30M	0.080	0.0044	0.0050	0.0070	0.012
N2	MM10-10012-B90A30-E03 F30M	0.080	0.0044	0.0050	0.0070	0.012
N3	MM10-10012-B90A30-E03 F30M	0.080	0.0044	0.0050	0.0070	0.012
N11	MM10-10012-B90A30-E03 F30M	0.080	0.0044	0.0050	0.0070	0.012
S1	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
S2	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
S3	MM10-10012-B90A30-D03 F30M	0.050	0.0020	0.0024	0.0034	0.0050
S11	MM10-10012-B90A30-E03 F30M	0.060	0.0024	0.0030	0.0040	0.0065
S12	MM10-10012-B90A30-E03 F30M	0.060	0.0024	0.0030	0.0040	0.0065
S13	MM10-10012-B90A30-E03 F30M	0.050	0.0022	0.0026	0.0036	0.0055
H5	MM10-10012-B90A30-E03 F30M	0.065	0.0022	0.0026	0.0034	0.0055
H8	MM10-10012-B90A30-E03 F30M	0.060	0.0016	0.0019	0.0026	0.0044
H11	MM10-10012-B90A30-E03 F30M	0.065	0.0022	0.0026	0.0034	0.0055
H12	MM10-10012-B90A30-E03 F30M	0.065	0.0022	0.0026	0.0034	0.0055
H21	MM10-10012-B90A30-E03 F30M	0.060	0.0016	0.0019	0.0026	0.0044

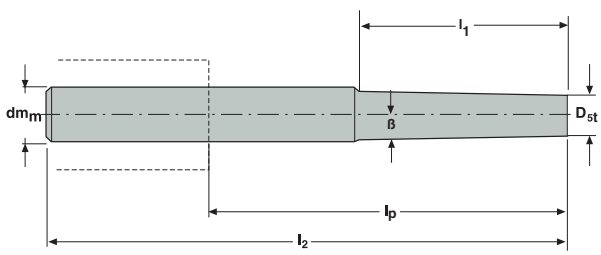
** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM10 – Cutting data, 3-flute copy milling

MM10 Z3-Copy – Cutting data (sf/min)

	F30M					F40M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1225	1425	1575	1725	1925	1175	1350	1500	1625	1825
P2	1200	1375	1525	1675	1875	1150	1325	1450	1600	1775
P3	1050	1200	1325	1450	1625	990	1150	1275	1375	1550
P4	920	1050	1175	1275	1425	870	1000	1125	1225	1350
P5	880	1000	1125	1225	1375	830	960	1075	1175	1325
P6	980	1125	1275	1375	1550	940	1075	1200	1300	1475
P7	930	1075	1200	1300	1450	880	1025	1150	1225	1400
P8	880	1000	1125	1225	1375	830	960	1075	1175	1300
P11	900	1050	1150	1250	1425	860	990	1100	1200	1350
M1	970	1125	1225	1350	1500	920	1050	1175	1275	1425
M2	790	910	1025	1100	1250	750	870	970	1050	1175
M3	620	730	800	880	980	590	700	760	830	930
M4	475	570	610	670	750	450	550	580	640	710
M5	395	475	510	560	620	375	455	480	530	590
K1	950	1100	1200	1325	1475	910	1050	1150	1250	1400
K2	830	960	1075	1150	1300	790	910	1025	1100	1250
K3	700	810	910	980	1100	670	770	860	940	1050
K4	670	780	870	940	1050	640	740	820	890	1000
K5	405	475	520	570	640	385	450	495	550	610
K6	590	680	760	830	930	560	650	730	790	890
K7	520	610	670	730	810	490	580	640	700	780
N1	3675	4125	4550	5000	5525	3500	3925	4350	4775	5250
N2	2975	3325	3675	4050	4450	2825	3175	3500	3850	4250
N3	1975	2225	2450	2700	2975	1875	2125	2350	2575	2825
N11	2250	2525	2800	3075	3400	2150	2425	2675	2925	3225
S1	220	265	285	310	350	210	255	270	295	335
S2	180	215	230	250	280	170	205	215	240	270
S3	155	185	200	220	245	145	180	190	210	235
S11	315	375	400	440	495	300	355	380	420	470
S12	180	215	230	255	285	175	205	220	245	270
S13	145	175	185	200	225	135	165	175	190	215
H5	185	220	240	260	295	175	210	230	250	280
H8	185	230	250	270	305	180	220	235	260	290
H11	235	280	305	335	375	225	270	290	320	355
H12	355	425	460	500	560	335	405	440	480	540
H21	185	230	250	270	305	180	220	235	260	290





Cutting data for MM12 is shown on pages 489-498.
Max RPM and torque values are shown on page 517.

For MM12 inserts

Shank design	EDP No.	Part No.	Dimensions in inch						lbs	Spare part no.
			D_{5t}	dm_m	β°	l_1	l_2	l_p		
Keyway	05070	**MM12 -0.62-2.6-0-0000**	0.449	0.625	60	–	2.559	0.669	0.2	1
90° high speed	96133	**MM12 -0.50-2.2-0-0003**	0.453	0.500	–	0.335	2.165	0.394	0.2	2
90°	15055	**MM12 -0.75-3.1-3-0004**	0.449	0.750	–	0.472	3.150	1.181	0.4	3
90°	35089	**-0.75-3.8-0-0009DS****	0.449	0.750	–	0.945	3.740	1.772	0.9	4
90°	35090	**-0.75-4.5-0-0018DS****	0.449	0.750	–	1.890	4.528	2.559	0.9	4
87°	15056	**MM12 -0.75-3.7-3-3010**	0.449	0.750	3	1.063	3.740	1.772	0.4	3
85°	15057	**MM12 -0.75-5.9-3-5017**	0.449	0.750	5	1.720	5.906	3.937	0.7	5
89°	54728	**MM12 -0.62-6.7-0-1015**	0.449	0.625	1	1.575	6.693	4.803	0.7	5
89°	54729	**-0.62-6.7-0-1023**	0.449	0.625	1	2.362	6.693	4.803	0.4	5
89°	35086	**-0.62-6.7-0-1023DS****	0.449	0.625	1	2.362	6.693	4.803	1.1	4
89°	54730	**-0.62-6.7-0-1031**	0.449	0.625	1	3.150	6.693	4.803	0.4	5
89°	35087	**-0.62-6.7-0-1031DS****	0.449	0.625	1	3.150	6.693	4.803	1.1	4
89° / 85°*	35088	**MM12 -0.75-10.0-0-1023DS****	0.449	0.750	1	2.362	9.843	7.874	2.2	4

* For design 9, the l1 value is valid on the 89° tapered part.

** High density, anti-vibration shank, for semi-finishing and finishing only.

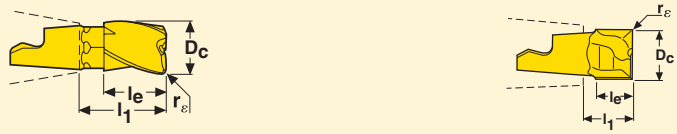
Spare Parts, included in delivery.

Spare part no.	Sleeve	Tension screw
1	MM-06032	MM12-0637
2	MM-06020	MM12-0637
3	MM-06048	MM12-0637
4	–	MM12-061037
5	MM-06116	MM12-0637

Please check availability in current price and stock-list.

For wrench types, see insert pages.
For torque keys and values, see page 517.
Allen key (6SMS795) for sleeve and wrench ordered separately.

Slot milling/ square shoulder milling

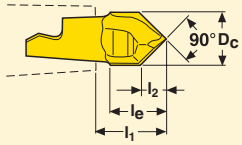


Insert type	Part No.	Dimensions in inch				Zc	Wrench**	Coated Grades			
		Dc	rε	le	l1			T60M	F15M	F30M	F40M
3-flute	MM12 -0.472-A30-E04	0.472	–	0.610	0.783	3*	MM0416			23722	
3-flute	-0.472-R020A30-M04	0.472	0.020	0.610	0.783	3*	MM0416				23724
3-flute	-0.472-R040A30-E04	0.472	0.039	0.610	0.783	3*	MM0416			23725	
3-flute	-0.472-R040A30-M04	0.472	0.039	0.610	0.783	3*	MM0416				23726
3-flute	-0.472-R059A30-D04	0.472	0.059	0.610	0.783	3*	MM0416			38209	
3-flute	-0.472-R080A30-M04	0.472	0.079	0.610	0.783	3*	MM0416				23727
3-flute	-0.472-R118A30-E04	0.472	0.118	0.610	0.783	3*	MM0416			96018	
3-flute	-0.472-R118A30-M04	0.472	0.118	0.610	0.783	3*	MM0416				23728
3-flute	-0.472-R157A30-M04	0.472	0.157	0.610	0.783	3*	MM0416				23729
3-flute	MM12 -0.500-A30-E04	0.500	–	0.610	0.783	3*	MM0416			23738	
3-flute	-0.500-R031A30-D04	0.500	0.031	0.610	0.783	3*	MM0416			38233	
3-flute	-0.500-R031A30-M04	0.500	0.031	0.610	0.783	3*	MM0416				23739
3-flute	-0.500-R063A30-M04	0.500	0.063	0.610	0.783	3*	MM0416				23740
3-flute	-0.500-R125A30-M04	0.500	0.125	0.610	0.783	3*	MM0416				23741
2-flute	MM12 -0.472-M04	0.472	–	0.325	0.402	2	MM0612	17029			
2-flute	-0.472-R2-MD05	0.472	0.031	0.324	0.401	2	MM0612	17031		81339	
2-flute	-0.472-R2P-M04	0.472	0.031	0.319	0.396	2	MM0612			84026	
2-flute	-0.472-R5-MD05	0.472	0.079	0.323	0.400	2	MM0612	03756		81341	
2-flute	-0.472-R7.6-MD05	0.472	0.118	0.322	0.399	2	MM0612	03758		83590	
2-flute	MM12 -0.551-M04	0.551	–	0.368	0.443	2	MM1420	17132			
2-flute	-0.551-R2-MD05	0.551	0.031	0.367	0.443	2	MM1420	17130		09264	
2-flute	MM12 -0.500-M04	0.500	–	0.368	0.443	2	MM1420	34268			
2-flute	-0.500-R2-MD05	0.500	0.031	0.368	0.442	2	MM1420	34269			
2-flute	-0.500-R2P-M04	0.500	0.031	0.367	0.442	2	MM1420			93765	
2-flute	-0.500-R8.0-MD05	0.500	0.125	0.368	0.440	2	MM1420			93766	
2-flute	MM12 -0.472-R2A8-E04	0.472	0.031	0.319	0.400	2	MM0612	34552		83499	
2-flute	MM12 -0.551-R2A8-E04	0.551	0.031	0.362	0.435	2	MM1420	34553		83501	
2-flute	MM12 -0.500-R2A8-E04	0.500	0.031	0.319	0.399	2	MM1420			93771	
Keyway 3-flute	MM12 -0.460-R012A30-M04	0.461	0.012	0.610	0.783	3*	MM0416				23730
Keyway 2-flute	-0.460T-R0.8-D05	0.461	0.012	0.325	0.401	2	MM0612	17224			
Keyway 2-flute	MM12 -0.539T-R0.8-D05	0.539	0.012	0.367	0.443	2	MM1420	17225			

* = z_c – value 1 in drilling.

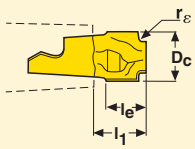
** Wrench not included, must be ordered separately.

Center drilling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	l_e	l_1	l_2			T60M	F15M	F30M	F40M
90°	MM12 -0.472-C90-M04	0.472	0.498	0.576	0.222	2	MM0612	34549			

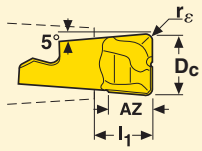
Concave radius



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	r_ε	l_e	l_1			T60M	F15M	F30M	F40M
2-flute	MM12 -0.472-CR10-MD05	0.472	0.039	0.416	0.478	2	MM0612	34555			
2-flute	-0.472-CR20-MD05	0.472	0.079	0.419	0.482	2	MM0612	34556			
2-flute	-0.472-CR30-MD05	0.472	0.118	0.419	0.480	2	MM0612	34557			

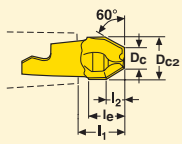
** Wrench not included, must be ordered separately.

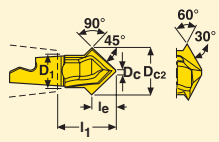
Plunge milling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	r_ε	AZ	l_1			T60M	F15M	F30M	F40M
2-flute	**MM12 -0.472-R040-PL-MD05**	0.472	0.039	0.335	0.402	2	MM0612			12464	

Chamfering

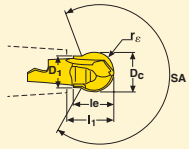




Insert type	Part No.	Dimensions in inch					Z_c	Wrench**	Coated Grades			
		D_c	D_{c2}	l_e	l_1	R			T60M	F15M	F30M	F40M
30°	**MM12 -0.630-D3020P-M02**	0.039	0.630	0.169	0.598	0.453	2	MM1420		23794		
45°	**MM12 -0.630-D4520P-M02**	0.039	0.630	0.295	0.677	0.453	2	MM1420		23793		

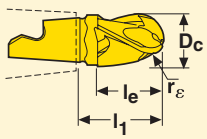
** Wrench not included, must be ordered separately.

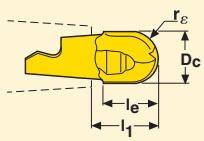
Precision inserts for semi-finishing in all materials



Insert type	Part No.	Dimensions in inch						Zc	Wrench**	Coated Grades			
		Dc	rε	le	l1	D1	SA°			T60M	F15M	F30M	F40M
2-flute	MM12 -0.551-B120P-M05	0.551	0.276	0.551	0.608	0.472	242.0	2	MM1420			83491	
2-flute	MM12 -0.630-B120P-M07	0.630	0.315	0.630	0.687	0.472	263.0	2	MM1420			91006	
2-flute	-0.630-B120PF-M03	0.630	0.315	0.630	0.687	0.472	263.0	2	MM1420		91007		

Copy milling



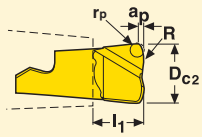


Insert type	Part No.	Dimensions in inch				Zc	Wrench**	Coated Grades			
		Dc	rε	le	l1			T60M	F15M	F30M	F40M
3-flute	MM12 -0.472-B90A30-E04	0.472	0.236	0.610	0.783	3*	MM0416			96012	
3-flute	-0.472-B90A30-M04	0.472	0.236	0.610	0.783	3*	MM0416				96013
3-flute	-0.472-B90A30-D04	0.472	0.236	0.610	0.783	3*	MM0416			96014	
3-flute	-0.500-B90A30-E04	0.500	0.250	0.604	0.778	3*	MM0416			30825	
3-flute	-0.500-B90A30-M04	0.500	0.250	0.604	0.778	3*	MM0416				30826
3-flute	-0.500-B90A30-D04	0.500	0.250	0.604	0.778	3*	MM0416			30828	
2-flute	MM12 -0.472-B90-MD05	0.472	0.236	0.483	0.556	2	MM0612	17033		68363	
2-flute	-0.472-B90S-E05	0.472	0.236	0.483	0.556	2	MM0612			69357	
2-flute	-0.551-B90S-E05	0.551	0.276	0.556	0.627	2	MM1420			69358	
2-flute	-0.500-B90S-E05	0.500	0.250	0.497	0.570	2	MM1420			93772	
2-flute	-0.500-B90SF-E03	0.500	0.250	0.497	0.570	2	MM1420		93773		
2-flute	-0.472-B90P-M05	0.472	0.236	0.413	0.555	2	MM0612			68358	
2-flute	-0.500-B90P-M05	0.500	0.250	0.481	0.627	2	MM1420	52646		86949	
2-flute	MM12 -0.472-B90PF-M02	0.472	0.236	0.413	0.555	2	MM0612		92170		

* = z_c – value 1 in drilling.

** Wrench not included, must be ordered separately.

Highfeed



Insert type	Part No.	Dimensions in inch					Z_c	Wrench**	Coated Grades			
		a_p	D_{c2}	r_p	R	l_1			T60M	F15M	F30M	F40M
2-flute	**MM12 -12.60-HF-MD10**	0.020	0.472	0.048	0.256	0.404	2	MM0612		04592	04593	

** Wrench not included, must be ordered separately.

MM12 – General insert selection

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM12-12015-R05A30-M04 F40M	0.10	0.0022	0.0024	0.0028	0.0038
P2	MM12-12015-R05A30-M04 F40M	0.10	0.0024	0.0024	0.0030	0.0040
P3	MM12-12015-R05A30-M04 F40M	0.10	0.0022	0.0022	0.0028	0.0038
P4	MM12-12015-R05A30-M04 F40M	0.10	0.0022	0.0022	0.0028	0.0036
P5	MM12-12015-R05A30-M04 F40M	0.10	0.0022	0.0022	0.0026	0.0036
P6	MM12-12015-R05A30-M04 F40M	0.10	0.0020	0.0022	0.0026	0.0036
P7	MM12-12015-R05A30-M04 F40M	0.10	0.0020	0.0022	0.0026	0.0036
P8	MM12-12015-R05A30-M04 F40M	0.10	0.0022	0.0022	0.0028	0.0038
P11	MM12-12015-R05A30-M04 F40M	0.10	0.0020	0.0022	0.0026	0.0036
M1	MM12-12015-R05A30-M04 F40M	0.10	0.0024	0.0024	0.0030	0.0040
M2	MM12-12015-R05A30-M04 F40M	0.10	0.0022	0.0022	0.0026	0.0036
M3	MM12-12015-R05A30-M04 F40M	0.080	0.0017	0.0017	0.0022	0.0028
M4	MM12-12015-R05A30-M04 F40M	0.065	0.0015	0.0015	0.0019	0.0026
M5	MM12-12015-R05A30-M04 F40M	0.065	0.0015	0.0015	0.0019	0.0026
K1	MM12-12015-R10A30-E04 F30M	0.10	0.0024	0.0026	0.0030	0.0040
K2	MM12-12015-R10A30-E04 F30M	0.10	0.0022	0.0022	0.0028	0.0038
K3	MM12-12015-R10A30-E04 F30M	0.10	0.0022	0.0022	0.0028	0.0038
K4	MM12-12015-R10A30-E04 F30M	0.10	0.0022	0.0022	0.0028	0.0038
K5	MM12-12015-R15A30-D04 F30M	0.10	0.0022	0.0022	0.0028	0.0036
K6	MM12-12015-R15A30-D04 F30M	0.10	0.0024	0.0024	0.0030	0.0040
K7	MM12-12015-R15A30-D04 F30M	0.10	0.0022	0.0022	0.0028	0.0036
N1	MM12-12015-R10A30-E04 F30M	0.10	0.0032	0.0032	0.0040	0.0050
N2	MM12-12015-R10A30-E04 F30M	0.10	0.0032	0.0032	0.0040	0.0050
N3	MM12-12015-R10A30-E04 F30M	0.10	0.0032	0.0032	0.0040	0.0050
N11	MM12-12015-R10A30-E04 F30M	0.10	0.0032	0.0032	0.0040	0.0050
S1	MM12-12015-R15A30-D04 F30M	0.065	0.0020	0.0020	0.0024	0.0034
S2	MM12-12015-R15A30-D04 F30M	0.065	0.0020	0.0020	0.0024	0.0034
S3	MM12-12015-R15A30-D04 F30M	0.065	0.0018	0.0018	0.0022	0.0030
S11	MM12-12015-R05A30-M04 F40M	0.075	0.0017	0.0017	0.0022	0.0028
S12	MM12-12015-R05A30-M04 F40M	0.075	0.0017	0.0017	0.0022	0.0028
S13	MM12-12015-R05A30-M04 F40M	0.065	0.0015	0.0015	0.0019	0.0026
H5	MM12-12015-R15A30-D04 F30M	0.080	0.0017	0.0017	0.0022	0.0030
H8	MM12-12015-R15A30-D04 F30M	0.075	0.0013	0.0014	0.0017	0.0024
H11	MM12-12015-R15A30-D04 F30M	0.080	0.0017	0.0017	0.0022	0.0030
H12	MM12-12015-R15A30-D04 F30M	0.080	0.0017	0.0017	0.0022	0.0030
H21	MM12-12015-R15A30-D04 F30M	0.075	0.0013	0.0014	0.0017	0.0024

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM12 – Cutting data, all inserts except copy milling

MM12 – General cutting data (sf/min)

	F30M				F40M				T60M			
SMG	100%	40%	20%	10%	100%	40%	20%	10%	100%	40%	20%	10%
P1	860	1075	1200	1300	810	980	1100	1225	640	780	890	990
P2	840	1025	1150	1275	770	960	1075	1175	620	750	860	960
P3	720	890	1000	1100	670	840	930	1025	540	660	750	840
P4	650	800	890	970	590	740	830	900	475	590	660	740
P5	620	760	850	930	570	700	790	870	455	560	640	710
P6	690	860	950	1050	650	790	890	980	510	630	720	800
P7	650	810	900	990	610	750	840	920	480	590	680	750
P8	610	750	840	930	570	700	780	860	455	550	630	710
P11	640	780	870	960	590	720	810	900	470	580	660	730
M1	680	830	930	1025	620	770	870	950	500	610	690	770
M2	560	690	760	830	510	630	710	790	410	500	580	640
M3	440	540	600	670	410	510	570	620	325	385	455	510
M4	340	415	465	510	315	390	435	480	250	285	330	395
M5	280	345	390	430	265	325	360	400	205	235	275	330
K1	670	820	920	1000	610	760	850	940	490	590	680	760
K2	590	720	810	880	540	670	750	830	430	530	610	670
K3	495	610	680	740	455	570	630	700	365	450	510	570
K4	475	580	650	710	435	540	610	670	350	430	490	540
K5	285	355	395	430	265	330	365	405	215	260	300	330
K6	415	510	570	630	385	475	530	590	305	380	430	480
K7	370	455	500	550	340	420	470	520	275	335	385	425
N1	2475	3050	3450	3775	2300	2850	3200	3525	1825	2200	2550	2850
N2	2000	2475	2775	3050	1850	2300	2575	2850	1475	1775	2050	2300
N3	1325	1650	1850	2025	1225	1525	1725	1900	990	1175	1375	1525
N11	1525	1875	2125	2325	1400	1750	1975	2175	1125	1350	1575	1750
S1	160	195	220	240	145	180	200	225	115	135	155	185
S2	125	155	175	195	120	145	165	180	95	105	125	150
S3	110	135	150	170	105	130	145	155	80	95	110	130
S11	220	275	305	340	205	255	290	315	160	190	225	260
S12	130	160	175	195	120	150	165	180	95	110	130	150
S13	100	125	140	155	95	120	130	145	75	85	100	120
H5	135	165	185	200	125	155	170	185	—	—	—	—
H8	140	170	190	210	130	160	180	195	—	—	—	—
H11	170	210	235	255	160	195	220	240	—	—	—	—
H12	255	315	355	385	240	295	330	360	—	—	—	—
H21	140	170	190	210	130	160	180	195	—	—	—	—

MM12 Z2-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM12-12012-B90PF-M02 F15M	0.20	0.0011	0.0013	0.0018	0.0028
P2	MM12-12012-B90PF-M02 F15M	0.20	0.0011	0.0013	0.0018	0.0030
P3	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0013	0.0017	0.0028
P4	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0013	0.0017	0.0028
P5	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
P6	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
P7	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
P8	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0013	0.0017	0.0028
P11	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
M1	MM12-12012-B90PF-M02 F15M	0.20	0.0011	0.0013	0.0018	0.0030
M2	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
M3	MM12-12012-B90PF-M02 F15M	0.16	0.00080	0.00095	0.0013	0.0022
M4	MM12-12012-B90PF-M02 F15M	0.12	0.00070	0.00085	0.0012	0.0018
M5	MM12-12012-B90PF-M02 F15M	0.12	0.00070	0.00085	0.0012	0.0018
K1	MM12-12012-B90PF-M02 F15M	0.20	0.0011	0.0013	0.0018	0.0030
K2	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
K3	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
K4	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
K5	MM12-12012-B90PF-M02 F15M	0.20	0.00095	0.0011	0.0015	0.0024
K6	MM12-12012-B90PF-M02 F15M	0.20	0.0010	0.0012	0.0017	0.0026
K7	MM12-12012-B90PF-M02 F15M	0.20	0.00095	0.0011	0.0015	0.0024
N1	MM12-12012-B90PF-M02 F15M	0.20	0.0014	0.0017	0.0024	0.0038
N2	MM12-12012-B90PF-M02 F15M	0.20	0.0014	0.0017	0.0024	0.0038
N3	MM12-12012-B90PF-M02 F15M	0.20	0.0014	0.0017	0.0024	0.0038
N11	MM12-12012-B90PF-M02 F15M	0.20	0.0014	0.0017	0.0024	0.0038
S1	MM12-12012-B90PF-M02 F15M	0.12	0.00070	0.00085	0.0012	0.0018
S2	MM12-12012-B90PF-M02 F15M	0.12	0.00070	0.00085	0.0012	0.0018
S3	MM12-12012-B90PF-M02 F15M	0.12	0.00065	0.00080	0.0011	0.0017
S11	MM12-12012-B90PF-M02 F15M	0.14	0.00080	0.00095	0.0013	0.0022
S12	MM12-12012-B90PF-M02 F15M	0.14	0.00080	0.00095	0.0013	0.0022
S13	MM12-12012-B90PF-M02 F15M	0.12	0.00070	0.00085	0.0012	0.0018
H5	MM12-12012-B90PF-M02 F15M	0.16	0.00070	0.00080	0.0011	0.0018
H8	MM12-12012-B90PF-M02 F15M	0.14	0.00050	0.00065	0.00085	0.0013
H11	MM12-12012-B90PF-M02 F15M	0.16	0.00070	0.00080	0.0011	0.0018
H12	MM12-12012-B90PF-M02 F15M	0.16	0.00070	0.00080	0.0011	0.0018
H21	MM12-12012-B90PF-M02 F15M	0.14	0.00050	0.00065	0.00085	0.0013

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM12 Z2-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM12-12012-B90S-E05 F30M	0.20	0.0040	0.0040	0.0048	0.0065
P2	MM12-12012-B90S-E05 F30M	0.20	0.0040	0.0040	0.0050	0.0065
P3	MM12-12012-B90S-E05 F30M	0.20	0.0038	0.0040	0.0048	0.0065
P4	MM12-12012-B90-MD05 F30M	0.20	0.0038	0.0038	0.0048	0.0065
P5	MM12-12012-B90-MD05 F30M	0.20	0.0036	0.0038	0.0048	0.0065
P6	MM12-12012-B90-MD05 F30M	0.20	0.0036	0.0038	0.0044	0.0060
P7	MM12-12012-B90-MD05 F30M	0.20	0.0036	0.0038	0.0044	0.0060
P8	MM12-12012-B90-MD05 F30M	0.20	0.0038	0.0040	0.0048	0.0065
P11	MM12-12012-B90-MD05 F30M	0.20	0.0036	0.0038	0.0044	0.0060
M1	MM12-12012-B90S-E05 F30M	0.20	0.0040	0.0040	0.0050	0.0065
M2	MM12-12012-B90S-E05 F30M	0.20	0.0036	0.0038	0.0048	0.0065
M3	MM12-12012-B90S-E05 F30M	0.16	0.0030	0.0030	0.0036	0.0048
M4	MM12-12012-B90-MD05 F30M	0.12	0.0026	0.0026	0.0032	0.0044
M5	MM12-12012-B90-MD05 F30M	0.12	0.0026	0.0026	0.0032	0.0044
K1	MM12-12012-B90S-E05 F30M	0.20	0.0040	0.0040	0.0050	0.0065
K2	MM12-12012-B90S-E05 F30M	0.20	0.0036	0.0038	0.0048	0.0065
K3	MM12-12012-B90S-E05 F30M	0.20	0.0036	0.0038	0.0048	0.0065
K4	MM12-12012-B90S-E05 F30M	0.20	0.0036	0.0038	0.0048	0.0065
K5	MM12-12012-B90-MD05 F30M	0.20	0.0034	0.0034	0.0040	0.0055
K6	MM12-12012-B90-MD05 F30M	0.20	0.0036	0.0038	0.0048	0.0065
K7	MM12-12012-B90-MD05 F30M	0.20	0.0034	0.0034	0.0040	0.0055
N1	MM12-12012-B90S-E05 F30M	0.20	0.0050	0.0050	0.0065	0.0085
N2	MM12-12012-B90S-E05 F30M	0.20	0.0050	0.0050	0.0065	0.0085
N3	MM12-12012-B90S-E05 F30M	0.20	0.0050	0.0050	0.0065	0.0085
N11	MM12-12012-B90S-E05 F30M	0.20	0.0050	0.0050	0.0065	0.0085
S1	MM12-12012-B90-MD05 F30M	0.12	0.0026	0.0026	0.0032	0.0044
S2	MM12-12012-B90-MD05 F30M	0.12	0.0026	0.0026	0.0032	0.0044
S3	MM12-12012-B90-MD05 F30M	0.12	0.0024	0.0024	0.0030	0.0040
S11	MM12-12012-B90-MD05 F30M	0.14	0.0030	0.0030	0.0036	0.0048
S12	MM12-12012-B90-MD05 F30M	0.14	0.0030	0.0030	0.0036	0.0048
S13	MM12-12012-B90-MD05 F30M	0.12	0.0026	0.0026	0.0032	0.0044
H5	MM12-12012-B90-MD05 F30M	0.16	0.0026	0.0026	0.0032	0.0044
H8	MM12-12012-B90-MD05 F30M	0.14	0.0019	0.0019	0.0024	0.0032
H11	MM12-12012-B90-MD05 F30M	0.16	0.0026	0.0026	0.0032	0.0044
H12	MM12-12012-B90-MD05 F30M	0.16	0.0026	0.0026	0.0032	0.0044
H21	MM12-12012-B90-MD05 F30M	0.14	0.0019	0.0019	0.0024	0.0032

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM12 Z2-Copy – Insert selection – Semi finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM12-12012-B90P-M05 F30M	0.20	0.0055	0.0065	0.0095	0.016
P2	MM12-12012-B90P-M05 F30M	0.20	0.0055	0.0065	0.0095	0.016
P3	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.015
P4	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.015
P5	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.014
P6	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0060	0.0085	0.014
P7	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0060	0.0085	0.014
P8	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.015
P11	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0060	0.0085	0.014
M1	MM12-12012-B90P-M05 F30M	0.20	0.0055	0.0065	0.0095	0.016
M2	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.014
M3	MM12-12012-B90P-M05 F30M	0.16	0.0040	0.0048	0.0065	0.011
M4	MM12-12012-B90P-M05 F30M	0.12	0.0036	0.0044	0.0060	0.0095
M5	MM12-12012-B90P-M05 F30M	0.12	0.0036	0.0044	0.0060	0.0095
K1	MM12-12012-B90P-M05 F30M	0.20	0.0055	0.0065	0.0095	0.016
K2	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.014
K3	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.014
K4	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.014
K5	MM12-12012-B90P-M05 F30M	0.20	0.0048	0.0055	0.0080	0.013
K6	MM12-12012-B90P-M05 F30M	0.20	0.0050	0.0065	0.0085	0.014
K7	MM12-12012-B90P-M05 F30M	0.20	0.0048	0.0055	0.0080	0.013
N1	MM12-12012-B90P-M05 F30M	0.20	0.0070	0.0085	0.013	0.022
N2	MM12-12012-B90P-M05 F30M	0.20	0.0070	0.0085	0.013	0.022
N3	MM12-12012-B90P-M05 F30M	0.20	0.0070	0.0085	0.013	0.022
N11	MM12-12012-B90P-M05 F30M	0.20	0.0070	0.0085	0.013	0.022
S1	MM12-12012-B90P-M05 F30M	0.12	0.0036	0.0044	0.0060	0.0095
S2	MM12-12012-B90P-M05 F30M	0.12	0.0036	0.0044	0.0060	0.0095
S3	MM12-12012-B90P-M05 F30M	0.12	0.0034	0.0040	0.0055	0.0085
S11	MM12-12012-B90P-M05 F30M	0.14	0.0040	0.0048	0.0065	0.011
S12	MM12-12012-B90P-M05 F30M	0.14	0.0040	0.0048	0.0065	0.011
S13	MM12-12012-B90P-M05 F30M	0.12	0.0036	0.0044	0.0060	0.0095
H5	MM12-12012-B90P-M05 F30M	0.16	0.0036	0.0044	0.0060	0.0095
H8	MM12-12012-B90P-M05 F30M	0.14	0.0026	0.0032	0.0044	0.0070
H11	MM12-12012-B90P-M05 F30M	0.16	0.0036	0.0044	0.0060	0.0095
H12	MM12-12012-B90P-M05 F30M	0.16	0.0036	0.0044	0.0060	0.0095
H21	MM12-12012-B90P-M05 F30M	0.14	0.0026	0.0032	0.0044	0.0070

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM12 – Cutting data, 2-flute copy milling

MM12 Z2-Copy – Cutting data (sf/min)

	F15M					F30M					T60M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1375	1775	1975	2150	2425	1025	1275	1425	1550	1725	830	1050	1150	1275	1400
P2	1350	1725	1900	2100	2350	990	1250	1375	1525	1675	800	1025	1125	1225	1350
P3	1175	1500	1650	1800	2025	860	1100	1200	1300	1450	700	890	980	1050	1175
P4	1025	1325	1450	1600	1800	760	970	1075	1175	1300	620	780	860	950	1050
P5	980	1275	1400	1525	1725	730	920	1025	1125	1250	590	750	830	910	1000
P6	1100	1425	1575	1700	1925	820	1025	1150	1250	1400	670	840	940	1025	1125
P7	1050	1350	1475	1625	1825	780	980	1100	1200	1300	630	790	880	960	1050
P8	980	1275	1400	1525	1700	730	920	1025	1100	1225	590	750	820	890	990
P11	1000	1300	1450	1575	1775	760	950	1050	1150	1275	610	770	860	930	1025
M1	1075	1400	1550	1675	1900	800	1000	1125	1225	1350	650	820	900	990	1100
M2	880	1150	1250	1375	1550	660	830	930	1000	1125	540	670	750	820	900
M3	690	890	970	1050	1200	540	690	730	810	900	440	560	590	650	730
M4	520	670	730	800	900	435	540	570	620	700	350	440	460	500	560
M5	430	560	610	670	750	365	450	470	520	580	295	365	380	420	470
K1	1075	1375	1525	1650	1850	790	990	1100	1200	1325	640	800	890	970	1075
K2	930	1200	1325	1450	1625	700	880	980	1075	1175	560	710	790	860	950
K3	790	1025	1125	1225	1375	590	740	830	900	990	480	600	670	730	810
K4	750	970	1075	1175	1325	560	710	790	860	950	455	570	640	700	770
K5	450	580	640	700	790	340	435	480	520	580	275	350	385	425	470
K6	660	850	940	1025	1150	495	620	700	760	840	400	500	560	610	680
K7	580	750	820	900	1000	435	560	610	670	740	350	450	495	540	600
N1	4125	5325	5850	6425	7175	2925	3725	4125	4500	4900	2375	3000	3325	3650	3950
N2	3325	4300	4725	5175	5800	2375	3000	3325	3625	3950	1925	2425	2700	2950	3200
N3	2225	2875	3150	3450	3875	1575	2000	2225	2425	2625	1275	1625	1800	1950	2125
N11	2550	3275	3600	3950	4425	1800	2300	2525	2775	3000	1450	1850	2050	2250	2450
S1	240	310	340	375	420	205	255	265	290	325	165	205	215	235	265
S2	195	250	275	300	340	165	205	215	235	260	130	165	170	190	210
S3	170	215	240	260	295	140	175	185	205	225	115	145	150	165	180
S11	350	450	490	540	600	280	355	370	405	455	225	285	300	330	370
S12	200	260	285	310	350	160	205	215	235	260	130	165	170	190	210
S13	155	200	220	240	270	130	165	170	185	210	105	130	140	150	170
H5	205	265	290	315	355	165	205	220	245	275	—	—	—	—	—
H8	200	265	290	315	355	175	220	235	255	285	—	—	—	—	—
H11	260	335	365	400	450	210	265	285	310	345	—	—	—	—	—
H12	390	500	550	610	680	315	400	425	465	520	—	—	—	—	—
H21	200	265	290	315	355	175	220	235	255	285	—	—	—	—	—

MM12 Z3-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0050	0.0075	0.013
P2	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0055	0.0075	0.013
P3	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0050	0.0070	0.012
P4	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0050	0.0070	0.012
P5	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
P6	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
P7	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
P8	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0050	0.0070	0.012
P11	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
M1	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0055	0.0075	0.013
M2	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
M3	MM12-12015-B90A30-E04 F30M	0.080	0.0034	0.0040	0.0055	0.0085
M4	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
M5	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
K1	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0055	0.0075	0.013
K2	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
K3	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
K4	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
K5	MM12-12015-B90A30-E04 F30M	0.10	0.0038	0.0044	0.0065	0.010
K6	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
K7	MM12-12015-B90A30-E04 F30M	0.10	0.0038	0.0044	0.0065	0.010
N1	MM12-12015-B90A30-E04 F30M	0.10	0.0060	0.0065	0.0095	0.017
N2	MM12-12015-B90A30-E04 F30M	0.10	0.0060	0.0065	0.0095	0.017
N3	MM12-12015-B90A30-E04 F30M	0.10	0.0060	0.0065	0.0095	0.017
N11	MM12-12015-B90A30-E04 F30M	0.10	0.0060	0.0065	0.0095	0.017
S1	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
S2	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
S3	MM12-12015-B90A30-E04 F30M	0.065	0.0026	0.0032	0.0044	0.0070
S11	MM12-12015-B90A30-E04 F30M	0.075	0.0034	0.0040	0.0055	0.0085
S12	MM12-12015-B90A30-E04 F30M	0.075	0.0034	0.0040	0.0055	0.0085
S13	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
H5	MM12-12015-B90A30-E04 F30M	0.080	0.0028	0.0034	0.0048	0.0075
H8	MM12-12015-B90A30-E04 F30M	0.075	0.0022	0.0026	0.0036	0.0055
H11	MM12-12015-B90A30-E04 F30M	0.080	0.0028	0.0034	0.0048	0.0075
H12	MM12-12015-B90A30-E04 F30M	0.080	0.0028	0.0034	0.0048	0.0075
H21	MM12-12015-B90A30-E04 F30M	0.075	0.0022	0.0026	0.0036	0.0055

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM12 Z3-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM12-12015-B90A30-M04 F40M	0.10	0.0032	0.0032	0.0040	0.0050
P2	MM12-12015-B90A30-M04 F40M	0.10	0.0032	0.0034	0.0040	0.0055
P3	MM12-12015-B90A30-M04 F40M	0.10	0.0030	0.0032	0.0038	0.0050
P4	MM12-12015-B90A30-M04 F40M	0.10	0.0030	0.0030	0.0038	0.0050
P5	MM12-12015-B90A30-M04 F40M	0.10	0.0030	0.0030	0.0036	0.0048
P6	MM12-12015-B90A30-M04 F40M	0.10	0.0030	0.0030	0.0036	0.0048
P7	MM12-12015-B90A30-M04 F40M	0.10	0.0030	0.0030	0.0036	0.0048
P8	MM12-12015-B90A30-M04 F40M	0.10	0.0030	0.0032	0.0038	0.0050
P11	MM12-12015-B90A30-M04 F40M	0.10	0.0030	0.0030	0.0036	0.0048
M1	MM12-12015-B90A30-M04 F40M	0.10	0.0032	0.0034	0.0040	0.0055
M2	MM12-12015-B90A30-M04 F40M	0.10	0.0030	0.0030	0.0036	0.0048
M3	MM12-12015-B90A30-M04 F40M	0.080	0.0024	0.0024	0.0030	0.0040
M4	MM12-12015-B90A30-M04 F40M	0.065	0.0020	0.0022	0.0026	0.0034
M5	MM12-12015-B90A30-M04 F40M	0.065	0.0020	0.0022	0.0026	0.0034
K1	MM12-12015-B90A30-E04 F30M	0.10	0.0032	0.0034	0.0040	0.0055
K2	MM12-12015-B90A30-E04 F30M	0.10	0.0030	0.0030	0.0036	0.0048
K3	MM12-12015-B90A30-E04 F30M	0.10	0.0030	0.0030	0.0036	0.0048
K4	MM12-12015-B90A30-E04 F30M	0.10	0.0030	0.0030	0.0036	0.0048
K5	MM12-12015-B90A30-D04 F30M	0.10	0.0026	0.0028	0.0034	0.0044
K6	MM12-12015-B90A30-D04 F30M	0.10	0.0030	0.0030	0.0036	0.0048
K7	MM12-12015-B90A30-D04 F30M	0.10	0.0026	0.0028	0.0034	0.0044
N1	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0044	0.0050	0.0065
N2	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0044	0.0050	0.0065
N3	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0044	0.0050	0.0065
N11	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0044	0.0050	0.0065
S1	MM12-12015-B90A30-D04 F30M	0.065	0.0020	0.0022	0.0026	0.0034
S2	MM12-12015-B90A30-D04 F30M	0.065	0.0020	0.0022	0.0026	0.0034
S3	MM12-12015-B90A30-D04 F30M	0.065	0.0019	0.0019	0.0024	0.0032
S11	MM12-12015-B90A30-M04 F40M	0.075	0.0024	0.0024	0.0030	0.0040
S12	MM12-12015-B90A30-M04 F40M	0.075	0.0024	0.0024	0.0030	0.0040
S13	MM12-12015-B90A30-M04 F40M	0.065	0.0020	0.0022	0.0026	0.0034
H5	MM12-12015-B90A30-D04 F30M	0.080	0.0020	0.0020	0.0026	0.0034
H8	MM12-12015-B90A30-D04 F30M	0.075	0.0015	0.0016	0.0019	0.0026
H11	MM12-12015-B90A30-D04 F30M	0.080	0.0020	0.0020	0.0026	0.0034
H12	MM12-12015-B90A30-D04 F30M	0.080	0.0020	0.0020	0.0026	0.0034
H21	MM12-12015-B90A30-D04 F30M	0.075	0.0015	0.0016	0.0019	0.0026

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM12 Z3-Copy – Insert selection – Semi finishing

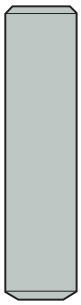
SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0050	0.0075	0.013
P2	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0055	0.0075	0.013
P3	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0050	0.0070	0.012
P4	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0050	0.0070	0.012
P5	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
P6	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
P7	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
P8	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0050	0.0070	0.012
P11	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
M1	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0055	0.0075	0.013
M2	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
M3	MM12-12015-B90A30-E04 F30M	0.080	0.0034	0.0040	0.0055	0.0085
M4	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
M5	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
K1	MM12-12015-B90A30-E04 F30M	0.10	0.0044	0.0055	0.0075	0.013
K2	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
K3	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
K4	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
K5	MM12-12015-B90A30-E04 F30M	0.10	0.0038	0.0044	0.0065	0.010
K6	MM12-12015-B90A30-E04 F30M	0.10	0.0040	0.0048	0.0065	0.011
K7	MM12-12015-B90A30-E04 F30M	0.10	0.0038	0.0044	0.0065	0.010
N1	MM12-12015-B90A30-E04 F30M	0.10	0.0060	0.0065	0.0095	0.017
N2	MM12-12015-B90A30-E04 F30M	0.10	0.0060	0.0065	0.0095	0.017
N3	MM12-12015-B90A30-E04 F30M	0.10	0.0060	0.0065	0.0095	0.017
N11	MM12-12015-B90A30-E04 F30M	0.10	0.0060	0.0065	0.0095	0.017
S1	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
S2	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
S3	MM12-12015-B90A30-D04 F30M	0.065	0.0026	0.0032	0.0044	0.0070
S11	MM12-12015-B90A30-E04 F30M	0.075	0.0034	0.0040	0.0055	0.0085
S12	MM12-12015-B90A30-E04 F30M	0.075	0.0034	0.0040	0.0055	0.0085
S13	MM12-12015-B90A30-E04 F30M	0.065	0.0028	0.0034	0.0048	0.0075
H5	MM12-12015-B90A30-E04 F30M	0.080	0.0028	0.0034	0.0048	0.0075
H8	MM12-12015-B90A30-E04 F30M	0.075	0.0022	0.0026	0.0036	0.0055
H11	MM12-12015-B90A30-E04 F30M	0.080	0.0028	0.0034	0.0048	0.0075
H12	MM12-12015-B90A30-E04 F30M	0.080	0.0028	0.0034	0.0048	0.0075
H21	MM12-12015-B90A30-E04 F30M	0.075	0.0022	0.0026	0.0036	0.0055

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

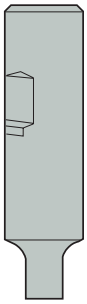
MM12 – Cutting data, 3-flute copy milling

MM12 Z3-Copy – Cutting data (sf/min)

	F30M					F40M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1200	1350	1500	1625	1825	1150	1275	1425	1550	1750
P2	1175	1300	1450	1575	1750	1100	1250	1375	1500	1675
P3	1000	1150	1250	1375	1525	960	1075	1175	1300	1450
P4	890	1000	1125	1225	1350	850	950	1075	1175	1275
P5	850	960	1075	1175	1300	810	910	1025	1100	1250
P6	950	1075	1200	1300	1475	910	1025	1150	1250	1400
P7	900	1025	1125	1225	1400	860	980	1075	1175	1325
P8	850	960	1050	1150	1300	810	910	1000	1100	1225
P11	870	1000	1100	1200	1350	830	950	1050	1150	1275
M1	940	1050	1175	1275	1400	890	1000	1100	1200	1350
M2	760	860	960	1050	1175	730	820	910	1000	1125
M3	610	690	760	840	930	580	660	730	800	890
M4	470	550	590	640	710	445	520	560	610	680
M5	390	460	490	530	600	375	435	465	510	570
K1	920	1025	1150	1250	1400	880	990	1100	1175	1325
K2	810	910	1025	1100	1250	770	870	970	1050	1175
K3	680	770	860	940	1050	650	730	820	890	1000
K4	650	730	820	890	1000	620	700	780	850	960
K5	395	445	495	540	610	375	425	475	510	580
K6	570	650	720	790	890	550	620	690	750	840
K7	500	570	640	690	780	480	540	610	660	740
N1	3525	3900	4300	4700	5250	3375	3725	4100	4475	5000
N2	2850	3150	3475	3800	4250	2725	3000	3325	3600	4050
N3	1900	2100	2325	2525	2825	1800	2000	2200	2400	2700
N11	2175	2400	2650	2900	3225	2075	2275	2525	2750	3075
S1	220	255	275	300	335	210	245	260	285	315
S2	175	205	220	240	270	170	195	210	230	255
S3	155	180	190	210	235	145	170	180	200	225
S11	310	360	385	425	470	295	340	365	405	450
S12	180	205	220	245	270	170	195	210	230	260
S13	140	165	175	190	215	135	160	170	185	205
H5	180	210	230	250	285	175	200	220	240	270
H8	185	220	240	265	295	175	210	225	250	280
H11	230	265	290	320	360	220	250	280	305	345
H12	350	400	440	485	540	335	380	420	460	520
H21	185	220	240	265	295	175	210	225	250	280

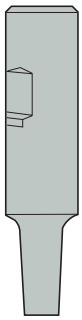


Keyway shank

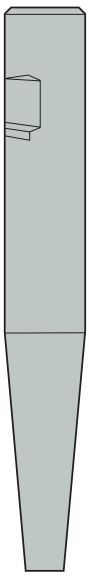


90°

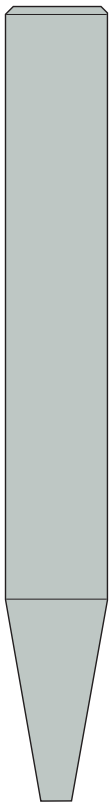
90° high-speed



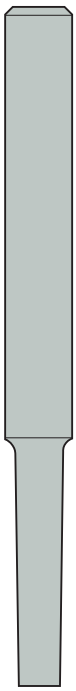
87°



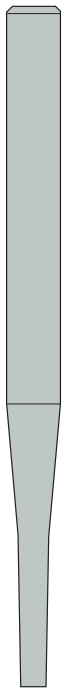
85°



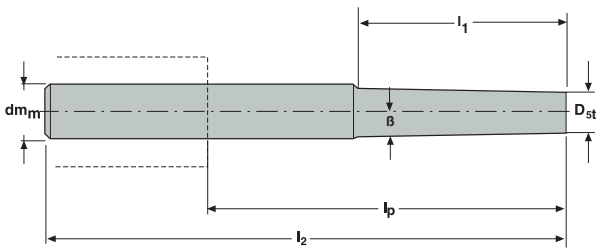
80°



89°



89°/85°



Cutting data for MM16 is shown on pages 507-516.
Max RPM and torque values are shown on page 517.

For MM16 inserts

Shank design	EDP No.	Part No.	Dimensions in inch						lbs	Spare part no.
			D_{5t}	dm_m	β°	l_1	l_2	l_p		
Keyway	37175	**MM16 75-2.8-0-0000**	0.598	0.750	60	–	2.756	0.787	0.4	1
90° high speed	37209	**MM16 62-2.8-0M-0004**	0.598	0.625	–	0.445	2.756	0.866	0.2	1
90°	15058	**MM16 00-3.9-3-0007**	0.598	1.000	–	0.748	3.937	1.732	0.9	2
90°	35093	**00-5.9-0-0015DS****	0.598	1.000	–	1.496	5.906	3.701	2.2	3
90°	35103	**00-6.3-0-0030DS****	0.598	1.000	–	2.992	6.299	4.094	2.0	3
87°	54603	**MM16 75-4.5-3-3018**	0.598	0.750	3	1.445	4.528	2.559	0.4	4
87°	15059	**00-4.5-3-3013**	0.598	1.000	3	1.378	4.528	2.323	0.9	4
85°	15060	**MM16 00-6.7-3-5022**	0.598	1.000	5	2.295	6.693	4.488	1.3	5
89°	54731	**MM16 75-7.5-0-1021**	0.598	0.750	1	2.165	7.480	5.512	0.9	6
89°	54732	**75-7.5-0-1029**	0.598	0.750	1	2.953	7.480	5.512	0.9	6
89°	31903	**75-7.5-0-1029DS****	0.598	0.750	1	2.953	7.480	5.512	1.8	3
89°	54733	**75-7.5-0-1037**	0.598	0.750	1	3.740	7.480	5.512	0.9	7
89°	35091	**75-7.5-0-1037DS****	0.598	0.750	1	3.740	7.480	5.512	1.5	3
89° / 85°*	35092	**MM16 00-10.0-0-1029DS****	0.598	1.000	1	2.953	9.843	7.638	3.5	3

* For design 9, the l1 value is valid on the 89° tapered part.

** High density, anti-vibration shank, for semi-finishing and finishing only.

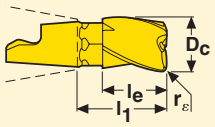
Spare Parts, included in delivery.

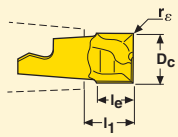
Spare part no.	Sleeve	Tension screw
1	MM-10030	MM16-1045
2	MM-10062	MM16-1045
3	–	MM16-1045
4	MM-10062	MM16-1045
5	MM-10132	MM16-1045
6	MM-10062	MM16-1093
7	MM-10062	MM16-10113

Please check availability in current price and stock-list.

For wrench types, see insert pages.
For torque keys and values, see page 517.
Allen key (8SMS795) for sleeve and wrench ordered separately.

Slot milling/ square shoulder milling



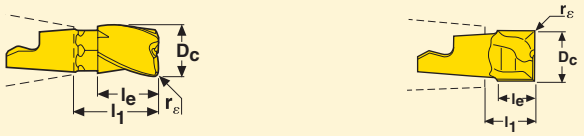


Insert type	Part No.	Dimensions in inch D_c	r_ε	l_e	l_1	Z_c	Wrench**	Coated Grades T60M	F15M	F30M	F40M
3-flute	MM16 -0.630-A30-E06	0.630	–	0.758	0.965	3*	MM0416			13343	
3-flute	-0.630-R020A30-M06	0.630	0.020	0.758	0.965	3*	MM0416				13344
3-flute	-0.630-R040A30-E06	0.630	0.039	0.758	0.965	3*	MM0416			13350	
3-flute	-0.630-R040A30-M06	0.630	0.039	0.758	0.965	3*	MM0416				13355
3-flute	-0.630-R080A30-D06	0.630	0.079	0.758	0.965	3*	MM0416			38206	
3-flute	-0.630-R080A30-M06	0.630	0.079	0.758	0.965	3*	MM0416				13365
3-flute	-0.630-R30A30-E06	0.630	0.118	0.758	0.965	3*	MM0416			96005	
3-flute	-0.630-R118A30-M06	0.630	0.118	0.758	0.965	3*	MM0416				13380
3-flute	-0.630-R157A30-M06	0.630	0.157	0.758	0.965	3*	MM0416				13385
3-flute	-0.630-R197A30-M06	0.630	0.197	0.758	0.965	3*	MM0416				23706
3-flute	-0.630-R236A30-M06	0.630	0.236	0.758	0.965	3*	MM0416				23707
3-flute	MM16 -0.787-A30-E06	0.787	–	0.591	0.793	3*	MM0416			38210	
3-flute	-0.787-R020A30-M06	0.787	0.020	0.591	0.793	3*	MM0416				38211
3-flute	-0.787-R040A30-E06	0.787	0.039	0.591	0.793	3*	MM0416			13484	
3-flute	-0.787-R040A30-M06	0.787	0.039	0.591	0.793	3*	MM0416				38213
3-flute	-0.787-R080A30-D06	0.787	0.079	0.591	0.793	3*	MM0416			13485	
3-flute	-0.787-R118A30-E06	0.787	0.118	0.591	0.793	3*	MM0416			26593	
3-flute	-0.787-R118A30-M06	0.787	0.118	0.591	0.793	3*	MM0416				38215
3-flute	-0.787-R197A30-M06	0.787	0.197	0.591	0.793	3*	MM0416				38216
3-flute	MM16 -0.625-A30-E06	0.625	–	0.758	0.965	3*	MM0416			23731	
3-flute	-0.625-R031A30-M06	0.625	0.031	0.758	0.965	3*	MM0416				23732
3-flute	-0.625-R062A30-D06	0.625	0.063	0.758	0.965	3*	MM0416			38231	
3-flute	-0.625-R125A30-M06	0.625	0.126	0.758	0.965	3*	MM0416				23733
3-flute	-0.625-R250A30-M06	0.625	0.252	0.758	0.965	3*	MM0416				23734
3-flute	MM16 -0.750-A30-E06	0.750	–	0.591	0.793	3*	MM0416			38234	
3-flute	-0.750-R031A30-M06	0.750	0.031	0.591	0.793	3*	MM0416				38235
3-flute	-0.750-R075A30-D06	0.750	0.075	0.591	0.793	3*	MM0416			13489	
3-flute	-0.750-R125A30-M06	0.750	0.126	0.591	0.793	3*	MM0416				38237
3-flute	-0.750-R250A30-M06	0.750	0.252	0.591	0.793	3*	MM0416				38238
2-flute	MM16 -0.630-M06	0.630	–	0.433	0.535	2	MM1420	42955			
2-flute	-0.630-R2-MD07	0.630	0.031	0.433	0.535	2	MM1420	17037		81353	
2-flute	-0.630-R2P-M05	0.630	0.031	0.425	0.528	2	MM1420			84025	
2-flute	-0.630-R5-MD07	0.630	0.079	0.431	0.533	2	MM1420			81683	
2-flute	-0.630-R7.5-MD07	0.630	0.118	0.430	0.533	2	MM1420	03761		81343	
2-flute	-0.630-R10.1-MD07	0.630	0.157	0.430	0.532	2	MM1420	03762			
2-flute	-0.630-R12.6-MD07	0.630	0.197	0.429	0.531	2	MM1420	03763			
2-flute	MM16 -0.625-M06	0.625	–	0.433	0.535	2	MM1420	34270			
2-flute	-0.625-R2-MD07	0.625	0.031	0.432	0.535	2	MM1420	34271			
2-flute	MM16 -0.630-R2A8-E06	0.630	0.031	0.413	0.536	2	MM1420	34554		83502	
2-flute	MM16 -0.787-R2A8-E06	0.787	0.031	0.500	0.607	2	MM1420	68355		83504	
2-flute	MM16 -0.750-R2A8-E06	0.750	0.031	0.500	0.606	2	MM1420			93777	

* = z_c – value 1 in drilling.

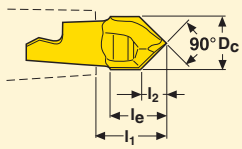
** Wrench not included, must be ordered separately.

Slot milling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	r_ε	l_e	l_1			T60M	F15M	F30M	F40M
3-flute	MM16 -0.618-R012A30-M06	0.618	0.012	0.758	0.965	3*	MM0416				13389
2-flute	-0.618T-R0.8-D07	0.618	0.012	0.433	0.535	2	MM1420	17226			
3-flute	MM16 -0.775-R020A30-M06	0.776	0.020	0.591	0.793	3*	MM0416				38218

Center drilling

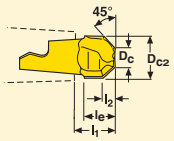


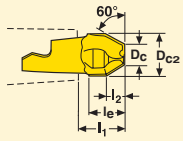
Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	l_e	l_1	l_2			T60M	F15M	F30M	F40M
90°	MM16 -0.630-C90-M06	0.630	0.657	0.756	0.296	2	MM1420	04538			
120°	MM16 -0.630-C120-M06	0.630	0.655	0.744	0.169	2	MM1420	04991			

* = z_c – value 1 in drilling.

** Wrench not included, must be ordered separately.

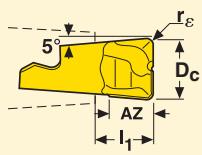
Chamfering





Insert type	Part No.	Dimensions in inch					Z_c	Wrench**	Coated Grades			
		D_{c2}	D_c	l_e	l_1	l_2			T60M	F15M	F30M	F40M
45°	**MM16 -0.630-45.16-E06**	0.630	0.303	0.429	0.522	0.161	2	MM1420	04992			
60°	**MM16 -0.630-60.26-E06**	0.630	0.330	0.508	0.602	0.264	2	MM1420	04994			

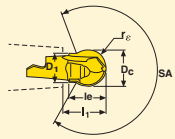
Plunge milling



Insert type	Part No.	Dimensions in inch				Z_c	Wrench**	Coated Grades			
		D_c	r_ε	AZ	l_1			T60M	F15M	F30M	F40M
2-flute	**MM16 -16011-R10-PL-MD07**	0.630	0.039	0.445	0.445	2	MM1420			07416	
2-flute	**MM16 -0.630-R080-PL-MD07**	0.630	0.079	0.445	0.445	2	MM1420			23785	

** Wrench not included, must be ordered separately.

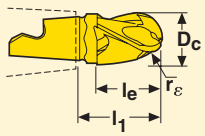
Precision inserts for semi-finishing in all materials

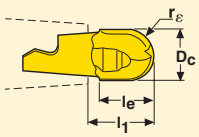


Insert type	Part No.	Dimensions in inch						Z_c	Wrench**	Coated Grades			
		D_c	r_ε	l_e	l_1	D_1	SA°			T60M	F15M	F30M	F40M
2-flute	MM16 -0.787-B120PF-M04	0.787	0.394	0.787	0.864	0.626	254.0	2	MM1420		83755		
2-flute	-0.787-B120P-M07	0.787	0.394	0.787	0.864	0.626	254.0	2	MM1420			83490	

** Wrench not included, must be ordered separately.

Copy milling



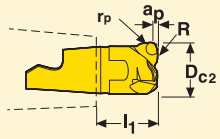


Insert type	Part No.	Dimensions in inch				Zc	Wrench**	Coated Grades			
		Dc	rε	le	l1			T60M	F15M	F30M	F40M
3-flute	MM16 -0.630-B90A30-E06	0.630	0.315	0.758	0.965	3*	MM1420			96006	
3-flute	-0.787-B90A30-E06	0.787	0.394	0.591	0.793	3*	MM1420			96015	
3-flute	-0.630-B90A30-M06	0.630	0.315	0.758	0.965	3*	MM1420				75646
3-flute	-0.787-B90A30-M06	0.787	0.394	0.591	0.793	3*	MM1420				96016
3-flute	-0.630-B90A30-D06	0.630	0.315	0.758	0.965	3*	MM1420			96007	
3-flute	-0.787-B90A30-D06	0.787	0.394	0.591	0.793	3*	MM1420			96017	
3-flute	-0.625-B90A30-E06	0.625	0.313	0.750	0.957	3*	MM1420			30829	
3-flute	-0.625-B90A30-M06	0.625	0.313	0.750	0.957	3*	MM1420				30831
3-flute	-0.750-B90A30-E06	0.750	0.375	0.591	0.791	3*	MM1420			30835	
3-flute	-0.750-B90A30-M06	0.750	0.375	0.591	0.791	3*	MM1420				30836
2-flute	MM16 -0.630-B90-MD07	0.630	0.315	0.638	0.724	2	MM1420	17039		68814	
2-flute	-0.787-B90-MD07	0.787	0.394	0.799	0.872	2	MM1420	28879		66370	
2-flute	-0.750-B90-MD07	0.750	0.375	0.799	0.872	2	MM1420	54887			
2-flute	-0.630-B90S-E07	0.630	0.315	0.645	0.741	2	MM1420			69359	
2-flute	-0.787-B90S-E07	0.787	0.394	0.799	0.872	2	MM1420			69360	
2-flute	-0.750-B90S-E07	0.750	0.375	0.799	0.872	2	MM1420			93779	
2-flute	-0.630-B90P-M07	0.630	0.315	0.543	0.724	2	MM1420			68365	
2-flute	-0.787-B90P-M07	0.787	0.394	0.686	0.871	2	MM1420			68360	
2-flute	-0.625-B90P-M07	0.625	0.313	0.543	0.724	2	MM1420	34272		86950	
2-flute	-0.750-B90P-M07	0.750	0.375	0.686	0.871	2	MM1420	54886			
2-flute	-0.630-B90PF-M03	0.630	0.315	0.543	0.724	2	MM1420		92171		

* = z_c – value 1 in drilling.

** Wrench not included, must be ordered separately.

Highfeed



Insert type	Part No.	Dimensions in inch					Z_c	Wrench**	Coated Grades			
		a_p	D_{c2}	r_p	R	l_1			T60M	F15M	F30M	F40M
3-flute	MM16 -16.60-HF-MD12	0.024	0.630	0.047	0.394	0.679	3*	MM0416			04594	

* = z_c – value 1 in drilling.

** Wrench not included, must be ordered separately.

MM16 – Cutting data, all inserts except copy milling

MM16 – General insert selection

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM16-16019-R05A30-M06 F40M	0.14	0.0034	0.0034	0.0044	0.0055
P2	MM16-16019-R05A30-M06 F40M	0.14	0.0034	0.0036	0.0044	0.0060
P3	MM16-16019-R05A30-M06 F40M	0.14	0.0032	0.0034	0.0040	0.0055
P4	MM16-16019-R05A30-M06 F40M	0.14	0.0032	0.0032	0.0040	0.0055
P5	MM16-16019-R05A30-M06 F40M	0.14	0.0032	0.0032	0.0040	0.0050
P6	MM16-16019-R05A30-M06 F40M	0.14	0.0032	0.0032	0.0040	0.0050
P7	MM16-16019-R05A30-M06 F40M	0.14	0.0032	0.0032	0.0040	0.0050
P8	MM16-16019-R05A30-M06 F40M	0.14	0.0032	0.0034	0.0040	0.0055
P11	MM16-16019-R05A30-M06 F40M	0.14	0.0032	0.0032	0.0040	0.0050
M1	MM16-16019-R05A30-M06 F40M	0.14	0.0034	0.0036	0.0044	0.0060
M2	MM16-16019-R05A30-M06 F40M	0.14	0.0032	0.0032	0.0040	0.0050
M3	MM16-16019-R05A30-M06 F40M	0.10	0.0026	0.0026	0.0032	0.0044
M4	MM16-16019-R05A30-M06 F40M	0.080	0.0022	0.0022	0.0028	0.0038
M5	MM16-16019-R05A30-M06 F40M	0.080	0.0022	0.0022	0.0028	0.0038
K1	MM16-16019-R10A30-E06 F30M	0.14	0.0036	0.0036	0.0044	0.0060
K2	MM16-16019-R10A30-E06 F30M	0.14	0.0032	0.0034	0.0040	0.0055
K3	MM16-16019-R10A30-E06 F30M	0.14	0.0032	0.0034	0.0040	0.0055
K4	MM16-16019-R10A30-E06 F30M	0.14	0.0032	0.0034	0.0040	0.0055
K5	MM16-16019-R20A30-D06 F30M	0.14	0.0032	0.0032	0.0040	0.0055
K6	MM16-16019-R20A30-D06 F30M	0.14	0.0036	0.0036	0.0044	0.0060
K7	MM16-16019-R20A30-D06 F30M	0.14	0.0032	0.0032	0.0040	0.0055
N1	MM16-16019-R10A30-E06 F30M	0.14	0.0044	0.0048	0.0055	0.0075
N2	MM16-16019-R10A30-E06 F30M	0.14	0.0044	0.0048	0.0055	0.0075
N3	MM16-16019-R10A30-E06 F30M	0.14	0.0044	0.0048	0.0055	0.0075
N11	MM16-16019-R10A30-E06 F30M	0.14	0.0044	0.0048	0.0055	0.0075
S1	MM16-16019-R20A30-D06 F30M	0.080	0.0030	0.0032	0.0038	0.0050
S2	MM16-16019-R20A30-D06 F30M	0.080	0.0030	0.0032	0.0038	0.0050
S3	MM16-16019-R20A30-D06 F30M	0.080	0.0028	0.0030	0.0036	0.0048
S11	MM16-16019-R05A30-M06 F40M	0.10	0.0026	0.0026	0.0032	0.0044
S12	MM16-16019-R05A30-M06 F40M	0.10	0.0026	0.0026	0.0032	0.0044
S13	MM16-16019-R05A30-M06 F40M	0.080	0.0022	0.0022	0.0028	0.0038
H5	MM16-16019-R20A30-D06 F30M	0.10	0.0028	0.0028	0.0034	0.0044
H8	MM16-16019-R20A30-D06 F30M	0.10	0.0020	0.0022	0.0026	0.0034
H11	MM16-16019-R20A30-D06 F30M	0.10	0.0028	0.0028	0.0034	0.0044
H12	MM16-16019-R20A30-D06 F30M	0.10	0.0028	0.0028	0.0034	0.0044
H21	MM16-16019-R20A30-D06 F30M	0.10	0.0020	0.0022	0.0026	0.0034

** For optimum tool life for slotting. For profiling, max a_p recommended for radial engagement (a_e) 30% or less.
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM16 – General cutting data (sf/min)

	F30M				F40M				T60M			
SMG	100%	40%	20%	10%	100%	40%	20%	10%	100%	40%	20%	10%
P1	770	960	1075	1175	720	900	990	1100	570	680	790	880
P2	750	930	1025	1150	700	860	970	1075	550	660	770	850
P3	650	810	910	990	610	750	850	930	485	570	670	740
P4	580	720	800	890	540	670	750	830	430	510	600	660
P5	560	690	770	850	520	640	720	790	410	490	570	630
P6	630	780	870	950	580	720	810	890	460	550	640	710
P7	590	730	820	900	550	680	770	840	435	520	600	670
P8	550	680	770	830	520	630	720	780	410	480	560	620
P11	570	710	800	870	530	660	750	820	420	500	590	650
M1	600	750	830	930	570	700	780	870	445	530	620	680
M2	500	620	690	760	465	580	640	720	370	440	510	570
M3	405	500	550	600	375	465	520	580	290	345	400	465
M4	310	385	430	475	290	360	400	445	225	255	305	355
M5	260	320	360	395	245	300	335	370	185	215	255	295
K1	590	740	820	910	560	680	770	860	435	520	610	670
K2	530	660	730	810	490	610	680	750	390	465	540	600
K3	450	560	620	680	415	520	580	640	330	395	460	510
K4	430	530	590	650	395	495	550	610	315	375	435	485
K5	260	320	360	395	245	305	335	370	190	230	265	300
K6	375	470	520	570	350	435	485	540	275	330	385	425
K7	330	410	460	500	310	385	430	475	245	295	340	380
N1	2225	2775	3050	3400	2050	2575	2850	3175	1625	1900	2250	2500
N2	1800	2250	2475	2750	1675	2075	2300	2575	1300	1550	1825	2025
N3	1200	1500	1650	1825	1100	1375	1525	1725	870	1025	1225	1350
N11	1375	1700	1875	2100	1275	1575	1750	1950	1000	1175	1400	1525
S1	145	180	200	220	135	170	185	205	105	120	140	165
S2	115	145	160	180	110	135	150	165	85	95	115	135
S3	105	125	140	155	95	115	130	145	75	85	100	115
S11	205	250	280	305	190	235	260	290	145	170	200	235
S12	120	145	160	175	110	135	150	170	85	100	115	135
S13	95	115	130	145	90	110	120	135	65	75	90	105
H5	125	150	170	185	115	140	160	175	—	—	—	—
H8	130	160	180	195	120	150	165	180	—	—	—	—
H11	155	195	215	235	145	180	200	220	—	—	—	—
H12	235	295	325	355	220	270	305	335	—	—	—	—
H21	130	160	180	195	120	150	165	180	—	—	—	—

MM16 Z2-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM16-16016-B90PF-M03 F15M	0.28	0.0034	0.0040	0.0055	0.0085
P2	MM16-16016-B90PF-M03 F15M	0.28	0.0034	0.0040	0.0055	0.0085
P3	MM16-16016-B90PF-M03 F15M	0.28	0.0032	0.0038	0.0050	0.0085
P4	MM16-16016-B90PF-M03 F15M	0.28	0.0032	0.0038	0.0050	0.0085
P5	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
P6	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
P7	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
P8	MM16-16016-B90PF-M03 F15M	0.28	0.0032	0.0038	0.0050	0.0085
P11	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
M1	MM16-16016-B90PF-M03 F15M	0.28	0.0034	0.0040	0.0055	0.0085
M2	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
M3	MM16-16016-B90PF-M03 F15M	0.20	0.0024	0.0030	0.0040	0.0065
M4	MM16-16016-B90PF-M03 F15M	0.16	0.0022	0.0026	0.0036	0.0055
M5	MM16-16016-B90PF-M03 F15M	0.16	0.0022	0.0026	0.0036	0.0055
K1	MM16-16016-B90PF-M03 F15M	0.28	0.0034	0.0040	0.0055	0.0085
K2	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
K3	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
K4	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
K5	MM16-16016-B90PF-M03 F15M	0.28	0.0028	0.0034	0.0048	0.0070
K6	MM16-16016-B90PF-M03 F15M	0.28	0.0030	0.0036	0.0050	0.0080
K7	MM16-16016-B90PF-M03 F15M	0.28	0.0028	0.0034	0.0048	0.0070
N1	MM16-16016-B90PF-M03 F15M	0.28	0.0044	0.0050	0.0070	0.012
N2	MM16-16016-B90PF-M03 F15M	0.28	0.0044	0.0050	0.0070	0.012
N3	MM16-16016-B90PF-M03 F15M	0.28	0.0044	0.0050	0.0070	0.012
N11	MM16-16016-B90PF-M03 F15M	0.28	0.0044	0.0050	0.0070	0.012
S1	MM16-16016-B90PF-M03 F15M	0.16	0.0022	0.0026	0.0036	0.0055
S2	MM16-16016-B90PF-M03 F15M	0.16	0.0022	0.0026	0.0036	0.0055
S3	MM16-16016-B90PF-M03 F15M	0.16	0.0020	0.0024	0.0034	0.0050
S11	MM16-16016-B90PF-M03 F15M	0.18	0.0024	0.0030	0.0040	0.0065
S12	MM16-16016-B90PF-M03 F15M	0.18	0.0024	0.0030	0.0040	0.0065
S13	MM16-16016-B90PF-M03 F15M	0.16	0.0022	0.0026	0.0036	0.0055
H5	MM16-16016-B90PF-M03 F15M	0.20	0.0022	0.0026	0.0034	0.0055
H8	MM16-16016-B90PF-M03 F15M	0.18	0.0016	0.0019	0.0026	0.0040
H11	MM16-16016-B90PF-M03 F15M	0.20	0.0022	0.0026	0.0034	0.0055
H12	MM16-16016-B90PF-M03 F15M	0.20	0.0022	0.0026	0.0034	0.0055
H21	MM16-16016-B90PF-M03 F15M	0.18	0.0016	0.0019	0.0026	0.0040

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM16 Z2-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM16-16016-B90S-E07 F30M	0.28	0.0055	0.0055	0.0065	0.0095
P2	MM16-16016-B90S-E07 F30M	0.28	0.0055	0.0055	0.0070	0.0095
P3	MM16-16016-B90S-E07 F30M	0.28	0.0050	0.0055	0.0065	0.0085
P4	MM16-16016-B90-MD07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
P5	MM16-16016-B90-MD07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
P6	MM16-16016-B90-MD07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
P7	MM16-16016-B90-MD07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
P8	MM16-16016-B90-MD07 F30M	0.28	0.0050	0.0055	0.0065	0.0085
P11	MM16-16016-B90-MD07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
M1	MM16-16016-B90S-E07 F30M	0.28	0.0055	0.0055	0.0070	0.0095
M2	MM16-16016-B90S-E07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
M3	MM16-16016-B90S-E07 F30M	0.20	0.0040	0.0044	0.0050	0.0065
M4	MM16-16016-B90-MD07 F30M	0.16	0.0036	0.0036	0.0044	0.0060
M5	MM16-16016-B90-MD07 F30M	0.16	0.0036	0.0036	0.0044	0.0060
K1	MM16-16016-B90S-E07 F30M	0.28	0.0055	0.0055	0.0070	0.0095
K2	MM16-16016-B90S-E07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
K3	MM16-16016-B90S-E07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
K4	MM16-16016-B90S-E07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
K5	MM16-16016-B90-MD07 F30M	0.28	0.0048	0.0048	0.0060	0.0080
K6	MM16-16016-B90-MD07 F30M	0.28	0.0050	0.0050	0.0065	0.0085
K7	MM16-16016-B90-MD07 F30M	0.28	0.0048	0.0048	0.0060	0.0080
N1	MM16-16016-B90S-E07 F30M	0.28	0.0070	0.0070	0.0085	0.012
N2	MM16-16016-B90S-E07 F30M	0.28	0.0070	0.0070	0.0085	0.012
N3	MM16-16016-B90S-E07 F30M	0.28	0.0070	0.0070	0.0085	0.012
N11	MM16-16016-B90S-E07 F30M	0.28	0.0070	0.0070	0.0085	0.012
S1	MM16-16016-B90-MD07 F30M	0.16	0.0036	0.0036	0.0044	0.0060
S2	MM16-16016-B90-MD07 F30M	0.16	0.0036	0.0036	0.0044	0.0060
S3	MM16-16016-B90-MD07 F30M	0.16	0.0034	0.0034	0.0040	0.0055
S11	MM16-16016-B90-MD07 F30M	0.18	0.0040	0.0044	0.0050	0.0065
S12	MM16-16016-B90-MD07 F30M	0.18	0.0040	0.0044	0.0050	0.0065
S13	MM16-16016-B90-MD07 F30M	0.16	0.0036	0.0036	0.0044	0.0060
H5	MM16-16016-B90-MD07 F30M	0.20	0.0036	0.0036	0.0044	0.0060
H8	MM16-16016-B90-MD07 F30M	0.18	0.0026	0.0028	0.0034	0.0044
H11	MM16-16016-B90-MD07 F30M	0.20	0.0036	0.0036	0.0044	0.0060
H12	MM16-16016-B90-MD07 F30M	0.20	0.0036	0.0036	0.0044	0.0060
H21	MM16-16016-B90-MD07 F30M	0.18	0.0026	0.0028	0.0034	0.0044

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM16 Z2-Copy – Insert selection – Semi finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM16-16016-B90P-M07 F30M	0.28	0.0080	0.0095	0.013	0.022
P2	MM16-16016-B90P-M07 F30M	0.28	0.0080	0.0095	0.013	0.022
P3	MM16-16016-B90P-M07 F30M	0.28	0.0075	0.0085	0.013	0.022
P4	MM16-16016-B90P-M07 F30M	0.28	0.0075	0.0085	0.013	0.022
P5	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
P6	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
P7	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
P8	MM16-16016-B90P-M07 F30M	0.28	0.0075	0.0085	0.013	0.022
P11	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
M1	MM16-16016-B90P-M07 F30M	0.28	0.0080	0.0095	0.013	0.022
M2	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
M3	MM16-16016-B90P-M07 F30M	0.20	0.0060	0.0065	0.0095	0.016
M4	MM16-16016-B90P-M07 F30M	0.16	0.0050	0.0060	0.0085	0.013
M5	MM16-16016-B90P-M07 F30M	0.16	0.0050	0.0060	0.0085	0.013
K1	MM16-16016-B90P-M07 F30M	0.28	0.0080	0.0095	0.013	0.022
K2	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
K3	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
K4	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
K5	MM16-16016-B90P-M07 F30M	0.28	0.0065	0.0080	0.011	0.018
K6	MM16-16016-B90P-M07 F30M	0.28	0.0070	0.0085	0.012	0.020
K7	MM16-16016-B90P-M07 F30M	0.28	0.0065	0.0080	0.011	0.018
N1	MM16-16016-B90P-M07 F30M	0.28	0.010	0.012	0.017	0.030
N2	MM16-16016-B90P-M07 F30M	0.28	0.010	0.012	0.017	0.030
N3	MM16-16016-B90P-M07 F30M	0.28	0.010	0.012	0.017	0.030
N11	MM16-16016-B90P-M07 F30M	0.28	0.010	0.012	0.017	0.030
S1	MM16-16016-B90P-M07 F30M	0.16	0.0050	0.0060	0.0085	0.013
S2	MM16-16016-B90P-M07 F30M	0.16	0.0050	0.0060	0.0085	0.013
S3	MM16-16016-B90P-M07 F30M	0.16	0.0048	0.0055	0.0080	0.013
S11	MM16-16016-B90P-M07 F30M	0.18	0.0060	0.0065	0.0095	0.016
S12	MM16-16016-B90P-M07 F30M	0.18	0.0060	0.0065	0.0095	0.016
S13	MM16-16016-B90P-M07 F30M	0.16	0.0050	0.0060	0.0085	0.013
H5	MM16-16016-B90P-M07 F30M	0.20	0.0048	0.0060	0.0080	0.013
H8	MM16-16016-B90P-M07 F30M	0.18	0.0038	0.0044	0.0065	0.010
H11	MM16-16016-B90P-M07 F30M	0.20	0.0048	0.0060	0.0080	0.013
H12	MM16-16016-B90P-M07 F30M	0.20	0.0048	0.0060	0.0080	0.013
H21	MM16-16016-B90P-M07 F30M	0.18	0.0038	0.0044	0.0065	0.010

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM16 – Cutting data, 2-flute copy milling

MM16 Z2-Copy – Cutting data (sf/min)

	F15M					F30M					T60M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1200	1550	1700	1850	2100	930	1175	1300	1450	1600	760	960	1050	1175	1300
P2	1175	1500	1675	1800	2050	910	1150	1275	1400	1550	740	930	1025	1125	1250
P3	1025	1300	1450	1575	1775	800	1000	1125	1225	1350	640	820	910	990	1100
P4	900	1150	1275	1400	1550	700	890	990	1075	1200	570	720	800	880	960
P5	860	1100	1225	1325	1500	670	860	940	1025	1150	540	700	760	840	930
P6	960	1250	1375	1500	1675	750	970	1075	1150	1275	610	780	870	940	1050
P7	910	1175	1275	1425	1600	710	910	1025	1100	1225	570	740	820	890	980
P8	860	1100	1225	1325	1500	670	850	940	1025	1125	540	690	760	840	920
P11	880	1125	1250	1375	1550	690	890	980	1075	1175	560	720	800	860	960
M1	940	1225	1350	1450	1650	730	930	1025	1125	1250	590	750	830	920	1025
M2	770	990	1100	1200	1350	600	770	850	930	1025	490	630	690	750	840
M3	640	800	870	940	1050	520	630	680	750	830	425	510	550	610	670
M4	495	630	660	730	810	415	520	530	580	640	335	420	425	470	520
M5	415	520	550	610	680	345	430	440	485	540	280	350	355	390	435
K1	930	1200	1325	1425	1625	720	910	1000	1100	1225	580	740	820	900	1000
K2	810	1050	1150	1250	1400	640	820	900	980	1100	510	660	730	790	880
K3	690	890	980	1075	1200	540	690	760	830	920	435	560	610	670	750
K4	660	850	930	1025	1150	510	660	720	790	880	415	530	590	640	710
K5	400	510	570	620	690	310	400	440	490	540	250	325	360	395	440
K6	580	750	820	900	1000	450	580	640	700	770	365	470	520	560	630
K7	510	650	720	800	890	400	510	570	630	690	325	415	460	510	560
N1	3525	4500	4925	5450	6075	2675	3375	3750	4075	4450	2150	2725	3025	3300	3600
N2	2850	3625	3975	4400	4900	2150	2725	3025	3300	3575	1750	2200	2450	2675	2900
N3	1900	2425	2650	2925	3275	1450	1825	2025	2200	2400	1175	1475	1625	1775	1925
N11	2175	2775	3025	3350	3750	1650	2075	2300	2500	2725	1325	1675	1875	2025	2200
S1	230	290	310	340	380	195	240	245	270	300	155	195	200	220	245
S2	185	235	250	275	305	155	195	200	220	240	125	160	160	175	195
S3	160	205	215	240	265	135	170	175	190	215	110	140	140	155	175
S11	325	410	440	480	540	270	330	345	380	420	220	265	280	305	340
S12	190	235	255	275	310	155	190	200	220	245	125	155	160	175	195
S13	150	190	200	220	245	125	155	160	175	195	100	125	130	140	155
H5	190	240	260	285	320	155	195	210	230	255	—	—	—	—	—
H8	195	250	270	295	330	170	210	220	240	270	—	—	—	—	—
H11	240	305	335	365	410	200	245	265	290	325	—	—	—	—	—
H12	365	460	500	550	620	300	370	405	435	490	—	—	—	—	—
H21	195	250	270	295	330	170	210	220	240	270	—	—	—	—	—

MM16 Z3-Copy – Insert selection – Finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0080	0.011	0.019
P2	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0080	0.011	0.019
P3	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.011	0.018
P4	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
P5	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
P6	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0070	0.010	0.017
P7	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0070	0.010	0.017
P8	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.011	0.018
P11	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0070	0.010	0.017
M1	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0080	0.011	0.019
M2	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
M3	MM16-16019-B90A30-E06 F30M	0.10	0.0048	0.0060	0.0080	0.013
M4	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
M5	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
K1	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0080	0.011	0.019
K2	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
K3	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
K4	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
K5	MM16-16019-B90A30-E06 F30M	0.14	0.0055	0.0065	0.0095	0.015
K6	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
K7	MM16-16019-B90A30-E06 F30M	0.14	0.0055	0.0065	0.0095	0.015
N1	MM16-16019-B90A30-E06 F30M	0.14	0.0085	0.010	0.015	0.026
N2	MM16-16019-B90A30-E06 F30M	0.14	0.0085	0.010	0.015	0.026
N3	MM16-16019-B90A30-E06 F30M	0.14	0.0085	0.010	0.015	0.026
N11	MM16-16019-B90A30-E06 F30M	0.14	0.0085	0.010	0.015	0.026
S1	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
S2	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
S3	MM16-16019-B90A30-E06 F30M	0.080	0.0040	0.0048	0.0065	0.011
S11	MM16-16019-B90A30-E06 F30M	0.10	0.0048	0.0060	0.0080	0.013
S12	MM16-16019-B90A30-E06 F30M	0.10	0.0048	0.0060	0.0080	0.013
S13	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
H5	MM16-16019-B90A30-E06 F30M	0.10	0.0044	0.0050	0.0070	0.011
H8	MM16-16019-B90A30-E06 F30M	0.10	0.0032	0.0038	0.0050	0.0085
H11	MM16-16019-B90A30-E06 F30M	0.10	0.0044	0.0050	0.0070	0.011
H12	MM16-16019-B90A30-E06 F30M	0.10	0.0044	0.0050	0.0070	0.011
H21	MM16-16019-B90A30-E06 F30M	0.10	0.0032	0.0038	0.0050	0.0085

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM16 Z3-Copy – Insert selection – Roughing

SMG		Recommended a_p**	f_z			
			100%	40%	20%	10%
P1	MM16-16019-B90A30-M06 F40M	0.14	0.0048	0.0048	0.0060	0.0080
P2	MM16-16019-B90A30-M06 F40M	0.14	0.0048	0.0048	0.0060	0.0080
P3	MM16-16019-B90A30-M06 F40M	0.14	0.0044	0.0048	0.0055	0.0075
P4	MM16-16019-B90A30-M06 F40M	0.14	0.0044	0.0044	0.0055	0.0075
P5	MM16-16019-B90A30-M06 F40M	0.14	0.0044	0.0044	0.0055	0.0075
P6	MM16-16019-B90A30-M06 F40M	0.14	0.0044	0.0044	0.0055	0.0070
P7	MM16-16019-B90A30-M06 F40M	0.14	0.0044	0.0044	0.0055	0.0070
P8	MM16-16019-B90A30-M06 F40M	0.14	0.0044	0.0048	0.0055	0.0075
P11	MM16-16019-B90A30-M06 F40M	0.14	0.0044	0.0044	0.0055	0.0070
M1	MM16-16019-B90A30-M06 F40M	0.14	0.0048	0.0048	0.0060	0.0080
M2	MM16-16019-B90A30-M06 F40M	0.14	0.0044	0.0044	0.0055	0.0075
M3	MM16-16019-B90A30-M06 F40M	0.10	0.0036	0.0036	0.0044	0.0060
M4	MM16-16019-B90A30-M06 F40M	0.080	0.0030	0.0032	0.0038	0.0050
M5	MM16-16019-B90A30-M06 F40M	0.080	0.0030	0.0032	0.0038	0.0050
K1	MM16-16019-B90A30-E06 F30M	0.14	0.0048	0.0048	0.0060	0.0080
K2	MM16-16019-B90A30-E06 F30M	0.14	0.0044	0.0044	0.0055	0.0075
K3	MM16-16019-B90A30-E06 F30M	0.14	0.0044	0.0044	0.0055	0.0075
K4	MM16-16019-B90A30-E06 F30M	0.14	0.0044	0.0044	0.0055	0.0075
K5	MM16-16019-B90A30-D06 F30M	0.14	0.0040	0.0040	0.0048	0.0065
K6	MM16-16019-B90A30-D06 F30M	0.14	0.0044	0.0044	0.0055	0.0075
K7	MM16-16019-B90A30-D06 F30M	0.14	0.0040	0.0040	0.0048	0.0065
N1	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0065	0.0075	0.010
N2	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0065	0.0075	0.010
N3	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0065	0.0075	0.010
N11	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0065	0.0075	0.010
S1	MM16-16019-B90A30-D06 F30M	0.080	0.0030	0.0032	0.0038	0.0050
S2	MM16-16019-B90A30-D06 F30M	0.080	0.0030	0.0032	0.0038	0.0050
S3	MM16-16019-B90A30-D06 F30M	0.080	0.0028	0.0030	0.0036	0.0048
S11	MM16-16019-B90A30-M06 F40M	0.10	0.0036	0.0036	0.0044	0.0060
S12	MM16-16019-B90A30-M06 F40M	0.10	0.0036	0.0036	0.0044	0.0060
S13	MM16-16019-B90A30-M06 F40M	0.080	0.0030	0.0032	0.0038	0.0050
H5	MM16-16019-B90A30-D06 F30M	0.10	0.0030	0.0030	0.0038	0.0050
H8	MM16-16019-B90A30-D06 F30M	0.10	0.0022	0.0024	0.0028	0.0038
H11	MM16-16019-B90A30-D06 F30M	0.10	0.0030	0.0030	0.0038	0.0050
H12	MM16-16019-B90A30-D06 F30M	0.10	0.0030	0.0030	0.0038	0.0050
H21	MM16-16019-B90A30-D06 F30M	0.10	0.0022	0.0024	0.0028	0.0038

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM16 Z3-Copy – Insert selection – Semi finishing

SMG		Recommended a_p**	f_z			
			15%	10%	5%	2%
P1	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0080	0.011	0.019
P2	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0080	0.011	0.019
P3	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.011	0.018
P4	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
P5	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
P6	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0070	0.010	0.017
P7	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0070	0.010	0.017
P8	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.011	0.018
P11	MM16-16019-B90A30-E06 F30M	0.14	0.0060	0.0070	0.010	0.017
M1	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0080	0.011	0.019
M2	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
M3	MM16-16019-B90A30-E06 F30M	0.10	0.0048	0.0060	0.0080	0.013
M4	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
M5	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
K1	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0080	0.011	0.019
K2	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
K3	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
K4	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
K5	MM16-16019-B90A30-E06 F30M	0.14	0.0055	0.0065	0.0095	0.015
K6	MM16-16019-B90A30-E06 F30M	0.14	0.0065	0.0075	0.010	0.017
K7	MM16-16019-B90A30-E06 F30M	0.14	0.0055	0.0065	0.0095	0.015
N1	MM16-16019-B90A30-E06 F30M	0.14	0.0085	0.010	0.015	0.026
N2	MM16-16019-B90A30-E06 F30M	0.14	0.0085	0.010	0.015	0.026
N3	MM16-16019-B90A30-E06 F30M	0.14	0.0085	0.010	0.015	0.026
N11	MM16-16019-B90A30-E06 F30M	0.14	0.0085	0.010	0.015	0.026
S1	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
S2	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
S3	MM16-16019-B90A30-D06 F30M	0.080	0.0040	0.0048	0.0065	0.011
S11	MM16-16019-B90A30-E06 F30M	0.10	0.0048	0.0060	0.0080	0.013
S12	MM16-16019-B90A30-E06 F30M	0.10	0.0048	0.0060	0.0080	0.013
S13	MM16-16019-B90A30-E06 F30M	0.080	0.0044	0.0050	0.0070	0.012
H5	MM16-16019-B90A30-E06 F30M	0.10	0.0044	0.0050	0.0070	0.011
H8	MM16-16019-B90A30-E06 F30M	0.10	0.0032	0.0038	0.0050	0.0085
H11	MM16-16019-B90A30-E06 F30M	0.10	0.0044	0.0050	0.0070	0.011
H12	MM16-16019-B90A30-E06 F30M	0.10	0.0044	0.0050	0.0070	0.011
H21	MM16-16019-B90A30-E06 F30M	0.10	0.0032	0.0038	0.0050	0.0085

** For optimum tool life
SMG = Seco Material Group
f_z = in/tooth
v_c = sf/min
a_p = inch
a_e/D_c = %
All cutting data are start values

MM16 Z3-Copy – Cutting data

	F30M					F40M				
SMG	100%	20%	10%	5%	2%	100%	20%	10%	5%	2%
P1	1100	1225	1350	1475	1650	1050	1175	1300	1400	1575
P2	1075	1200	1325	1450	1600	1025	1150	1250	1375	1525
P3	940	1025	1150	1275	1400	890	980	1100	1200	1350
P4	830	920	1025	1125	1250	790	880	970	1050	1175
P5	790	880	980	1075	1175	750	840	940	1000	1125
P6	890	990	1100	1200	1350	840	940	1050	1125	1275
P7	840	930	1050	1125	1275	800	890	990	1075	1200
P8	790	870	970	1075	1175	750	820	920	1000	1125
P11	810	910	1000	1100	1225	770	860	960	1050	1175
M1	870	970	1075	1150	1275	820	920	1025	1100	1225
M2	710	790	880	960	1075	680	760	840	910	1025
M3	580	650	700	770	860	560	620	670	730	820
M4	455	530	540	590	660	435	500	510	570	630
M5	380	440	450	495	550	365	415	425	470	530
K1	850	950	1050	1150	1275	810	900	1000	1075	1200
K2	750	840	930	1000	1125	710	800	890	960	1075
K3	630	710	790	850	950	600	670	750	810	900
K4	610	680	750	820	910	580	640	720	780	860
K5	365	410	455	500	550	350	390	435	480	530
K6	530	600	660	720	800	510	570	630	680	760
K7	470	520	580	640	710	445	500	560	610	680
N1	3250	3525	3875	4275	4725	3075	3350	3700	4075	4500
N2	2625	2850	3125	3450	3825	2475	2700	2975	3275	3625
N3	1750	1900	2100	2300	2550	1650	1800	2000	2200	2425
N11	2000	2175	2375	2625	2900	1900	2075	2275	2500	2775
S1	215	245	250	275	310	205	235	240	265	295
S2	170	200	205	225	250	165	190	195	215	240
S3	150	170	175	195	220	140	165	170	185	210
S11	295	335	355	390	435	280	320	335	370	415
S12	170	195	205	225	250	160	185	195	215	240
S13	140	160	160	180	200	130	150	155	170	190
H5	175	195	215	235	260	165	185	205	220	250
H8	180	210	225	245	275	170	200	215	235	260
H11	225	250	270	295	330	215	240	260	280	315
H12	340	380	410	450	500	320	360	390	425	475
H21	180	210	225	245	275	170	200	215	235	260

Minimaster Max RPM

Cutter	D_c	Torque value in/lbs	Torque value Nm	Max RPM
MM06-Steel holder	.236	35.4	4	80000
-Steel holder	.315	35.4	4	80000
-90°/89° D/DM holder	.236	35.4	4	80000
-90°/89° D/DM holder	.315	35.4	4	80000
MM08-Steel holder	.315	70.8	8	80000
-Steel holder	.394	70.8	8	80000
-90°/89° D/DM holder	.315	70.8	8	80000
-90°/89° D/DM holder	.394	70.8	8	76300
MM10-Steel holder	.394	106.2	12	80000
-Steel holder	.472	106.2	12	80000
-90°/89° D/DM holder	.394	106.2	12	76300
-90°/89° D/DM holder	.472	106.2	12	63600
MM12-Steel holder	.472	106.2	12	80000
-Steel holder	.551	141.6	16	72700
-Steel holder	.630	141.6	16	63600
-90°/89° D/DM holder	.472	106.2	12	63600
-90°/89° D/DM holder	.551	141.6	16	54500
-90°/89° D/DM holder	.630	141.6	16	47600
MM16-Steel holder	.630	141.6	16	63600
-Steel holder	.787	141.6	16	50800
-90°/89° D/DM holder	.630	141.6	16	47600
-90°/89° D/DM holder	.787	141.6	16	38100

Recommended maximum RPM for all Seco cutters are shown on each catalog page.

Normally there is no need for balancing tools for RPM up to 10,000. However, in some cases balancing is necessary. For instance, when using heavy tools and tool holders in small machines.

Over 10,000 RPM
We recommend balancing of tool and tool holders at least separately.

Over 20,000 RPM
Both tool and tool holders must be balanced at least separately.

Over 30,000 RPM
Tool and tool holders must be balanced as a unit.
The max RPM in the tables should never be exceeded.

The exception is the Minimaster program. The values are given in the left table.

Minimaster Torque Values

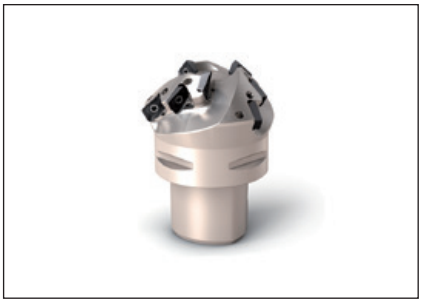
Torque wrench (including key end) 	Replaceable key end 	For insert	Torque value in/lbs	Torque value Nm
MM02-4006	MM02-06	2-flute MM06	35.4	4
MM02-8008	MM02-08	2-flute MM08	70.8	8
MM02-1201012	MM02-1012	2-flute MM10-M12	106.2	12
MM02-16014	MM02-14	2-flute MM12-M14	141.6	16
MM02-16016	MM02-16	2-flute MM16	141.6	16
MM03-4006	MM03-06	3-flute MM06	35.4	4
MM03-8008	MM03-08	3-flute MM08	70.8	8
MM03-1201012	MM03-1012	3-flute MM10-M12	106.2	12
MM03-16016	MM03-16	3-flute MM16	141.6	16

Code key: MM02-4006
MM02 = 2-flute (MM03 = 3-flute)
40 = Torque value 35.4 in/lbs (4 Nm)
06 = Insert size

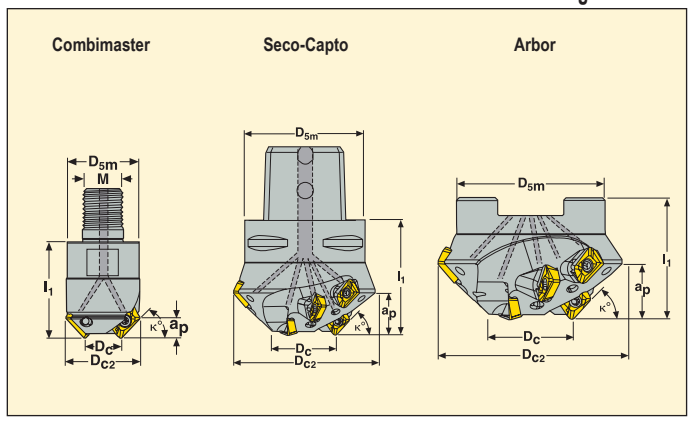
Torque the wrench with fixed torque values to ensure the correct tightening force when mounting the Minimaster insert into its holder. Torque keys are calibrated according to ISO 6789.

R217/220.49

Chamfer milling 30° and 45°



- For insert selection and cutting data recommendations, see pages 520-521.
- For complete insert program, see page 596.



κ	EDP No.	Part No.	Dimensions in inch Dc	Dc2	D5m	l1	M	ap		Zc*	lbs	Type of mounting	Max rpm	Insert
30 °	45937	R217.49 -1620.RE-XO12-30-3A	0.79	1.53	1.18	1.57	M16	.217	3	3	0.7	Combimaster**	16400	XO.X12
	45994	R220.49 -01.38-15-XO12-30-3A	1.37	3.62	2.44	1.97	–	.654	9	3	2.2	Arbor	14400	XO.X12
	45941	C6-R217.49 -032-15-XO12-30-3A	1.26	3.44	2.48	2.36	–	.591	9	3	3.5	Seco-Capto	10900	XO.X12
45 °	45935	R217.49 -1616.RE-XO12-45-2A	0.63	1.21	1.18	1.57	M16	.276	2	2	0.4	Combimaster**	18600	XO.X12
	45938	R217.49 -1620.RE-XO12-45-3A	0.79	1.37	1.18	1.57	M16	.276	3	3	0.7	Combimaster**	17400	XO.X12
	45995	R220.49 -01.38-22-XO12-45-3A	1.37	3.13	2.44	1.97	–	.654	9	3	1.8	Arbor	14400	XO.X12
	45942	C6-R217.49 -032-22-XO12-45-3A	1.26	3.01	2.48	2.36	–	.886	9	3	3.1	Seco-Capto	11800	XO.X12

* Effective number of teeth.

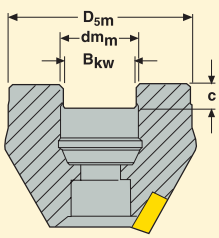
** For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
C6-R217.49-032	-	T10P-3	C03509-T10P
R217.49-1616	-	T10P-3	C03507-T10P
R217.49-1620	-	T10P-3	C03509-T10P
R220.49-..	UC6S1/2UNFX1-1/2	T10P-3	C03509-T10P

Insert screw torque value 18.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

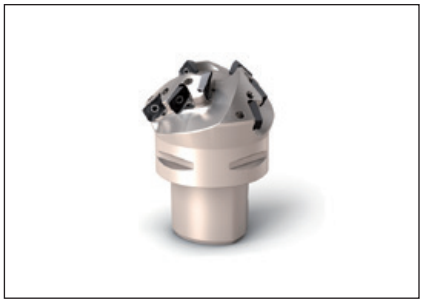


For cutter	Dimensions in inch dmm	D5m	Bkw	c
R220.49-..30	1.00	2.44	0.38	0.22
R220.49-..45	1.00	2.44	0.38	0.26

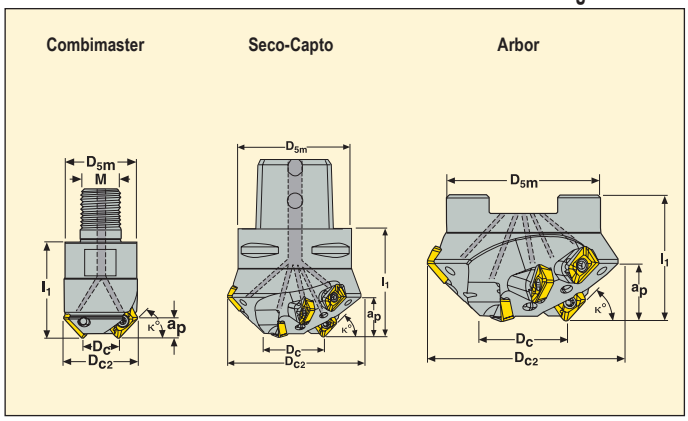
Please check availability in current price and stock-list.

R217/220.49

Chamfer milling 60° and 75°



- For insert selection and cutting data recommendations, see pages 520-521.
- For complete insert program, see page 596.



K	EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	D_{5m}	l_1	M	a_p		Z_c*	lbs	Type of mounting	Max rpm	Insert
60 °	45936	R217.49 -1216.RE-XO12-60-2A	0.63	1.06	0.91	1.18	M12	0.354	2	2	0.2	Combimaster**	20100	XO.X12
	45939	R217.49 -1620.RE-XO12-60-3A	0.79	1.20	1.18	1.57	M16	0.354	3	3	0.4	Combimaster**	18400	XO.X12
	45998	R220.49 -01.38-28-XO12-60-3A	1.37	2.64	2.44	1.97	–	1.110	9	3	1.3	Arbor	14400	XO.X12
	45943	C6-R217.49 -032-28-XO12-60-3A	1.26	2.52	2.48	2.36	–	1.102	9	3	2.9	Seco-Capto	12900	XO.X12
75 °	45940	R217.49 -1220.RE-XO12-75-2A	0.79	1.00	0.91	1.18	M12	0.433	2	2	0.2	Combimaster**	20500	XO.X12
	45999	R220.49 -01.38-31-XO12-75-3A	1.37	2.03	1.85	1.97	–	1.244	9	3	0.9	Arbor	14400	XO.X12
	45944	C5-R217.49 -032-42-XO12-75-3A	1.26	2.13	1.97	2.76	–	1.673	12	3	1.8	Seco-Capto	14100	XO.X12

* Effective number of teeth.

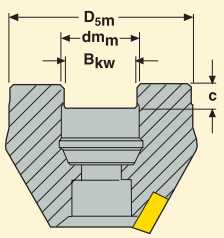
** For Combimaster holders and adapters, see page 534.

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw
C5/C6-R217.49-032	-	T10P-3	C03509-T10P
R217.49-..	-	T10P-3	C03507-T10P
R220.49-01.38-28	UC6S1/2UNFX1-1/2	T10P-3	C03509-T10P
R220.49-01.38-31	UC6S3/8UNFX11/2	T10P-3	C03509-T10P

Insert screw torque value 18.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.49-..60	1.00	2.44	0.38	0.26
R220.49-..75	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R217/220.49-XO12 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	XOMX120408TR-ME08 F40M	0.0065	0.0075	0.012
P2	XOMX120408TR-ME08 F40M	0.0070	0.0075	0.012
P3	XOMX120408TR-ME08 MP2500	0.0065	0.0070	0.011
P4	XOMX120408TR-M12 MP2500	0.0080	0.0085	0.013
P5	XOMX120408TR-M12 MP2500	0.0075	0.0085	0.013
P6	XOMX120408TR-M12 MP2500	0.0075	0.0080	0.013
P7	XOMX120408TR-M12 MP2500	0.0075	0.0080	0.013
P8	XOMX120408TR-M12 MP2500	0.0080	0.0085	0.013
P11	XOMX120408TR-M12 T350M	0.0075	0.0080	0.013
M1	XOEX120408R-M07 F40M	0.0055	0.0060	0.0095
M2	XOEX120408R-M07 F40M	0.0050	0.0055	0.0085
M3	XOEX120408R-M07 F40M	0.0040	0.0044	0.0065
M4	XOEX120408R-M07 T350M	0.0036	0.0040	0.0060
M5	XOEX120408R-M07 T350M	0.0036	0.0040	0.0060
K1	XOMX120408TR-M12 MK2050	0.0085	0.0095	0.014
K2	XOMX120408TR-M12 MK2050	0.0075	0.0085	0.013
K3	XOMX120408TR-M12 MK2050	0.0075	0.0085	0.013
K4	XOMX120408TR-M12 MK2050	0.0075	0.0085	0.013
K5	XOMX120408TR-M12 MK2050	0.0065	0.0075	0.012
K6	XOMX120408TR-M12 MK2050	0.0075	0.0085	0.013
K7	XOMX120408TR-M12 MK2050	0.0065	0.0075	0.012
N1	XOEX120408FR-E06 H15	0.0065	0.0065	0.010
N2	XOEX120408FR-E06 H15	0.0065	0.0065	0.010
N3	XOEX120408FR-E06 H15	0.0065	0.0065	0.010
N11	XOEX120408FR-E06 H15	0.0065	0.0065	0.010
S1	XOEX120408R-M07 F40M	0.0036	0.0040	0.0060
S2	XOEX120408R-M07 F40M	0.0036	0.0040	0.0060
S3	XOEX120408R-M07 F40M	0.0034	0.0036	0.0055
S11	XOEX120408R-M07 MS2050	0.0036	0.0040	0.0060
S12	XOEX120408R-M07 MS2050	0.0036	0.0040	0.0060
S13	XOEX120408R-M07 MS2050	0.0032	0.0034	0.0050
H5	XOMX120408TR-MD13 MP1500	0.0055	0.0065	0.0095
H11	XOMX120408TR-MD13 MP3000	0.0055	0.0065	0.0095
H12	XOMX120408TR-MD13 MP1500	0.0055	0.0065	0.0095

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_e/D_c = %
All cutting data are start values

R217/220.49-XO12 – Cutting data v_c = (sf/min)

	MP1500			MP2500			MP3000			T350M			F40M		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	610	710	760	580	680	730	560	660	710	540	640	690	510	610	660
P2	590	690	750	560	660	720	550	650	700	530	630	680	495	600	650
P3	560	660	710	530	630	680	520	620	670	500	600	650	465	560	610
P4	530	630	680	500	600	650	490	590	640	465	570	620	435	530	590
P5	520	630	670	495	600	640	480	580	630	460	560	610	425	530	570
P6	550	650	700	520	620	670	510	610	660	490	590	640	455	560	600
P7	540	640	690	510	610	660	495	600	640	475	580	620	440	540	590
P8	520	620	670	490	590	640	475	580	630	455	560	610	420	520	570
P11	530	630	680	500	600	650	485	590	640	465	570	620	430	540	580
M1	—	—	—	480	580	630	480	580	630	465	570	620	440	540	590
M2	—	—	—	440	540	590	435	540	590	425	530	570	400	500	550
M3	—	—	—	385	475	540	385	475	530	370	460	520	345	435	495
M4	—	—	—	320	405	475	315	405	470	300	390	455	275	365	435
M5	—	—	—	275	360	430	270	360	425	255	345	410	235	320	390
K1	530	640	690	510	610	660	490	590	640	470	570	620	435	540	590
K2	510	610	660	480	580	630	465	570	620	445	550	600	410	520	560
K3	470	570	620	440	540	590	425	530	580	405	510	560	370	475	520
K4	460	560	610	430	530	580	415	520	560	395	495	540	360	465	510
K5	340	435	485	310	405	455	295	395	440	275	375	420	240	340	385
K6	425	530	580	395	500	550	385	485	530	365	465	510	330	430	480
K7	400	495	540	370	465	510	355	455	500	335	435	480	300	400	445
N1	—	—	—	830	930	980	820	920	970	—	—	—	760	860	910
N2	—	—	—	780	880	930	760	860	910	—	—	—	710	810	860
N3	—	—	—	680	780	830	660	760	810	—	—	—	610	710	760
N11	—	—	—	710	810	860	700	800	850	—	—	—	640	740	790
S1	—	—	—	160	230	295	150	215	285	145	205	270	130	185	245
S2	—	—	—	130	185	245	120	175	230	115	165	220	105	150	200
S3	—	—	—	115	165	215	105	155	200	100	145	190	90	130	175
S11	—	—	—	230	315	380	215	300	365	205	290	350	185	265	325
S12	—	—	—	130	190	245	125	180	230	120	170	215	105	155	195
S13	—	—	—	105	150	195	100	140	185	95	135	175	85	120	160
H5	170	245	300	135	195	250	130	190	240	130	190	240	115	165	205
H8	180	255	315	145	205	260	140	200	255	140	195	250	120	170	220
H11	215	305	360	175	250	305	170	245	300	165	240	295	145	210	265
H12	315	405	460	260	350	410	255	345	405	250	340	400	215	310	365

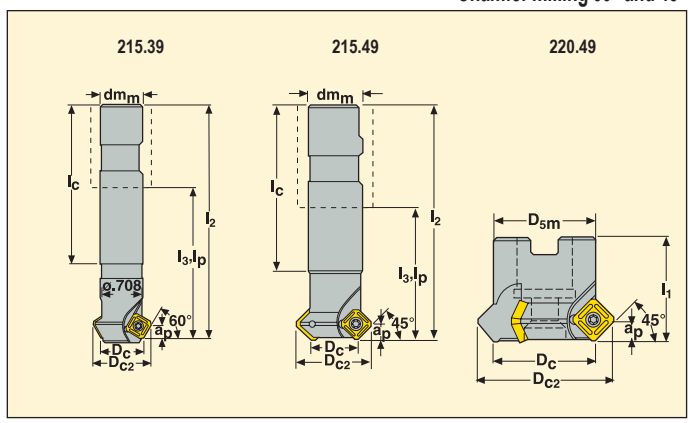
R217/220.49-XO12 – Cutting data v_c = (sf/min)

	MK1500			MK2050			MM4500			MS2050			MS2500			H15		
SMG	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	570	670	720	500	600	640	570	580	590	640	740	790	—	—	—
P2	—	—	—	560	660	710	490	590	640	560	580	580	630	730	780	—	—	—
P3	—	—	—	530	630	680	460	550	610	520	540	550	600	700	750	—	—	—
P4	—	—	—	495	600	650	430	530	570	485	495	500	570	670	720	—	—	—
P5	—	—	—	490	590	640	415	520	560	475	485	495	560	660	700	—	—	—
P6	—	—	—	520	620	670	445	540	590	500	510	520	590	690	730	—	—	—
P7	—	—	—	500	610	650	430	530	580	485	500	510	570	670	720	—	—	—
P8	—	—	—	485	590	640	415	510	560	480	500	500	560	650	700	—	—	—
P11	—	—	—	495	600	650	425	520	570	480	490	500	570	660	710	—	—	—
M1	—	—	—	—	—	—	455	550	600	530	540	550	550	650	700	—	—	—
M2	—	—	—	—	—	—	405	510	550	465	480	485	500	600	650	—	—	—
M3	—	—	—	—	—	—	355	445	500	375	375	365	450	540	600	—	—	—
M4	—	—	—	—	—	—	285	370	435	280	270	255	380	465	530	—	—	—
M5	—	—	—	—	—	—	240	325	390	235	225	210	335	420	485	—	—	—
K1	590	690	740	580	680	730	—	—	—	560	580	580	580	680	720	—	—	—
K2	570	670	720	550	660	700	—	—	—	520	530	540	550	640	690	—	—	—
K3	530	630	670	510	610	660	—	—	—	480	490	500	500	600	650	—	—	—
K4	510	620	660	500	600	650	—	—	—	465	480	485	495	590	640	—	—	—
K5	395	490	540	380	480	530	—	—	—	330	335	335	370	470	520	—	—	—
K6	485	590	630	470	570	620	—	—	—	435	445	455	460	560	610	—	—	—
K7	455	550	600	440	540	590	—	—	—	390	395	395	430	530	580	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	810	920	960
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	760	860	910
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	660	760	810
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	700	800	850
S1	—	—	—	—	—	—	90	125	160	185	250	295	210	290	355	—	—	—
S2	—	—	—	—	—	—	70	100	130	150	200	245	170	240	300	—	—	—
S3	—	—	—	—	—	—	60	90	115	135	175	210	145	210	270	—	—	—
S11	—	—	—	—	—	—	125	180	230	255	330	380	290	380	440	—	—	—
S12	—	—	—	—	—	—	95	140	175	200	270	315	170	245	305	—	—	—
S13	—	—	—	—	—	—	75	105	140	160	215	260	135	190	245	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	175	250	305	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	185	260	320	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	220	310	365	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	320	410	465	—	—	—

R215.39 and R215/220.49

• For complete insert program, see page 590.

Chamfer milling 60° and 45°



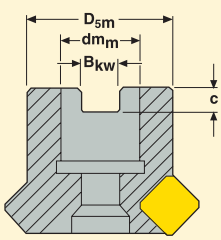
Pitch	EDP No.	Part No.	Dimensions in inch									lbs	Type of mounting	Max rpm	Insert
			D_c	D_{c2}	dm_m	l_1	l_2	l_3	l_c	a_p					
Chamfer milling 60°	70080	R215.39 -00.750-3	0.750	1.04	0.75	4.33	4.33	2.95	2.95	.236	2	0.7	Cyl/Weldon	24300	SPMX09
Chamfer milling 45°	70083	R215.49 -00.375-3	0.392	0.65	0.62	2.20	3.15	1.10	1.91	.157	1	0.4	Cyl/Weldon	55600	SPMX06
	72168	-00.625-3	0.625	1.04	0.75	3.31	4.33	1.38	2.95	.236	2	0.7	Cyl/Weldon	27200	SPMX09
	70081	-01.00-3	1.000	1.55	1.00	3.98	5.12	3.74	3.54	.276	2	1.1	Cyl/Weldon	16900	SPMX12
	70079	R220.49 -01.50	1.500	2.05	0.75	1.57	–	–	–	.276	3	0.2	Shell mill	13400	SPMX12

Spare Parts, included in delivery.

For cutter	Arbor screw	Insert key	Insert screw	Torque value in/lbs
R215.49-00.375	–	T07P-3	C02205-T07P	8
R215.49-00.625 / 00.750	–	T09P-3	C03007-T09P	13
R215.49-01.00	–	T15P-3	C03510-T15P	27
R220.49-01.50	220.17-695	T15P-3	C03508-T15P	27

Torque keys available, see page 643.

Mounting Dimensions

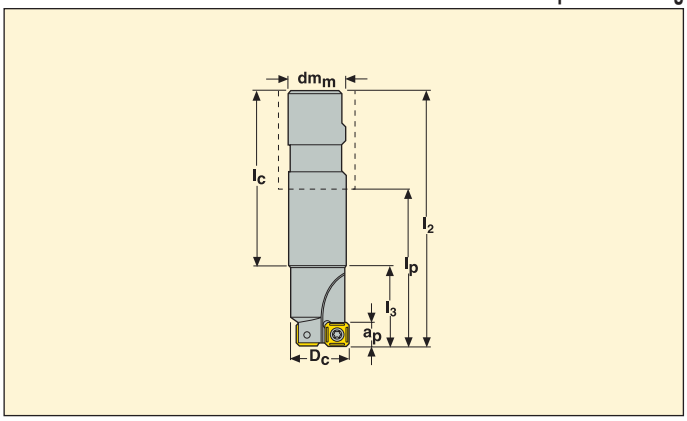


For cutter	Dimensions in inch			
	dm_m	D_{5m}	B_{kw}	c
R220.49-01.50	0.75	1.85	0.32	0.19

Please check availability in current price and stock-list.

R417.19

Spot face milling



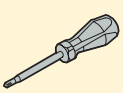
- For insert selection and cutting data recommendations, see pages 524-527.
- For complete insert program, see page 590.
- Center cutting spot face milling cutter.
- Drill-milling and slot by plunging.

EDP No.	Part No.	Dimensions in inch							Drilling depth	Z_c**	lbs	Type of mounting	Max rpm	() = No of inserts	
		D_c	dm_m	l_2	l_3	l_p	l_c	a_p						SPMX*	SPMX
72193	R417.19 -00.62-3	0.625	0.75	3.74	0.79	1.73	2.56	0.197	0.79	1	0.7	Cyl/Weldon	49100	0602AP (1)	060204 (1)
72183	-00.750-3	0.750	0.75	4.33	1.18	2.32	3.15	0.197	1.18	1	0.7	Cyl/Weldon	32500	0602AP (1)	060204 (1)
54856	-00.81-3	0.812	0.75	4.72	1.38	2.72	3.35	0.276	1.38	1	0.7	Cyl/Weldon	26200	0703AP (1)	070304 (1)
72173	-01.00-3	1.000	1.00	5.12	1.57	2.87	3.54	0.315	1.57	1	1.1	Cyl/Weldon	22500	0903AP (1)	090304 (1)
54857	-01.18-3	1.181	1.00	5.12	1.97	2.87	3.54	0.315	1.97	1	1.1	Cyl/Weldon	21200	0903AP (1)	090304 (1)
54858	-01.37-3	1.375	1.25	5.12	1.97	2.87	3.54	0.433	1.97	1	1.8	Cyl/Weldon	12600	12T3AP (1)	12T308 (1)
54859	-01.62-3	1.620	1.25	5.12	1.97	2.87	3.54	0.433	1.97	1	1.8	Cyl/Weldon	12000	12T3AP (1)	12T308 (1)

* Insert for center insert pocket.

** Effective number of teeth.

Spare Parts, included in delivery.

For cutter	Insert key	Insert screw
		
R417.19-00.625 / 00.750	T07P-3	C02205-T07P
R417.19-00.812	T07P-3	C02506-T07P
R417.19-01.00 / 01.18	T09P-3	C03007-T09P
R417.19-01.37 / 01.62	T15P-3	C03510-T15P

Please check availability in current price and stock-list.

Torque keys available, see page 643.

R417.19-SPMX06 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	SPMX060204-75 F40M	0.0050	0.0060	0.0085
P2	SPMX060204-75 F40M	0.0055	0.0060	0.0085
P3	SPMX060204-75 F40M	0.0050	0.0055	0.0085
P4	SPMX060204-75 F40M	0.0050	0.0055	0.0085
P5	SPMX060204-75 F40M	0.0048	0.0050	0.0080
P6	SPMX060204-75 F40M	0.0048	0.0050	0.0080
P7	SPMX060204-75 F40M	0.0048	0.0050	0.0080
P8	SPMX060204-75 F40M	0.0050	0.0055	0.0085
P11	SPMX060204-75 F40M	0.0048	0.0050	0.0080
M1	SPMX060204-75 F40M	0.0055	0.0060	0.0085
M2	SPMX060204-75 F40M	0.0048	0.0050	0.0080
M3	SPMX060204-75 F40M	0.0040	0.0044	0.0065
M4	SPMX060204-75 F40M	0.0036	0.0038	0.0060
M5	SPMX060204-75 F40M	0.0036	0.0038	0.0060
K1	SPMX060204-75 F40M	0.0055	0.0060	0.0085
K2	SPMX060204-75 F40M	0.0048	0.0050	0.0080
K3	SPMX060204-75 F40M	0.0048	0.0050	0.0080
K4	SPMX060204-75 F40M	0.0048	0.0050	0.0080
K5	SPMX060204-75 F40M	0.0044	0.0048	0.0075
K6	SPMX060204-75 F40M	0.0048	0.0050	0.0080
K7	SPMX060204-75 F40M	0.0044	0.0048	0.0075

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_rD_c = %
All cutting data are start values

R417.19-SPMX06 – Cutting data v_c = (sf/min)

SMG	F40M		
	100%	30%	10%
P1	620	710	760
P2	610	700	750
P3	560	650	710
P4	520	610	660
P5	510	600	660
P6	550	640	690
P7	530	620	680
P8	510	600	650
P11	520	610	670
M1	540	630	680
M2	480	570	620
M3	410	495	550
M4	325	420	465
M5	270	360	405
K1	530	620	680
K2	495	590	640
K3	440	530	580
K4	425	520	570
K5	270	355	405
K6	385	475	530
K7	345	435	485

R417.19-SPMX07 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	SPMX070304-75 F40M	0.0050	0.0055	0.0085
P2	SPMX070304-75 F40M	0.0050	0.0060	0.0085
P3	SPMX070304-75 F40M	0.0050	0.0055	0.0085
P4	SPMX070304-75 F40M	0.0048	0.0055	0.0080
P5	SPMX070304-75 F40M	0.0048	0.0050	0.0080
P6	SPMX070304-75 F40M	0.0048	0.0050	0.0080
P7	SPMX070304-75 F40M	0.0048	0.0050	0.0080
P8	SPMX070304-75 F40M	0.0050	0.0055	0.0085
P11	SPMX070304-75 F40M	0.0048	0.0050	0.0080
M1	SPMX070304-75 F40M	0.0050	0.0060	0.0085
M2	SPMX070304-75 F40M	0.0048	0.0050	0.0080
M3	SPMX070304-75 F40M	0.0040	0.0044	0.0065
M4	SPMX070304-75 F40M	0.0034	0.0038	0.0060
M5	SPMX070304-75 F40M	0.0034	0.0038	0.0060
K1	SPMX070304-75 F40M	0.0050	0.0060	0.0085
K2	SPMX070304-75 F40M	0.0048	0.0050	0.0080
K3	SPMX070304-75 F40M	0.0048	0.0050	0.0080
K4	SPMX070304-75 F40M	0.0048	0.0050	0.0080
K5	SPMX070304-75 F40M	0.0044	0.0048	0.0070
K6	SPMX070304-75 F40M	0.0048	0.0050	0.0080
K7	SPMX070304-75 F40M	0.0044	0.0048	0.0070

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_pD_c = %
All cutting data are start values

R417.19-SPMX07 – Cutting data v_c = (sf/min)

SMG	F40M		
	100%	30%	10%
P1	610	700	750
P2	600	680	740
P3	550	640	690
P4	520	600	660
P5	500	590	650
P6	540	630	680
P7	520	610	660
P8	495	580	640
P11	510	600	650
M1	530	610	670
M2	465	560	610
M3	395	485	540
M4	320	405	455
M5	265	345	395
K1	520	610	670
K2	485	570	630
K3	430	520	570
K4	415	500	560
K5	260	340	395
K6	370	460	520
K7	330	420	480

R417.19-SPMX09 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	SPMX090304-75 F40M	0.0050	0.0055	0.0085
P2	SPMX090304-75 F40M	0.0050	0.0060	0.0085
P3	SPMX090304-75 F40M	0.0050	0.0055	0.0085
P4	SPMX090304-75 F40M	0.0048	0.0055	0.0080
P5	SPMX090304-75 F40M	0.0048	0.0050	0.0080
P6	SPMX090304-75 F40M	0.0048	0.0050	0.0080
P7	SPMX090304-75 F40M	0.0048	0.0050	0.0080
P8	SPMX090304-75 F40M	0.0050	0.0055	0.0085
P11	SPMX090304-75 F40M	0.0048	0.0050	0.0080
M1	SPMX090304-75 F40M	0.0050	0.0060	0.0085
M2	SPMX090304-75 F40M	0.0048	0.0050	0.0080
M3	SPMX090304-75 F40M	0.0040	0.0044	0.0065
M4	SPMX090304-75 F40M	0.0034	0.0038	0.0055
M5	SPMX090304-75 F40M	0.0034	0.0038	0.0055
K1	SPMX090304-75 F40M	0.0050	0.0060	0.0085
K2	SPMX090304-75 F40M	0.0048	0.0050	0.0080
K3	SPMX090304-75 F40M	0.0048	0.0050	0.0080
K4	SPMX090304-75 F40M	0.0048	0.0050	0.0080
K5	SPMX090304-75 F40M	0.0044	0.0048	0.0070
K6	SPMX090304-75 F40M	0.0048	0.0050	0.0080
K7	SPMX090304-75 F40M	0.0044	0.0048	0.0070

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_rD_c = %
All cutting data are start values

R417.19-SPMX09 – Cutting data v_c = (sf/min)

SMG	F40M		
	100%	30%	10%
P1	610	700	750
P2	600	680	740
P3	550	640	690
P4	510	600	660
P5	500	590	640
P6	540	630	680
P7	520	610	660
P8	490	580	640
P11	510	600	650
M1	530	610	670
M2	465	560	610
M3	395	480	540
M4	315	400	455
M5	265	340	395
K1	520	610	670
K2	480	570	630
K3	425	520	570
K4	410	500	560
K5	255	340	395
K6	370	460	510
K7	330	420	475

R417.19-SPMX12 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	SPMX12T308-75 F40M	0.0050	0.0055	0.0085
P2	SPMX12T308-75 F40M	0.0055	0.0060	0.0085
P3	SPMX12T308-75 F40M	0.0050	0.0055	0.0085
P4	SPMX12T308-75 F40M	0.0050	0.0055	0.0085
P5	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
P6	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
P7	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
P8	SPMX12T308-75 F40M	0.0050	0.0055	0.0085
P11	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
M1	SPMX12T308-75 F40M	0.0055	0.0060	0.0085
M2	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
M3	SPMX12T308-75 F40M	0.0040	0.0044	0.0065
M4	SPMX12T308-75 F40M	0.0034	0.0038	0.0060
M5	SPMX12T308-75 F40M	0.0034	0.0038	0.0060
K1	SPMX12T308-75 F40M	0.0055	0.0060	0.0085
K2	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
K3	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
K4	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
K5	SPMX12T308-75 F40M	0.0044	0.0048	0.0075
K6	SPMX12T308-75 F40M	0.0048	0.0050	0.0080
K7	SPMX12T308-75 F40M	0.0044	0.0048	0.0075

SMG = Seco Material Group
f_z = in/tooth
v_c= sf/min
a_pD_c = %
All cutting data are start values

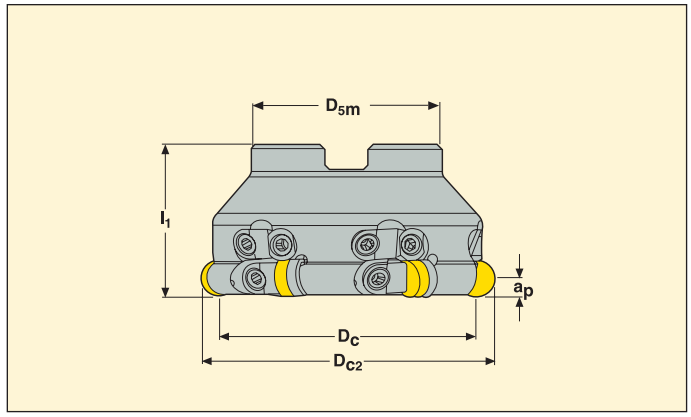
R417.19-SPMX12 – Cutting data v_c = (sf/min)

SMG	F40M		
	100%	30%	10%
P1	610	700	750
P2	590	680	740
P3	550	640	690
P4	510	600	660
P5	500	590	640
P6	540	630	680
P7	520	610	660
P8	490	580	630
P11	510	600	650
M1	520	610	670
M2	465	550	610
M3	395	480	540
M4	310	405	450
M5	260	345	390
K1	510	610	660
K2	480	570	620
K3	425	520	570
K4	410	500	550
K5	260	340	395
K6	370	460	510
K7	330	420	475

R220.70-09

For PCBN inserts

- For insert selection and cutting data recommendations, see page 624.
- For complete insert program, see pages 608-609, 611.
- For PCBN milling technical information, see pages 619-625.



EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
59852	R220.70 -03.00-09-6	3.15	3.52	2.38	0.177	6	3.7	15900	RN..09
59853	-04.00-09-8	3.94	4.31	2.37	0.177	6	5.7	8100	RN..09
59854	-05.00-09-8	4.92	5.30	2.37	0.177	8	8.4	7200	RN..09 / SNEX12*
59856	-808.00-09-12	7.87	8.25	2.37	0.177	12	19.2	5700	RN..09 / SNEX12*

* Wiper insert.

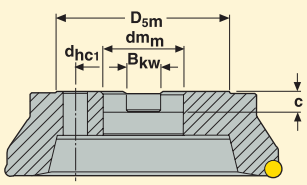
Spare Parts, included in delivery.

For cutter	Gauge screw	Insert shim	Setting gauge	Setting key	Shim screw	Wedge	Wedge screw
R220.70-03.00 / 04.00	LD6019-T15P	117.10-620	AS6011F	T15P-4ST	174.10-652-T07P	CW0608M	LD6018T-T15P
R220.70-05.00 - 808.00	LD6019-T15P	117.10-620	AS6011F	T15P-4ST	174.10-652-T07P	CW0608M	LD6018T-T15P

Key T07P-3 for anvil screw, key T09-3 for wiper anvil screw ordered separately.

Setting wedge AS6011, Insert wedge CW0608S, Anvil screw F94009-T09P and Anvil 268-621 also included with cutters with dia 5.00" - 8.00".

Mounting Dimensions



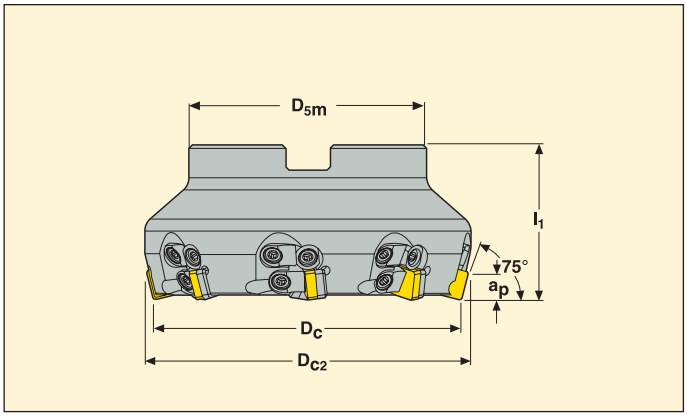
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	dhc1
R220.70-03.00	1.00	3.54	0.38	0.23	–
R220.70-04.00 / 05.00	1.50	3.54	0.63	0.38	–
R220.70-808.00	2.50	5.12	1.01	0.56	4.00

Please check availability in current price and stock-list.

Wedge screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

R220.74-09

For PCBN inserts



- For insert selection and cutting data recommendations, see page 624.
- For complete insert program, see pages 611-612.
- For PCBN milling technical information, see pages 619-625.

EDP No.	Part No.	Dimensions in inch D_c	D_{c2}	l_1	a_p		lbs	Max rpm	Insert
59858	R220.74 -03.00-09-6	3.24	3.24	2.37	0.315	6	4.0	9100	SN..09
59859	-04.00-09-8	4.03	4.03	2.37	0.315	8	6.4	8100	SN..09
59860	-05.00-09-8	5.01	5.01	2.37	0.315	8	8.6	7200	SN..09 / SNEX12*
59861	-06.00-09-10	6.30	6.39	2.37	0.315	10	13.7	6400	SN..09 / SNEX12*
59862	-808.00-09-12	7.87	7.96	2.37	0.315	12	20.1	5700	SN..09 / SNEX12*

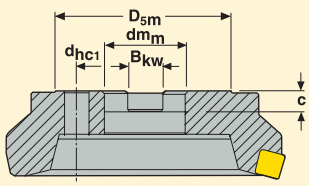
* Wiper insert.

Spare Parts, included in delivery.

For cutter	Insert shim	Setting gauge	Setting key	Setting screw	Shim screw	Wedge	Wedge screw
R220.74-03.00 / 04.00	174.10-620	AS6011	T15P-4ST	LD6019-T15P	174.10-652-T07P	CW0608M	LD6018T-T15P
R220.74-05.00 - 808.00	174.10-620	AS6011	T15P-4ST	LD6019-T15P	174.10-652-T07P	CW0608M	LD6018T-T15P

Anvil 268-621 and Anvil screw F94009-T09P also included with cutters with dia 5.00" - 8.00".
Key T07P-3 for anvil screw, key T09-3 for wiper anvil screw ordered separately.

Mounting Dimensions



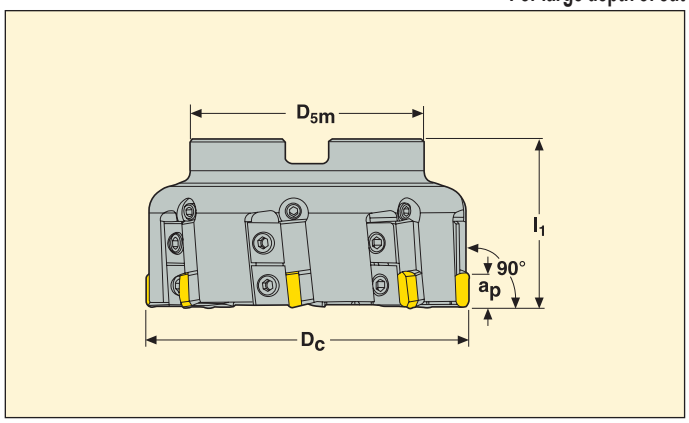
For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c	dhc1
R220.74-03.00	1.00	2.44	1.00	0.22	–
R220.74-04.00 / 05.00	1.50	3.54	1.50	0.38	–
R220.74-06.00	2.00	4.33	0.76	0.44	–
R220.74-808.00	2.50	5.12	1.01	0.56	4.00

Please check availability in current price and stock-list.

Wedge screw torque value 31.0 in/lbs.
Torque keys available, see page 643.

220.68-T11C

For large depth of cut



- For insert selection and cutting data recommendations, see page 624.
- For complete insert program, see page 612.
- For PCBN milling technical information, see pages 619-625.

EDP No.	Part No.	Dimensions in inch D_c	l_1	a_p		lbs	Max rpm	Insert
37908	R220.68 -02.50-T11C-4	2.50	2.48	0.236	4	2.4	12000	TN..11
37909	-03.00-T11C-5	3.00	2.48	0.236	5	3.7	9600	TN..11
37910	-04.00-T11C-6	4.00	2.48	0.236	6	9.9	7600	TN..11
37911	-05.00-T11C-8	5.00	2.48	0.236	8	7.5	6100	TN..11
37912	-06.00-T11C-10	6.00	2.48	0.236	10	12.3	4800	TN..11

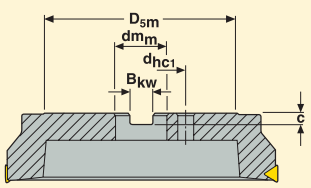
Spare Parts, included in delivery.

For cutter	Arbor screw	Cassette	Insert wedge	Setting gauge	Wedge clamp	Wedge screw
R220.68-02.50	220.17-695	TN11PR	L257.9-120-T11	AU1114T-T15P	L257.9-120M	LD8020-T25P
R220.68-03.00	UC6S1/2UNFX1-1/4	TN11PR	L257.9-120-T11	AU1114T-T15P	L257.9-120M	LD8020-T25P
R220.68-04.00	UC6S3/4UNFX2	TN11PR	L257.9-120-T11	AU1114T-T15P	L257.9-120M	LD8020-T25P
R220.68-05.00	UC6S3/4UNFX2	TN11PR	L257.9-120-T11	AU1114T-T15P	L257.9-120M	LD8020-T25P
R220.68-06.00	–	TN11PR	L257.9-120-T11	AU1114T-T15P	L257.9-120M	LD8020-T25P

Setting key T15P-3 for setting gauge and wedge key T25P-4 for wedge screw.

Torque value 53.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions

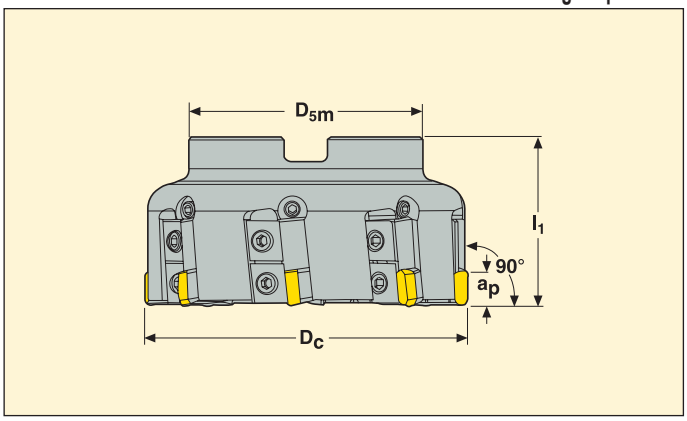


For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.68-02.50	0.75	1.85	0.32	0.19
R220.68-03.00	1.00	2.44	0.38	0.22
R220.68-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.68-06.00	2.00	4.33	0.76	0.44

Please check availability in current price and stock-list.

220.68-T16C

For large depth of cut



- For insert selection and cutting data recommendations, see page 624.
- For complete insert program, see page 612.
- For PCBN milling technical information, see pages 619-625.

EDP No.	Part No.	Dimensions in inch D_c	l_1	a_p		lbs	Max rpm	Insert
32464	R220.68 -03.00-T16C-5	3.00	2.48	0.197	5	3.3	9600	TN..16
32465	-04.00-T16C-6	4.00	2.48	0.197	6	4.6	7600	TN..16
32466	-05.00-T16C-8	5.00	2.48	0.197	8	10.4	6100	TN..16
32467	-06.00-T16C-10	6.00	2.48	0.197	10	9.9	4800	TN..16

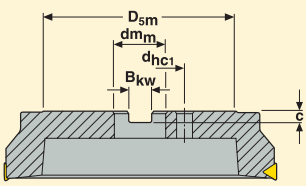
Spare Parts, included in delivery.

For cutter	Arbor screw	Cassette	Insert wedge	Setting gauge	Wedge clamp	Wedge screw
R220.68-03.00	UC6S1/2UNFX1-1/4	TN16PR	L257.9-120-T16	AU1114T-T15P	L257.9-120M	LD8020-T25P
R220.68-04.00	UC6S3/4UNFX2	TN16PR	L257.9-120-T16	AU1114T-T15P	L257.9-120M	LD8020-T25P
R220.68-05.00	UC6S3/4UNFX2	TN16PR	L257.9-120-T16	AU1114T-T15P	L257.9-120M	LD8020-T25P
R220.68-06.00	–	TN16PR	L257.9-120-T16	AU1114T-T15P	L257.9-120M	LD8020-T25P

Setting key T15P-3 for setting gauge and wedge key T25P-4 for wedge screw.

Torque value 53.0 in/lbs.
Torque keys available, see page 643.

Mounting Dimensions



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.68-03.00	1.00	2.44	0.38	0.22
R220.68-04.00 / 05.00	1.50	3.54	0.63	0.38
R220.68-06.00	2.00	4.33	0.76	0.45

Please check availability in current price and stock-list.

Steadyline vibration damping Combimaster arbors

Steadyline Combimaster holders come in addition to the existing Steadyline shell mill holders.

Combimaster assemblies achieve optimum access to the workpiece. Stability, precision and balance are improved vs. classic assemblies, e.g. Weldon or collet chucks. Steadyline vibration damping Combimaster holders are a patented solution to boost your productivity or offer you a solution in long overhang situations.

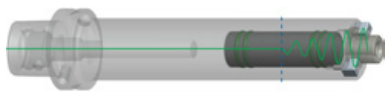
Steadyline Combimaster holders are available in several length projections, long (same length as the longest equivalent conventional Combimaster holders) and longer (adding longer projections to the range of conventional Combimaster holders).

The patented Steadyline damping system

A built-in vibration absorber dampens the vibrations as soon as they are transmitted by the cutting tool to the body of the holder. It prevents them from spreading along the bar, thus limiting the deflection of the milling assembly.

Steadyline holders offer up to three times greater dynamic rigidity than equivalent solid holders.

The holders are ready to use, and offer the damping advantages regardless the type of milling operation, the number of teeth in the cutter or the workpiece material.



Steadyline Combimaster holder types

EPB K820
Steadyline Combimaster
entirely tapered

EPB K821
Steadyline Combimaster
cylindrical and front tapered

EPB K820
Steadyline Combimaster holders are tapered to provide the best compromize between rigidity and accessibility to the workpiece.
EPB K821
Steadyline Combimaster holders have a cylindrical body profile for a slimmer access to the workpiece.

Steadyline Combimaster holders, main operating instructions

This summarizes the instructions delivered with the holders. To ensure optimal use of the Steadyline Combimaster

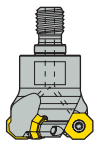
holders, the detailed operating instructions delivered with the holder must be respected.

Note: The built-in damping system is ready to use, whatever the milling operation, the number of teeth in the cutter or the workpiece material.

Combimaster heads and intermediates

Combimaster holders with Steadyline vibration damping system are designed to directly hold Combimaster heads. Addition of Combimaster intermediates is not recommended, as it will reduce the damper's effect.

Note: Combimaster cutter heads are grouped and in each cutter family in Machining Navigator Milling.



Recommended cutting conditions and maximum temperature for Steadyline Combimaster holders

Make sure never to exceed the maximum RPM of the holder (indicated on the holder and listed in the Product pages).

Inappropriate cutting conditions could cause vibrations of the milling assembly, this would prevent the damper operating properly and would damage the tool, the tool holder, the machine as well as the workpiece: set the cutting conditions in order to stay vibration free.

Optimal cutting conditions, selection procedure:

1. Cutting speed Vc and feed f: select the average values recommended for the cutter and inserts.

2. The width of cut a_e and the depth of cut a_p are the parameters to fine tune. It is possible to increase them inside cutter and inserts recommendations, while staying vibration free.

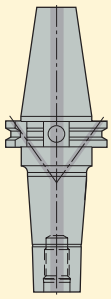
BEWARE: contrary to the use of classic long holders, the machining cannot be stabilized through additional radial force (e.g. by raising the feed).

Make sure the Steadyline Combimaster holder body never exceeds a maximum temperature of 176°F when in use.

Combimaster system overview

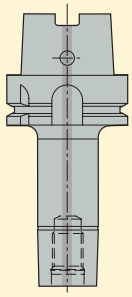
Combimaster arbors

CAT 40
CAT 50



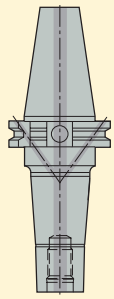
pages 534, 539
pages TF 536, 538

HSK-A40 HSK-E32
HSK-A63 HSK-E40
HASK-A100 HSK-E50



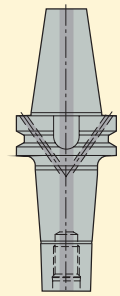
pages 540-542

DIN40 ADB / CAT40
DIN50 ADB / CAT50



pages 543-544

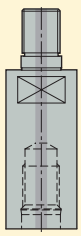
BT40 ADB
BT50 ADB



pages 545, 547
pages TF 546

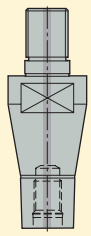
Combimaster intermediates

Extensions



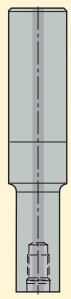
page 548

Reducers



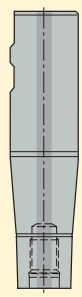
page 549

Cylindrical



page 550

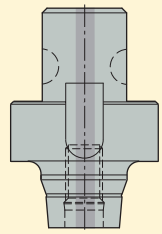
Weldon



page 551

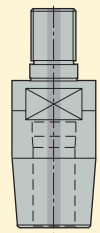
Combimaster arbors

Graflex



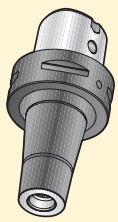
pages 552

Shrinkfit



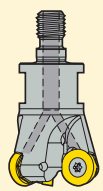
page 553

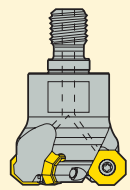
Seco-Capto Combimaster Adapters



page 554

Combimaster heads





See product pages.

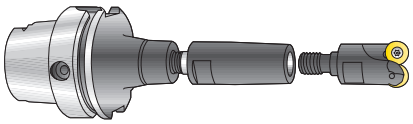
Balancing: The balancing quality of the holders and adapters is shown on the product pages:
1 = Fine balanced
2 = Pre-balanced

The modular milling solution for medium size cutters

Combimaster tools achieve optimum access and shortest overhang.

Stability, precision and balance are improved vs. classic assemblies, e.g. Weldon or collet chucks. Extensions and reducers help realize optimum tool length.

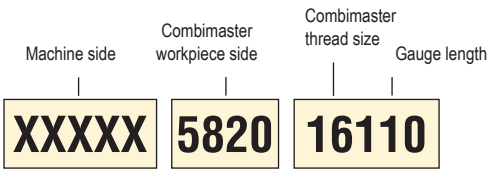
Modular: The Graflex/Combimaster and Seco-Capto/Combimaster arbors allow you to mix systems. Combimaster/Shrinkfit holders are also available to hold small tools.

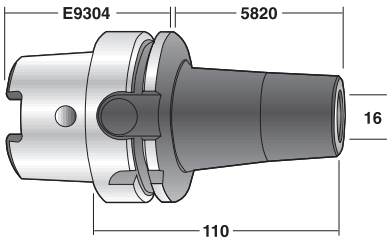


Balancing quality

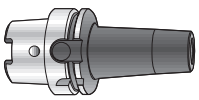
Most Combimaster holders are fine balanced. Steadyline Combimaster holders are pre-balanced. See Product pages.

Combimaster holders, code key



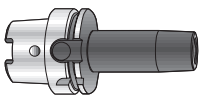


Combimaster holders, workpiece side types



5820

Entirely tapered



5821

Cylindrical and front tapered*

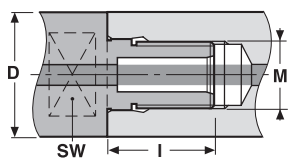
5822

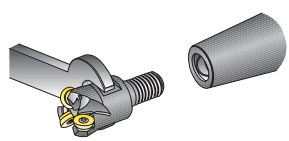
Entirely cylindrical

* See specific shape in Product pages.

Recommended Combimaster connections tightening torques

Combimaster size M	Tightening torque ft/lbs (Nm)	Tightening key size SW (mm)	l (mm)	D (mm)
M6	7.38 (10)	9	13.50	11.0
M8	18.44 (25)	11	17.75	13.5
M10	29.50 (40)	15	18.75	18.5
M12	44.25 (60)	19	21.75	23.0
M16	59.00 (80)	26	22.75	30.0
M20	88.51 (120)	32	27.00	36.5





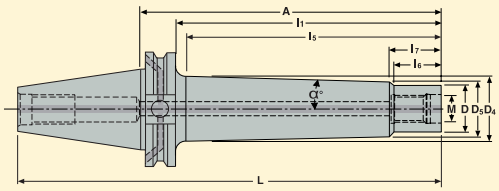
Combimaster cutter heads

Note: Combimaster cutter heads are shown in Machining Navigator Milling.

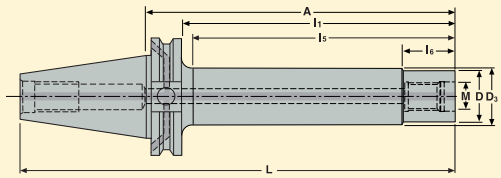
EPB K820-K821 – Steadyline® vibration damping Combimaster holders

CAT Taper-Face – ADB

Design 1 (K820)



Design 2 (K821)



- With dynamic damping
- With through coolant

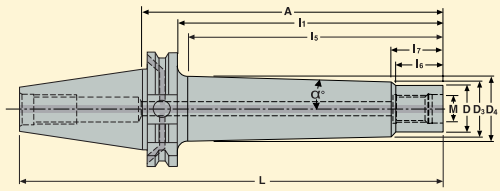
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch								α_1°	Design	Max rpm	Balancing	lbs
				A	L	l_1	l_5	l_6	D	D_3	D_4					
CAT TF40 ADB																
	M12	30626	**E2642K82012185**	7.28	9.98	6.53	6.33	0.79	0.91	1.18	1.72	2.8	1	10000	2	4.9
	M16	30639	**E2642K82016185**	7.28	9.98	6.53	6.33	0.79	1.18	1.46	1.99	2.8	1	10000	2	6.2
	M16	30649	**E2642K82016235**	9.25	11.94	8.50	8.30	0.79	1.18	1.46	2.18	2.8	1	8,000	2	8.4
	M16	30650	**E2642K82116160**	6.30	8.99	5.55	5.35	0.87	1.18	1.20	–	–	2	10000	2	4.0
CAT TF50 ADB																
	M16	30652	**E2644K82016235**	9.25	13.26	8.50	8.30	0.79	1.18	1.46	2.18	2.8	1	8000	2	12.3
	M16	30663	**E2644K82016285**	11.22	15.22	10.47	10.27	0.79	1.18	1.46	2.37	2.8	1	6000	2	14.8
	M16	30666	**E2644K82116185**	7.28	11.29	6.53	6.33	0.87	1.18	1.20	–	–	1	10000	2	7.9

Please check availability in current price and stock-list.

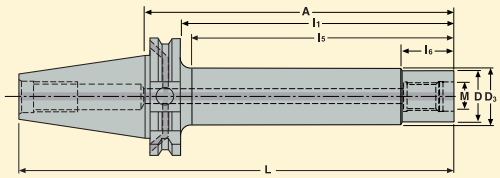
EPB K820-K821 – Steadyline® vibration damping Combimaster holders

CAT B5.50-ADB

Design 1 (K820)



Design 2 (K821)



- With dynamic damping
- With through coolant

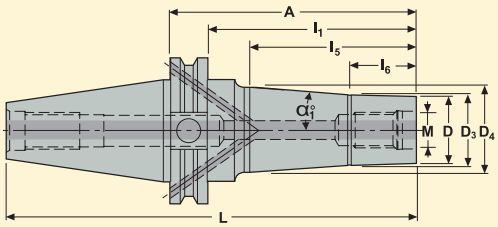
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch								α_1°	Design	Max rpm	Balancing	lbs
				A	L	l_1	l_5	l_6	D	D_3	D_4					
CAT40 ADB																
	M12	92212	**E2502K82012185**	7.28	9.98	6.53	5.91	0.79	0.91	1.18	1.66	2.75	1	10000	2	4.9
	M16	92213	**E2502K82116160**	6.30	8.99	5.55	4.92	–	1.20	–	–	–	2	10000	2	4.0
	M16	92215	**E2502K82016185**	7.28	9.98	6.53	5.91	0.79	1.18	1.46	1.92	2.75	1	10000	2	6.0
	M16	92216	**E2502K82016235**	9.25	11.94	8.50	7.87	0.79	1.18	1.46	2.09	2.75	1	8000	2	7.9
CAT50 ADB																
	M16	92217	**E2504K82116185**	7.28	11.29	6.53	5.91	–	1.20	–	–	–	2	10000	2	8.6
	M16	92221	**E2504K82016235**	9.25	13.26	8.50	7.87	0.79	1.18	1.46	2.12	2.75	1	8000	2	12.6
	M16	92227	**E2504K82016285**	11.22	15.23	10.47	9.84	0.79	1.18	1.46	2.31	2.75	1	6000	2	14.8

Please check availability in current price and stock-list.

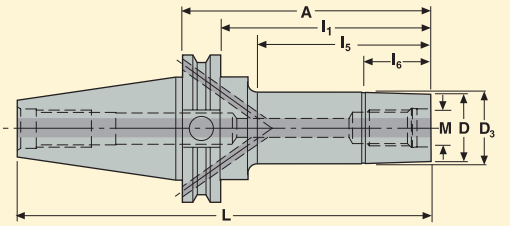
EPB 5820-5821 – Arbors CAT

CAT Taper-Face – ADB

Design 1



Design 2



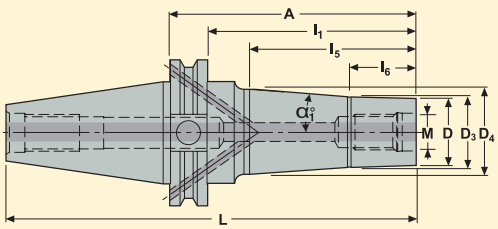
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch								α_1°	Design	Balancing	lbs
				A	L	l_1	l_5	l_6	D	D_3	D_4				
CAT TF40 ADB															
	M16	30495	**E264258201685**	3.35	6.04	2.60	1.97	0.79	1.18	1.25	1.46	5	1	1	2.9
	M16	30625	**E264258211685**	3.35	6.04	2.60	2.40	0.98	1.18	1.20	–	–	2	1	4.6
CAT TF50 ADB															
	M16	31144	**E264458201695**	3.74	7.75	2.99	2.36	0.98	1.18	1.25	1.73	10	1	1	7.5

Please check availability in current price and stock-list.

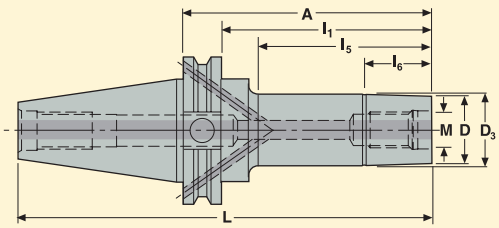
EPB 5820-5821 – Arbors CAT

CAT B5.50-ADB

Design 1



Design 2



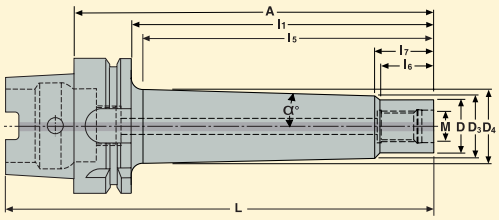
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch								$\alpha_1°$	Design	Balancing	lbs
				A	L	l_1	l_5	l_6	D	D_3	D_4				
CAT40 ADB	M6	82322	**E250258200660**	2.36	5.06	1.61	0.98	0.39	0.43	0.46	0.57	5.33	1	1	2.2
	M8	82323	**E250258200860**	2.36	5.06	1.61	0.98	0.39	0.53	0.62	0.73	5.3	1	1	2.2
	M10	82324	**E250258201040**	1.57	4.27	0.82	0.20	0.20	0.73	0.78	0.78	6.8	1	1	2.2
	M10	82260	**E250258201085**	3.35	6.04	2.60	1.97	0.59	0.73	0.78	0.96	3.9	1	1	2.4
	M12	82325	**E250258201240**	1.57	4.27	0.82	0.20	0.20	0.91	1.01	1.01	9.6	1	1	2.2
	M12	82262	**E250258211285**	3.35	6.04	2.60	1.97	0.79	0.91	0.93	0.93	–	2	1	4.4
	M16	82326	**E250258201640**	1.57	4.27	0.82	0.20	0.20	1.18	1.29	1.29	9.6	1	1	2.2
	M16	82265	**E2502582116135**	5.31	8.01	4.56	3.94	1.18	1.18	1.20	1.20	–	2	1	5.7
	M16	82264	**E250258211685**	3.35	6.04	2.60	1.97	0.79	1.18	1.20	1.20	–	2	1	4.9
	M20	58093	**E260258202040**	1.57	4.27	0.82	0.78	0.20	1.44	1.48	1.48	5.7	1	1	2.0
	M20	58101	**E260258212085**	3.35	6.04	2.59	2.44	0.79	1.44	1.46	–	–	2	1	2.6
	M20	58102	**E2602582120135**	5.31	8.01	4.56	4.44	0.79	1.44	1.46	–	–	2	1	3.5
CAT50 ADB	M12	82333	**E2504582012145**	5.71	9.71	4.96	4.33	1.18	0.91	0.97	1.52	4.9	1	1	7.7
	M12	82331	**E250458201295**	3.74	7.75	2.99	2.36	0.98	0.91	0.97	1.20	4.7	1	1	7.1
	M16	82335	**E2504582016145**	5.71	9.71	4.96	3.94	1.18	1.18	1.25	1.93	7	1	1	8.4
	M16	82336	**E2504582016195**	7.68	11.68	6.93	5.91	1.38	1.18	1.25	1.97	4.55	1	1	9.7
	M16	82334	**E250458201695**	3.74	7.75	2.99	1.97	0.79	1.18	1.25	1.67	10.2	1	1	7.5
	M20	58103	**E260458202095**	3.74	7.75	2.99	1.97	0.79	1.44	1.48	1.91	6.9	1	1	7.3
	M20	58104	**E2604582020145**	5.71	9.72	4.96	3.94	1.18	1.44	1.48	2.15	4.1	1	1	8.6
	M20	58105	**E2604582020195**	7.68	11.69	6.93	5.91	0.79	1.44	1.48	2.20	10.4	1	1	10.1

Please check availability in current price and stock-list.

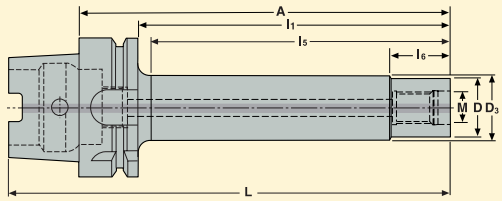
EPB K820-K821 – Steadyline® vibration damping Combimaster holders

HSK-A/ ISO 12164-1-A

Design 1 (K820)



Design 2 (K821)



- With dynamic damping
- With through coolant

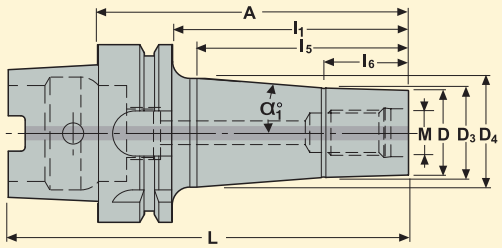
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch									α_1°	Design	Max rpm	Balancing	lbs
				A	L	l_1	l_5	l_6	l_7	D	D_3	D_4					
HSK-A63																	
	M10	92166	E9304K82010185	7.28	8.54	6.26	6.07	0.79	0.90	0.73	0.94	1.44	2.8	1	12000	2	3.3
	M12	92173	E9304K82012185	7.28	8.54	6.26	6.07	0.79	0.92	0.91	1.16	1.65	2.75	1	12000	2	4.2
	M16	92180	E9304K82016185	7.28	8.54	6.26	6.07	0.79	0.93	1.18	1.46	2.34	2.75	1	10000	2	5.7
	M16	92182	E9304K82016235	9.25	10.51	8.23	7.50	0.79	0.93	1.18	1.46	2.09	2.75	1	8000	2	7.7
	M16	92176	E9304K82116160	6.30	7.56	5.28	5.08	0.87	–	1.18	1.20	–	–	2	10000	2	3.1
HSK-A100																	
	M12	92183	E9306K82012235	9.25	11.22	8.11	7.92	0.79	0.92	0.91	1.16	1.83	2.75	1	8000	2	8.8
	M16	92185	E9306K82016235	9.25	11.22	8.11	7.92	0.79	0.93	1.18	1.46	2.13	2.75	1	8000	2	10.5
	M16	92186	E9306K82016285	11.22	13.19	10.08	9.89	0.79	0.93	1.18	1.46	2.32	2.75	1	6000	2	12.9
	M16	92184	E9306K82116185	7.28	9.25	6.14	5.94	0.87	–	1.18	1.20	–	–	2	8000	2	6.4

Please check availability in current price and stock-list.
For HSK sealing plugs, coolant tubes and tube spanners, see MN Tooling.

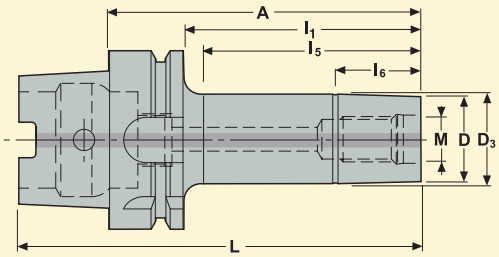
EPB 5820-5821 – Arbors HSK-A

HSK-A/ ISO 12164-1-A

Design 1 (5820)



Design 2 (5821)

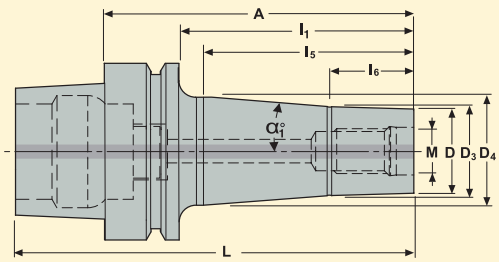


Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch A	L	l_1	l_5	l_6	D	D_3	D_4	$\alpha_1°$	Design	Balancing	lbs
HSK-A40															
	M6	43805	**E930258200645**	1.77	2.56	0.98	0.59	0.39	0.43	0.46	0.53	10.2	1	1	0.7
HSK-A63															
	M8	16352	**E930458200860**	2.36	3.62	1.34	0.98	0.39	0.53	0.62	0.73	5.3	1	1	1.5
	M8	16353	**E930458200885**	3.35	4.61	2.32	1.97	0.59	0.53	0.62	0.79	3.5	1	1	1.8
	M10	17259	**E930458201060**	2.36	3.62	1.34	0.98	0.39	0.73	0.78	0.91	6.3	1	1	1.8
	M10	17262	**E930458201085**	3.35	4.61	2.32	1.97	0.59	0.73	0.78	0.96	3.9	1	1	1.8
	M10	16355	**E9304582010135**	5.31	6.57	4.29	3.94	0.79	0.73	0.78	1.08	2.8	1	1	2.2
	M10	16356	**E9304582010185**	7.28	8.54	6.26	5.91	0.79	0.73	0.78	1.46	3.8	1	1	3.1
	M10	17297	**E930458211060**	2.36	3.62	1.34	0.98	0.39	0.73	0.73	–	–	2	1	1.5
	M12	17273	**E930458201260**	2.36	3.62	1.34	0.98	0.39	0.91	0.97	1.12	7.2	1	1	1.8
	M12	17274	**E930458201285**	3.35	4.61	2.32	1.97	0.79	0.91	0.97	1.18	5	1	1	2.0
	M12	17263	**E9304582012110**	4.33	5.59	3.31	2.95	0.98	0.91	0.97	1.24	3.9	1	1	2.2
	M12	17268	**E9304582012135**	5.31	6.57	4.29	3.94	1.18	0.91	0.97	1.30	3.4	1	1	2.6
	M12	16357	**E9304582012185**	7.28	8.54	6.26	5.91	1.18	0.91	0.97	1.67	4.2	1	1	3.7
	M12	17299	**E930458211260**	2.36	3.62	1.34	0.98	0.39	0.91	0.93	–	–	2	1	1.8
	M12	17302	**E930458211285**	3.35	4.61	2.32	1.97	0.79	0.91	0.93	–	–	2	1	1.8
	M16	17292	**E930458201660**	2.36	3.62	1.34	0.98	0.39	1.18	1.25	1.40	6.9	1	1	2.0
	M16	17293	**E930458201685**	3.35	4.61	2.32	1.97	0.79	1.18	1.25	1.46	5	1	1	2.4
	M16	17276	**E9304582016110**	4.33	5.59	3.31	2.95	0.98	1.18	1.25	1.52	3.9	1	1	2.6
	M16	17279	**E9304582016135**	5.31	6.57	4.29	3.94	1.18	1.18	1.25	1.57	3.4	1	1	3.1
	M16	17280	**E9304582016185**	7.28	8.54	6.26	5.91	1.38	1.18	1.25	1.97	4.5	1	1	4.6
	M16	16362	**E930458211685**	3.35	4.61	2.32	1.97	0.79	1.18	1.20	–	–	2	1	2.2
	M16	16363	**E9304582116110**	4.33	5.59	3.31	2.95	0.98	1.18	1.20	–	–	2	1	2.4
	M16	16364	**E9304582116135**	5.31	6.57	4.29	3.94	1.18	1.18	1.20	–	–	2	1	2.6
HSK-A100															
	M8	17370	**E930658200885**	3.35	5.31	2.20	1.97	0.59	0.53	0.62	0.96	7.2	1	1	4.6
	M10	17374	**E930658201085**	3.35	5.31	2.20	1.97	0.59	0.73	0.78	1.14	7.6	1	1	4.9
	M10	17373	**E9306582010110**	4.33	6.30	3.19	2.95	0.79	0.73	0.78	1.28	6.6	1	1	5.1
	M12	17396	**E930658201285**	3.35	5.31	2.20	1.97	0.79	0.91	0.97	1.38	9.7	1	1	5.1
	M12	17377	**E9306582012110**	4.33	6.30	3.19	2.95	0.98	0.91	0.97	1.50	7.6	1	1	5.3
	M12	17378	**E9306582012135**	5.31	7.28	4.17	3.94	1.18	0.91	0.97	1.67	6.6	1	1	5.7
	M12	17383	**E9306582012185**	7.28	9.25	6.14	5.91	1.18	0.91	0.97	1.67	4.2	1	1	6.4
	M16	17414	**E930658201685**	3.35	5.31	2.20	1.97	1.18	1.18	1.25	1.67	10.2	1	1	5.3
	M16	17407	**E9306582016135**	5.31	7.28	4.17	3.94	1.18	1.18	1.25	1.93	7	1	1	6.4
	M16	17409	**E9306582016185**	7.28	9.25	6.14	5.91	1.38	1.18	1.25	1.97	4.5	1	1	7.3
	M16	17410	**E9306582016235**	9.25	11.22	8.11	7.87	1.38	1.18	1.25	2.17	4	1	1	9.0

Please check availability in current price and stock-list.
For HSK sealing plugs, coolant tubes and tube spanners, see MN Tooling.

EPB 5820 – Arbors HSK-E

HSK-E



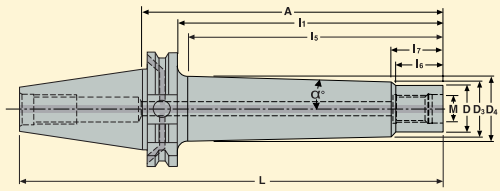
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch								$\alpha_1°$	Balancing	lbs
				A	L	l_1	l_5	l_6	D	D_3	D_4			
HSK-E50														
	M10	17441	**E934358201080**	3.15	4.13	2.13	1.97	0.59	0.73	0.78	0.96	3.9	1	1.3
	M12	17445	**E934358201280**	3.15	4.13	2.13	1.97	0.79	0.91	0.97	1.18	5	1	1.5
	M16	17449	**E934358201680**	3.15	4.13	2.13	1.97	0.79	1.18	1.25	1.46	5	1	1.8

Please check availability in current price and stock-list.
For HSK sealing plugs, coolant tubes and tube spanners, see MN Tooling.

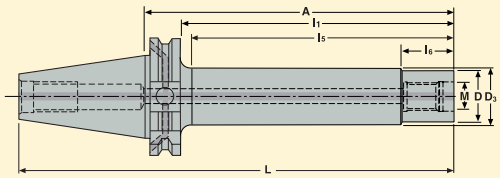
EPB K820-K821 – Steadyline® vibration damping Combimaster arbors

DIN 69871-ADB

Design 1 (K820)



Design 2 (K821)



- With dynamic damping
- With through coolant

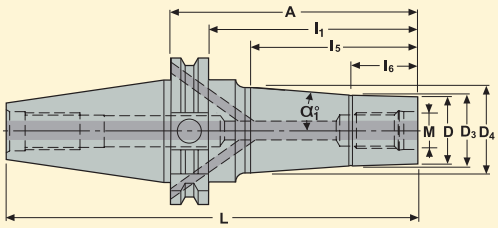
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch									α°	Design	Max rpm	Balancing	lbs
				A	L	l_1	l_5	l_6	l_7	D	D_3	D_4					
DIN40 ADB																	
	M12	92205	**E3469K82012185**	7.28	9.98	6.53	–	0.79	0.94	0.91	1.18	1.68	2.75	1	10000	2	4.9
	M16	92207	**E3469K82016185**	7.28	9.98	6.53	–	0.79	0.94	1.18	1.46	1.98	2.75	1	10000	2	6.2
	M16	92208	**E3469K82016235**	9.25	11.94	8.50	–	0.79	0.94	1.18	1.46	1.97	2.75	1	8000	2	8.2
	M16	92206	**E3469K82116160**	6.30	8.99	5.55	5.35	0.79	–	1.18	1.20	–	–	2	10000	2	3.7
DIN50 ADB																	
	M16	92210	**E3471K82016235**	9.25	13.26	8.50	8.31	0.79	0.94	1.18	1.46	2.17	2.75	1	8000	2	12.1
	M16	92211	**E3471K82016285**	11.22	15.22	10.47	10.28	0.79	0.94	1.18	1.46	2.35	2.75	1	6000	2	14.6
	M16	92209	**E3471K82116185**	7.28	11.29	6.53	6.33	0.87	–	1.18	1.20	–	–	2	10000	2	7.7

Please check availability in current price and stock-list.

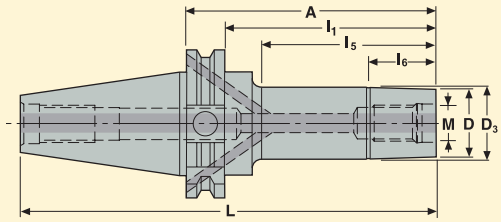
EPB 5820-5821 – Arbors DIN 69871

DIN 69871-ADB/ CAT Combined

Design 1 (5820)



Design 2 (5821)



- CAT/DIN combined arbors require metric pullstuds.

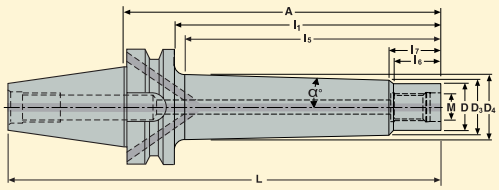
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch A	L	l_1	l_5	l_6	D	D_3	D_4	α_1°	Design	Balancing	lbs
DIN40 ADB/ CAT40															
	M6	43810	E347658200660	2.36	5.06	1.61	0.98	0.39	0.43	0.46	0.57	5.3	1	1	2.2
	M8	16322	E347658200860	2.36	5.06	1.61	0.98	0.39	0.53	0.62	0.73	5.3	1	1	2.2
	M10	19772	E347658201040	1.57	4.27	0.83	0.20	0.20	0.73	0.78	0.78	6.8	1	1	2.2
	M10	17119	E347658201060	2.36	5.06	1.61	0.98	0.39	0.73	0.78	0.91	6.3	1	1	2.2
	M10	17123	E347658201085	3.35	6.04	2.60	1.97	0.59	0.73	0.78	0.96	3.9	1	1	2.4
	M10	16327	E3476582010135	5.31	8.01	4.57	3.94	0.79	0.73	0.78	1.08	2.8	1	1	2.9
	M10	17162	E347658211060	2.36	5.06	1.61	0.98	0.39	0.73	0.73	–	–	2	1	2.2
	M12	17126	E347658201240	1.57	4.27	0.83	0.20	0.20	0.91	0.97	0.97	9.6	1	1	2.2
	M12	17127	E347658201260	2.36	5.06	1.61	0.98	0.39	0.91	0.97	1.12	7.2	1	1	2.4
	M12	17148	E347658201285	3.35	6.04	2.60	1.97	0.79	0.91	0.97	1.18	5	1	1	2.6
	M12	17124	E3476582012110	4.33	7.02	3.58	2.95	0.98	0.91	0.97	1.24	3.9	1	1	2.9
	M12	16331	E3476582012185	7.28	9.98	6.54	5.91	1.18	0.91	0.97	1.67	4.2	1	1	4.0
	M12	17185	E347658211260	2.36	5.06	1.61	0.98	0.39	0.91	0.93	–	–	2	1	2.4
	M12	17188	E347658211285	3.35	6.04	2.60	1.97	0.79	0.91	0.93	–	–	2	1	2.4
	M16	17153	E347658201640	1.57	4.27	0.83	0.20	0.20	1.18	1.25	1.25	9.6	1	1	2.2
	M16	17154	E347658201660	2.36	5.06	1.61	0.98	0.39	1.18	1.25	1.40	7.2	1	1	2.4
	M16	17156	E347658201685	3.35	6.04	2.60	1.97	0.79	1.18	1.25	1.46	5	1	1	2.9
	M16	17149	E3476582016110	4.33	7.02	3.58	2.95	0.98	1.18	1.25	1.52	3.9	1	1	3.3
	M16	17151	E3476582016135	5.31	8.01	4.57	3.94	1.18	1.18	1.25	1.59	3.6	1	1	3.5
	M16	17152	E3476582016185	7.28	9.98	6.54	5.91	1.38	1.18	1.25	1.71	2.9	1	1	4.6
	M16	16332	E347658211685	3.35	6.04	2.60	1.97	0.79	1.18	1.20	–	–	2	1	2.6
	M16	16336	E3476582116110	4.33	7.02	3.58	2.95	0.98	1.18	1.20	–	–	2	1	2.9
	M16	16344	E3476582116135	5.31	8.01	4.57	3.94	1.18	1.18	1.20	–	–	2	1	3.3
DIN50 ADB/ CAT50															
	M12	17200	E347858201295	3.74	7.74	2.99	1.97	0.79	0.91	0.97	1.38	9.7	1	1	7.3
	M12	17191	E3478582012145	5.71	9.71	4.96	3.94	1.18	0.91	0.97	1.61	6.6	1	1	7.9
	M12	17198	E3478582012195	7.68	11.68	6.93	5.91	1.18	0.91	0.97	1.67	4.2	1	1	8.6
	M12	17199	E3478582012245	9.65	13.65	8.90	7.87	1.18	0.91	0.97	1.87	3.8	1	1	9.9
	M16	17205	E347858201695	3.74	7.74	2.99	1.97	0.79	1.18	1.25	1.67	10.2	1	1	7.5
	M16	17201	E3478582016145	5.71	9.71	4.96	3.94	1.18	1.18	1.25	1.93	7	1	1	9.0
	M16	17202	E3478582016195	7.68	11.68	6.93	5.91	1.38	1.18	1.25	1.97	4.5	1	1	10.1
	M16	17203	E3478582016245	9.65	13.65	8.90	7.87	1.38	1.18	1.25	2.17	4	1	1	11.0
	M16	17204	E3478582016295	11.61	15.62	10.87	9.84	1.38	1.18	1.25	2.34	3.7	1	1	12.8
DIN40 ADB															
	M20	47432	E346958212045	1.77	4.46	1.02	0.79	0.39	1.44	1.46	–	–	2	1	2.2
	M20	47433	E3469582020110	4.33	7.02	3.58	2.95	0.98	1.44	1.48	1.75	4	1	1	3.5
	M20	47434	E346958212085	3.35	6.04	2.59	2.36	0.79	1.44	1.46	–	–	2	1	2.6
DIN50 ADB															
	M20	47436	E347158202095	3.74	7.75	2.99	2.56	0.98	1.44	1.48	1.99	9.3	1	1	7.1
	M20	47438	E3471582020145	5.71	9.71	4.96	4.53	0.79	1.44	1.48	2.07	6.9	1	1	8.8
	M20	47440	E3471582120110	4.33	8.34	3.58	3.15	0.98	1.44	1.46	–	–	2	1	7.1

Please check availability in current price and stock-list.

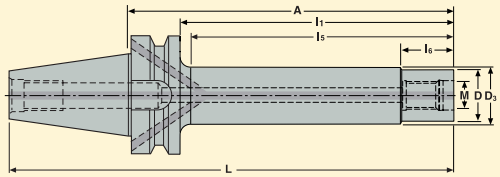
EPB K820-K821 – Steadyline® vibration damping Combimaster arbors

BT JIS B 6339-ADB

Design 1 (K820)



Design 2 (K821)



- With dynamic damping
- With through coolant

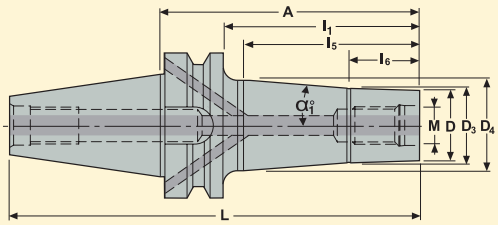
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch									α°	Design	Max rpm	Balancing	lbs
				A	L	l_1	l_5	l_6	l_7	D	D_3	D_4					
BT40 ADB																	
	M12	92235	**E3414K82012185**	7.28	9.86	6.22	6.03	0.79	0.94	0.91	1.18	1.65	2.8	1	10000	2	4.9
	M16	92237	**E3414K82016185**	7.28	9.86	6.22	6.03	0.79	0.94	1.18	1.46	1.94	2.8	1	10000	2	6.2
	M16	92238	**E3414K82016235**	9.25	11.83	8.19	8.00	0.79	0.94	1.18	1.46	2.13	2.8	1	8000	2	8.2
	M16	92236	**E3414K82116160**	6.30	8.87	5.24	5.04	0.87	–	1.18	1.20	–	–	2	10000	2	4.0
BT50 ADB																	
	M16	92242	**E3416K82016235**	9.25	13.26	7.76	7.57	0.79	0.94	1.18	1.46	2.09	2.8	1	8000	2	13.4
	M16	92243	**E3416K82016285**	11.22	15.23	9.72	9.54	0.79	0.94	1.18	1.46	2.24	2.8	1	6000	2	15.9
	M16	92241	**E3416K82116185**	7.28	11.29	5.79	5.59	0.87	–	1.18	1.20	–	–	2	10000	2	9.7

Please check availability in current price and stock-list.

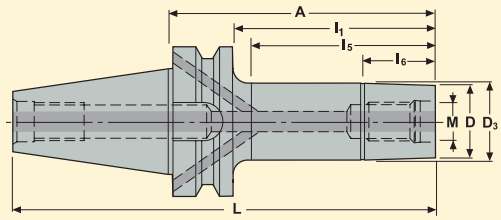
EPB 5820 – Arbors BT JIS

BT Taper-Face – AD/ADB

Design 1 (5820)



Design 2 (5821)



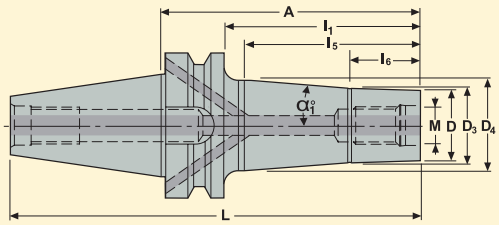
Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch A	L	l_1	l_5	l_6	D	D_3	D_4	$\alpha_1°$	Design	Balancing	lbs
BT TF30 AD															
	M10	30672	E400258201060	2.36	4.27	1.50	1.38	0.59	0.73	0.78	0.93	5.4	1	1	1.1
	M12	30675	E400258201260	2.36	4.27	1.50	0.98	0.39	0.91	0.97	1.12	7.22	1	1	1.3
	M16	30702	E400258201660	2.36	4.27	1.50	0.98	0.39	1.18	1.25	1.40	7.2	1	1	1.3
BT TF40 ADB															
	M16	30719	E3214582016135	5.31	7.89	4.25	3.94	1.18	1.18	1.25	1.59	3.6	2	1	3.7
	M16	30492	E321458201660	2.36	4.94	1.30	0.98	0.39	1.18	1.25	1.40	7.2	2	1	2.6
BT TF50 ADB															
	M16	31138	E3216582016195	7.68	11.69	6.18	5.91	1.38	1.18	1.25	1.97	4.5	2	1	10.6
	M16	31137	E321658201695	3.74	7.75	2.24	1.97	0.79	1.18	1.25	1.67	10.2	2	1	8.6

Please check availability in current price and stock-list.

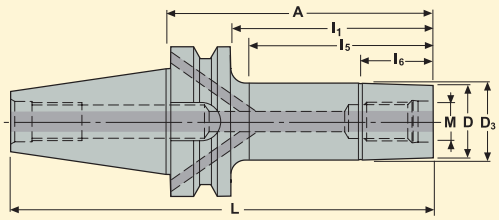
EPB 5820-5821 – Arbors BT JIS

BT JIS B 6339-ADB

Design 1 (5820)



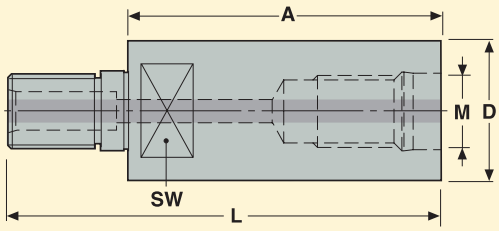
Design 2 (5821)



Taper	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch A	L	l_1	l_5	l_6	D	D_3	D_4	α_1°	Design	Balancing	lbs
BT40 ADB															
	M6	43811	**E341458200660**	2.36	4.94	1.30	0.98	0.39	0.43	0.46	0.57	5.3	1	1	2.2
	M10	16974	**E341458201085**	3.35	5.92	2.28	1.97	0.59	0.73	0.78	0.96	3.9	1	1	2.4
	M10	16959	**E3414582010135**	5.31	7.89	4.25	3.94	0.79	0.73	0.78	1.08	2.8	1	1	2.9
	M10	17043	**E341458211060**	2.36	4.94	1.30	0.98	0.39	0.73	0.78	–	–	2	1	2.2
	M12	16993	**E341458201240**	1.57	4.15	0.51	0.20	0.20	0.91	0.97	0.97	9.6	1	1	2.2
	M12	17001	**E341458201260**	2.36	4.94	1.30	0.98	0.39	0.91	0.97	1.12	7.2	1	1	2.4
	M12	17007	**E341458201285**	3.35	5.92	2.28	1.97	0.79	0.91	0.97	1.18	5	1	1	2.6
	M12	16975	**E3414582012110**	4.33	6.91	3.27	2.95	0.98	0.91	0.97	1.24	3.9	1	1	2.9
	M12	16976	**E3414582012135**	5.31	7.89	4.25	3.94	1.18	0.91	0.97	1.30	3.4	1	1	3.1
	M12	17044	**E341458211260**	2.36	4.94	1.30	0.98	0.39	0.91	0.93	–	–	2	1	2.4
	M12	17051	**E341458211285**	3.35	5.92	2.28	1.97	0.79	0.91	0.93	–	–	2	1	2.4
	M16	17036	**E341458201640**	1.57	4.15	0.51	0.20	0.20	1.18	1.25	1.25	9.6	1	1	2.4
	M16	17038	**E341458201660**	2.36	4.94	1.30	0.98	0.39	1.18	1.25	1.40	7.2	1	1	2.6
	M16	17041	**E341458201685**	3.35	5.92	2.28	1.97	0.79	1.18	1.25	1.46	5	1	1	2.9
	M16	17008	**E3414582016110**	4.33	6.91	3.27	2.95	0.98	1.18	1.25	1.52	3.9	1	1	3.3
	M16	17021	**E3414582016135**	5.31	7.89	4.25	3.94	1.18	1.18	1.25	1.59	3.6	1	1	3.7
	M16	17034	**E3414582016185**	7.28	9.86	6.22	5.91	1.38	1.18	1.25	1.97	4.5	1	1	5.3
	M20	47429	**E341458212045**	1.77	4.35	0.71	0.39	0.20	1.44	1.46	–	–	2	1	2.4
	M20	06670	**E3414582020110**	4.33	6.91	3.27	2.95	0.98	1.44	1.48	1.75	4	1	1	3.7
	M20	47430	**E341458212085**	3.35	5.92	2.28	1.97	0.79	1.44	1.46	–	–	2	1	3.1
BT50 ADB															
	M12	17078	**E341658201295**	3.74	7.75	2.24	1.97	0.79	0.91	0.97	1.38	9.7	1	1	8.4
	M12	17054	**E3416582012145**	5.71	9.72	4.21	3.94	1.18	0.91	0.97	1.61	6.6	1	1	9.0
	M12	17058	**E3416582012195**	7.68	11.69	6.18	5.91	1.18	0.91	0.97	1.67	4.2	1	1	9.7
	M16	17092	**E341658201695**	3.74	7.75	2.24	1.97	0.79	1.18	1.25	1.67	10.2	1	1	8.6
	M16	17083	**E3416582016145**	5.71	9.72	4.21	3.94	1.18	1.18	1.25	1.93	7	1	1	9.7
	M16	17084	**E3416582016195**	7.68	11.69	6.18	5.91	1.38	1.18	1.25	1.97	4.5	1	1	10.6
	M16	17089	**E3416582016245**	9.65	13.65	8.15	7.87	1.38	1.18	1.25	2.17	4	1	1	11.9
	M16	19869	**E3416582016295**	11.61	15.62	10.12	9.84	1.38	1.18	1.25	2.34	3.7	1	1	13.9
	M20	06688	**E341658202095**	3.74	7.75	2.24	1.97	0.79	1.44	1.48	1.91	10.4	1	1	8.8
	M20	06689	**E3416582020145**	5.71	9.72	4.21	3.94	1.18	1.44	1.48	2.15	6.9	1	1	10.1
	M20	47431	**E3416582120110**	4.33	8.34	2.83	2.56	0.98	1.44	1.46	–	–	2	1	9.0

Please check availability in current price and stock-list.

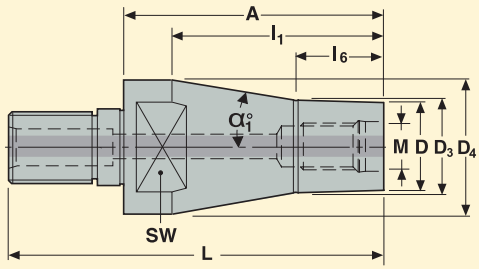
EPB BS/5820 – Extensions



Combimaster shank size	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch			SW mm	Balancing	lbs
				A	L	D			
M6	M6	43812	BS00658200625	0.98	1.52	0.43	9	2	0.2
M8	M8	16856	BS00858200830	1.18	1.88	0.53	11	2	0.2
M10	M10	16943	BS01058201035	1.38	2.12	0.73	15	2	0.2
M12	M12	16946	BS01258201240	1.57	2.43	0.91	19	2	0.4
M16	M16	16950	BS01658201640	1.57	2.47	1.18	26	2	0.4

Please check availability in current price and stock-list.

EPB BS/5820 – Reducers

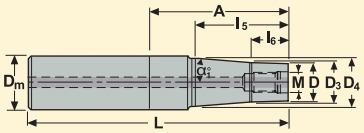


Combimaster shank size	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch							SW mm	$\alpha_1°$	Balancing	lbs
				A	L	l_1	l_6	D	D_3	D_4				
M8														
	M6	43813	BS00858200625	0.98	1.68	0.55	0.24	0.43	0.46	0.53	11	6.4	2	0.2
M10														
	M6	43814	BS01058200635	1.38	2.12	0.87	0.24	0.43	0.46	0.73	15	12	2	0.2
	M8	16857	BS01058200830	1.18	1.92	0.67	0.31	0.53	0.62	0.73	15	8.8	2	0.2
M12														
	M10	16944	BS01258201035	1.38	2.23	0.94	0.31	0.73	0.78	0.91	19	5.9	2	0.2
M16														
	M10	16947	BS01658201060	2.36	3.26	1.93	0.31	0.73	0.78	1.18	26	7.15	2	0.7
	M12	16949	BS01658201240	1.57	2.47	1.14	0.31	0.91	0.97	1.18	26	7.2	2	0.4
M20														
	M20	06786	BS02058202045	1.77	2.83	–	–	1.44	–	–	32	–	2	0.7
	M16	47456	BS02058201645	1.77	2.83	1.06	0.39	1.18	1.25	1.44	32	–	2	0.7

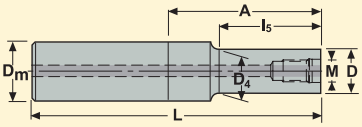
Please check availability in current price and stock-list.

EPB BD/5820-5821-5822 – Combimaster cylindrical extensions, steel, heavy metal or carbide – metric

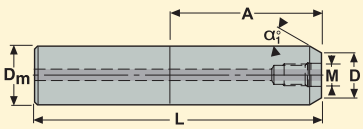
Design 1 (5820)



Design 2 (5821)



Design 3 (5822)

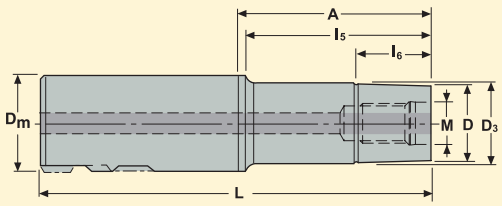


Cyl. Shank D_m	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch							$\alpha_1°$	Design	Balan-cing	lbs
				A	L	l_5	l_6	D	D_3	D_4				
12														
	M6	43815	**BD01258220660**	2.36	4.13	–	–	0.43	–	–	–	3	2	0.2
	M6	43817	**BD01258220695E**	3.74	5.51	–	–	0.43	–	–	–	3	2	0.7
14														
	M8	18242	**BD01458220860**	2.36	4.13	–	–	0.53	–	–	–	3	2	0.4
	M8	18243	**BD01458220895E**	3.74	5.51	–	–	0.53	–	–	–	3	2	1.8
16														
	M8	19853	**BD01658220865**	2.56	4.45	–	–	0.53	–	–	–	3	2	0.4
	M8	19854	**BD016582208105E**	4.13	6.02	–	–	0.53	–	–	–	3	2	0.9
	M8	29674	**BD016582108105E**	4.13	6.02	1.97	–	0.53	–	0.57	–	2	2	0.9
18														
	M10	18245	**BD01858221070**	2.76	4.65	–	–	0.71	–	–	–	3	2	0.7
	M10	18244	**BD018582210125E**	4.92	6.81	–	–	0.71	–	–	–	3	2	1.8
20														
	M10	18246	**BD02058221075**	2.95	4.92	–	–	0.73	–	–	–	3	2	0.7
	M10	18195	**BD020582110040D**	1.57	3.54	0.98	–	0.73	–	0.73	–	2	2	1.1
	M10	18186	**BD020582110110**	4.33	6.30	2.56	–	0.73	–	0.73	–	2	2	0.9
	M10	16810	**BD020582110110D**	4.33	6.30	2.56	–	0.73	–	0.73	–	2	2	1.8
25														
	M12	18249	**BD02558221280**	3.15	5.35	–	–	0.91	–	–	–	3	2	1.1
	M12	29675	**BD025582112185E**	7.28	9.49	3.35	–	0.91	–	0.93	–	2	2	3.5
	M12	16811	**BD025582112185**	7.28	9.49	3.35	–	0.91	–	0.93	–	2	2	2.0
	M12	18196	**BD025582112185D**	7.28	9.49	3.35	–	0.91	–	0.91	–	2	2	3.7
32														
	M12	18208	**BD032582012100**	3.94	6.30	2.56	0.98	0.91	0.97	1.22	4.5	1	2	2.0
	M12	18216	**BD032582012240**	9.45	11.81	5.71	1.18	0.91	0.97	1.22	1.6	1	2	3.1
	M16	18252	**BD03258221695**	3.74	6.10	–	–	1.18	–	–	–	3	2	2.0
	M16	18221	**BD032582116100**	3.94	6.30	2.56	–	1.18	–	1.18	–	2	2	2.0
	M16	16839	**BD032582116100D**	3.94	6.30	2.56	–	1.18	–	1.18	–	2	2	4.4
	M16	18223	**BD032582116145D**	5.71	8.07	4.33	–	1.18	–	1.18	–	2	2	5.7
	M16	18224	**BD032582116240**	9.45	11.81	5.71	–	1.18	–	1.18	–	2	2	3.7
	M16	16840	**BD032582116240D**	9.45	11.81	5.71	–	1.18	–	1.18	–	2	2	8.4
40														
	M16	18229	**BD04058201690**	3.54	6.30	2.56	0.98	1.18	1.25	1.54	5.2	1	2	3.1
	M16	18226	**BD040582016135**	5.31	8.07	4.33	1.38	1.18	1.25	1.54	2.8	1	2	3.7
	M16	18227	**BD040582016230**	9.06	11.81	5.71	1.38	1.18	1.25	1.54	1.9	1	2	5.5

Please check availability in current price and stock-list.
D = heavy metal, E = carbide

EPB BW/5821 – Combimaster Weldon extensions – metric

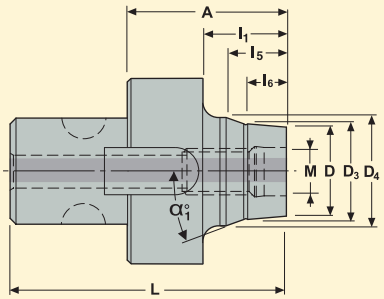
DIN 1835-1 Form B



Weldon shank D_m	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch						Balancing	lbs
				A	L	l_5	l_6	D	D_3		
20											
	M10	23058	BW02058211030	30	80	25	10	18.5	18.5	2	0.4
	M10	23059	BW020582110102	102	152	97	20	18.5	18.5	2	0.9
25											
	M12	23060	BW02558211245	45	101	40	20	23	23.5	2	0.9
	M12	23061	BW025582112115	115	171	110	30	23	23.5	2	1.3
32											
	M16	23062	BW03258211645	45	105	40	20	30	30.5	2	1.3
40											
	M20	47457	BW040582120102	102	172	97	30	36.5	37	2	3.3

Please check availability in current price and stock-list.

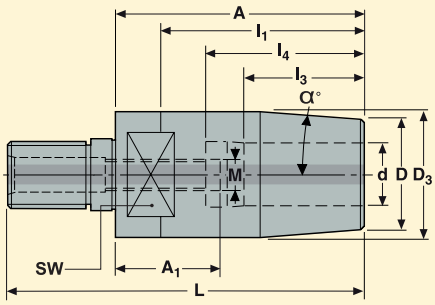
EPB BM/5820 – Graflex Combimaster adapters



Graflex shank size	Connecting thread size (M)	EDP No.	Part No.	Dimensions in inch								$\alpha_1°$	Balan-cing	lbs
				A	L	l_1	l_5	l_6	D	D_3	D_4			
G5														
	M16	18823	**BM05058201640**	1.57	2.76	0.79	0.59	0.39	1.18	1.25	1.38	18.25	2	1.3

Please check availability in current price and stock-list.

EPB BS/5603 – Shrinkfit DIN type, Combimaster holders



Connecting thread size	Shrinkfit d mm	EDP No.	Part No.	Dimensions in inch											Balancing	lbs
				A	L	l_1	l_3	l_4	D	D_3	M	A_1 min-max	SW	α°		
M16																
	6	66461	BS01656030665	2.56	3.46	2.13	0.87	1.48	0.83	1.06	M5	1.14-1.54	1.02	4.5	2	0.7
	8	66462	BS01656030865	2.56	3.46	2.13	1.02	1.48	0.83	1.06	M6	1.14-1.54	1.02	4.5	2	0.7
	10	66463	BS01656031070	2.76	3.66	2.76	1.22	1.67	0.94	1.18	M8x1	1.14-1.54	1.02	4.5	2	0.9
	12	66464	BS01656031270	2.76	3.66	2.76	1.34	1.67	0.94	1.18	M10x1	0.94-1.34	1.02	4.5	2	0.9

Spare Parts

For d	Stop screw
	
6	19BDR05165
8	19BDR06165
10	19BDR08165
12	19BDR10165

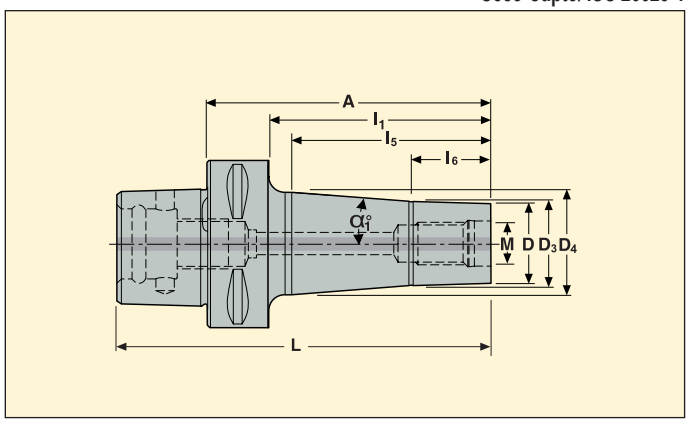
Accessories

For d	Balancing screws
	
10	90ZQ01
12	90ZQ01
6	90ZQ01
8	90ZQ01

Please check availability in current price and stock-list.

EPB 5820 – Combimaster adapters

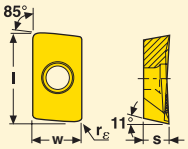
Seco-Capto/ ISO 26623-1



Seco-Capto™ shank	Connecting thread size	EDPNo	Part No.	Dimensions in inch								α_1°	Balancing	lbs
				A	D	D_3	D_4	L	l_1	l_5	l_6			
C3														
	M6	43819	C3-391.5820-06030	1.181	0.433	0.461	0.531	1.929	0.472	0.394	0.197	10.2	1	0.3
	M8	27218	C3-391.5820-08030	1.181	0.531	0.618	0.689	1.929	0.472	0.394	0.197	10.2	1	0.3
	M10	27219	C3-391.5820-10030	1.181	0.728	0.776	0.866	1.929	0.472	0.394	0.197	13.2	1	0.3
	M12	27220	C3-391.5820-12035	1.378	0.906	0.972	1.102	2.126	0.669	0.591	0.394	18.3	1	0.4
	M16	27221	C3-391.5820-16040	1.575	1.181	1.248	1.260	2.323	–	–	0.394	0.9	1	0.5
C4														
	M6	44820	C4-391.5820-06030	1.181	0.433	0.461	0.461	2.126	0.276	0.197	0.197	–	1	0.6
	M8	27222	C4-391.5820-08030	1.181	0.531	0.618	0.618	2.126	0.276	0.197	0.197	–	1	0.6
	M10	27223	C4-391.5820-10035	1.378	0.728	0.776	0.866	2.323	0.472	0.394	0.197	13.0	1	0.6
	M12	27224	C4-391.5820-12040	1.575	0.906	0.972	1.102	2.520	0.669	0.591	0.394	18.3	1	0.7
	M16	27225	C4-391.5820-16045	1.772	1.181	1.248	1.398	2.717	0.866	0.827	0.394	10.8	1	0.8
C5														
	M6	43823	C5-391.5820-06050	1.969	0.433	0.461	0.571	3.150	1.063	0.984	0.394	5.3	1	1.1
	M8	27226	C5-391.5820-08050	1.969	0.531	0.618	0.728	3.150	1.063	0.984	0.394	5.3	1	1.0
	M10	27228	C5-391.5820-10050	1.969	0.728	0.776	0.906	3.150	1.063	0.984	0.394	6.3	1	1.1
	M12	27230	C5-391.5820-12050	1.969	0.906	0.972	1.122	3.150	1.063	0.984	0.394	7.2	1	1.2
	M16	27234	C5-391.5820-16075	2.953	1.181	1.248	1.457	4.134	2.047	1.969	0.787	5.0	1	1.7
	M20	06869	C5-391.5820-20075	2.953	1.437	1.476	1.693	4.134	2.047	1.969	0.787	5.3	1	2.0
C6														
	M6	43824	C6-391.5820-06050	1.969	0.433	0.461	0.551	3.465	0.984	0.787	0.394	6.6	1	1.9
	M8	27237	C6-391.5820-08075	2.953	0.531	0.618	0.787	4.449	1.969	1.772	0.591	4.1	1	2.0
	M10	27240	C6-391.5820-10075	2.953	0.728	0.776	0.945	4.449	1.969	1.772	0.591	4.1	1	2.1
	M12	27241	C6-391.5820-12050	1.969	0.906	0.972	1.102	3.465	0.984	0.787	0.394	9.4	1	1.9
	M12	27242	C6-391.5820-12075	2.953	0.906	0.972	1.161	4.449	1.969	1.772	0.787	5.5	1	2.2
	M16	27243	C6-391.5820-16050	1.969	1.181	1.248	1.398	3.465	0.984	0.787	0.394	10.8	1	2.0
	M16	27244	C6-391.5820-16075	2.953	1.181	1.248	1.457	4.449	1.969	1.772	0.787	6.1	1	2.4
	M20	06883	C6-391.5820-20075	2.953	1.437	1.476	1.673	4.449	1.969	1.772	0.787	5.8	1	2.6
C8														
	M12	27255	C8-391.5820-12085	3.346	0.906	0.972	1.378	5.236	2.047	1.969	0.787	9.7	1	4.5
	M16	27256	C8-391.5820-16085	3.346	1.181	1.248	1.673	5.236	2.047	1.969	0.787	10.2	1	4.8

Please check availability in current price and stock-list.

ABEX



B = Wiper flat width

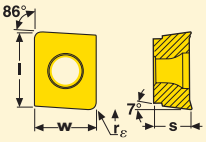
Size	Dimensions in inch W	l	s
ABEX26..	0.551	1.006	0.250
ABEX26..ZZFR	0.551	1.039	0.250

M15

Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MM4500	MK1500	T350M	F40M
ABEX 2606ZFFR-M15	0.063	0.079	17 °	71048	71047	75776	71049	71046	71045
2606ZZFR-M15	0.063	0.394	17 °					75902	

Please check availability in current price and stock-list.

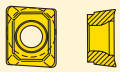
AC.T



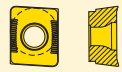
B = Wiper flat width

Size	Dimensions in inch W	l	s
AC..1506	0.500	0.591	0.250

M11/M14/MD15



ME10

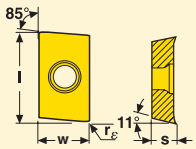


Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MK1500	MS2050	T25M	T350M	F25M	F40M	Uncoated HX
ACET 150612TR-ME10	0.047	0.067	22 °					14211				13740	
150612TL-M11	0.047	0.067	14 °		31641							24896	
150612TR-M11	0.047	0.067	14 °	35221	31642		31358	14209	91818	03977	91820	91821	
150631TR-M11	0.122*	0.067	14 °									24932	
150612TL-M14	0.047	0.067	15 °									82104	
150612TR-M14	0.047	0.067	15 °		31643		31359	14210	17234	03978		05579	17231
150630TR-M14	0.118*	0.067	15 °							23911			
150631TR-M14	0.122*	0.067	15 °									00044	
150660TL-M14	0.236*	0.067	15 °									00882	
150660TR-M14	0.236*	0.067	15 °							24010		74879	
ACMT 150612TR-M14	0.047	–	15 °		31644					16984		07516	
ACET 150612TR-MD15	0.047	0.067	15 °	35222		44667			07527	23909			
150630TR-MD15	0.118*	0.067	15 °	35224									

Please check availability in current price and stock-list.

* When using inserts with corner radii > 0.118" the cutter body must be modified.

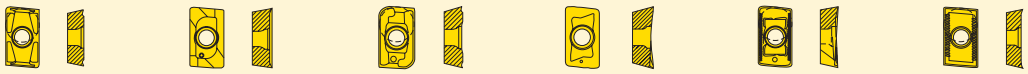
AP..16



B = Wiper flat width

Size	Dimensions in inch W	l	s
APFT16	0.375	0.648	0.195
APKT16	0.375	0.648	0.187
APEX16	0.375	0.648	0.187
APKX16	0.375	0.660	0.223
APMX16	0.372	0.669	0.223

D15 E08 E12/M13/MD15 M14 ME11/ME12 ME14/PDTL/R-M14

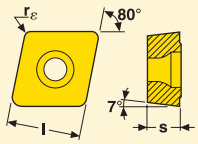


Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MK1500	T25M	T350M	F40M	Uncoated HX	H15
APFT 160430L-M13	0.118*	0.031	15 °					51548		23916		
160416R-M13	0.063	0.031	15 °					16844		23912		
160424R-M13	0.094	0.055	15 °					17046		23913		
160430R-M13	0.118*	0.031	15 °					16849		24013		
160440R-M13	0.157*	0.043	15 °					17048		24012		
160448R-M13	0.189*	0.047	15 °					17050		24014		
160460R-M13	0.236*	–	15 °							23919		
160430TR-MD15	0.118*	0.031	15 °						23915			
1604PDTL-D15	0.031	0.059	8 °	35226				04967				
1604PDTR-D15	0.031	0.047	8 °	35228				42944	23924			
APKT 160408TR-D15	0.031	0.047	10 °				31360					
1604PDR-E12	0.016	0.067	22 °					42945		23927	18810	
1604PDTR-M14	0.012	0.083	22 °					17003	24017	23928		
1604PDTR-ME14	0.031	0.059	24 °	35229			31361	03671		24018		
APEX 160408FR-E08	0.031	0.059	25 °									23612
APKX 160416R-ME12	0.063	0.047	24 °							69375		
160430R-ME12	0.118*	0.051	24 °							24019		
160434R-ME12	0.134	–	24 °					86953		96184		
160440R-ME12	0.157*	0.008	24 °							37339		
160426R-ME12	0.102	–	24 °							96299		
1604PDR-ME12	0.031	0.063	24 °		31645	44857	31362	00323		69376		
APMX 160408TR-ME11	0.031	0.055	24 °	35235						38202		
160408TL-M14	0.031	0.059	24 °		31648							
160408TR-M14	0.031	0.055	24 °	36011	31650		31363		03981	23610		

Please check availability in current price and stock-list.

* When using inserts with corner radii > 0.118" the cutter body must be modified.

CCMX



Size	Dimensions in inch	
	l	s
0602	0.250	0.094
0603	0.250	0.138
0803	0.313	0.125
08T3	0.316	0.173
09T3	0.375	0.156
1204	0.500	0.187

E06/E07/ME09/ME11

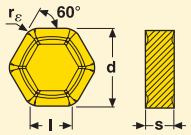
M07/M08

MD06/MD07/MD09/MD11

Part No.	r_ε	Cutting rake	Grades (EDP No.)			
			Coated			Uncoated
			T350M	T25M	F40M	HX
CCMX 060304-E06	0.016	15 °			23938	16668
060204T-MD06	0.016	0 °			23937	
CCMX 08T308-E07	0.031	15 °	23942		23941	18198
08T308T-M08	0.031	15 °	23943	42939	85475	
080308T-MD07	0.031	0 °			23940	
CCMX 09T308T-MD09	0.031	0 °		16188	23945	
09T308T-ME09	0.031	24 °			24020	
CCMX 120412T-MD11	0.047	0 °			23946	

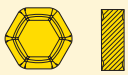
Please check availability in current price and stock-list.

HNEF



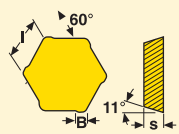
Size	Dimensions in inch		
	l	d	s
0905	0.369	0.639	0.220

M14



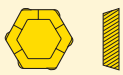
Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MK1500
HNEF 090531-M14	0.122	0 °	44710

HPMR/N



Size	Dimensions in inch	
	l	s
12	0.492	0.250

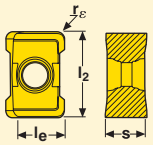
ME15/M17/MD20/D25



Part No.	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MK1500	MK2050	T350M	F40M
HPMR 1206ZETR-ME15	0.031	26 °						42878
1206ZETR-M17	0.031	17 °		31652			03995	78130
HPMN 1206ZETR-MD20	0.031	0 °		31651	31364	79017		
1206ZETL-D25	0.031	0 °		36913				
1206ZETR-D25	0.031	0 °	35237	36212				

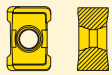
Please check availability in current price and stock-list.

LNK.05



Size	Dimensions in inch		
	l_e	l_2	s
05	0.197	0.394	0.185

E05/M06

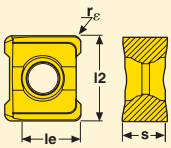


Part No.	r_ε	Cutting rake	Grades (EDP No.)				
			Coated				Uncoated
			MP3000	MM4500	T350M	F40M	H25
LNKT 050404PPN4-E05	0.016	23 °				32790	32791
050404PPTN4-M06	0.016	15 °	44669	67033		32794	
050408PPTN4-M06	0.031	15 °	44670	67034	32777	32776	
050416PPTN4-M06	0.063	15 °				32780	
050420PPTN4-M06	0.079	15 °				32783	
050424PPTN2-M06	0.094	15 °				32787	
050431PPTL1-M06	0.122*	15 °				32789	
050431PPTR1-M06	0.122*	15 °				32788	

Please check availability in current price and stock-list.

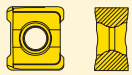
* When using inserts with corner radii > 0.118" the cutter body must be modified.

LNK.06/08



Size	Dimensions in inch l_e	l_2	s
06	0.236	0.394	0.197
08	0.295	0.394	0.197
080516	0.283	0.394	0.197
080520	0.264	0.394	0.197
080524	0.264	0.394	0.197

LNK.

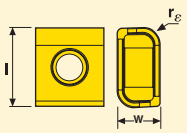


Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MP2500	MP3000	MM4500	MK1500	MK2050	T350M	F40M	Uncoated H25
LNKT 060504PPN-E05	0.016	23 °								30526
060508PPN-E05	0.031	23 °								30527
LNKT 060504PPTN-M06	0.016	15 °	31657		67035			00094	42894	
060508PPTN-M06	0.031	15 °	31658	44676	67036	31366	79015	00101	13120	
060516PPTN-M06	0.063	15 °				31367	79014		13123	
060531PPTN-M06	0.122*	15 °							07429	
060540PPTL-M06	0.157*	15 °							23065	
060540PPTR-M06	0.157*	15 °							23063	
LNKW 060504PPN-MD08	0.016	0 °					78979			
060508PPN-MD08	0.031	0 °	31661			31374	78978			
LNKT 080504PPN-E05	0.016	23 °								30531
080508PPN-E05	0.031	23 °								30532
080520PPN-E05	0.079	23 °								30534
080531PPN-E05	0.122*	23 °								07512
LNKT 080504PPTN-M06	0.016	15 °	31659		67037			00100	42898	
080508PPTN-M06	0.031	15 °	31660	44680	67038	31368	79013	39113	13160	
080516PPTN-M06	0.063	15 °				31369	79012		13392	
080520PPTN-M06	0.079	15 °				31370	79011		13393	
080524PPTN-M06	0.094	15 °				31371	79010		13394	
080531PPTN-M06	0.122*	15 °				31372	78980		07412	
080540PPTL-M06	0.157*	15 °							23071	
080540PPTR-M06	0.157*	15 °							23069	
LNKW 080504PPN-MD08	0.016	0 °					78977			
080508PPN-MD08	0.031	0 °	31662			31376	78962			

Please check availability in current price and stock-list.

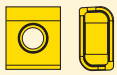
* When using inserts with corner radii > 0.118" the cutter body must be modified.

LNHQ



Size	Dimensions in inch W	l
14	0.295	0.551
17	0.295	0.669

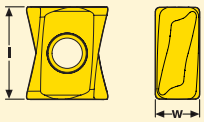
M11/M13



Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MP2500	Coated F40M
LNHQ 140708TN4-M11	0.031	16 °	75687	75686
140731TN4-M11	0.122	16 °	75688	69480
140740TN4-M11	0.157	16 °	75689	69486
140750TN4-M11	0.197	16 °	75512	69487
140760TN4-M11	0.236	16 °	75690	69488
LNHQ 170708TN4-M13	0.031	16 °		82217
170731TN4-M13	0.122	16 °		82219
170740TN4-M13	0.157	16 °		82221
170750TN4-M13	0.197	16 °		82223
170760TN4-M13	0.236	16 °		82225

Please check availability in current price and stock-list.

LOEX08



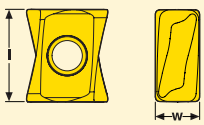
B = Wiper flat width

Size	Dimensions in inch W	l
LOEX0804..	0.173	0.325

M08/MD08

Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	T350M	F40M
LOEX 080404TR-M08	0.016	0.051	34 °	82154	82155	52963	82156		82318			82153
080408TR-M08	0.031	0.036	34 °	82158	82159	82160	82162	82161	82319	14208	91923	82157
080412TR-M08	0.047	0.020	34 °	82165	82164	52964	82167	82166	82320			82163
080416TR-M08	0.063	0.005	34 °	82171	82169	52965	82173	82172	82321			82168
LOEX 080404TR-MD08	0.016	0.051	29 °		91905			91889	91890			91906
080408TR-MD08	0.031	0.036	30 °	91909	91910			91907	91908		91912	91911
080412TR-MD08	0.047	0.020	30 °		91915			91913	91914		91917	91916
080416TR-MD08	0.063	0.005	30 °		91920			91918	91919		91922	91921

LOEX12



B = Wiper flat width

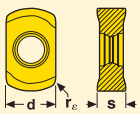
Size	Dimensions in inch W	l
LOEX12..-MD13	0.295	0.472
LOEX12..-M12	0.295	0.472

M12/MD13

Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	T350M	F40M
LOEX 120720TR-M12	0.079	0.054	34 °		52866	52867	52868				52865	52869
120724TR-M12	0.094	0.040	34 °							52872		52870
120731TR-M12	0.122	0.015	34 °		52874	52878	52879			52881	52873	52882
LOEX 120708TR-MD13	0.031	0.097	29 °	52885	52886		52894	52892	52893		52884	52897
120712TR-MD13	0.047	0.083	29 °	52904	52905			52907	52910		52902	52911
120716TR-MD13	0.063	0.069	29 °	52913	52914			52915	52918		52912	52919

Please check availability in current price and stock-list.

LOH.06



Size	Dimensions in inch d	s
LOHT 06	0.250	0.141
LOHT 06 MD	0.250	0.140
LOHW 06	0.250	0.136

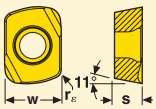
D07 M07 MD07 ME06




Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MH1000	MM4500	MK2050	MS2050	MS2500	T350M	F40M
LOHT 060310TR-M07	0.039	20.0 °		82255	82245				82253	44207	82254	82246
060310TR-MD07	0.039	7.0 °	14018	14014	14019			14017				
060310TR-ME06	0.039	27.0 °					82258		14020	82247	82257	82248
LOHW 060310TR-D07	0.039	0.0 °	82244		82582	82243						

Please check availability in current price and stock-list.

LP..05/06



Size	Dimensions in inch W	s
05T2	0.200	0.100
0603	0.250	0.125

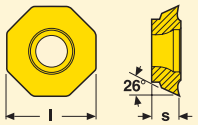
E05/ME04/ME05/M05/M06

MD05/MD07/D06

Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MP2500	MP3000	MH1000	MM4500	MS2050	MS2500	T350M	F40M	Uncoated H25
LPHT 05T210TR-ME04	0.039	16 °				84130	84127		84129	84128	
LPKT 05T210TR-M05	0.039	11 °	84124	84125			13822	13823		84126	
LPKW 05T210TR-MD05	0.039	0 °	84123	13821							
LPHT 060310ER-E05	0.039	16 °				70901				70892	70887
060310TR-ME05	0.039	16 °		70871		70879	92065			70873	
060310TR-M06	0.039	11 °	70864	70866			90227	70855	70859	70867	
LPHW 060310TR-D06	0.039	0 °		70840	70837						
060310TR-MD07	0.039	0 °	70846					70844			

Please check availability in current price and stock-list.

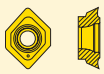
OFEX/OFMT05



B = Wiper flat width

Size	Dimensions in inch	
	l	s
OF..05T3	0.500	0.148
OF..0504	0.524	0.187

E04/M05



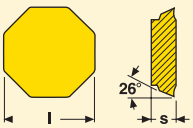
M08/M14

ME07ME12//D09

Part No.	B	Cutting rake	Grades (EDP No.)										
			Coated									Uncoated	Cermet
			MP1500	MP2500	MM4500	MK1500	T25M	T350M	F15M	F30M	F40M	H15	MP1020
OFEX 05T305TN-D09	0.059	0 °	35242										
05T305N-E04	0.059	20 °							69132			00030	
05T305TN-ME07	0.059	18 °		31668			69128	16989			77628		
05T305N-M05	0.059	0 °								69133			
05T305TN-M08	0.059	0 °		31667		31382		16988			94729		09975
OFMT 050405TR-ME12	0.059	18 °		31672	65140			03990			76807		
050405TR-M14	0.059	0 °		31671		31386		23952			77640		

Please check availability in current price and stock-list.

OFEN/OFER/OFMR07



B = Wiper flat width

	Dimensions in inch	
	l	s
OFEN 07	0.707	0.187
OFEN 07 ZZR	0.709	0.187
OFEN 07 ZZT	0.713	0.187
OFER 07	0.706	0.180
OFMR 07	0.709	0.191

E07/M10/D18/M16

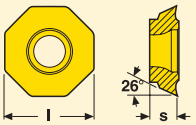
ME10/ME13/ME15/M15

ZZ..M10/M16

Part No.	B	Cutting rake	Grades (EDP No.)													
			Coated												Uncoated	Cermet
			MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2500	T25M	T350M	F15M	F30M	F40M	H15	MP1020
OFEN 070405TN-D18	.059	0 °	35239	36916	44592	65160	31377	78960					05748			09973
OFEN 0704ZZR-M10	.059	0 °			44593								95176			
0704ZZTL-M16	.059	0 °					31378									
0704ZZTR-M16	.059	0 °					31379				23948					09974
OFER 070405N-E07	.059	20 °										68306			00029	
070405N-M10	.059	0 °			44594								68311			
070405TN-M16	.059	0 °	35240	31664		65118	31380	78959		68307	03998			94730		09971
070405TN-ME10	.059	18 °		31665					43290	69499				77169		
070405TN-ME15	.059	18 °		31666		65109				68305	23949			04381		09972
OFMR 070405TR-M15	.059	6 °		31669			31383				23951			07538		
070405TR-ME13	.059	15 °		31670							03987			35814		

Please check availability in current price and stock-list.

OFET/OFEW/OFMT07



B = Wiper flat width

Size	Dimensions in inch	
	l	s
OFET 07	0.706	0.180
OFEW 07	0.706	0.187
OFMT 07	0.707	0.191

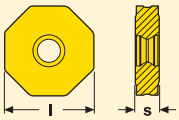
ME09/ME13/ME09/M13/M15/D18

ME10/ME15/M16

Part No.	B	Cutting rake	Grades (EDP No.)						
			Coated						
			MP1500	MP2500	MM4500	MK1500	T350M	F30M	F40M
OFET 070405TN-M16	0.059	0 °				31381			
070405TN-ME10	0.059	18 °						95171	23950
070405TN-ME15	0.059	18 °			65150				05743
OFEW 070405TN-D18	–	0 °	35241						
OFMT 070405TN-M15	0.059	0 °		31673					52067
070405TN-ME13	0.059	18 °		31674	65152				23616
070405TR-M15	0.059	0 °							07579
070405TR-ME13	0.059	18 °					03986		

Please check availability in current price and stock-list.

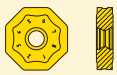
ON..05/09



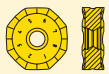
B = Wiper flat width

Size	Dimensions in inch	
	l	s
ON..05	0.472	0.157
ON..09	0.866	0.228

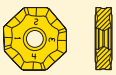
MD16/MD17



ME10-13/M10-15



ZZTN4-M10/M14

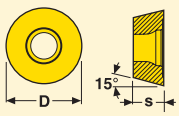


Part No.	B	Cutting rake	Grades (EDP No.)										
			Coated										Cermet
			MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	MS2500	T350M	F40M	MP1020
ONEU 050410ZZTN4-M10*	0.126	20 °		10007	10008	10002	10003	79038			80684	10005	75702
ONMU 050410ANTN-ME10	0.012	20 °	75705	75706	75707	75708	75709		90204			75703	
050410ANTN-ME11	0.039	20 °	75711	75712	75713	75714	75715		90205			75710	
050410ANTN-M10	0.012	20 °	09981	09984	09985	09987	09989	79037			80701	70777	75700
050410ANTN-M11	0.039	20 °	09993	09994	09995	09998	09999	15281			80711	09991	75701
ONEU 090520ZZTN4-M14*	0.248	15 °	65509	65510	65512	65511	65506	78958			65514	65513	10009
ONMU 090520ANTN-MD16	0.018	0 °	55060	52539			52537				55416		
090520ANTN-MD17	0.083	0 °	55066	52545			52542						
090520ANTN-ME12	0.018	20 °	65474	65476	65478	65477	65464		90218	81172	65482	65480	
090520ANTN-ME13	0.083	20 °	62489	62490	62491	65488	62486	78951	90220	81174	62492	62485	
090520ANTN-M12	0.018	20 °	65458	65459		65460	65455	78957		84851	65463	65462	
090520ANTN-M13	0.083	20 °	55054	52532	52533	65505	52529	78956		81173	55420	52534	09977
090520ANTN-M14	0.018	15 °	55020	52524	52526		52517	78955			55414	52528	
090520ANTN-M15	0.083	15 °	55019	52512	52515		45389	78954			55415	52516	

Please check availability in current price and stock-list.

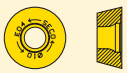
* ONEU wiper inserts have 4 right hand and 4 left hand cutting edges.

RD..05/06/07/08/10



Size	Dimensions in inch	
	D	s
0501	0.197	0.059
06T1	0.236	0.086
0702	0.276	0.094
0803	0.315	0.125
1003	0.394	0.125
10T3	0.394	0.156

RDGT-E/RDHT-E



RDHT-M

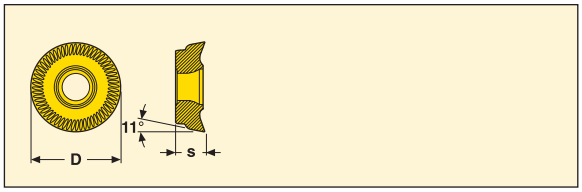
RDHW-MD

RDKW-MD/RDMW-MD

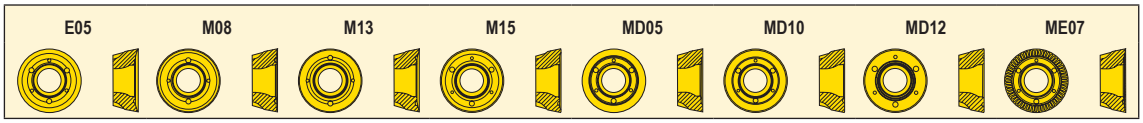
Part No.	Cutting rake	Grades (EDP No.)													
		Coated													Uncoated
		MP1500	MP2500	MP3000	MH1000	MM4500	MK2050	MS2050	MS2500	T350M	F15M	F25M	F30M	F40M	H25
RDGT 10T3M0-E04	20 °													04808	
RDHT 06T1M0-E02	18 °													52323	20319
0803M0-E03	20 °									20322				20324	20323
10T3M0-E04	20 °									20343				20346	20344
10T3M0T-M05	16 °		35122			65231		90229	43170	23008				23010	
10T3M0T-M07	11 °		38456			65232			43182	26116				26115	
RDHW 0501M0-MD01	0 °			44701										44298	
06T1M0-MD02	0 °			44577			78950				23003		23004	45874	
0702M0-MD03	0 °			44702										44311	
0702M0T-MD04	0 °						78949				44318				
0803M0-MD03	0 °			44581				90228					23007	23006	
10T3M0-MD04	0 °			44582									20348	20350	
10T3M0T-MD06	0 °				29617							04817		04816	
1003M0T-MD06	0 °													01977	
RDKW 0803M0T-MD05	0 °		35121				78948		43163		20326	20329		20331	
10T3M0T-MD06	0 °	35246	35124				78947		43161		20355	20356		20357	
RDMW 12T3M0T-MD09	0 °													01979	

Please check availability in current price and stock-list.

RP..12



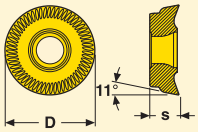
Size	Dimensions in inch D	s
1204	0.472	0.187



Part No.	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MH1000	MM4500	MK2050	MS2050	MS2500	T350M	F40M	Uncoated H25
RPHT 1204M0-6-E05	20.0 °							99196		99195	99193	99192
1204M0T-4-M08	16.0 °								99207	99205	99203	
1204M0T-6-M08	16.0 °		99208			99209		99210	99206	99204	99202	
1204M0T-4-M13	16.0 °							06661	99215	99213		
1204M0T-6-M13	16.0 °		99216					99217	99214	99212	99211	
1204M0T-6-ME07	20.0 °					99200		99201		99199	99198	
RPHW 1204M0-6-MD05	0.0 °			99225	99226			99227			99224	
1204M0T-6-MD12	0.0 °				99228							
RPKT 1204M0T-6-M15	15.0 °	99222	99221				99223		99220	99219	99218	
RPKW 1204M0T-6-MD10	0.0 °	99231	99230	99232			99233					

Please check availability in current price and stock-list.

RP..16/20

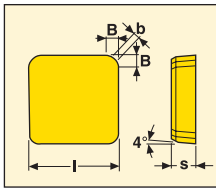


Size	Dimensions in inch D	s
1605	0.630	0.219
2006	0.787	0.250

Part No.	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MM4500	MK2050	MS2050	MS2500	T350M	F15M	F25M	F30M	F40M
RPHT 1605M0T-ME11	21 °			65238		36828	43177	20433				20434
1605M0T-M12	15 °		35125	65237		36884	43178	23884				23883
1605M0T-M18	15 °	44257	31932		78930		43180	23889		23888		23887
2006M0T-ME12	20 °		35128	67668		36885	44334	20447				20483
RPHW 1605M0T-MD08	0 °										23881	23882
RPKT 1605M0T-ME11	21 °											04829
2006M0T-M15	15 °		38114				43166	20487				20489
2006M0T-M20	15 °	35249	44333		78928		43168	28600		20493		20494
RPKW 1605M0T-MD20	0 °	35251			78926		43165		23891	20444		
2006M0-MD10	0 °										23892	23893
2006M0T-MD22	0 °	35252			78925		43169		23894	20497		
RPMW 1605M0T-MD12	0 °									04822		

Please check availability in current price and stock-list.

SBAN



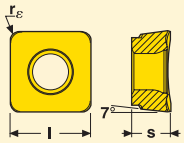
Size	Dimensions in inch	
	l	s
12	0.500	0.125

ZZ

Part No.	Cutting rake	Grades (EDP No.)
		Coated
		F15M
SBAN 1203ZZ	0 °	18237

Please check availability in current price and stock-list.

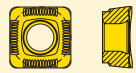
SC..12



Size	Dimensions in inch	
	l	s
SC..1206	0.500	0.250

M11/M14/MD15/MD16

ME10

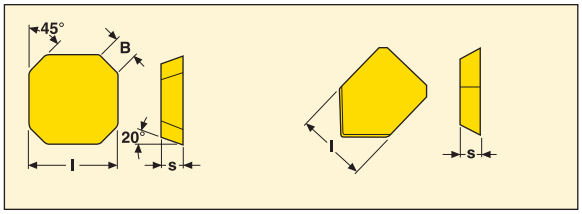


Part No.	r_ε	Cutting rake	Grades (EDP No.)										
			Coated										Uncoated
			MP1500	MP2500	MP3000	MK1500	MK2050	MS2050	MS2500	T25M	T350M	F40M	HX
SCET 120612T-ME10	0.047	22 °						14214				24022	
120612T-M11	0.047	14 °	35253	31679		31392		14212			03997	91827	
120612T-M14	0.047	15 °		31680		31393		14213		17057	03979	04903	43724
120612T-MD15	0.047	15 °	35254		44668						23955		
120630T-M14	0.118*	15 °		35118	59218		09408	14215	43905		23956	57376	
120630T-MD16	0.118*	15 °	42331	42333					42345		42340	42336	
SCEX 120660T-M14	0.236*	15 °									23957		
SCMT 120612T-M14	0.047	15 °									16991	07514	

Please check availability in current price and stock-list.

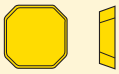
* When using inserts with corner radii > 0.118" the cutter body must be modified.

SEAN



Size	Dimensions in inch	
	l	s
SEAN 12	0.500	0.125
SEAN 13	0.529	0.132
SEAN 16	0.661	0.189
SEAN 12 ZZ	0.500	0.125
SEAN 15 ZZ	0.625	0.187

AFN/AFTN

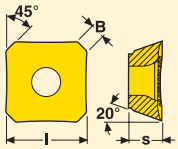


ZZTN

Part No.	B	Cutting rake	Grades (EDP No.)							
			Coated						Uncoated	Cermet
			MP1500	MK1500	T25M	T350M	F15M	F30M	HX	MP1020
SEAN 1203AFN-E12	0.059	0 °					30839	30841	11784	
1203AFTN-M14	0.059	0 °			14921	23959			15242	10034
1203AFTN-MD15	0.059	0 °								10035
SEAN 1303AFN-E12	0.138	0 °							16686	
1303AFTN-M14	0.138	0 °				23960				
1303AFTN-M15	0.138	0 °		31395						
1303AFTN-MD15	0.138	0 °								10036
SEAN 1604AFN-E15	0.138	0 °							16750	
1604AFTN-M18	0.161	0 °				23961				
1604AFTN-M19	0.161	0 °		31397						
SEAN 1203ZZTN-M15	0.287	0 °		31394						
1203ZZTN-MD15	0.287	0 °	36012							09588
SEAN 1504ZZTN-M18	0.366	0 °		31396						

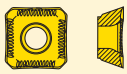
Please check availability in current price and stock-list.

SE..09



Size	Dimensions in inch	
	l	s
SE..09T3	0.375	0.156

D09/M05/ME07



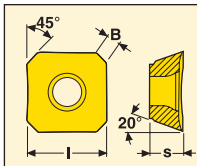
E04

ME06/M08

Part No.	B	Cutting rake	Grades (EDP No.)													
			Coated												Uncoated	Cermet
			MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	T25M	T350M	F15M	F30M	F40M	H15	MP1020
SEEX 09T3AFN-E04	.059	25 °										37300		94731	00031	
SEMX 09T3AFTN-ME06	.059	25 °		31694							03982			07596		
SEEX 09T3AFTN-ME07	.059	22 °		31682		65153				37297	03999			18733		
09T3AFN-M05	.059	0 °			44596				90221				37301	81503		
09T3AFTN-M08	.059	0 °					31398	78923		37299	18737			18736		10030
SEMX 09T3AFTN-M08	.059	0 °		31693		65121					03983			07594		
SEEX 09T3AFTN-D09	.059	0 °	35255													

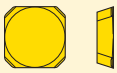
Please check availability in current price and stock-list.

SE..1203



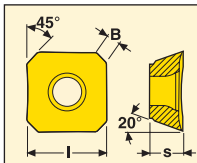
Size	Dimensions in inch l	s
1203	0.503	0.125

M13/MD14



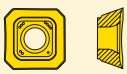
Part No.	B	Cutting rake	Grades (EDP No.) Coated MH1000	MK1500	T350M	F15M	Uncoated H15
SEEX 1203AFTN-M13	.315	0 °			23962		
1203AFTN-MD14	.315	0 °	27421	31399		84948	36744

SE..1204

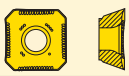


Size	Dimensions in inch l	s
1204	0.500	0.187

E08/MD18MD19



ME11/ME12/M10/M14/M15

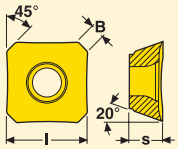


Part No.	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	T350M	F30M	F40M	Uncoated H25	Cermet MP1020
SEEX 1204AFN-E08	.059	25 °										04941	04940	
1204AFTN-ME11	.059	18 °		31685		65119				18724		18719		
1204AFN-M10	.059	7 °		31683	44597	65163			90222	04945	04942	04943		
1204AFTN-M14	.059	7 °	35256	31684		65127	31400	78922		18731		18721		10031
1204AFTN-MD18	.059	0 °	35258		44598		31401			04939	16623	16624		10032
1204ZZTN-M14*	.291	0 °	35259	31686			31402			19921	04946	04947		
SEMX 1204AFTN-ME12	.059	18 °		31696		65117				04930		04928		
1204AFTN-M15	.059	7 °	35265	31695		65105	31592	78866		04935		04931		
1204AFTN-MD19	.059	0 °	35266		44602		31593			16627				

Please check availability in current price and stock-list.

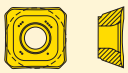
* Only to be used with SEEX12 inserts...

SE..15



	Dimensions in inch	
	l	s
1505	0.625	0.219

E10 M12/M17MD20 ME15

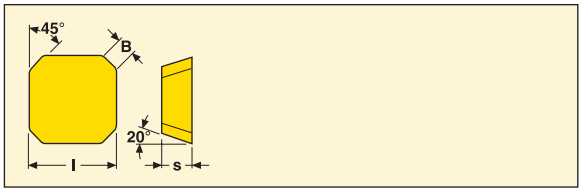


Part No.	B	Cutting rake	Grades (EDP No.)								
			Coated								Uncoated
			MP1500	MP2500	MP3000	MK1500	MK2050	MS2050	T350M	F40M	H25
SEEX 1505AFN-E10	0.071	25 °									21133
SEMX 1505AFTN-ME15	0.071	21 °							21252	21249	
SEEX 1505AFN-M12	0.071	5 °		31687				90223	21138	21136	
1505AFTN-M17	0.071	5 °	35260	31688		31403	78921		21081	21126	
1505ZZTN-M17*	0.370	5 °		31689		31404			21264		
SEMX 1505AFTN-M18	0.071	5 °	35267	31697		31594	78864		21257	21253	
1505AFTN-MD20	0.071	0 °	35268	36208	44601	31596			23055		

Please check availability in current price and stock-list.

* Only to be used with SEEX15 inserts...

SEKN



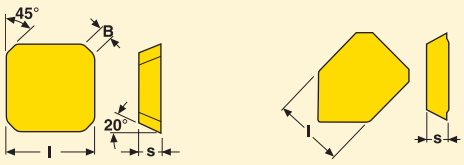
Size	Dimensions in inch	
	l	s
SE..1203	0.500	0.125
SE..1204	0.625	0.187
SE..1504	0.625	0.187

12/15

Part No.	B	Cutting rake	Grades (EDP No.)										
			Coated									Uncoated	Cermet
			MP1500	MP2500	MM4500	MK1500	MK2050	T25M	T350M	F30M	F40M	HX	MP1020
SEKN 1203AFTN-E10	0.091	0 °								31028			
1203AFN-E12	0.063	0 °				31406					83402	15468	
1203AFTN-M14	0.059	0 °	35262	31690	65106	31407	78920	15221	03985		78899		10037
1203AFTN-MD16	0.059	0 °											09288
1203AFTN-D16	0.063	0 °	35261										
1204AFTN-M18	0.059	0 °				31408			23964				
SEKN 1504AFN-E15	0.075	0 °									23965	16463	
1504AFTN-M18	0.059	0 °		31691	65162	31409	78919	16448	24023		82297		
1504AFTN-MD20	0.075	0 °	35263										
1504AFTN-MD21	0.059	0 °											10038

Please check availability in current price and stock-list.

SEKR



Size	Dimensions in inch	
	l	s
12	0.500	0.125
13	0.529	0.132
15	0.625	0.187
16	0.661	0.189

AFN..E07

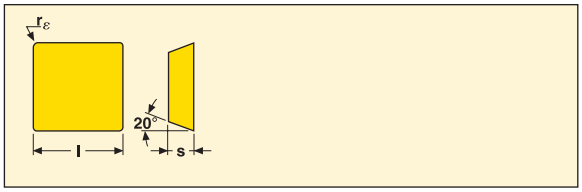
ME10/ME12/ME13/ME16

ZZ..E07

Part No.	B	Cutting rake	Grades (EDP No.)							
			Coated							Uncoated
			MP1500	MP2500	MM4500	T25M	T350M	F30M	F40M	HX
SEKR 1203AFN-E07	0.059	18 °				16454		30848	79753	16343
1203AFTN-ME10	0.059	20 °				08790	16994		79754	34309
1203AFTN-ME13	0.059	24 °	35264	31692		17144	03984		04897	17143
1203ZZN-E07	–	18 °								17227
SEKR 1303AFTN-ME13	0.138	24 °							23967	42845
SEKR 1504AFTN-ME12	0.059	20 °					23968			
1504AFTN-ME16	0.059	20 °			65120	42849	16996			
SEKR 1604AFTN-ME16	0.161	20 °				00316	16998			

Please check availability in current price and stock-list.

SENN

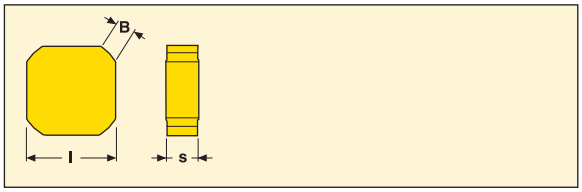


Size	Dimensions in inch	
	l	s
12	0.500	0.125

E10/M12

Part No.	r_ε	Cutting rake	Grades (EDP No.)	
			Coated	Uncoated
			F40M	HX
SENN 120308-E10	0.031	0 °		03157
120308T-M12	0.031	0 °	23969	

SNH.15



Size	Dimensions in inch	
	l	s
15	0.625	0.187

M14

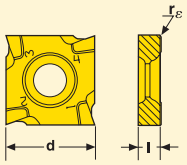
MD15

Part No.	B	Cutting rake	Grades (EDP No.)	
			Coated	
			MP1500	MK1500
SNHF 150412TN-M14	*	8 °	35269	31597
1504XNN-M14	0.054	15 °	35270	31598
1504ZZN-M14	0.276	15 °		31600
SNHN 150412TN-MD15	*	0 °		31601
1504XNN-MD15	0.054	0 °		31602

Please check availability in current price and stock-list.

* Radii = 0.47

SNHQ11



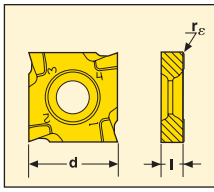
Size	Dimensions in inch	
	d	l
1102	0.433	0.091
1103	0.433	0.106

E05/M07

Part No.	r_ε	Cutting rake	Grades (EDP No.)				
			Coated				Uncoated
			MP2500	MM4500	F30M	F40M	H25
SNHQ 110202EL4-E05	0.008	20 °					26352
110202ER4-E05	0.008	20 °					26353
SNHQ 110202TL4-M07	0.008	20 °	75524			26078	
110204TL4-M07	0.016	20 °	75522	66977	26366	30244	
110208TL4-M07	0.031	20 °		66979		26286	
110212TL4-M07	0.047	20 °				26287	
110216TL4-M07	0.063	20 °				26288	
110220TL4-M07	0.079	20 °			55250		
110202TR4-M07	0.008	20 °	75525			26289	
110204TR4-M07	0.016	20 °	75523	66976	26369	30246	
110208TR4-M07	0.031	20 °		66978		26290	
110212TR4-M07	0.047	20 °				26291	
110216TR4-M07	0.063	20 °				26292	
110220TR4-M07	0.079	20 °			55248		
SNHQ 110302EL4-E05	0.008	20 °					26354
110302ER4-E05	0.008	20 °					26355
SNHQ 110312TL4-M07	0.047	20 °				26295	
110316TL4-M07	0.063	20 °				26296	
110320TL4-M07	0.079	20 °			55252		
110312TR4-M07	0.047	20 °				26299	
110316TR4-M07	0.063	20 °				26300	
110320TR4-M07	0.079	20 °			55251		
110302TL4-M07	0.008	20 °	75529			26293	
110304TL4-M07	0.016	20 °	75526	66981	26372	30247	
110308TR4-M07	0.031	20 °		66982		26298	
110302TR4-M07	0.008	20 °	75528			26297	
110304TR4-M07	0.016	20 °	75527	66980	26376	30249	
110308TL4-M07	0.031	20 °		66983		26294	

Please check availability in current price and stock-list.

SNHQ1203/1204



Size	Dimensions in inch d	l
1203	0.500	0.126
1204	0.500	0.157

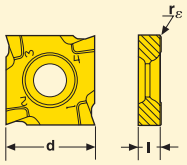
2-E05/2-M07

4-E05/4-M07

Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MP2500	MM4500	F30M	F40M	Uncoated H25
SNHQ 120302EL4-E05	0.008	20 °					26356
120302ER4-E05	0.008	20 °					26357
SNHQ 120302TL4-M07	0.008	20 °				26301	
120302TR4-M07	0.008	20 °				26306	
120304TL4-M07	0.016	20 °	75530	66985	26379	30250	
120304TR4-M07	0.016	20 °	75531	66984	26383	30252	
120308TL4-M07	0.031	20 °	75532	66987		26302	
120308TR4-M07	0.031	20 °	75533	66986		26307	
120310TL4-M07	0.039	20 °				57377	
120310TR4-M07	0.039	20 °				57378	
120312TL4-M07	0.047	20 °				26303	
120312TR4-M07	0.047	20 °				26308	
120316TL4-M07	0.063	20 °				26304	
120316TR4-M07	0.063	20 °				26309	
120320TL4-M07	0.079	20 °				26305	
120320TR4-M07	0.079	20 °				26310	
120324EL2-M07	0.094	20 °				11339	
120324ER2-M07	0.094	20 °				11400	
120330EL2-M07	0.118	20 °				11353	
120330ER2-M07	0.118	20 °				11464	
SNHQ 120404EL4-E05	0.016	20 °					26358
120404ER4-E05	0.016	20 °					26359
SNHQ 120402TL4-M07	0.008	20 °				26311	
120402TR4-M07	0.008	20 °				26316	
120404TL4-M07	0.016	20 °	75534	66989	26387	30253	
120404TR4-M07	0.016	20 °	75535	66988	26391	30254	
120408TL4-M07	0.031	20 °	75536	66992	26388	26312	
120408TR4-M07	0.031	20 °	75537	66991	26392	26317	
120412TL4-M07	0.047	20 °				26313	
120412TR4-M07	0.047	20 °				26318	
120416TL4-M07	0.063	20 °				26314	
120416TR4-M07	0.063	20 °				26319	
120420TL4-M07	0.079	20 °				26315	
120420TR4-M07	0.079	20 °				26320	
120424EL2-M07	0.094	20 °				11474	
120424ER2-M07	0.094	20 °				11823	
120431EL2-M07	0.122	20 °				11487	
120431ER2-M07	0.122	20 °				11831	
120435EL2-M07	0.138	20 °				11616	
120435ER2-M07	0.138	20 °				11898	

Please check availability in current price and stock-list.

SNHQ12045



Size	Dimensions in inch d	l
12045	0.500	0.177

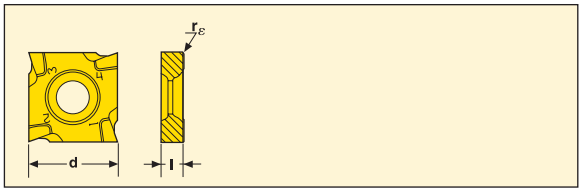
2-M07

4-E05/4-M07

Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MP2500	MM4500	F30M	F40M	Uncoated H25
SNHQ 1204504EL4-E05	0.016	20 °					26360
1204504ER4-E05	0.016	20 °					26361
SNHQ 1204502TL4-M07	0.008	20 °				26321	
1204502TR4-M07	0.008	20 °				26326	
1204504TL4-M07	0.016	20 °	75538	66994	26395	30255	
1204504TR4-M07	0.016	20 °	75539	66993	26399	30256	
1204508TL4-M07	0.031	20 °	17627	66997		26322	
1204508TR4-M07	0.031	20 °	17635	66995		26327	
1204512TL4-M07	0.047	20 °				26323	
1204512TR4-M07	0.047	20 °				26328	
1204516TL4-M07	0.063	20 °				26324	
1204516TR4-M07	0.063	20 °				26329	
1204520TL4-M07	0.079	20 °				26325	
1204520TR4-M07	0.079	20 °				26330	
1204524EL2-M07	0.094	20 °				11930	
1204524ER2-M07	0.094	20 °				14525	
1204531EL2-M07	0.122	20 °				11960	
1204531ER2-M07	0.122	20 °				14967	
1204540EL2-M07	0.157	20 °				11962	
1204540ER2-M07	0.157	20 °				14974	

Please check availability in current price and stock-list.

SNHQ1205



Size	Dimensions in inch d	l
1205	0.500	0.213

2-M07

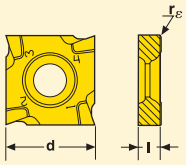
4-E05/4-M07

Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MP2500	MM4500	F30M	F40M	Uncoated H25
SNHQ 120504EL4-E05	0.016	20 °					26362
120504ER4-E05	0.016	20 °					26363
SNHQ 120502TL4-M07	0.008	20 °				26331	
120502TR4-M07	0.008	20 °				26337	
120504TL4-M07	0.016	20 °	75540	66999	26403	30257	
120504TR4-M07	0.016	20 °	75541	66998	26407	30258	
120508TL4-M07	0.031	20 °	17640	67003	26404	26332	
120508TR4-M07	0.031	20 °	17641	67001	26408	26338	
120510TL4-M07	0.039	20 °				55247	
120510TR4-M07	0.039	20 °				55246	
120512TL4-M07	0.047	20 °				26333	
120512TR4-M07	0.047	20 °				26339	
120516TL4-M07	0.063	20 °				26335	
120516TR4-M07	0.063	20 °				26340	
120520TL4-M07	0.079	20 °				26336	
120520TR4-M07	0.079	20 °				26341	
120524EL2-M07	0.094	20 °				15081	
120524ER2-M07	0.094	20 °				16170	
120531EL2-M07	0.122	20 °				15290	
120531ER2-M07	0.122	20 °				16328	
120540EL2-M07	0.157*	20 °				15985	
120540ER2-M07	0.157*	20 °				16335	
120550EL2-M07	0.197*	20 °				16161	
120550ER2-M07	0.197*	20 °				16366	

Please check availability in current price and stock-list.

* When using inserts with a corner radius > .157" the cutter body must be modified.

SNHQ1207



Size	Dimensions in inch d	l
1207	0.500	0.276

2-M07

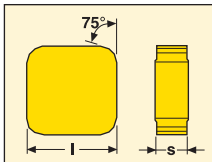
4-E05/4-M07

Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated MP2500	MM4500	F30M	F40M	Uncoated H25
SNHQ 120704EL4-E05	0.016	20 °					26364
120704ER4-E05	0.016	20 °					26365
SNHQ 120704TL4-M07	0.016	20 °	75545	67005	26411	30259	
120704TR4-M07	0.016	20 °	75546	67004	26415	30260	
120708TL4-M07	0.031	20 °	75544	67007	26412	26343	
120708TR4-M07	0.031	20 °	75543	67006	26416	26348	
120712TL4-M07	0.047	20 °				26344	
120712TR4-M07	0.047	20 °				26349	
120716TL4-M07	0.063	20 °				26345	
120716TR4-M07	0.063	20 °				26350	
120720TL4-M07	0.079	20 °				26346	
120720TR4-M07	0.079	20 °				26351	
120724EL2-M07	0.094	20 °				16372	
120724ER2-M07	0.094	20 °				16571	
120731EL2-M07	0.122	20 °				16377	
120731ER2-M07	0.122	20 °				16609	
120740EL2-M07	0.157*	20 °				16379	
120740ER2-M07	0.157*	20 °				16764	
120750EL2-M07	0.197*	20 °				16393	
120750ER2-M07	0.197*	20 °				17019	
120760EL2-M07	0.236*	20 °				16557	
120760ER2-M07	0.236*	20 °				17146	

Please check availability in current price and stock-list.

* When using inserts with a corner radius > .157" the cutter body must be modified.

SNKN

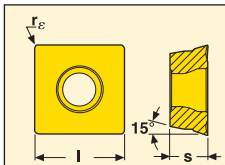


B = Wiper flat width

Size	Dimensions in inch l	s
12	0.500	0.187

Part No.	B	Cutting rake	Grades (EDP No.) Coated MK1500	T25M
SNKN 1204EN-M10	0.059	0 °	31604	15501

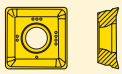
SONX



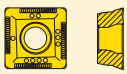
B = Wiper flat width

Size	Dimensions in inch l	s
SO..09	0.376	0.156
SO..12	0.500	0.204
SO..15	0.622	0.219

M10/M12/M14



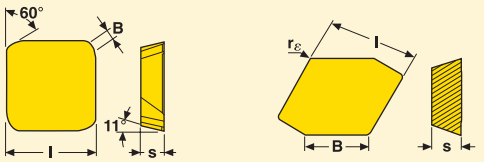
ME06/ME08



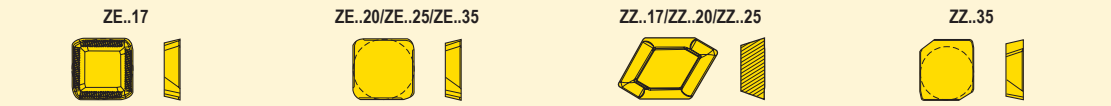
Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MK1500	MK2050	T350M	F40M
SONX 09T304TR-ME06	0.016	0.051	22 °						66081
09T304TR-M10	0.016	0.051	19 °			31605		03965	66086
09T308TR-M10	0.031	0.051	19 °		31699	31606	78861		05750
SONX 120508TR-ME08	0.031	0.039	24 °						94815
120508TR-M12	0.031	0.039	16 °	35274	31700	31607	78860	03966	94820
SONX 150508TR-ME10	0.031	0.079	19 °						94732
150508TR-M14	0.031	0.079	22 °		31701	31608		03967	97754
150516TR-M14	0.063	0.079	22 °						13315

Please check availability in current price and stock-list.

SPE.19/28



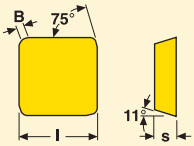
Size	Dimensions in inch	
	l	s
SPEN 19	0.750	0.250
SPEN 19 ZZ	0.787	0.250
SPEN 28	1.125	0.313
SPER 19	0.750	0.250
SPER 19 ZZTL	0.750	0.254
SPER 19 ZZTR	0.787	0.250



Part No.	B	Cutting rake	Grades (EDP No.)					
			Coated					
			MP1500	MP2500	MM4500	MK1500	T25M	T350M
SPEN 1906ZETL-MD20	0.071	0 °		31703				
1906ZETR-D25	0.071	0 °	36020	36915				
1906ZETR-MD20	0.071	0 °		31704		31610	89720	16951
SPEN 1906ZZTR-D25	0.472	0 °	36021	36914				
1906ZZTR-MD20	0.472	0 °		31705		31611		
SPEN 2807ZETR-MD35	0.335	0 °				31612		
2807ZETR-D35	0.335	0 °	36022					
SPEN 2807ZZTR-D35	0.335	0 °	36023					
SPER 1906ZETR-M17	0.071	17 °			65161			24024
SPER 1906ZZTL-M17	0.472	17 °		31706				
1906ZZTR-M17	0.472	17 °		31707				

Please check availability in current price and stock-list.

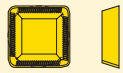
SPK.12/15



Size	Dimensions in inch	
	l	s
12	0.500	0.125
15	0.625	0.187

M15/MD14/MD17/ZZ.-M13

ME12/ME14

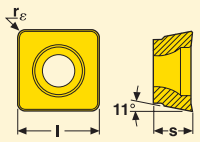


ZZ.-M15

Part No.	B	Cutting rake	Grades (EDP No.)				
			Coated				Uncoated
			T25M	T350M	F30M	F40M	HX
SPKN 1203EDR-M13	0.055	0 °				83403	10647
1203EDTR-MD14	0.055	0 °	11894	23973			
SPKN 1504EDR-M15	0.055	0 °					10649
1504EDTR-MD17	0.055	0 °		23974			
SPKN 1504ZZL-M15	0.394	0 °			05806		
1504ZZR-M15	0.394	0 °			33406		
SPKR 1203EDTR-ME12	0.055	20 °				23975	
1504EDTR-ME14	0.055	20 °		23976			

Please check availability in current price and stock-list.

SPMT

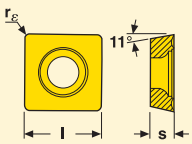


Size	Dimensions in inch	
	l	s
10	0.394	0.187

M08

Part No.	r_ε	Cutting rake	Grades (EDP No.)	
			Coated	
			F40M	
SPMT 100408T-M08	0.031	10 °	24026	

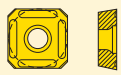
SPMX



B = Wiper flat width

-75

AP-75

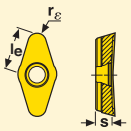


Size	Dimensions in inch	
	l	s
SPMX06..AP	0.250	0.094
SPMX07..AP	0.313	0.125
SPMX09..AP	0.375	0.125
SPMX12..AP	0.500	0.156
SPMX06..	0.250	0.094
SPMX07..	0.313	0.125
SPMX09..	0.375	0.125
SPMX12..	0.500	0.156

Part No.	r_ε	B	Cutting rake	Grades (EDP No.)			
				Coated			Uncoated
				T25M	T350M	F40M	HX
SPMX 0602AP-75	–	0.028		16162		23977	16854
0703AP-75	–	0.035				23978	
0903AP-75	–	0.039		42946	23980	24008	18150
12T3AP-75	–	0.055		16176	23983	23982	19986
SPMX 060204-75	0.016	–	20 °	16733		24027	
070304-75	0.016	–	16 °	16732		24028	
090304-75	0.016	–	16 °	16731		23979	
12T308-75	0.031	–	14 °			23981	

Please check availability in current price and stock-list.

VPGX



B = Wiper flat width

Size	Dimensions in inch l_e	s
220605	0.559	0.250
220608	0.559	0.250
220616	0.539	0.250
220620	0.559	0.250
220624	0.559	0.250
220631	0.559	0.250
220640	0.559	0.250
220648	0.465	0.250
220663	0.465	0.250

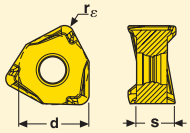
E06/E10

Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Uncoated H15	Uncoated H25
VPGX 220605FR-E06	0.018	0.059	25 °	00128	
220605ER-E10	0.018	0.059	25 °		35407
220608PDER-E10	0.033	0.043	25 °		44842
220616ER-E10	0.065	–	25 °		35408
220620ER-E10	0.081	–	25 °		35406
220624ER-E10	0.098	–	25 °		35405
220631EN-E10	0.125	–	25 °		35401
220631FN-E06	0.125	–	25 °	35402	
220640ER-E10	0.162	–	25 °		35403
220648ER-E10	0.157*	–	25 °		00126
220663ER-E10	0.192*	–	25 °		00129

Please check availability in current price and stock-list.

* When using inserts with corner radii > 0.157" the cutter body must be modified.

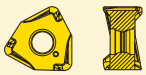
XNEX



B = Wiper flat width

Size	Dimensions in inch	
	d	s
XNEX08	0.491	0.254
XNEX08 ZZ	0.491	0.254
XNEX04-M06	0.264	0.130
XNEX04-M08	0.264	0.130

M06/M08



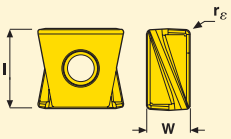
ME09/M08/M13/MD15

ZZR-M11

Part No.	r_ε	B	Cutting rake	Grades (EDP No.)											
				Coated										Uncoated	Cermet
				MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	MS2500	T350M	F40M	H25	MP1020
XNEX 040304R-M06	0.016	0.031	32.6 °		79051	79052	79053			90176			79050		
040308R-M06	0.031	0.016	32.6 °		79067	79068	79069			14207			79066		
040304TR-M08	0.016	0.031	27 °	70129	67706	67705	67708	70128	79071				67702		
040308TR-M08	0.031	0.016	27 °	70134	67727	67726	67729	70133	79070				67725		09970
XNEX 080604TR-ME09	0.016	0.071	27 °		79293	79294	79296					79295	79292		
080604TR-M13	0.016	0.071	22.57 °			79289	79291					79290	79288		
080608TR-ME09	0.031	0.055	27 °	44691	39999	43519	65226	43515	78561			39998	39997		
080608R-M08	0.031	0.055	24 °			69462	69461			90177	69464	69465	69460	69463	
080608TR-M13	0.031	0.051	22 °	40024	40018	43521		40019	78563			40017	40014		
080608TR-MD15	0.031	0.055	17 °	40031	40028	43522		40029	78562			40027	40026		
080612TR-ME09	0.047	0.039	27 °		62243		65227		78555			62461	62241		
080612TR-M13	0.047	0.035	22 °		62224			62217	78556				62214		09968
080612TR-MD15	0.047	0.039	17 °	62239	62240			62230					62228		09969
080616TR-M13	0.063	0.020	22 °	43660	43661	43663		43658	78554			43662	43657		
080616TR-MD15	0.063	0.028	17 °	43680	44468	43682		43678	78553			43681	43677		
080616TR-ME09	0.063	0.024	27 °		43648	43650	65230		81288			43649	43645		
XNEX 080608ZZR-M11	0.031	0.236	19 °			70601		70597					70595		

Please check availability in current price and stock-list.

XNHQ



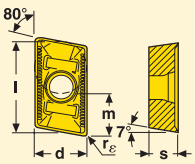
Size	Dimensions in inch	
	W	l
09	0.217	0.366
12	0.256	0.461
14	0.295	0.551
17	0.295	0.669

XNHQ

Part No.	r_ε	Cutting rake	Grades (EDP No.)			
			Coated			Uncoated
			MP2500	MK2050	F40M	H25
XNHQ 090504TN4-M08	0.016	16.0 °			04922	
090508EN4-E07	0.031	21.0 °			04892	
090508TN4-M08	0.031	16.0 °	04912	04916	04893	
090512TN4-M08	0.047	16.0 °			04894	
090516TN4-M08	0.063	16.0 °	04913		04896	
090520TN4-M08	0.079	16.0 °			04898	
090524TN4-M08	0.094	16.0 °			04899	
090531TN4-M08	0.122	16.0 °			04900	
090540TN4-M08	0.157	16.0 °			04901	
XNHQ 120608EN4-E09	0.031	21.0 °			04904	
120608TN4-M10	0.031	16.0 °	04914	04919	04902	
120612TN4-M10	0.047	16.0 °			04905	
120616TN4-M10	0.063	16.0 °	04915		04906	
120620TN4-M10	0.079	16.0 °			04907	
120624TN4-M10	0.094	16.0 °			04908	
120631TN4-M10	0.122	16.0 °			04909	
120640TN4-M10	0.157	16.0 °			04910	
120650TN4-M10	0.197	16.0 °			04911	
XNHQ 140708EN4-E10	0.031	22 °			75691	75685
140708TN4-M11	0.031	16 °	10041	15453	10040	
140716TN4-M11	0.063	16 °	75578		10050	
140720TN4-M11	0.079	16 °			10051	
140724TN4-M11	0.094	16 °			10054	
140731TN4-M11	0.122	16 °	01883		10056	
140740TN4-M11	0.157	16 °			10059	
140750TN4-M11	0.197	16 °			75612	
140760TN4-M11	0.236	16 °			71612	
XNHQ 170708EN4-E12	0.031	16 °			82216	
170708TN4-M13	0.031	16 °	81103	15456	81102	
170716TN4-M13	0.063	16 °	82207		82206	
170720TN4-M13	0.079	16 °			82208	
170724TN4-M13	0.094	16 °			82209	
170731TN4-M13	0.122	16 °			82211	
170740TN4-M13	0.157	16 °			82212	
170750TN4-M13	0.197	16 °			82213	
170760TN4-M13	0.236	16 °			82214	

Please check availability in current price and stock-list.

XCKX

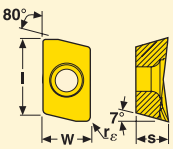


Size	Dimensions in inch		
	l	d	s
XCKX13	0.530	0.312	0.198

ME10

Part No.	r_ε	Cutting rake	Grades (EDP No.) Coated T25M	T350M	F40M
XCKX 13T304R-ME10	0.016	14 °	28698	23996	
13T308R-ME10	0.031	14 °	37215	23998	79756
13T316R-ME10	0.063	12 °			23999

XO..06

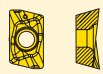


B = Wiper flat width

Size	Dimensions in inch		
	W	l	s
XOEX06	0.160	0.228	0.096
XOMX06	0.160	0.228	0.096

E03

M05

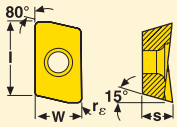


Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP3000	MM4500	MS2050	F15M	F30M	F40M	Uncoated H15	Cermet MP1020
XOEX 060202FR-E03	0.008	0.043	29 °							13862	
060204FR-E03	0.016	0.035	29 °						28603	13863	10019
XOMX 060202R-M05	0.008	0.043	20 °	44604				03769	26497		
060204R-M05	0.016	0.035	20 °	44606	77308	52991		03771	35416		10012
060208R-M05	0.031*	0.020	20 °	44608	65164	52992	31809	03795	35449		10013
060216R-M05	0.063*	0.024	20 °	44609	77302	52993		03796	35451		

Please check availability in current price and stock-list.

* When using inserts with corner radii > 0.031" the cutter body must be modified.

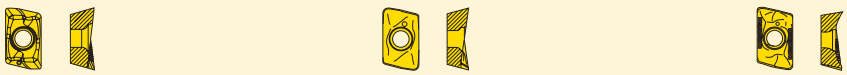
XO..10



B = Wiper flat width

Size	Dimensions in inch W	l	s
XOEX10	0.270	0.374	0.150
XOMX10	0.270	0.374	0.151

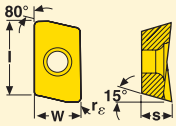
E05/M06 M09 ME07



Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	MS2500	T350M	F40M	Uncoated H15	Cermet MP1020
XOEX 10T304FR-E05	0.016	0.051	21 °										17183	17211	
10T308FR-E05	0.031	0.051	21 °										17212	17214	
10T312FR-E05	0.047	0.051	21 °										17328	17329	
10T316FR-E05	0.063	0.039	21 °										17331	17335	
10T320FR-E05	0.079	0.024	21 °										17343	84983	
XOEX 10T304R-M06	0.016	0.051	15 °		17230					90178	17239	17219	17218		17246
10T308R-M06	0.031	0.051	15 °		17275		17278			90179	17282	17271	17249		17283
10T312R-M06	0.047	0.051	15 °							90180	17307	17289	17285		
10T316R-M06	0.063	0.039	15 °							90181	17319	17316	17314		
10T320R-M06	0.079	0.024	15 °							90182	17419	17417	17415		
10T324R-M06	0.094	0.008	15 °							14200	17361	17360	17359		
10T331R-M06	0.122	0.016	15 °							90183	17430	17427	08769		
XOMX 10T304TR-M09	0.016	0.051	15 °	71747	67869	70135	67873	67867	78552		67870	67871	67872		10022
10T308TR-M09	0.031	0.051	15 °	71748	67876	70136	67880	67874	78548		67877	67878	67879		10023
10T312TR-M09	0.047	0.051	10.0 °				17426		79072			17423	17420		
10T316TR-M09	0.063	0.039	10.0 °				17413					17411	17403		
10T320TR-M09	0.079	0.024	10.0 °				17388					17384	17380		
10T324TR-M09	0.094	0.008	10.0 °									17442	17439		
10T331TR-M09	0.122	0.016	10.0 °									17358	17356		
XOMX 10T304TR-ME07	0.016	0.051	22 °	67851	67852	67853	67857	67849			67854	67855	67856		
10T308TR-ME07	0.031	0.051	22 °	67860	67861	67862	67866	67858			67863	67864	67865		
10T312TR-ME07	0.047	0.051	20.0 °		17325	81650	17326					17324	17321		
10T316TR-ME07	0.063	0.039	20.0 °		17397	81651	17398					17391	17389		
10T320TR-ME07	0.079	0.024	20.0 °		17369	81652	17375					17366	17362		
10T324TR-ME07	0.094	0.008	20.0 °		17438							17434	17433		
10T331TR-ME07	0.122	0.016	20.0 °		17355							17354	17348		

Please check availability in current price and stock-list.

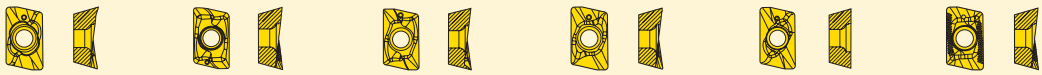
XO..12



B = Wiper flat width

Size	Dimensions in inch W	l	s
XOEX12..	0.322	0.472	0.198
XOEX120450R-M07	0.324	0.472	0.198
XOEX120463R-M07	0.324	0.472	0.198
XOEX12..ZZR	0.322	0.472	0.198
XOMX12..	0.322	0.472	0.199

D14 E06 M07 M12 MD13 ME08

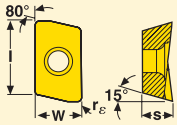


Part No.	rε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	MS2500	T25M	T350M	F15M	F30M	F40M	Uncoated H15	Cermet MP1020
XOEX 120402R-M07	.008	.079	20 °													27187		
120404R-M07	.016	.079	20 °		31708					90184					27188	27189		10020
120408R-M07	.031	.063	20 °		31709	44622	65186			90185	43292		03976		06003	35445		10010
120416R-M07	.063	.047	20 °			44626	65190			14202						27190		
120424R-M07	.094*	.024	20 °							14203					35410	35411		
120431R-M07	.122*	–	20 °				65194			90186	43291		25396			98804		
120440R-M07	.157*	–	20 °							90187						35412		
120450R-M07	.197*	–	20 °							14204						64871		
120463R-M07	.248*	–	20 °							90188						64874		
120408ZZR-M07**	.031	.260	20 °			44624									42929	77980		10011
XOEX 120404FR-E06	.016	.079	27 °											05970		13481	04254	
120408FR-E06	.031	.063	27 °											05980		05981	04255	
120416FR-E06	.063	.047	27 °											05982		05983		
120420FR-E06	.079	.024	27 °											05985		05990		
120424FR-E06	.094*	.024	24.0 °													08802		
120431FR-E06	.122*	–	27 °													27185		
XOMX120404TR-ME08	.016	.079	21 °		31720			31619		90189			03974			05963		10014
120408TR-ME08	.031	.063	20 °		31723		65209	31623	78318	90192		97615	03975			05973		10016
120412TR-ME08	.047	.047	20 °		31724					14205			17014			54991		
120416TR-ME08	.063	.047	20 °		31725		65210						17017			05994		
120420TR-ME08	.079	.039	20 °		31726					90193			17022			54996		
120424TR-ME08	.094*	.031	20 °		31727								17023			05964		
120431TR-ME08	.122*	.024	20 °		31728		65212			90194			17024			06000		
120440TR-ME08	.157*	.031	20 °		31729					90195			17032			06002		
XOMX120408TR-M12	.031	.063	10 °	35279	31722	44689		31621	78331				17012			05979		10015
120416TR-M12	.063	.047	10 °			44630							17013			05998		
120431TR-M12	.122*	.024	10 °			75386							75385			75384		
XOMX120404TR-MD13	.016	.079	14 °	36008				32627								25385		
120408TR-MD13	.031	.063	14 °	35195	45249	44629		31622	78321				25377			25387		
120412TR-MD13	.047	.047	14 °	36009		44646		32628								25388		
120416TR-MD13	.063	.047	14 °	36010		44648		32626								25389		
XOMX120408TR-D14	.031	.063	1 °	35278	31721	44628		31620							52282			
120431TR-D14	.122*	.024	1 °			44632									52322			

Please check availability in current price and stock-list.

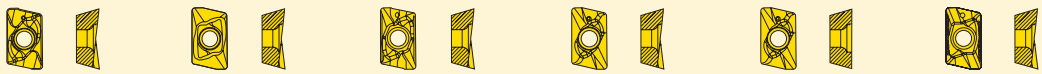
* When using inserts with corner radii > 0.094" the cutter body must be modified.
** Inserts with one cutting edge only.

XO..18



B = Wiper flat width

Size	Dimensions in inch W	l	s
XOEX18..	0.441	0.650	0.250
XOEX18..ZZ	0.441	0.650	0.252
XOMX18..	0.441	0.650	0.253

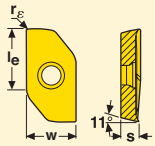


Part No.	r_ε	B	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MM4500	MK1500	MK2050	MS2050	T350M	F30M	F40M	Uncoated H25	Cermet MP1020
XOEX 180604FR-E10	.016	.094	29 °										03810	03811	
180608FR-E10	.031	.094	29 °										03812	03814	
180616FR-E10	.063	.091	29 °											03816	
180620FR-E10	.079	.087	29 °											03817	
180631FR-E10	.122	.087	29 °											03819	
XOEX 180608ZZR-M10	.031	.354	17 °										01485		
180616ZZR-M10	.063	.354	17 °										16858		
XOMX 180604TR-ME13	.016	.094	25 °		31730								03634		
180608TR-ME13	.031	.094	25 °		31734		65220	31627			03843		03841		
180616TR-ME13	.063	.091	25 °		31737		65223								
180620TR-ME13	.079	.087	25 °		31739								03849		
180631TR-ME13	.122	.087	25 °		31743		65224						03857		
180640TR-ME13	.157*	.031	25 °		31744										
XOMX 180604R-M10	.016	.094	22 °							90196			03823		
180608R-M10	.031	.094	20 °		31731		65213			90197	03829	03825	03826		10017
180616R-M10	.063	.091	22 °				65218			90198	17069		03846		
180620R-M10	.079	.087	22 °							90199	17071		03848		
180624R-M10	.094	.087	22 °							90200			03851		
180631R-M10	.122	.087	22 °				65219			90201	22337		03854		
180640R-M10	.157*	.031	22 °							90202	17073		03859		
180650R-M10	.197*	.012	22 °							14206	17074		03862		
180663R-M10	.248*	.012	22 °							90203	17077		03863		
XOMX 180608TR-M14	.031	.094	15 °	35281	31733	44658		31625	78317		03838	03834	03835		10018
180612TR-M14	.047	.094	15 °	35283	31735	44659		31628	78315		21558		21556		
180616TR-M14	.063	.091	15 °		31736	44660		31630			16896		01852		
180620TR-M14	.079	.087	15 °		31738						16906		01853		
180624TR-M14	.094	.087	15 °		31740						16907		01854		
180631TR-M14	.122	.087	15 °		31742	44663					16910		03855		
XOMX 180608TR-MD15	.031	.094	15 °	35282	45250	44652		31626	78316		21802	22991	21803		
180612TR-MD15	.047	.094	15 °	36015		44654		31629	78312		22153		22154		
180616TR-MD15	.047	.091	15 °			44655		31631			22156		22157		
XOMX 180608TR-D16	.031	.094	11 °	35280	31732			31624			03833	03830			
180631TR-D16	.122	.087	11 °	35284		44657									

Please check availability in current price and stock-list.

* When using inserts with corner radii > 0.157" the cutter body must be modified.

XPKX



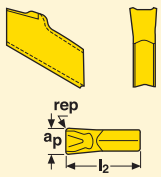
Size	Dimensions in inch		
	W	l_e	s
12T3	0.394	0.476	0.156

E08

Part No.	r_ε	Cutting rake	Grades (EDP No.)
			Uncoated
			H25
XPKX 12T304PDER-E08	0.016	23.1 °	18694
12T308PDER-E08	0.031	23 °	44841
12T320PDER-E08	0.079	25 °	18706
12T324PDER-E08	0.094	25 °	18707
12T331PDER-E08	0.122	25 °	18708
12T340PDER-E08	0.165	25 °	18709

Please check availability in current price and stock-list.

150.10



Size	Dimensions in inch	
	l_2	a_p
2.0	0.354	0.089
2.5	0.354	0.098
3	0.354	0.122
4	0.354	0.161

150.10-12 

150.10-14 

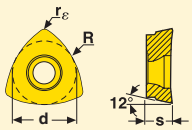
150.10-16 

Part No.	rep	Cutting rake	Grades (EDP No.)							
			Coated							Uncoated
			MP1500	T25M	T350M	CP500	CP600	TGP35	TGP45	HX
150.10 -2.5N-12	0.007	24 °		01967	18157	65083	06809	57890	42434	
-3N-12	0.007	24 °	62110	01398	16957	65071	48838	57886	42482	
150.10 -4N-12	0.009	24 °		05308	18160	65113	48839	57889	42533	
150.10 -2.25N-14	0.006	15 °			18177	65082	04334		42426	55448
150.10 -2.5N-14	0.007	15 °		01968	18166	65077	48841		42439	55449
-3N-14	0.007	15 °		01216	16960	65111	48846	57893	42515	55450
150.10 -4N-14	0.009	15 °		05310	16967	65073	48847	57891	42546	55451
150.10 -2.25N-16	0.006	20 °		00845	16953	65074	00850		42433	00849
150.10 -2.5N-16	0.007	20 °		16539	16955	65076	48853		42459	42922
-3N-16	0.007	20 °	62185	16599	16964	65070	48854	57565	42517	16514
150.10 -4N-16	0.009	20 °		16601	16968	65072	48855	57806	42560	16515

Please check availability in current price and stock-list.

Tolerance (inch):
a_p .089: +/-0.002
a_p 0.098 -0.122 - 0.161: +/-0.003

218.19



Size	Dimensions in inch d	s
080	0.217	0.094
100	0.278	0.109
125	0.350	0.156
160	0.440	0.187
200	0.500	0.217
250	0.651	0.250

E04-E07

M04-M11

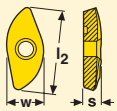
MD04-MD11

ME07-ME12

Part No.	R	r_ε	Cutting rake	Grades (EDP No.) Coated MP1500	MP2500	MP3000	MH1000	MM4500	MK2050	MS2050	MS2500	T25M	T350M	F15M	F25M	F30M	F40M	Uncoated H25
218.19 -100-E06	.394	.031	20 °															16290
-125-T3-E06	.492	.031	20 °															16292
-160-04-E07	.630	.047	20 °															16294
218.19 -125T-T3-ME07	.492	.031	20 °														23602	
-160T-04-ME08	.630	.047	20 °														23905	
-200T-05-ME10	.787	.024	20 °														23906	
-250T-06-ME12	.984	.047	20 °									69559						
218.19 -080T-M04	.315	.016	7 °		35119								16969			79708	23598	
-100T-M06	.394	.031	7 °		31635	44570		65273		90224	43151		16971		79713	79714	23601	
-125T-T3-M07	.492	.031	10 °		31636	44571		65274		90225	43150	69526	16972		79719	79720	69524	
-160T-04-M08	.630	.047	10 °		31637	44574		65275		90226	43149	69544	17688		79736	79737	23605	
-160T-04-M11	.630	.047	15 °	18248	81950						81952							
-200T-05-M10	.787	.024	10 °												79722		23607	
218.19 -080T-MD04	.315	.016	0 °		35120						43153			39909	79709			
-100T-MD08	.394	.031	0 °	35208	35115		29619		09425		43152			16269	12507			
-125T-T3-MD08	.492	.031	0 °			44572										79718		
-125T-T3-MD10	.492	.031	0 °	35211	35116		30651		09420		43156		23837	16282	16897			
-160T-04-MD09	.630	.047	0 °			44575										79739		
-160T-04-MD11	.630	.047	0 °	35215	35117		65262		84397		43148		24178	16285	16898			

Please check availability in current price and stock-list.

218.20



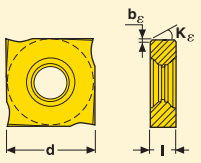
Size	Dimensions in inch W	l_2	s
0.250	0.215	0.489	0.099
0.375	0.322	0.733	0.152
0.750	0.595	1.435	0.300
060	0.203	0.462	0.093
080	0.271	0.616	0.126
100	0.338	0.770	0.159
125	0.423	0.964	0.199
150	0.469	1.130	0.236
160	0.500	1.205	0.252
200	0.625	1.506	0.317
250	0.781	1.883	0.400

M

Part No.	Grades (EDP No.) Coated MM4500	MS2050	T350M	F25M	F40M
218.20 -0.250ER-M03					45309
-0.250ER-ME03		36716			45308
-0.375ER-M05	65251			07523	07522
-0.375ER-ME05		36665			07521
-0.750ER-M10	65252				
-0.750ER-ME10	65253	36695			07525
218.20 -060ER-M03				25616	25617
-060ER-ME03					25618
218.20 -080ER-M04	65254			07253	07254
-080ER-ME04		36448	21854		07256
218.20 -100ER-M05	65263			07491	07490
-100ER-ME05	65264	14216			07489
218.20 -125ER-M07	65265			30452	30451
-125ER-ME07	65266	14217			30448
218.20 -150ER-M08	65267				07497
-150ER-ME07		36494			07496
218.20 -160ER-M08	65268			27649	30464
-160ER-ME08	65269	14218			30462
218.20 -200ER-M10					07502
-200ER-ME10	65270	14219			07501
218.20 -250ER-ME12	65272	36586			07506
-250TR-M14					07507

Please check availability in current price and stock-list.

335.19



Size	Dimensions in inch d	l
1102	0.433	0.091
1103	0.433	0.106
1203	0.500	0.126
1204	0.500	0.157
12045	0.500	0.177
1205	0.500	0.213
1207	0.500	0.276

M08/MD09

Part No.	b_ε	K_ε	Cutting rake	Grades (EDP No.) Coated MP2500	T25M	F40M
335.19 -1102-M08	0.004	1.772	15 °			83746
-1103-M08	0.004	1.772	15 °			83407
-1203-M08	0.006	1.772	15 °			83409
-1204-M08	0.006	1.772	15 °			83747
-12045-M08	0.006	1.772	15 °			83748
-1205-M08	0.006	1.772	15 °			81499
-1207-M08	0.006	1.772	15 °			83749
335.19 -1203T-MD09	0.004	0.787	15 °		16053	52176
-12045T-MD09	0.004	0.787	15 °		16936	52178
-1204T-MD09	0.004	0.787	15 °		18893	52179
-1205T-MD09	0.004	0.787	15 °	36201	16055	52182
-1207T-MD09	0.004	0.787	15 °		16937	52180

Please check availability in current price and stock-list.

R235.15

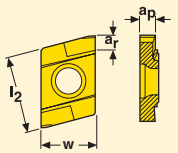
Size	Dimensions in inch	
	l	s
R235.15-032..	1.586	0.197
R235.15-050..	2.025	0.197
R235.15-080..	2.161	0.197

E05

Part No.	Cutting rake	Grades (EDP No.)	
		Coated	Uncoated
		F30M	HX
R235.15 -032-E05	22 °	12970	
-050-E05	22 °	12973	
-080-E05	22 °	12975	30426

Please check availability in current price and stock-list.

R335.15-13



Size	Dimensions in inch			
	a_p	a_r	l_2	W
13110	0.044	0.071	0.531	0.354
13130	0.052	0.079	0.531	0.354
13160	0.064	0.102	0.531	0.354
13185	0.074	0.102	0.531	0.354
13215	0.086	0.124	0.531	0.354
13265	0.106	0.124	0.531	0.354

E08

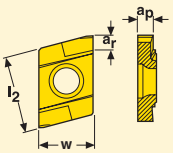
M10

Part No.	Cutting rake	Grades (EDP No.)
		Coated
		F40M
R335.15 -13110FG-E08	15 °	12940
-13130FG-E08	15 °	12941
-13160FG-E08	15 °	12943
-13185FG-E08	15 °	12946
-13215FG-E08	15 °	12950
-13265FG-E08	15 °	12954
R335.15 -13215FG-M10	0 °	12952
-13265FG-M10	0 °	12955

Please check availability in current price and stock-list.

Tolerance(inch): a_p: +0/+0.002 - a_r: +0/+0.006

R335.15-18



Size	Dimensions in inch			
	a_p	a_r	l_2	W
18315	0.126	0.150	0.709	0.354
18350	0.140	0.161	0.709	0.354
18400	0.159	0.189	0.709	0.354
18415	0.165	0.189	0.709	0.354
18500	0.199	0.217	0.709	0.354
18515	0.205	0.217	0.709	0.354

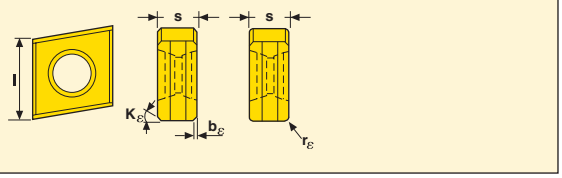
M12

Part No.	Cutting rake	Grades (EDP No.)
		Coated
		F40M
R335.15 -18315FG-M12	0 °	12956
-18350FG-M12	0 °	12960
-18400FG-M12	0 °	12963
-18415FG-M12	0 °	12964
-18500FG-M12	0 °	12966
-18515FG-M12	0 °	12967

Please check availability in current price and stock-list.

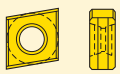
Tolerance(inch): a_p: +0/+0.002 - a_r: +0/+0.006

335.18



Size	Dimensions in inch	
	l	s
10	0.394	0.213
13	0.500	0.213
16	0.630	0.252

E/M



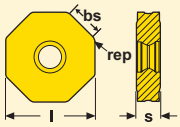
MD/D

Part No.	r_ε	b_ε	K_ε	Cutting rake	Grades (EDP No.)							
					Coated							Uncoated
					MP1500	MP2500	MK1500	MK2050	T25M	T350M	F40M	HX
335.18 -1005-E07	–	0.020	1.772	20 °								16437
-1305-E08	–	0.020	1.772	20 °								48548
-1606-E09	–	0.020	1.772	20 °								16443
335.18 -1005T-M10	–	0.020	1.772	10 °	35217	31638	31355	79021	48536		68058	16962
-1305T-M11	–	0.020	1.772	10 °	35219	31639	31356	79020	16406		68059	
-1606T-D13	–	0.020	1.772	0 °							58913	
-1606T-M12	–	0.020	1.772	10 °	35220	31640					68060	
335.18 -100508-M10	0.031	–	–	10 °						00102		
-130508-M11	0.031	–	–	10 °						00103		
-160608-M12	0.031	–	–	10 °						00104		
335.18 -1005ZZ-MD10	–	0.020	1.772	10 °								18049
335.18 -1005TL2-R23-M10	0.091"	–	–	10 °							86157	
-1005TL2-R32-M10	–	–	–	10 °							86160	
-1005TN4-R08-M10	0.031	–	–	150 °							05497	
-1005TN4-R16-M10	0.063	–	–	10 °							33103	
335.18 -1305TL1-R48-M11	0.189*	–	–	10 °							86171	
-1305TL2-R32-M11	0.126*	–	–	10 °							86169	
-1305TN4-R04-M11	0.016	–	–	10 °							05584	
-1305TN4-R08-M11	0.031	–	–	10 °							86162	
-1305TN4-R16-M11	0.063	–	–	10 °							86163	
-1305TR1-R48-M11	0.189*	–	–	10 °							86170	
-1305TR2-R32-M11	0.126*	–	–	10 °							86166	
335.18 -1606TL1-R60-M12	0.236*	–	–	10 °							86182	
-1606TL2-R48-M12	0.189*	–	–	10 °							86180	
-1606TN4-R08-M12	0.031	–	–	10 °							01389	
-1606TN4-R16-M12	0.063	–	–	10 °							86175	
-1606TR1-R60-M12	0.236*	–	–	10 °							86181	
-1606TR2-R32-M12	0.126*	–	–	10 °							86177	
-1606TR2-R48-M12	0.189*	–	–	10 °							86179	

Please check availability in current price and stock-list.

* When using inserts with corner radii > 0.091" the cutter body must be modified.

ONEW

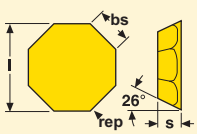


Size	Dimensions in inch		
	l	s	bs
05	0.472	0.174	0.012
05ZZ	0.469	0.174	0.128

LF

Part No.	rep	Cutting rake	Grades (EDP No.)						
			CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
ONEW 050410ANSN-02020-LF	0.039	0 °			92530				
050410ZZSR4-02020LF	0.039	0 °			92531				

OFEN



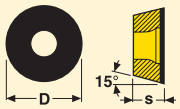
Size	Dimensions in inch		
	l	s	bs
07	0.707	0.187	0.063

MD16-LF

Part No.	rep	Cutting rake	Grades (EDP No.)						
			CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
OFEN 070405TN-MD16-LF	0.020	0 °			32532				

Please check availability in current price and stock-list.

RDHW

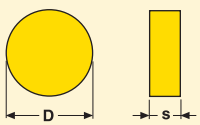


Size	Dimensions in inch	
	D	s
08	0.315	0.125
10	0.394	0.156

LF

Part No.	Cutting rake	Grades (EDP No.)						
		CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
RDHW 0803M0S-01030-LF	0 °			34534				
10T3M0S-01030-LF	0 °			34536				

RNGN-LF



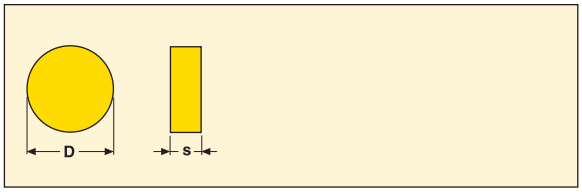
Size	Dimensions in inch	
	D	s
06	0.250	0.125
09	0.375	0.125
12	0.500	0.187

RNGN-LF

Part No.	Cutting rake	Grades (EDP No.)						
		CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
RNGN 060300S-02020-LF	0 °			06606				
060300S-01525-LF	0 °	21110	33347					
090300S-01525-LF	0 °	55122	33348					
090300S-02020-LF	0 °			06607				
120400S-02020-LF	0 °			12646				

Please check availability in current price and stock-list.

RN.N

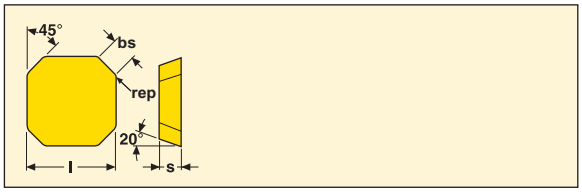


Size	Dimensions in inch D	s
06	0.250	0.125
09	0.375	0.125

RNGN/RNMN

Part No.	Cutting rake	Grades (EDP No.) CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
RNGN 060300S	0 °			32539				
090300S	0 °			32541				
RNMN 060300S	0 °				97851	14856		
090300E	0 °				97852		29353	
090300S	0 °				97853	14858		
090300S-02020	0 °						29373	68763

SE..1203



Size	Dimensions in inch l	s	bs
SEEN12	0.500	0.125	0.059
SEEX12	0.500	0.125	0.063

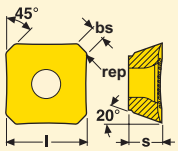
D16

MD13

Part No.	rep	Cutting rake	Grades (EDP No.) CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
SEEN 1203AFTN-D16	0.039	0 °				00905			
SEEX 1203AETN-MD13-LF	0.039	0 °			34532				

Please check availability in current price and stock-list.

SE..09/1204



Size	Dimensions in inch		
	l	s	bs
09	0.375	0.156	0.049
12	0.500	0.187	0.063
12ZZ	0.500	0.187	0.296

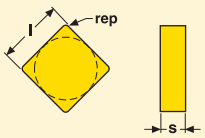
AFTN

ZZTN

Part No.	rep	Cutting rake	Grades (EDP No.)						
			CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
SEEX 09T3AFTN-D09-LF	0.020	0 °			20139				
1204AFTN-D16-LF	0.043	0 °			20142				
1204ZZTN-D16-LF	0.039	0 °			20144				

Please check availability in current price and stock-list.

SN..06/09/SNEX12



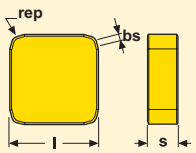
Size	Dimensions in inch	
	l	s
06	0.250	0.125
09	0.375	0.125
12ZZ	0.500	0.125

SNMN/SNGN/SNEX

Part No.	rep	Cutting rake	Grades (EDP No.)						
			CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
SNMN 060308E	0.031	0 °						29364	
060308S	0.031	0 °				97859			
090308E	0.031	0 °				97860			
090308S	0.031	0 °				97861	14867		
090312E	0.047	0 °				97862			
090312S	0.047	0 °				97863	14869		
090316S	0.063	0 °				97864			
SNGN 090308E	0.031	0 °			32546				
090308S	0.031	0 °			32544				
090312S	0.047	0 °			32547				
090316S	0.063	0 °			32548				
SNEX 120312ZZ	0.047	0 °			32534				

Please check availability in current price and stock-list.

SNEN

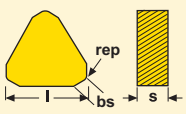


Size	Dimensions in inch l	s	bs
09	0.375	0.125	0.035

M06/M08

Part No.	rep	Cutting rake	Grades (EDP No.) CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
SNEN 0903ENE-M06	0.031	0 °			32531				
0903ENS-M08	0.031	0 °			32533				

TNGN



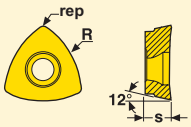
Size	Dimensions in inch l	s	bs
11	0.433	0.125	0.039
16	0.650	0.187	0.075
16..PRS	0.650	0.187	0.051

TNGN

Part No.	rep	Cutting rake	Grades (EDP No.) CBN150	CBN160C	CBN200	CBN300	CBN300P	CBN400C	CBN500
TNGN 1103PNE	0.031	0 °			32549				
1103PNS	0.031	0 °			32550				
1103PRS	0.047	0 °			32551				
1604PNE	0.031	0 °			32536				
1604PNS	0.031	0 °			32537				
1604PRS	0.047	0 °			32538				

Please check availability in current price and stock-list.

218.19



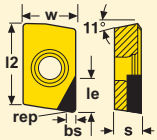
Size	Dimensions in inch d	s
100	0.276	0.111

MD08

Part No.	R	rep	Cutting rake	Grades (EDP No.) CBN150	CBN200	CBN300	CBN300P	CBN400C	CBN500
218.19 -100T-MD08-LF	0.394	0.031	0 °		30102				

Please check availability in current price and stock-list.

APHT

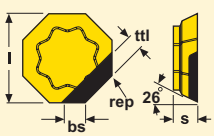


Size	Dimensions in inch				
	W	l_2	s	bs	l_e
16	0.373	0.665	0.191	0.097	0.220

M08

Part No.	rep	Cutting rake	Grades (EDP No.)			
			PCD20	PCD05	PCD30	PCD30M
APHT 160408FR-M08	0.031	15 °	92121			

OFEN



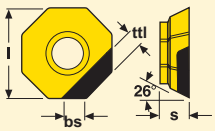
Size	Dimensions in inch			
	l	s	bs	ttl
07	0.707	0.187	0.276	0.138

M09

Part No.	rep	Cutting rake	Grades (EDP No.)			
			PCD20	PCD05	PCD30	PCD30M
OFEN 070405FN-M09	0.020	0 °	92119			

Please check availability in current price and stock-list.

OFEX

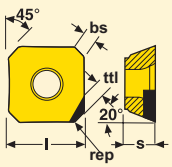


Size	Dimensions in inch			
	l	s	bs	ttl
05	0.504	0.156	0.193	0.098

M05

Part No.	rep	Cutting rake	Grades (EDP No.)			
			PCD20	PCD05	PCD30	PCD30M
OFEX 05T305FN-M05	0.020	0 °	92120			

SEEX



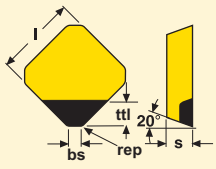
Size	Dimensions in inch			
	l	s	bs	ttl
09	0.375	0.156	0.059	0.118

L1

Part No.	rep	Cutting rake	Grades (EDP No.)			
			PCD20	PCD05	PCD30	PCD30M
SEEX 09T3AFFN-L1	0.016	12 °	32513	32742		

Please check availability in current price and stock-list.

SEHN

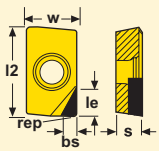


Size	Dimensions in inch			
	l	s	bs	ttl
12	0.500	0.125	0.063	0.157

E08

Part No.	rep	Cutting rake	Grades (EDP No.)			
			PCD20	PCD05	PCD30	PCD30M
SEHN 1203AFFN-E08	0.039	0 °	04337			

XCHX



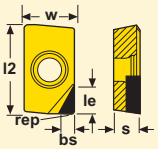
Size	Dimensions in inch				
	W	l_2	s	bs	l_e
13	0.314	0.537	0.174	0.047	0.220

M06

Part No.	rep	Cutting rake	Grades (EDP No.)			
			PCD20	PCD05	PCD30	PCD30M
XCHX 13T304FR-M06	0.014	15 °	92122			

Please check availability in current price and stock-list.

XOEX



Size	Dimensions in inch W	l_2	s	bs	l_e
06	0.161	0.273	0.096	0.059	0.134
10	0.270	0.436	0.148	0.043	0.217
12	0.322	0.546	0.198	0.061	0.220
12-L2	0.322	0.539	0.195	0.094	0.257

FR

Part No.	rep	Cutting rake	Grades (EDP No.) PCD20	PCD05	PCD30	PCD30M
XOEX 060204FR	0.016	8 °		32746		
XOEX 10T304F	0.016	15 °	92246	92244		
XOEX 120404FR	0.016	15 °	29420		29423	
120404FR-L2	0.016	14 °		32744		

Please check availability in current price and stock-list.

Introduction

Polycrystalline Cubic Boron Nitride (PCBN) is a material which is sintered at extremely high pressure and high temperature into a wear-resistant material with properties close to those of diamond. Due to the hot hardness, oxidation resistance and fracture toughness of the material, inserts made of PCBN have excellent edge strength and long tool life when machining hard ferrous materials and pearlitic grey cast iron.

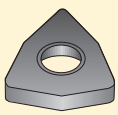
Secomax™ PCBN inserts are suitable for machining:

- Hardened steel (including hard-facing alloys)
- Pearlitic grey cast iron
- Chilled and white cast iron
- Manganese steel
- Cemented carbide
- Powder Metallurgy (PM) alloys

For more information including a comprehensive guide to understanding and applying PCBN successfully, please ask your sales representative for the Secomax PCBN Technical Guide (available in English).

Selection of insert types

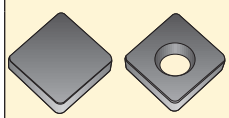
Solid insert



According to the geometry, two sides can be used.

Grades:
CBN200, CBN300, CBN300P, CBN500

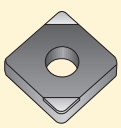
Sintered layer insert -LF



CBN layer sintered on to carbide. One side is usable.

Grades:
CBN150, CBN160C, CBN200

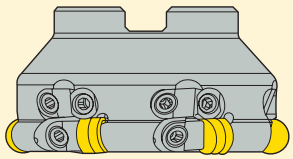
Brazed tip -L1



Brazed tip -L1

Grades:
CBN150, CBN160C, CBN200

Face milling cutter type 220.70-09



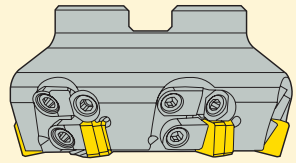
Cutter especially developed for CBN inserts, 2 insert sizes.
Max cutting depth 0.080" for D_c = 0.75"-2.50"
Max cutting depth 0.120" for D_c = 2.50"-8.00"
(D_c = 5.00"-8.00" fitted with wiper insert)

Inserts for finishing	RNMN22E (E = honed) RNMN32E
Inserts for roughing	RNMN22S RNMN32s (S = chamfered and honed)
Wiper insert	SNEX423ZZ

The relation between cutting depth and number of usable cutting edges (per side).

D.O.C a_p (inch)	RNMN 22	RNMN 32	D.O.C a_p (inch)	RNMN 22	RNMN 32
.004	20	24	.048	5	7
.006	16	20	.060	5	6
.008	14	7	.072	4	5
.010	12	17	.080	4	5
.012	11	15	.100	3	4
.016	10	14	.120	3	4
.020	8	12	.140	–	4
.032	7	10	.160	–	3
.040	6	8	.200	–	–

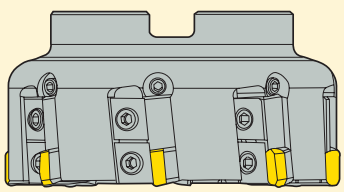
Face milling cutter type 220.74-09



Cutter especially developed for CBN inserts.
Max cutting depth 0.314" for D_c = 2.50" - 8.00"
(D_c = 5.00"-8.00" fitted with wiper insert)

Inserts for finishing	SNEN32ENE-M06 SNEN32E (E = honed)
Inserts for roughing	SNEN32ENS-M08 SNEN32S (S = chamfered and honed)
Wiper insert	SNEX423ZZ

Square shoulder and slot milling cutter type R220.68-T11/T16



Cutter especially developed for CBN inserts.
D_c = 2.50" - 6.00"

Insert with corner chamfer for finishing operations	TNGN22PNE TNGN32PNE
Insert with corner chamfer for roughing operations	TNGN22PNS TNGN32PNS
Insert with corner radius for roughing operations	TNGN22PRS TNGN32PRS

Inserts for standard milling cutters

For roughing
SEEX09T3AFTN-D09-LF
SEEX1204AFTN-D16-LF
R220.53
Face milling cutter

Wiper insert for high quality surface finish
SEEX1204ZZTN-D16-LF

For roughing
OFEN070405-MD16-LF
R220.43
Face milling cutter

For roughing
ONEW05
Octomill R217/220.48
Face milling cutter

For roughing
SEEN1203AFTN-D16
R220.13
Face milling cutter

For finishing
SEEX1203AETN-MD13-LF
R220.30
Face milling cutter

Cutting data

- Cutting speed recommendations are in the cutting data table.
- Feed rate recommendations are in the cutting data table.
- Formulae for cutting data calculation are on page 635.

SMG	Properties	Reference	Recommendations
K1	Grey cast irons (GCI)	EN-GJL-250	First choice for finish- and rough machining: CBN200. Adjust the depth of cut to get under casting skin and blow holes.
K2	Compacted graphite irons (CGI)	EN-GJV-400	First choice for finish machining: CBN160C. First choice for rough machining: CBN200. Adjust the depth of cut to get under casting skin and blow holes.

SMG	Properties	Reference	Recommendations
H3	Case hardened steels	16 MnCr 5 60 HRC	First choice for finish machining: CBN200
H5	Quenched & Tempered steels	42 CrMo 4 50 HRC	First choice for finish machining: CBN200

SMG	Properties	Reference	Recommendations
H7	Quenched & Tempered steels Bearing steels	100 Cr 6 60 HRC	First choice for finish- and rough machining: CBN200.
H8	Tool steels High Speed Steels	X 40 CrMoV 5 1 50 HRC	First choice for finish machining: CBN160C. First choice for rough machining: CBN200. Milling in high speed steels cannot be done
H11	Martensitic stainless steels	X 20 Cr 13 45 HRC	First choice for finish- and rough machining: CBN200.
H21	Manganese steels	X 120 Mn 12 50 HRC	First choice for finish- and rough machining: CBN200.
H31	White cast irons	EN-GJN-HV600(XCr11) 55 HRC	First choice for finish- and rough machining: CBN200.

SMG	Properties	Reference	Recommendations
PM1	Low alloy PM materials	F-0008 Fe-0.7C	PCBN tools can be used on PM parts as soft as 25 HRC. The critical parameter is particle hardness, when the particle hardness exceeds 50 HRC, PCBN is useful, no matter what the bulk hardness is. First choice for finish- and rough machining: CBN200.
PM2	Medium alloy PM materials	FLC-4608	PCBN tools can be used on PM parts as soft as 25 HRC. The critical parameter is particle hardness, when the particle hardness exceeds 50 HRC, PCBN is useful, no matter what the bulk hardness is. First choice for finish- and rough machining: CBN200.

SMG	Properties	Reference	Recommendations
HF1	Hard facing alloys Welded or plasma deposited iron based alloys		Co-based alloys – Hardness >35 HRC. Ni-based alloys – Hardness >35 HRC. Fe-based alloys – Hardness >35 HRC. First choice for finish machining: CBN160C. First choice for rough machining: CBN200. Milling in Cr-based alloys cannot be done
HF2	Hard facing alloys Welded or plasma deposited cubalt and nickel based alloys		Co-based alloys – Hardness >35 HRC. Ni-based alloys – Hardness >35 HRC. Fe-based alloys – Hardness >35 HRC. First choice for finish machining: CBN160C. First choice for rough machining: CBN200. Milling in Cr-based alloys cannot be done

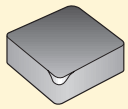
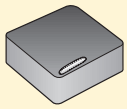
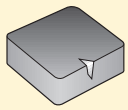
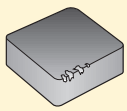
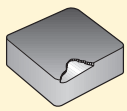
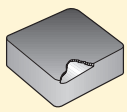
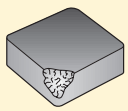
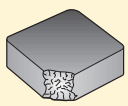
PCBN, Roughing a_p 0.020 - 0.120 inch

SMG	CBN200		CBN300		CBN500	
	v_c	f_z	v_c	f_z	v_c	f_z
K1	2300 — 5575	0.0080 — 0.030	2300 — 5900	0.0070 — 0.028	—	—
K2	660 — 1300	0.0032 — 0.014	—	—	—	—
H7	330 — 980	0.0020 — 0.0080	—	—	—	—
H8	395 — 1300	0.0020 — 0.010	—	—	—	—
H11	395 — 620	0.0020 — 0.012	—	—	—	—
H21	395 — 720	0.0060 — 0.012	—	—	425 — 750	0.0060 — 0.012
H31	395 — 720	0.0065 — 0.013	—	—	330 — 890	0.0065 — 0.012
PM1	590 — 920	0.0028 — 0.010	—	—	—	—
PM2	490 — 820	0.0028 — 0.010	—	—	—	—
HF1	490 — 790	0.0040 — 0.010	—	—	490 — 820	0.0032 — 0.0080
HF2	395 — 980	0.0040 — 0.010	—	—	395 — 980	0.0032 — 0.0080

PCBN, Finishing a_p < 0.020 inch

SMG	CBN150		CBN160C		CBN200		CBN300		CBN500	
	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z
K1	—	—	—	—	2300 — 6225	0.0040 — 0.017	2300 — 6550	0.0040 — 0.016	—	—
K2	660 — 1975	0.0020 — 0.010	660 — 1975	0.0032 — 0.012	—	—	—	—	—	—
H7	—	—	—	—	1375 — 2025	0.0020 — 0.010	—	—	—	—
H8	—	—	—	—	395 — 1300	0.0020 — 0.0080	—	—	—	—
H11	—	—	—	—	330 — 660	0.0020 — 0.0080	—	—	—	—
H21	—	—	—	—	490 — 820	0.0024 — 0.010	—	—	490 — 820	0.0024 — 0.010
H31	—	—	—	—	395 — 720	0.0032 — 0.0080	—	—	425 — 980	0.0032 — 0.0080
PM1	—	—	—	—	820 — 1050	0.0020 — 0.0080	—	—	—	—
PM2	—	—	—	—	750 — 980	0.0020 — 0.0080	—	—	—	—
HF1	115 — 330	0.00080 — 0.0065	560 — 750	0.0020 — 0.0040	—	—	—	—	—	—
HF2	260 — 490	0.00080 — 0.0065	520 — 790	0.00040 — 0.0048	—	—	—	—	—	—

SMG = Seco Material Group
a_p = inch
f_z = in/rev
v_c = sf/min
All cutting data are start values.

Problem	Cause	Suggested action(s)
Flank wear 	Not correct edge temperature	• Increase cutting speed • Increase feed rate • Increase depth of cut • Check cutting tool centre height • Check the ferrite content
Crater wear 	Not correct edge temperature	• Decrease cutting speed • Decrease feed rate • Reduce chamfer angle • Use E edge preparation • Use coated insert • Use coolant (only in continuous cut)
Notch wear 	Not correct edge temperature Too high cutting forces	• Increase cutting speed • Decrease feed rate • Increase insert approach angle (preferably round inserts) • Vary the depth of cut • Use inserts with chamfered cutting edges
Edge chipping 	Too high cutting forces	• Use inserts with chamfered cutting edges • Increase system rigidity • For interrupted cuts, chamfer the tool entry/exit slots and holes • Vary the cutting speed to eliminate vibrations
Edge flaking (continuous cut) 	Too high cutting forces	• Increase cutting speed • Reduce feed rate • Use chamfered and honed cutting edges • Check cutting tool center height • Reduce insert approach angle
Edge flaking (interrupted cut) 	Too high cutting forces	• Do not use coolant • Use chamfered and honed cutting edges • Reduce feed rate • Increase cutting speed • Check cutting tool centre height • Reduce insert approach angle
Edge breakage 	Too high cutting forces	• Reduce depth of cut • Reduce cutting speed • Increase nose radius • Use chamfered and honed inserts • Check cutting tool center height
Insert breakage 	Too high cutting forces	• Check insert seating • Check insert shim and insert clamp • Check cutting tool centre height

Introduction

Polycrystalline Diamond (PCD) is produced by sintering together carefully selected particles of diamond under conditions of high temperature and high pressure. PCD cutting tools combine the hardness, abrasion resistance and thermal conductivity of diamond with the toughness of tungsten carbide.

Secomax PCD inserts are suitable for machining non-ferrous metals and alloys, e.g.:

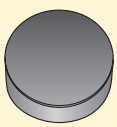
- Aluminum
- Copper
- Brass
- Bronze
- Cemented carbide

It can also be used for other materials, e.g.:

- Composites (MMC, ...)
- Reinforced plastics
- Graphite
- Tungsten carbide
- Ceramics
- Titanium alloys

Selection of insert types

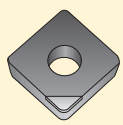
Sintered layer -LF



PCD sintered on carbide.
All cutting edges on one side are usable.

Grades:
PCD20, PCD30M

Brazed tip -L1 and L2



PCD brazed on to standard carbide inserts.

Gradess:
PCD05, PCD20, PCD30

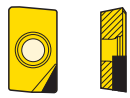
Inserts for standard milling cutters

SEHN12
R220.13
Face milling cutter

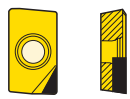
SEHN12
R220.33
Face milling cutter

OFEN07
OFEX05
Face milling cutter

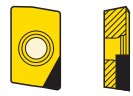
XC..13
R220.69
Square shoulder milling cutter



XOEX06/09/12
217/220.69
Square shoulder milling cutters



AP..16
R220.69
Square shoulder milling cutter



Cutting data

- Cutting speed recommendations are in the cutting data table.
- Feed rate recommendations are in the cutting data table.
- Formulae for cutting data calculation are on page 635.

Note: All PCD milling inserts for these cutters are designed with Wiper flat for surface finish

Cast iron

SMG	Properties	Reference	Recommendations
K2	Compacted graphite irons (CGI)	EN-GJV-400	PCD can be used for finish machining.

Non-ferrous metals

SMG	Properties	Reference	Recommendations
N1	Aluminum alloys, Si < 9%	7075-T6	First choice for finish and rough machining: PCD20.
N2	Aluminum alloys, 9% < Si < 16%	413.2 Si = 12%	First choice for finish and rough machining: PCD20.
N3	Aluminum alloys, Si >16%	AlSi17Cu5	First choice for finish and rough machining: PCD30.
N11	Copper alloys	UNS C38500	First choice for finish and rough machining: PCD20.

Graphites

SMG	Properties	Reference	Recommendations
GR1	Graphite	R 8500	First choice for finish- and rough machining: PCD20.

Plastic and composites

SMG	Properties	Reference	Recommendations
TS1	Thermosetting polymers	Urea formaldehyde (UF)	First choice for finish and rough machining: PCD20.
TS2	Thermosetting Carbon fibre composites	T300 T700 T800 HTA-S IMA - Epoxy (M21)...	First choice for finish and rough machining: PCD20.
TS3	Thermosetting Glass fibre composites	Epoxy - HX..(42..)/E glass (7781...)...	First choice for finish and rough machining: PCD20.
TP1	Thermoplastic polymers	Polycarbonate (PC)	First choice for finish and rough machining: PCD20.
TP2	Thermoplastic Carbon fibre composites	PPS/PEEK - T300..	First choice for finish and rough machining: PCD20.
TP3	Thermoplastic Glass fibre composites	PPS/PEEK - E glass or A glass...	First choice for finish and rough machining: PCD20.

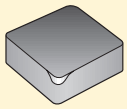
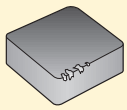
PCD, Roughing a_p 0.020 - 0.120 inch

	PCD05		PCD20		PCD30		PCD30M	
SMG	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z
N1	—	—	1975 — 11475	0.0020 — 0.012	—	—	—	—
N2	—	—	1300 — 8200	0.0020 — 0.0080	—	—	—	—
N3	980 — 3275	0.0020 — 0.0040	—	—	980 — 3275	0.0020 — 0.0040	980 — 3275	0.0020 — 0.0040
N11	—	—	1975 — 3925	0.0040 — 0.020	1300 — 3925	0.0040 — 0.020	1975 — 3925	0.0040 — 0.020
TS1	330 — 4925	0.0040 — 0.016	330 — 4925	0.0040 — 0.016	—	—	—	—
TS2	1300 — 2625	0.0040 — 0.0080	1300 — 2625	0.0040 — 0.0080	—	—	—	—
TS3	330 — 2625	0.0020 — 0.0080	330 — 2625	0.0020 — 0.0080	—	—	—	—
TP1	330 — 4925	0.0040 — 0.016	330 — 4925	0.0040 — 0.016	—	—	—	—
TP2	1300 — 2625	0.0040 — 0.0080	1300 — 2625	0.0040 — 0.0080	—	—	—	—
TP3	330 — 2625	0.0020 — 0.0080	330 — 2625	0.0020 — 0.0080	—	—	—	—
GR1	330 — 4925	0.0040 — 0.0080	330 — 4925	0.0040 — 0.0080	—	—	—	—

PCD, Finishing a_p < 0.020 inch

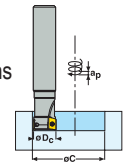
	PCD05		PCD20		PCD30		PCD30M	
SMG	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z
K2	—	—	—	—	230 — 980	0.0028 — 0.015	230 — 980	0.0028 — 0.015
N1	—	—	1975 — 11475	0.0020 — 0.012	—	—	—	—
N2	—	—	1300 — 8200	0.0020 — 0.0080	—	—	—	—
N3	980 — 3275	0.0020 — 0.0040	—	—	980 — 3275	0.0020 — 0.0040	980 — 3275	0.0020 — 0.0040
N11	—	—	1975 — 3925	0.0040 — 0.020	1300 — 3925	0.0040 — 0.020	1975 — 3925	0.0040 — 0.020
TS1	330 — 4925	0.0040 — 0.016	330 — 4925	0.0040 — 0.016	—	—	—	—
TS2	1300 — 2625	0.0040 — 0.0080	1300 — 2625	0.0040 — 0.0080	—	—	—	—
TS3	330 — 2625	0.0020 — 0.0080	330 — 2625	0.0020 — 0.0080	—	—	—	—
TP1	330 — 4925	0.0040 — 0.016	330 — 4925	0.0040 — 0.016	—	—	—	—
TP2	1300 — 2625	0.0040 — 0.0080	1300 — 2625	0.0040 — 0.0080	—	—	—	—
TP3	330 — 2625	0.0020 — 0.0080	330 — 2625	0.0020 — 0.0080	—	—	—	—
GR1	330 — 4925	0.0040 — 0.0080	330 — 4925	0.0040 — 0.0080	—	—	—	—

Troubleshooting

Problem	Cause	Suggested action(s)
Flank wear 	Wrong grade Precense of Fe/Ni/Co	• Change to coarser PCD grade • Check material composition • Reduce cutting speed • Use coolant
Built-up edge 	Not correct edge temperature Wrong grade	• Decrease or increase cutting speed • Choose a sharper insert • Change to a finer grade
Edge chipping 	Poor rigidity Wrong grade Incorrect cutting data High run-out	• Minimize vibrations • Change to a tougher grade • Change cutting data • Check set-up
Poor surface finish	Wrong grade Too high cutting data Incrrect wiper position	• Change to a finer PCD grade • Reduce cutting speed and feed rate • Check wiper position
Flaking of work-piece	To high depth of cut	• Decrease depth of cut • Add entry chamfer on component

Helical interpolation ramping

The milling cutter design and the clearance on the bottom side of the chosen insert determines the tool's suitability for helical interpolation ramping.
Maximum and minimum hole diameters and maximum cutting depth per revolution recommendations for suitable tools are in the tables below.
For cutting data calculation please see page 635.



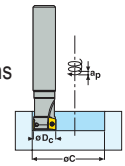
	Cutter dia Ø D_c inch	Cutter dia Ø D_{c2} inch	C min/a_p max		C max/a_p max	
			C min Ø	a_p max	C max Ø	a_p max
217.21-LO06						
	0.736	1.00	1.736	0.035	1.921	0.035
	0.984	1.25	2.234	0.035	2.421	0.035
	1.236	1.50	2.736	0.035	2.921	0.035
	1.736	2.00	3.736	0.035	3.921	0.035
	2.237	2.50	4.737	0.035	4.921	0.035
217.21-LP05						
	0.240	0.500	0.685	0.026	0.866	0.026
	0.362	0.625	1.000	0.026	1.181	0.026
	0.488	0.750	1.315	0.026	1.496	0.026
217.21-LP06						
	0.290	0.625	0.925	0.031	1.181	0.031
	0.410	0.750	1.240	0.031	1.496	0.031
	0.660	1.000	1.633	0.031	1.889	0.031
	0.659	1.250	2.185	0.031	2.440	0.031
217.29-03						
	0.514	0.75	1.264	0.118	1.461	0.118
	0.764	1.00	1.764	0.118	1.961	0.118
	1.014	1.25	2.264	0.118	2.461	0.118
217.29-04						
	0.435	0.75	1.185	0.157	1.460	0.157
	0.685	1.00	1.685	0.157	1.960	0.157
217/220.29-05						
	0.606	1.00	1.606	0.197	1.960	0.197
	0.856	1.25	2.106	0.197	2.460	0.197
	1.106	1.50	2.606	0.197	2.960	0.197
	1.606	2.00	3.606	0.197	3.960	0.197
217/220.29I-06						
	0.528*	1.00	1.528	0.236	1.922	0.236
	0.778	1.25	2.028	0.236	2.422	0.236
	1.028	1.50	2.528	0.236	2.922	0.236
	1.528	2.00	3.528	0.236	3.922	0.236
	2.028	2.50	4.528	0.236	4.922	0.236
	2.528	3.00	5.528	0.236	5.922	0.236
	3.528	4.00	7.528	0.236	7.922	0.236
	4.528	5.00	9.528	0.236	9.922	0.236
	5.528	6.00	11.528	0.236	11.922	0.236
217/220.29-08						
	1.370	2.00	3.370	0.315	3.940	0.315
	2.370	3.00	5.370	0.315	5.940	0.315
	3.370	4.00	7.370	0.315	7.940	0.315
	4.370	5.00	9.370	0.315	9.940	0.315
	5.370	6.00	11.370	0.315	11.940	0.315

* Center cutting

	Cutter dia Ø D_c inch	Cutter dia Ø D_{c2} inch	C min/a_p max		C max/a_p max	
			C min Ø	a_p max	C max Ø	a_p max
217/220.29-10						
	1.213	2.00	3.150	0.315	3.860	0.315
	1.713	2.50	4.170	0.394	4.880	0.394
	2.213	3.00	5.510	0.394	6.220	0.394
	3.213	4.00	7.090	0.394	7.800	0.394
217/220.43-05						
	1.25	–	2.36	1.38	3.11	1.38
	1.50	–	2.99	1.38	3.74	1.38
	2.00	–	3.78	1.38	4.53	1.38
	2.50	–	5.08	1.38	5.83	1.38
	3.00	–	6.14	1.38	6.89	1.38
	4.00	–	7.72	1.38	8.46	1.38
R217/220.69-06						
	0.375	–	0.551	0.043	0.748	0.118
	0.500	–	0.709	0.039	0.906	0.098
	0.625	–	1.024	0.035	1.220	0.079
	0.750	–	1.378	0.035	1.535	0.071
	0.875	–	1.535	0.035	1.693	0.071
	1.000	–	1.772	0.059	1.960	0.094
	1.250	–	2.283	0.051	2.460	0.091
	1.500	–	2.913	0.071	2.960	0.087
R217/220.69-10						
	0.625	–	0.827	0.055	1.181	0.157
	0.750	–	1.142	0.047	1.496	0.122
	0.875	–	1.299	0.047	1.654	0.110
	1.000	–	1.535	0.043	1.890	0.098
	1.250	–	2.087	0.043	2.441	0.091
	1.500	–	2.717	0.043	3.071	0.087
	2.000	–	3.543	0.043	3.858	0.083
	2.500	–	4.567	0.043	4.882	0.083
	3.000	–	5.512	0.043	5.827	0.079
	4.000	–	7.480	0.043	7.795	0.079
217/220.69-12						
	0.750	–	1.102	0.079	1.457	0.146
	0.875	–	1.260	0.071	1.614	0.138
	1.000	–	1.496	0.071	1.850	0.130
	1.250	–	2.047	0.067	2.402	0.114
	1.500	–	2.677	0.067	3.031	0.114
	2.000	–	3.465	0.067	3.819	0.110
	2.500	–	4.528	0.067	4.843	0.110
	3.000	–	5.866	0.067	5.787	0.110
	4.000	–	7.559	0.067	7.756	0.106
	5.000	–	9.528	0.067	9.724	0.106
	6.000	–	11.496	0.063	11.693	0.106
	8.000	–	15.433	0.063	15.630	0.106
	10.000	–	19.370	0.063	19.567	0.106
217/220.69-15H						
	2.00	–	3.03	0.063	3.820	0.110
	3.00	–	5.43	0.079	5.882	0.102

Helical interpolation ramping

The milling cutter design and the clearance on the bottom side of the chosen insert determines the tool's suitability for helical interpolation ramping.
Maximum and minimum hole diameters and maximum cutting depth per revolution recommendations for suitable tools are in the tables below.
For cutting data calculations, see page 635.

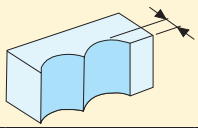


	Cutter dia Ø D_c inch	Cutter dia Ø D_{c2} inch	C min/a_p max		C max/a_p max	
			C min Ø	a_p max	C max Ø	a_p max
217/220.69-18						
	1.00	–	1.339	0.126	1.850	0.319
	1.25	–	1.890	0.122	2.402	0.287
	1.50	–	2.520	0.110	3.031	0.232
	2.00	–	3.307	0.106	3.819	0.213
	2.50	–	4.331	0.106	4.843	0.201
	3.00	–	5.276	0.106	5.787	0.197
	4.00	–	7.244	0.106	7.756	0.185
	5.00	–	9.213	0.106	9.724	0.181
	6.00	–	11.969	0.106	12.480	0.177
	8.00	–	15.118	0.102	15.630	0.169
	10.00	–	19.055	0.102	19.567	0.165
217/220.97-12						
	1.00	–	1.606	0.295	1.960	0.295
	1.25	–	2.106	0.295	2.460	0.295
	1.50	–	2.606	0.295	2.960	0.295
	2.00	–	3.606	0.295	3.960	0.295
217/220.97-22 **Using insert corner radius up to 4 mm (0.157")**						
	1.25	–	2.200	0.394	2.480	0.394
	1.50	–	2.830	0.394	3.110	0.394
	2.00	–	3.620	0.394	3.890	0.394
	2.50	–	4.650	0.394	4.920	0.394
	3.00	–	5.980	0.394	6.260	0.394
	4.00	–	7.560	0.394	7.830	0.394
217/220.97-22 **Using insert corner radius above 4 mm (0.157")**						
	1.25	–	2.020	0.196	2.140	0.196
	1.50	–	2.650	0.196	2.770	0.196
	2.00	–	3.440	0.196	3.550	0.196
	2.50	–	4.460	0.196	4.580	0.196
	3.00	–	5.800	0.196	5.920	0.196
	4.00	–	7.370	0.196	7.490	0.196
R217/220.21-218.19						
	–	0.625	0.75	0.025	1.17	0.025
	–	0.750	0.88	0.030	1.42	0.030
	–	0.750H	0.88	0.040	1.42	0.040
	–	1.00	1.37	0.030	1.92	0.030
	–	1.00H	1.19	0.060	1.92	0.060
	–	1.25	1.69	0.040	2.42	0.040
	–	1.25H	1.46	0.080	2.42	0.080
	–	1.50	2.20	0.060	2.92	0.060
	–	1.50H	1.96	0.080	2.92	0.080
	–	2.00	3.01	0.080	3.92	0.080
	–	2.50	4.00	0.080	4.92	0.080
	–	3.00	5.02	0.100	5.92	0.100
	–	4.00	7.02	0.100	7.92	0.100
	–	5.00	9.02	0.100	9.92	0.100
	–	6.00	11.02	0.100	11.92	0.100
	–	8.00	15.02	0.100	15.92	0.100

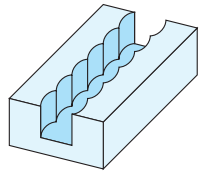
Plunge milling

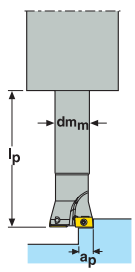
The insert design and the insert clamping system determines the tool's suitability for plunging.
Maximum cutting depth recommendations for suitable tools are in the tables below.
Note that the definition of a_p is different for plunge milling.
Use the cutting speeds and feed rates recommended for normal operations.

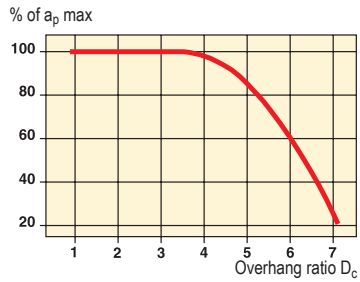
Plunging



Type of cutter	a_p max inch
217/220.21-LO06	.098
217/220.21-LP05	.137
217/220.21-LP06	.177
217.21-R100	.276
217/220.21-R125	.354
217/220.21-R160	.433
217/220.29-03	.118
217/220.29-04	.157
217/220.29-05	.197
217/220.29-06	.236
217/220.29-08	.315
217/220.29-10	.394
217/220.69-06	.138
217/220.69-10	.236
217/220.69-12	.275
217/220.69-18	.413
217/220.94-08	.138
217/220.94-12	.130
217/220.96-04	.157
217/220.96-08	.295







a_p max can normally be used if the overhang ratio is up to 4 but should be reduced at higher ratios as shown in the graph.

To create a flat bottom surface with axial feed direction, a_p max = wiper flat width B. For B dimensions, see insert pages.

RPM

$$n = \frac{v_c \cdot 12}{\pi \cdot D_c} \quad \text{or} \quad \frac{v_c \cdot 3.82}{D_c} \qquad \text{(rev/min)}$$

Cutting speed

$$v_c = \frac{n \cdot \pi \cdot D_c}{12} \quad \text{or} \quad \frac{n \cdot D_c}{3.82} \qquad \text{(ft/min)}$$

Feed speed

$$v_f = n \cdot z_n \cdot f_z \qquad \text{(inch/min)}$$

$$v_f = n \cdot z_c \cdot f_z \qquad \text{(inch/min)}$$

Feed per revolution

$$f = z_n \cdot f_z \qquad \text{(inch/rev)}$$

$$f = z_c \cdot f_z \qquad \text{(inch/rev)}$$

Metal removal rate

$$Q = a_e \cdot a_p \cdot v_f \qquad \text{(inch}^3\text{/min)}$$

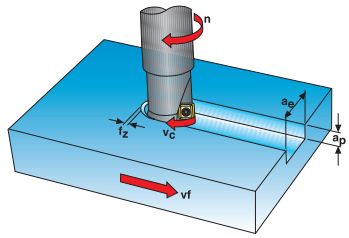
Cutting speed and RPM for copying

$$v_c = \frac{n \cdot \pi \cdot D_w}{12} \quad \text{or} \quad \frac{n \cdot D_w}{3.82} \qquad \text{(ft/min)}$$

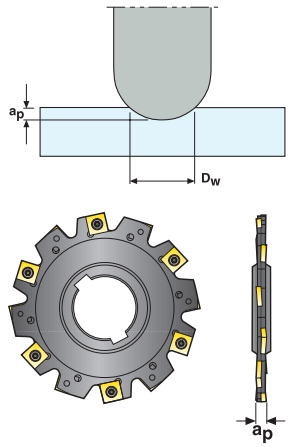
$$D_w = 2 \cdot \sqrt{a_p (D_c - a_p)} \qquad \text{(inch)}$$

$$n = \frac{v_c \cdot 12}{\pi \cdot D_w} \quad \text{or} \quad \frac{v_c \cdot 3.82}{D_w} \qquad \text{(RPM)}$$

Effective No. of teeth (Z_c)
The effective No. of teeth (Z_c) is used to calculate the feed speed (v_f) and the feed per revolution (f). For most of the cutters the effective No. of teeth (Z_c) is equal to the No. of teeth in the cutter (zn), but for some of the cutters Z_c is less than Z_n.



a_e	=	Width of cut mm/radial depth of cut	inch
a_p	=	Depth of cut mm/axial depth of cut	inch
D_c	=	Cutter diameter	inch
f	=	Feed per revolution	inch/rev
f_z	=	Feed per tooth	inch/tooth
n	=	RPM	rev/min
Q	=	Material removal rate	$inch^3$/min
V_c	=	Cutting speed	ft/min
v_f	=	Feed speed	inch/min
D_w	=	Working diameter	inch
Z_c	=	Effective No. of teeth for calculation of feed speed or feed per rev (see below)	

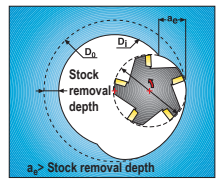


Example: Disc mill 335.19
Total No. of teeth (Z_n) = 12 Effective No. of teeth (Z_c) = 6

Explanation: 6 inserts on one side of the cutter and 6 overlapping inserts on the other side are used to get the full width (a_p) ,which means Z_c = 6.

Internal circular interpolation
When using circular interpolation or helical interpolation ramping to increase the diameter of a hole in a workpiece, the stock removal depth is not the same as the width of cut value. The real width of cut must be calculated from the formula below. The width of cut value is then used for calculation of feed/tooth and feed speed.

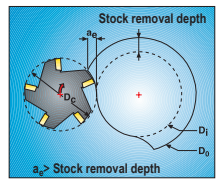
$$a_e = \frac{D_o^2 - D_i^2}{4\,(D_o - D_c)}$$



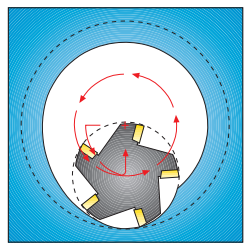
External circular interpolation
When using external circular interpolation or helical interpolation ramping to decrease the diameter of a round workpiece the stock removal depth is not the same as the width of cut value. The real width of cut must be calculated from the formula below.

The width of cut is then used for calculation of feed/tooth and feed speed.

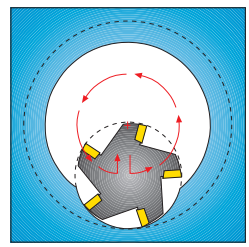
$$a_e = \frac{D_o^2 - D_i^2}{4\,(D_i + D_c)}$$



Increase the width of cut successively to full value
For circular interpolation operations it is recommended to successively increase the width of cut up to full value. When using radial infeed up to full width of cut, reduce the feed/tooth and feed speed to half.



Successive increase of width of cut – recommended method.

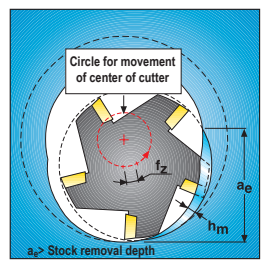


Radial infeed – Reduce feed/tooth.

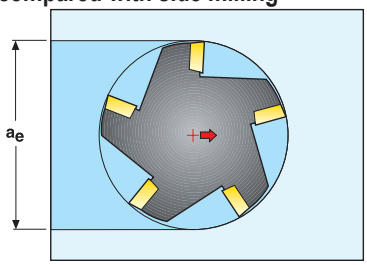
Feed speed related to the center of the cutter
When calculating feed speed and feed/tooth from average chip thickness using circular interpolation or helical interpolation ramping in an operation, the feed speed and feed/tooth are always related to the center and not to the periphery of the cutter.

$$v_f = \frac{(D_0 - D_c) \cdot n \cdot z_c \cdot f_z}{D_0}$$

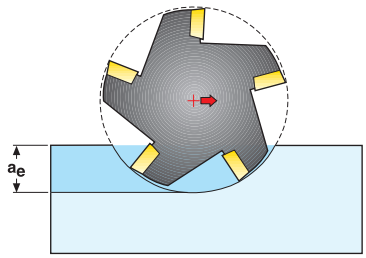
$$v_f = \frac{(D_i + D_c) \cdot n \cdot z_c \cdot f_z}{D_i}$$



Slot milling compared with side milling



Slot milling



Side milling

Relative engagement of the cutter diameter (a_e/D_c=%)	Multiply the feed per tooth by the following factor
30%	1.25
20%	1.5
10%	2.0
5%	3.0

Calculation of feed per tooth and cutting speed for side milling operations

When using side milling it is necessary to increase the feed per tooth to keep the chip thickness at the same value. It is also possible to increase the cutting speed and keep the same tool life. Use the tables below.

This table can be used for cutters with cutting edge angle = 90º

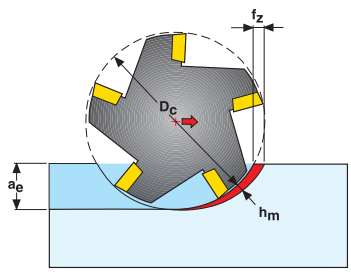
a_e/D_c %	Feed Per Tooth, in/tooth (fz)													Speed Factor
	.0012	.0024	.0031	.004	.006	.008	.010	.012	.016	.020	.024	.031	.039	
	Average Chip Thickness, in/tooth (hm)													
Width of cut up to and including Dc/2														
2 (0.02)					.0008	.0012	.0016	.0016	.0024	.0028	.0031	.0043	.0055	1.8
3 (0.03)				.0008	.0012	.0012	.0016	.0020	.0028	.0035	.0039	.0055	.0067	1.7
5 (0.05)			.0008	.0008	.0012	.0016	.0024	.0028	.0035	.0043	.0051	.0071	.0087	1.6
10 (0.10)		.0008	.0008	.0012	.0020	.0024	.0031	.0035	.0047	.0063	.0075	.0098	.0122	1.5
15 (0.15)	.0004	.0008	.0012	.0016	.0024	.0031	.0035	.0043	.0059	.0075	.0091	.0118		1.4
20 (0.20)	.0005	.0012	.0012	.0016	.0024	.0035	.0043	.0051	.0067	.0087	.0102			1.35
30 (0.30)	.0006	.0012	.0016	.0020	.0031	.0039	.0051	.0063	.0083	.0102	.0122			1.3
40 (0.40)	.0007	.0016	.0020	.0024	.0035	.0047	.0059	.0071	.0091	.0114				1.25
50 (0.50)	.0008	.0016	.0020	.0024	.0039	.0051	.0063	.0075	.0098	.0126				1.2
Slotting (Width of cut = Dc)														
100 (1.00)	.0008	.0016	.0020	.0024	.0039	.0051	.0063	.0075	.0098	.0126				1.0

= Feed per tooth correction example: at 20% engagement also increase speed by 1.35

Instead of using the table above for calculating hm and fz, the following formula could be used if a_e/D_c < 30%.

$$h_m = f_z \cdot \sqrt{\frac{a_e}{D_c}}$$

$$f_z = h_m \cdot \sqrt{\frac{D_c}{a_e}}$$



This table can be used for cutters with cutting edge angle = 45º

a_e/D_c %	Feed Per Tooth, in/tooth (f_z)													Speed Factor
	.0012	.0024	.0031	.004	.006	.008	.010	.012	.016	.020	.024	.031	.039	
	Average Chip Thickness, in/tooth (hm)													
Width of cut up to and including $D_c/2$														
2 (0.02)					.0004	.0008	.0008	.0012	.0016	.0020	.0024	.0031	.0039	1.8
3 (0.03)				.0004	.0008	.0008	.0012	.0016	.0020	.0024	.0028	.0039	.0047	1.7
5 (0.05)			.0004	.0008	.0008	.0012	.0016	.0020	.0024	.0031	.0035	.0051	.0063	1.6
10 (0.10)		.0004	.0008	.0008	.0012	.0016	.0020	.0028	.0035	.0043	.0051	.0071	.0087	1.5
15 (0.15)	.0003	.0008	.0008	.0012	.0016	.0020	.0028	.0031	.0043	.0051	.0063	.0083		1.4
20 (0.20)	.0004	.0008	.0008	.0012	.0020	.0024	.0031	.0035	.0047	.0059	.0071			1.35
30 (0.30)	.0004	.0008	.0012	.0016	.0020	.0028	.0035	.0043	.0059	.0071	.0087			1.3
40 (0.40)	.0005	.0008	.0012	.0016	.0024	.0031	.0039	.0047	.0067	.0083				1.25
50 (0.50)	.0004	.0012	.0016	.0020	.0028	.0035	.0043	.0055	.0071	.0091				1.2
Face milling full engagement (Width of cut = D_c)														
100 (1.00)	.0004	.0012	.0016	.0020	.0028	.0035	.0043	.0055	.0071	.0091				1.0

Calculation of feed per tooth and cutting speed for side milling operations

When using side milling it is necessary to increase the feed per tooth to keep the chip thickness at the same value.
It is also possible to increase the cutting speed and keep the same tool life. Use the tables below.

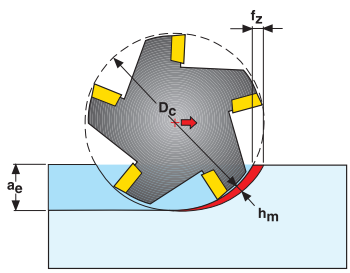
This table can be used for cutters with cutting edge angle = 60º

a_e/D_c %	Feed Per Tooth, in/tooth (f_z)													Speed Factor
	.0012	.0024	.0031	.004	.006	.008	.010	.012	.016	.020	.024	.031	1,00	
	Average Chip Thickness, in/tooth (hm)													
Width of cut up to and including $D_c/2$														
2 (0.02)					.0008	.0008	.0012	.0016	.0020	.0024	.0028	.0039	.0047	1.8
3 (0.03)				.0004	.0008	.0012	.0016	.0016	.0024	.0028	.0035	.0047	.0059	1.7
5 (0.05)			.0008	.0008	.0012	.0016	.0020	.0024	.0031	.0039	.0047	.0059	.0075	1.6
10 (0.10)		.0008	.0008	.0012	.0016	.0020	.0028	.0031	.0043	.0051	.0063	.0087	.0106	1.5
15 (0.15)	.0004	.0008	.0012	.0012	.0020	.0028	.0031	.0039	.0051	.0063	.0079	.0102		1.4
20 (0.20)	.0004	.0008	.0012	.0016	.0024	.0028	.0035	.0043	.0059	.0075	.0087			1.35
30 (0.30)	.0005	.0012	.0016	.0016	.0028	.0031	.0043	.0051	.0071	.0087	.0102			1.3
40 (0.40)	.0006	.0012	.0016	.0020	.0031	.0039	.0051	.0059	.0079	.0098				1.25
50 (0.50)	.0008	.0012	.0016	.0024	.0031	.0043	.0055	.0067	.0087	.0110				1.2
Face milling full engagement (Width of cut = D_c)														
100 (1.00)	.0008	.0012	.0016	.0024	.0031	.0043	.0055	.0067	.0087	.0110				1.0

Instead of using the table above for calculating hm and fz, the following formula could be used if a_e/D_c < 30%.

$$h_m = f_z \cdot \sqrt{\frac{a_e}{D_c}} \cdot \sin \kappa$$

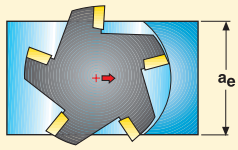
$$f_z = h_m \cdot \sqrt{\frac{D_c}{a_e}} \cdot \frac{1}{\sin \kappa}$$



Milling

Calculating the power demand

$$P_C = \frac{Q}{396{,}000 \cdot \eta} \cdot k_C$$



P_C = Power HP
a_p = Depth of cut inch
a_e = Width of cut inch
v_f = Feed speed inch/min
η = Efficiency
k_C = Cutting force per inch² (Lbf/inch²)

Calculating average chip thickness (h_m) and cutting force per inch² (k_C)

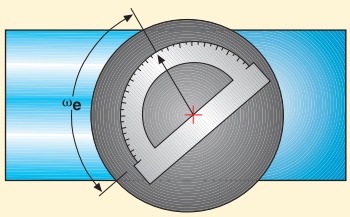
$$h_m = \frac{360 \cdot f_z \cdot a_e}{\pi \cdot D \cdot \varpi e} \cdot \sin \kappa$$

h_m = Average chip thickness (in)
f_z = Feed per tooth (in/tooth)
Dc = Cutter diameter (in)
ϖe = Engagement angle
κ = Cutting edge angle

$$k_C = \frac{1 - 0.01 \cdot \gamma o}{\left(\frac{h_m}{.04}\right)^{mc}} \cdot k_{c1.1}$$

γo = Effective rake angle (Rake angle of cutter + rake angle of insert) (see catalog)
m_C = Exponent (see page 617)
$k_{c1.1}$ = Cutting force for .04 inch chip thickness (lbf/in²) (see page 617)

Engagement angle



Cutter position: Center

Engagement a_e/Dc	Engagement angle ϖe
75%	97°
100%	180°

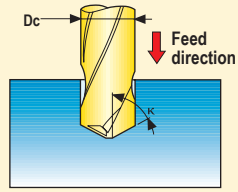
Cutter position: Off center

Engagement a_e/Dc	Engagement angle ϖe
5%	26°
10%	37°
25%	60°

Drilling/Plunging

Calculating the power demand

$$P_C = \frac{Q}{396{,}000 \cdot \eta} \cdot k_C$$



P_C = Power (HP)
Q = Metal removal rate (in³/min)
η = Efficiency
k_C = Cutting force per in²

Calculating metal removal rate (Q)

Example: For a drill

$$A_T = \frac{\pi \cdot Dc^2}{4} \qquad Q = v_f \cdot A_T$$

A_T = Cross section area of the cut in feed direction

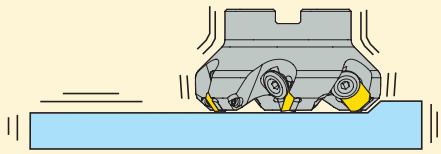
Calculating cutting force per inch² (k_C) and nominal chip thickness (hD)

$$k_C = \frac{1 - 0.01 \cdot \gamma o}{\left(\frac{h_D}{.04}\right)^{mc}} \cdot k_{c1.1}$$

$$h_D = f_z \cdot \sin \kappa$$

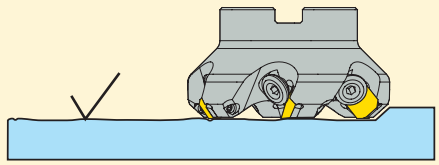
f_z = Feed per tooth (in/tooth)
hD = Nominal chip thickness (in)
$k_{c1.1}$ = Cutting force for .04 inch chip thickness (lbf/in²) (see page 617)
m_C = Exponent (see page 617)
κ = Cutting edge angle
γo = Effective rake angle (for cutter + insert) (see catalog)

Vibrations



- Improve the stability of cutter and workpiece
- Change cutter positioning
- Minimize tool overhang
- Reduce the cutting speed
- Increase the feed rate
- Reduce the depth of cut
- Select a different insert geometriy, see page Insert geometry
- Use Steadyline antivibration bar

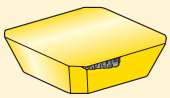
Poor surface finish



- Improve the stability of cutter and workpiece
- Minimize tool overhang
- Reduce the feed rate
- Incease the cutting speed
- Use coolant
- Use wiper inserts
- Keep feed/rev value within wiper width
- Use Steadyline antivibration bar

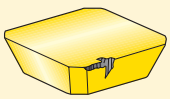
Tool life problems

Rapid flank wear



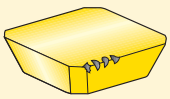
- Reduce the cutting speed
- Increase the feed rate
- Climb milling

Rapid notch wear



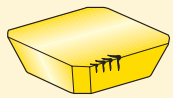
- Reduce the cutting speed
- Increase the feed rate
- Increase the depth of cut
- Climb milling
- Change cutter positioning

Chipping



- Increase the cutting speed
- reduce the feed rate
- Conventional milling
- Improve chip evacuation
- Change cutter positioning
- Minimize tool overhang
- Improve stability

Rapid flank wear



- Reduce the cutting speed
- Reduce the feed rate
- No coolant
- Change cutter positioning

Rapid notch wear

- Increase the cutting speed
- Increase the feed rate
- No coolant
- Climb milling
- Change cutter positioning

Maximum RPM and balancing

Recommended maximum RPM for all Seco cutters are shown on each catalog page. Normally there is no need for balancing tools for RPM up to 10,000. However, in some cases balancing is necessary. For instance, when using heavy tools and tool holders in small machines.

Over 10,000 RPM
We recommend balancing of tool and tool holders at least separately.

Over 20,000 RPM
Both tool and tool holders must be balanced at least separately.

Over 30,000 RPM
Tool and tool holders must be balanced as a unit.
The max RPM in the tables should never be exceeded.

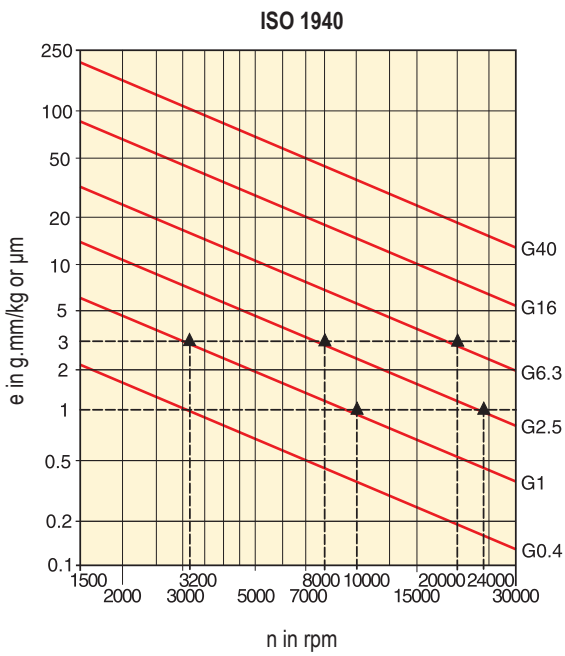
Balancing quality G:
Norm ISO 1940 has established G as the unit of measurement for the balance quality of rotating parts.
G is the tangential speed of the center of gravity in reference to the rotational axis.

$$G = \frac{e}{1000} \cdot \omega \qquad G = \frac{U}{1000 \cdot M} \cdot \frac{2 \pi n}{60}$$

G = balance quality in mm/s
e = specific unbalance in g.mm/kg or mm
ω = speed in rad/s
U = residual unbalance, (U = e x M) in g.mm
M = mass of toolholder in kg
n = rpm
m = unbalance mass in g
r = distance between the unbalance mass and rotational axis in mm

Note: G is depending on n, M, U: It is not possible to define G without referring to the rotational speed.
For toolholders it is preferable to use e and U to define their balancing quality:
– e or U can be generalized for all holders, while G has to be expressed against a specific n.
– e can easily be calculated from U, given by a balancing machine, divided by the mass M of the holder.

See chart ISO 1940 showing the relation between G and n in regard to e.



For more detailed tool holding balancing information please see MN Tooling Systems.

Torque keys

For most Seco milling products, torque keys with fixed torque values are available in combinations of key grips and torque values for insert locking. Using a Torque key will ensure the correct tightening force when mounting an insert. Torque keys are calibrated according to ISO 6789.

Blades are not interchangeable between screw and T-handle type.
Torx Plus® is a registered trademark belonging to Camcar-Textron (USA).

Code key: T00-15P35

T00 = Torque screw driver type for Torx Plus blade
T00T = Torque T-handle type for Torx Plus blade
H00 = Torque screw driver for hexagonal blade
H00T = Torque T-handle type for hexagonal blade
15P = Torx Plus size
35 = Torque value 3.5 Nm

Torque key* 	Replaceable blade 	Torx Plus size (Hex size)	Torque value in/lbs	Torque value Nm
T00-06P05	T00-06P	T06P	4.4	0.5
T00-07P09	T00-07P	T07P	8.0	0.9
T00-07P12	T00-07P	T07P	10.6	1.2
T00-08P12	T00-08P	T08P	10.6	1.2
T00-09P12	T00-09P	T09P	10.6	1.2
T00-09P20	T00-09P	T09P	17.7	2.0
T00-10P20	T00-10P	T10P	17.7	2.0
T00-10P30	T00-10P	T10P	26.6	3.0
T00-15P20	T00-15P	T15P	17.7	2.0
T00-15P30	T00-15P	T15P	26.6	3.0
T00-15P35	T00-15P	T15P	31.0	3.5
T00-15P50	T00-15P	T15P	44.3	5.0
T00-20P50	T00-20P	T20P	44.3	5.0
H00-1305	H00-1.3	(1.3 mm)	4.4	0.5
H00-1505	H00-1.5	(1.5 mm)	4.4	0.5
H00-1509	H00-1.5	(1.5 mm)	8.0	0.9
H00-2009	H00-2.0	(2.0 mm)	8.0	0.9
H00-2016	H00-2.0	(2.0 mm)	14.2	1.6
H00-2020	H00-2.0	(2.0 mm)	17.7	2.0
H00-2512	H00-2.5	(2.5 mm)	10.6	1.2
H00-2530	H00-2.5	(2.5 mm)	26.6	3.0
H00-2535	H00-2.5	(2.5 mm)	31.0	3.5
H00-3020	H00-3.0	(3.0 mm)	17.7	2.0
H00-4030	H00-4.0	(4.0 mm)	26.6	3.0

Torque key* 	Replaceable blade 	Torx Plus size (Hex size)	Torque value in/lbs	Torque value Nm	Hexagonial size
T00T-15P50	T00T-15P	T15P	44.3	5.0	–
T00T-20P50	T00T-20P	T20P	44.3	5.0	–
T00T-20P80	T00T-20P	T20P	70.8	8.0	–
T00T-25P60	T00T-25P	T25P	53.1	6.0	–
T00T-25P80	T00T-25P	T25P	70.8	8.0	–
T00T-30P80	T00T-30P	T30P	70.8	8.0	–
H00T-3050	H00T-3.0	(3 mm)	44.3	5.0	3 mm
H00T-4050	H00T-4.0	(4 mm)	44.3	5.0	4 mm
H00T-4060	H00T-4.0	(4 mm)	53.1	6.0	4 mm
H00T-5080	H00T-5.0	(5 mm)	70.8	8.0	5 mm
H00T-60100	H00T-6.0	(6 mm)	88.5	10.0	6 mm

* Including blade

For EDP Numbers, see pages 656.

Steels, ferritic and martensitic stainless steels

SMG	Description	Properties	Reference
P1	Free-cutting steels	50 < UTS < 125	1213 UTS = 55 ksi
P2	Low alloy ferritic steels, C < 0.25%wt Low alloy weldable general structural steels	45 < UTS < 85	A284 GRC UTS = 60 ksi
P3	Ferritic & ferritic/pearlitic steels, C < 0.25%wt Weldable general structural steels Case hardening steels	60 < UTS < 90	5115 UTS = 80 ksi
P4	Low alloy general structural steels, 0.25% < C < 0.67%wt Low alloy Quench & Temper steels	75 < UTS < 175	1045 UTS = 95 ksi
P5	Structural steels, 0.25% < C < 0.67%wt Quench & Temper steels	80 < UTS < 175	4140 UTS = 100ksi
P6	Low alloy through hardening steels, C > 0.67%wt Low alloy spring and bearing steels	75 < UTS < 175	1095 UTS = 85 ksi
P7	Through hardening steels, C > 0.67%wt Spring and bearing steels	85 < UTS < 175	52100 UTS = 95 ksi
P8	Tool steels High Speed Steels (HSS)	85 < UTS < 175	H13 UTS = 100 ksi
P11	Ferritic & martensitic stainless steels	60 < UTS < 175	420 UTS = 95 ksi

Free-cutting, austenitic and duplex stainless steels

SMG	Description	Properties	Reference
M1	Free-cutting austenitic stainless steels		303
M2	Low alloy austenitic stainless steels		304
M3	Medium alloy austenitic stainless steels		316 L
M4	High alloy austenitic and duplex stainless steels		2205 Duplex
M5	Difficult high alloy austenitic and duplex stainless steels		2507 Super duplex

Cast irons

SMG	Description	Properties	Reference
K1	Grey cast irons (GCI)		A48 35 B
K2	Compacted graphite irons (CGI)		Grade 400-15
K3	Malleable cast irons (MCI)		A220 60004
K4	Nodular cast irons (SGI)		80-55-06
K5	Austempered ductile irons (ADI)		1050/700/7
K6	Austenitic lamellar cast irons		A436 Type 1 (Ni-Resist 1)
K7	Austenitic nodular cast irons		A439 Type D-2M (Ni-Resist D-2M)

Non-ferrous metals

SMG	Description	Properties	Reference
N1	Aluminum alloys, Si < 9%		7075-T6
N2	Aluminum alloys, 9% < Si < 16%		413.2 Si = 12%
N3	Aluminum alloys, Si >16%		AlSi17Cu5
N11	Copper alloys		UNS C38500

Superalloys and titanium

SMG	Description	Properties	Reference
S1	Iron based superalloys		Discalloy
S2	Cobalt based superalloys		Stellite 21
S3	Nickel based superalloys		Inconel 718
S11	Titanium, low alloyed, (α)		Ti
S12	Titanium, medium alloyed, (α+β)		TiAl6V4
S13	Titanium, high alloyed, (near β and β)		Ti10V2Fe3Al

Workpiece materials – Classification, SMG version 2

Hard materials

SMG	Description	Properties	Reference
H3	Case hardened steels	58 < HRC < 62	5115 60 HRC
H5	Quenched & Tempered steels	38 < HRC < 56	4140 50 HRC
H7	Quenched & Tempered steels Bearing steels	56 < HRC < 64	52100 60 HRC
H8	Tool steels High Speed Steels	38 < HRC < 64	H13 50 HRC
H11	Martensitic stainless steels	38 < HRC < 50	420 45 HRC
H12	Precipitation hardened stainless steels	33 < HRC < 50	17-4PH 35 HRC
H21	Manganese steels	23 < HRC < 64	Hadfield, High manganese steel 50 HRC
H31	White cast irons	50 < HRC < 64	A532 ID, White cast iron 55 HRC

Other difficult materials

SMG	Description	Properties	Reference
PM1	Low alloy PM materials		F-0008 Fe-0.7C
PM2	Medium alloy PM materials		FLC-4608 Fe2Cu1.8Ni0.5Mo0.2Mn0.8C
PM3	High alloy PM materials Exhaust valve seat materials		
HF1	Hard facing alloys Welded or plasma deposited iron based alloys		
HF2	Hard facing alloys Welded or plasma deposited cubalt and nickel based alloys		
CC1	Sintered tungsten carbide		G50

Plastics and Composites

SMG	Description	Properties	Reference
TS1	Thermosetting polymers		Urea formaldehyde (UF)
TS2	Thermosetting Carbon fiber composites		T300 T700 T800 HTA-S IMA - Epoxy (M21)...
TS3	Thermosetting Glass fiber composites		Epoxy - HX..(42..)/E glass (7781...)...
TS4	Thermosetting Aramide fiber composites		Kevlar 49
TP1	Thermoplastic polymers		Polycarbonate (PC)
TP2	Thermoplastic Carbon fiber composites		PPS/PEEK - T300..
TP3	Thermoplastic Glass fiber composites		PPS/PEEK - E glass or A glass...
TP4	Thermoplastic Aramide fiber composites		

Graphite

SMG	Description	Properties	Reference
GR1	Graphite		R 8500

SMG

SMG	AISI / ASTM	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS
	1213	11 SMn30	1.0715	1.0715	9 SMn 28	S 250	230 M 07	CF 9 SMn 28	SUM 22	1912
	12 L 13	11 SMnPb30	1.0718	1.0718	9 SMnPb 28	S 250 Pb		CF 9 SMnPb 28	SUM 22 L	1914
	1108	10 S 20	1.0721	1.0721	10 S 20	10 F 1	210 M 15	CF 10 S 20		
	11 L 08			1.0722	10 SPb 20	10 PbF 2		CF 10 SPb 20		
P1		15 SMn13	1.0725	1.0723	15 S 20		210 A 15		SUM 32	1922
	1140	35 S20	1.0726	1.0726	35 S 20	35 MF 4	212 M 36			1957
	1146	46 S20	1.0727	1.0727	46 S 20	45 MF 4	212 M 44			1973
	1215	11 SMn37	1.0736	1.0736	9 SMn 36	S 300	240 M 07	CF 9 SMn 36		
	12 L 14	11 SMnPb 37	1.0737	1.0737	9 SMnPb 36	S 300 Pb		CF 9 SMnPb 36		1926
		S235JR	1.0037	1.0037	St 37-2	E 24-2		Fe 360 B	STKM 12 C	1311
	A 573 Gr. 58	S235JRG2	1.0038	1.0116	St 37-3	E 24-3, E 24-4	4360-40 C	Fe 360 D FF		1312, 1313
	A 573 Gr. 70	S275J2G3	1.0144	1.0144	St 44-3 N	E 28-3, E 28-4	4360-43 C	Fe 430 D FF	SM 41 C	1412, 1414
	1010	C 10	1.0301	1.0301	C 10	AF 34 C 10, XC 10	045 M 10	C 10	S 10 C	
P2	1015			1.0401	C 15	AF3 7 C 12, XC 18	080 M 15	C 15, C 16		1350
	1023	C22+N	1.0402	1.0402	C 22	C 20	050 A 20	C 20, C 21		1450
		S355JR	1.0570	1.0570	St 52-3	E 36-3, E 36-4	4360-50 C	Fe 510 B	SM 50 YA	2172, 2132
	1015	C 15R	1.1141	1.1141	Ck 15	XC 15, XC 18	080 M 15	C 15, C 16	S 15 C, S 15 CK	1370
	1025			1.1158	Ck 25	XC 25	060 A 25	C 25	S 25 C	
				1.2162	21 MnCr 5	20 NC 5			SCR 420 H	
	A 204 Gr. A	16 Mo 3	1.5415	1.5415	15 Mo 3	15 D 3	1501-240	16 Mo 3		2912
	4520			1.5423	16 Mo 5		1503-245-420	16 Mo 5	SB 450 M	
	3310, 9314	14 NiCr 14	1.5752	1.5752	14 NiCr 14	12 NC 15	655 M 13		SNC 815 (H)	
	4320			1.5919	15 CrNi 6	16 NC 6	S 107	16 CrNi 4		
		18 NiCrMo 7 6	1.6587	1.6587	18 CrNiMo 7 6	18 NCD 6	820 A 16	18 NiCrMo 7		
P3	5115	16 MnCr 5	1.7131	1.7131	16 MnCr 5	16 MC 5	527 M 17	16 MnCr 5	SCR 415	2511
		16 MnCrS 5	1.7139	1.7139	16 MnCrS 5					
	5120	20 MnCr 5	1.7147	1.7147	20 MnCr 5	20 MC 5		20 MnCr 5	SMnC 420 (H)	
	5120 H	20 MnCrS 5	1.7149	1.7149	20 MnCrS 5	20 MnCrS 5			SMnC 21 H	
	A 182-F11, F12	13 CrMo 4 5	1.7335	1.7335	13 CrMo 4 4	15 CD 3.5	1501-620 Gr. 27	14 CrMo 4 5		2216
	A 387 Gr. 12 Cl. 2			1.7337	16 CrMo 4 4	15 CD 4.5	1501-620 Gr. 27	14 CrMo 4 5		2216
	A 182-F22	10 CrMo 9 10	1.7380	1.7380	10 CrMo 9 10	10 CD 9.10	1501-622 Gr. 31	12 CrMo 9 10		2218
	1035	C35+N		1.0501	C 35	AF 55 C 35	060 A 35	C 35		1550
	1045	E 335	1.0503	1.0503	C 45	AF 65 C 45	80 M 46	C 45	S 45 C	1650
	1040	C40+N		1.0511	C 40	AF 60 C 40	080 M 40	C 40	S 40 C	
	1055	E 360	1.0070	1.0535	St 70-2	A 70-2		Fe 690		1655
	1060	C60+N	1.0601	1.0601	C 60	CC 55	080 A 62	C 60		
P4	1039			1.1157	40 Mn 4	35 M 5	150 M 36			
	1330	G 28 Mn6	1.1165	1.1165	30 Mn 5		120 M 36		SMn 1 H, SCMn 2	
	1335	G 28 Mn6+QT	1.1165	1.1167	36 Mn 5	40 M 5	150 M 36		SMn 438 (H), SCMn 3	2120
	1035	C 35E	1.1181	1.1181	Ck 35	XC 38 H1	080 M 36	C 35	S 35 C	1572
	1045	C 45E	1.1191	1.1191	Ck 45	XC 42	080 M 46	C 45	S 45 C	1672
	1064	C 60E	1.1221	1.1221	Ck 60	XC 60	080 A 62	C 60	S 58 C	1665, 1678
	1060			1.1740	C 60 W	Y3 55			SK 7	
	9255	55 SiCr7	1.7100	1.0904	55 Si 7	55 S 7	250 A 53	55 Si 8		2085, 2090
	4142, 4140	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	2244
	4142, 4140	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	2244
	4135			1.2330	35 CrMo 4	34 CD 4	708 A 37	35 CrMo 4		2234
	S1			1.2542	45 WCrV 7		BS 1	45 WCrV 8 KU		2710
	L6		1.2714	1.2714	56 NiCrMoV 7		BH 224-5	56 NiCrMoV7-KU	SKT 4	
	5045			1.5121	46 MnSi 4					
	3135			1.5710	36 NiCr 6	35 NC 6	640 A 35		SNC 236	
P5	3435			1.5736	36 NiCr 10	35 NC 11		35 NiCr 9	SNC 631 (H)	
	9840	36CrNiMo4+TA		1.6511	36 CrNiMo 4	40 NCD 3	816 M 40	38 NiCrMo 4 (KB)		
	4340	34 CrNiMo 6	1.6582	1.6582	34 CrNiMo 6	35 NCD 6	817 M 40	35 NiCrMo 6 (KW)	SNCM 447	2541
	5132	34 Cr 4	1.7033	1.7033	34 Cr 4	32 C 4	530 A 32	34 Cr 4 (KB)	SCr 430 (H)	
	5140	41 Cr 4	1.7035	1.7035	41 Cr 4	42 C 4	530 M 40	41 Cr 4	SCr 440 (H)	
	4130	25 CrMo 4	1.7218	1.7218	25 CrMo 4	25 CD 4 S	708 M 25	25 CrMo 4 (KB)	SCM 425	2225
				1.7361	32 CrMo 12	30 CD 12	722 M 24	32 CrMo 12		2240
	6150	50 CrV 4	1.8159	1.8159	50 CrV 4	50 CV 4	735 A 50	51 CrV 4	SUP 10	2230
	A 355 Cl. A	41 CrAlMo 7 10	1.8509	1.8509	41 CrAlMo 7	40 CAD 6.12	905 M 39	41 CrAlMo 7	SACM 645	2940
	1070	C 67S	1.1231	1.1231	Ck 67	XC 68	060 A 67	C 70		1770
	1095	C 100S	1.1274	1.1274	Ck 101		060 A 96		SUP 4	1870
P6	W1	C 105U	1.1545	1.1545	C 105 W1	Y1 105		C 100 KU		1880
				1.1645	C 105 W2	Y1 105		C 100 KU	SK 3	
	W1			1.1663	C 125 W	Y2 120		C 120 KU	SK 2	

SMG

UNS	U.N.E./ I.H.A.	GOST	Misc. Brands	Condition	Structure
G12130				Annealed	
G12134				Annealed	
				Annealed	
				Annealed	
				Annealed	
G11400		40		Annealed	
G11460				Annealed	
G12150				Annealed	
G12144				Annealed	
		16D		Annealed	
		18kp		Annealed	
		St14kP		Annealed	
G10100		10		Annealed	
G10170	F.1110	15		Annealed	
G10200		20		Annealed	
		17G1S		Annealed	
G10170	F.1511	15		Annealed	
G10250	F.1120	25		Annealed	
				Annealed	
				Annealed	
G45200				Annealed	
G33106		20X2H4A		Annealed	
				Annealed	
				Annealed	
G51170	F.1516	12KHN2		Annealed	
		18HG		Annealed	
G51200		20KH		Annealed	
		20KH		Annealed	
		12KHM		Annealed	
				Annealed	
J21890	F.155	12KH8		Annealed	
G10350	F.1130	35		Annealed	
G10430	F.5110	45		Annealed	
		40		Annealed	
	F.1150	55		Annealed	
G10600		60		Annealed	
G10390		40G		Annealed	
G13300		30G2		Annealed	
G13350	F.411	35G2		Annealed	
G10340	F.1135	35		Annealed	
G10420	F.1140	45		Annealed	
G10640	F.1150	60		Annealed	
		60		Annealed	
	F.144	55S2		Annealed	
G41400	F.1252	38HM		Annealed	
G41400	F.1252	38HM		Quenched & Tempered	
T51620	F.1250	35KHM		Annealed	
T41901	F.5241	5KHV2S		Annealed	
T61206		5KHNV		Annealed	
				Annealed	
				Quenched & Tempered	
				Annealed	
G98400				Quenched & Tempered	
	F.1280	38H2N2MA		Annealed	
G51320		35KH		Quenched & Tempered	
G51400		40H		Quenched & Tempered	
G41300	F.1251	20KHM		Quenched & Tempered	
				Quenched & Tempered	
H61500	F.143	50KHFA		Quenched & Tempered	
K24065	F.1740			Annealed	
G10700	F.5103	70		Annealed	
G10950	F.5117			Annealed	
	F.5118	U10A		Annealed	
		U10		Annealed	
		U13		Annealed	

SMG

SMG	AISI / ASTM	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
P7	L2	107 CrV 3	1.2210	1.2210	115 CrV 3	100 C 3		107 CrV 3 KU			T61202
	O1			1.2510	100 MnCrW 4	90 MWCV 5	BO 1	95 MnWCr 5 KU	SKS 3	2140	T31501
	O2	90 MnCrV 8	1.2842	1.2842	90 MnCrV 8	90 MV 8	BO 2	90 MnVCr 8 KU			T31502
	52100	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258	G51986
P8	D3	X 210 Cr 12	1.2080	1.2080	X 210 Cr 12	Z 200 C 12	BD 3	X 210 Cr 13 KU	SKD 1		T30403
	H11			1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	BH 11	X 37 CrMoV 5 1 KU	SKD 6		T20811
	H13	X 40 CrMoV 5 1	1.2344	1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	BH 13	X 40 CrMo 5 1 1 KU	SKD 61	2242	T20813
	A2	X 100 CrMoV 5	1.2363	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1 KU	SKD 12	2260	T30102
	H10			1.2365	X 32 CrMoV 3 3	32 DCV 28	BH 10	30 CrMoV 12 27 KU	SKD 7		T20810
				1.2436	X 210 CrW 12			X 215 CrW 12 1 KU	SKD 2	2312	
				1.2601	X 165 CrMoV 12			X 165 CrMoW 12 KU		2310	
	L6			1.2713	55 NiCrMoV 6	55 NCDV 7			SKT 4		T61206
	M35	HS 6-5-2-5	1.3243	1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05-04-02		HS 6-5-2-5	SKH 55	2723	
	M42	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	BM 42	HS 2-9-1-8	SKH 51		T11342
	T4	HS 18-1-2-5	1.3255	1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-01	BT 4	HS 18-1-1-5	SKH 3		T12004
	M2	HS 6-5-2	1.3343	1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2	HS 6-5-2	SKH 9, SKH 51	2722	T11302
	M7	HS 2-9-2	1.3348	1.3348	S 2-9-2	Z 100 DCWV 09-04-02-02		HS 2-9-2	SKH 58	2782	T11307
	T1	HS 18-0-1	1.3355	1.3355	S 18-0-1	Z 80 WCV 18-04-01	BT 1	HS 18-0-1	SKH 2		T12001
P11	403	X 6 Cr 13	1.4000	1.4000	X 6 Cr 13	Z 6 C 12	403 S 17	X 6 Cr 13	SUS 403	2301	S41008
	410, CA-15	X 12 Cr 13	1.4006	1.4006	X 10 Cr 13	Z 10 C 13	410 S 21	X 12 Cr 13	SUS 410	2302	S41000
	430	X 6 Cr 17	1.4016	1.4016	X 6 Cr 17	Z 8 C 17	430 S 15	X 8 Cr 17	SUS 430	2320	S43000
	420	X 20 Cr 13	1.4021	1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	X 20 Cr 13	SUS 420 J 1	2303	S42000
	420	X 39 Cr 13	1.4031	1.4031	X 40 Cr 13	Z 40 C 14	420 S 45	X 40 Cr 14	SUS 420	2304	S40280
	440 A	X 70 CrMo 15	1.4109	1.4109	X 65 CrMo 14	Z 70 D 14			SUS 440 A		S44002
	440 B	X 90 CrMoV 18	1.4112	1.4112	X 90 CrMoV 18	Z 2 CND 18 05	409 S 19	X CrTi 12	SUS 440 B	2327	S44003
	440 C	X 105 CrMo 17	1.4125	1.4125	X 105 CrMo 17	Z 100 CD 17		X 105 CrMo 17	SUS 440 C		S44004
		X 3 CrNiMo 13 3	1.4313	1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	425 C 11	X 6 CrNi 13 04	SCS 5	2385	J91540
	446	X 18 CrN 28	1.4749	1.4749	X 18 CrN 28	Z 18 C 25				2322	S44600
M1	303	X 10 CrNiS 18 9	1.4305	1.4305	X 10 CrNiS 18 9	Z 10 CNF 18.09	303 S 31	X 10 CrNi 18 09	SUS 303	2346	S30300
M2	302	X 12 CrNi 18 8	1.4300	1.4300	X 12 CrNi 18 8	Z 12 CN 18	302 S 25		SUS 302	2331	S30200
	304, 304 H	X 5 CrNi 18 9	1.4301	1.4301	X 6 CrNi 18 10	Z 6 CN 18.09	304 S 31	X 5 CrNi 18 11	SUS 304	2333	S30400
	304 L	X 2 CrNi 19 11	1.4306	1.4306	X 2 CrNi 19 11	Z 2 CN 18.10	304 S 12	X 3 Cr Ni 18 11	SUS 304 L	2352	S30403
	301	X 9 CrNi 18 8	1.4310	1.4310	X 12 CrNi 17 7	Z 12 CN 17.07	301 S 21	X 12 CrNi 17 07	SUS 301	(2331)	S30100
	316	X 5 CrNiMo 17 12 2	1.4401	1.4401	X 5 CrNiMo 17 12 2	Z 3 CND 17.11.1	316 S 31	X 5 CrNiMo 17 12	SUS 316	2347	S31600
	347	X 6 CrNiNb 18 10	1.4550	1.4550	X 6 CrNiNb 18 10	Z 6 CNNb 18.10	347 S 31	X 6 CrNiNb 18 11	SUS 347	2338	S34700
M3	304 LN	X 2 CrNiN 18 10	1.4311	1.4311	X 2 CrNiN 19 11	Z 2 CN 18 .10 Az	304 S 62	X 2 CrNiN 18 11	SUS 304 LN	2371	S30453
	310 S	X 12 CrNi 25 21	1.4335	1.4335	X 12 CrNi 25 21	Z 12 CN 25.20	310 S 24	X 6 CrNi 26 20	SUH 310, SUS 310 S	2361	S31008
	316 LN	X 2 CrNiMoN 17 13 3	1.4429	1.4429	X 2 CrNiMoN 17 13 3	Z 2 CND 17.13 Az	316 S 62	X 2 CrNiMoN 17 13 3	SUS 316 LN	2375	S31653
	316 L	X 2 CrNiMo 18 14 3	1.4435	1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	316 S 12	X 2 CrNiMo 17 13 2	SCS 16, SUS 316 L	2353	S31603
	317	X 3 CrNiMo 18 12 3	1.4466	1.4466	X 5 CrNi 18 15		317 S 16	X 5 CrNi 18 15	SUS 317	2366	S31700
		X 9 CrNiSiNCe 21 11 2	1.4835	1.4893	X 9 CrNiSiNCe 21 11 2		310 S 31			2368	S30815
M4		X 2 CrNiMoSi 19 5	1.4424	1.4417	X 2 CrNiMoSi 19 5	Z 2 CND 18.05.03				2376	S31500
	329	X 3 CrNiMo 27 5 2	1.4460	1.4460	X 4 CrNiMo 27 5 2	Z 3 CND 25.7 Az		X 3 CrNiMo 27 5 2	SUS 329 J 1	2324	S32900
	329 LN	X 2 CrNiMoN 22 5 3	1.4462	1.4462	X 2 CrNiMoN 22 5	Z 2 CND 22.05 Az	332 S 15	X 2 CrNiMoN 22 5		2377	S31803
	904L	X 2 NiCrMoCu 25 20 5	1.4539	1.4539	X 2 NiCrMoCu 25 20 5	Z 2 NCDU 25 20	904 S 13			2562	N08904
M5	F 53	X 2 CrNiMoN 25 7 4	1.4410	1.4410	X 2 CrNiMoN 25 7 4	Z 3 CND 25.07 Az		X 2 CrNiMoN 25 7 4		2328	S32750
		X 1 CrNiMoN 20 18 7	1.4547	1.4529	X 1 CrNiMoN 20 18 7	Z 1 CNDU 20.18.05 Az		X 1 CrNiMoN 20 18 7		2778	S31254
	XM-13	X 6 NiCrTiMoV 25 15	1.4534	1.4534	X 3 CrNiMoAl 13 8 2						S13800
	XM-12		1.4540	1.4540	X 4 CrNiCuNb 16 4	Z 4 CNUNb 16.4 M					S15500
	AMS 5528	X 3 CrNiMoAl 13 8 2	1.4568	1.4568	X 7 CrNiAl 17 7	Z 9 CAN 17.7	301 S 81	X 7 CrNiAl 17 7	SUS 631	2388	S17700
		X 1 CrNiMoN 25 22 8	1.4652	1.4652	X 2 CrNiMoN 25 22 7						S32654
		X 10 NiCrAlTi 32 20	1.4876	1.4876	X 10 NiCrAlTi 32 20	Z 10 NC 32.21			NCF 800		N08800
	660	X 5 CrNiCuNb 16 4	1.4980	1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15	HR 51		SUH 660	2570	S66286

SMG

UNS	U.N.E./ I.H.A.	GOST	Misc. Brands	Condition	Structure
T61202	F.520L	11KHF		Annealed	
T31501	F.5220	9KHVG		Annealed	
T31502		9G2F		Annealed	
G51986	F.5230	SHKH15		Annealed	
T30403	F.5212	KH12		Annealed	
T20811		4KH5MFS		Annealed	
T20813	F.5318	4KH5MF1S		Annealed	
T30102	F.5227	9KH5VF		Annealed	
T20810		3KH3M3F		Annealed	
	F.5213	KH12		Annealed	
		KH12MF		Annealed	
T61206	F.520.S	5KHNM		Annealed	
	F.5613	R6M5K5		Annealed	
T11342		R2AM9K5		Annealed	
T12004		R18K5F2		Annealed	
T11302	F.5603	R6M5		Annealed	
T11307				Annealed	
T12001		R18		Annealed	
S41008		08KH13		Annealed	Ferrite
S41000	F.3401	12KH13, 08KH13		Annealed	Martensite
S43000	F.3113	12KH17		Annealed	Ferrite
S42000	F.5261	20KH13		Annealed	Martensite
S40280	F.3404	40KH13		Annealed	Martensite
S44002				Annealed	Martensite
S44003		95KH18		Annealed	Martensite
S44004		95KH18		Annealed	Martensite
J91540			F6NM	Annealed	Martensite
S44600		15KH28		Annealed	Ferrite
S30300	F.3508	12KH19N9		Annealed	Austenite
S30200		12KH18N9		Annealed	Austenite
S30400	F.3504	08KH18N10		Annealed	Austenite
S30403	F.3504	03KH18N11		Annealed	Austenite
S30100	F.3517	07KH16N6		Annealed	Austenite
S31600	F.3534	08KH17H13M2T		Annealed	Austenite
S34700	F.3524	08KH18N12B		Annealed	Austenite
S30453	F.3541	03KH18N11		Annealed	Austenite
S31008		12KH25N20		Annealed	Austenite
S31653		03KH16N15M3		Annealed	Austenite
S31603	F.3533	03KH17N14M3		Annealed	Austenite
S31700		08KH17H15M3T		Annealed	Austenite
S30815			253 MA	Annealed	Austenite
S31500			3RE60	Annealed	Duplex
S32900				Annealed	Duplex
S31803			SAF 2205	Annealed	Duplex
N08904				Annealed	Super austenite
S32750			SAF 2507	Annealed	Super duplex
S31254			254 SMO	Annealed	Super austenite
S13800			PH13-8Mo	Solution treated	Austenite
S15500			15-5-PH	Solution treated	Martensite
S17700		09KH17N7YU1	17-7-PH	Solution treated	Austenite/ferrite
S32654			654 SMO	Annealed	Super austenite
N08800			Alloy 800	Annealed	Austenite
S66286			A286	Solution treated	Austenite

SMG

SMG	AISI / ASTM	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS
K1	A48 25 B	EN-GJL-150	0.6150	0.6150	GG-15	Ft 15 D	Grade 150	G15	FC 150	01 15-00
	A48 30 B	EN-GJL-200	0.6200	0.6200	GG-20	Ft 20 D	Grade 220	G20	FC 200	01 20-00
	G 3500	EN-GJL-215			GG-220 HB					02 19
	A48 35 B	EN-GJL-250	0.6250	0.6250	GG-25	Ft 25 D	Grade 260	G25	FC 250	01 25-00
	A48 45 B	EN-GJL-300	0.6300	0.6300	GG-30	Ft 30 D	Grade 300	G30	FC 300	01 30-00
	A48 50 B	EN-GJL-350	0.6350	0.6350	GG-35	Ft 35 D	Grade 350	G35	FC 350	01 35-00
K2	Grade 350	EN-GJV-300			GJV-300					
	Grade 400	EN-GJV-350			GJV-350					
	Grade 400-15	EN-GJV-400			GJV-400					
	Grade 450	EN-GJV-450			GJV-450					
	Grade 500	EN-GJV-500			GJV-500					
K3	A220 60004	EN-GJMB-550-4	0.8155		GTS-55-04	P 540/5	P 540/5	P 55-04	PCMP55-04	08 54-00
K4		EN-GJS-350-22	0.7033	0.7033	GGG-35.3	FGS 370-17	Grade 350/22		FCD 350-22L	07 17-15
	60-40-18	EN-GJS-400-15	0.7040	0.7040	GGG-40	FGS 400-12	Grade 420/12	GS 400-12	FCD 400-18L	07 17-02
	60-40-18	EN-GJS-400-18	0.7043	0.7043	GGG-40.3	FGS-370-17	Grade 370/17	GSO 42/17		07 17-12
	A536 80-55-6	EN-GJS-500-7	0.7050	0.7050	GGG-50	FGS 500-7	Grade 500/7	GS 500-7	FCD 500-7	07 27-02
	A476 80-60-03	EN-GJS-600-3	0.7060	0.7060	GGG-60	FGS 600-3	Grade 600/3	GS 600-3	FCD 600-3	07 32-03
	A536 100-70-03	EN-GJS-700-2	0.7070	0.7070	GGG-70	FGS 700-2	Grade 700/2	GS 700-2	FCD 700-2	07 37-01
K5	1600/1300/-	-								
	1050/700/7	EN-GJS-1000-5			GJS-1000-5					
	1200/850/4	EN-GJS-1200-2			GJS-1200-2					
	1400/1100/1	EN-GJS-1400-1			GJS-1400-1					
	850/550/10	EN-GJS-800-8			GJS-800-8					
K6	A436 Type 2	EN-GJLA-XNiCr 20-2	0.6660	0.6660	GGL-NiCr 20 2	FGL Ni20 Cr2	Grade F2			05 23-00
	A436 Type 3	EN-GJLA-XNiCr 30-3	0.6676	0.6676	GGL-NiCr 30 3	FGL Ni30 Cr3	Grade F3			
	A436 Type 1	EN-GJLA-XNiCuCr15-6-2	0.6655	0.6655	GGL-NiCuCr 15 6 2	FGL Ni15 Cu6 Cr2	Grade F1			
K7	A439 Type D-5	EN-GJSA-XNi35	0.7683	0.7683	GGG-Ni 35	FGS Ni35				
	A436 Type D-2	EN-GJSA-XNiCr20-2	0.7660	0.7660	GGG-NiCr 20 2	FGS Ni20 Cr2	Grade S2			
	A436 Type D-3	EN-GJSA-XNiCr30-3	0.7676	0.7676	GGG-NiCr 30 3	FGS Ni30 Cr3	Grade S3			
	-	EN-GJSA-XNiMn13-7	0.7652	0.7652	GGG-NiMn 13 7	FGS Ni13 Mn7	Grade S6			07 72-00
	A439 Type D-2M	EN-GJSA-XNiMn23-4	0.7673	0.7673	GGG-NiMn 23 4	FGS Ni23 Mn4	Grade S2M			
N1		AW-1050A	Al99.5	3.0255	Al99.5	A-5/1050A	1B		(A1050)	4007
		AW-3103	AlMn1	3.0515	AlMn1		N3			4054
		AW-3003	AlMn1Cu	3.0517	AlMn1Cu	A-M1/3003			A3003	
		AW-2014	AlCuSiMn	3.1255	AlCuSiMn	A-U4SG/2014	H15			4338
		AW-2011	AlCuBiPb	3.1655	AlCuBiPb	A-U5PbBi/2011	FC1		A2011	4355
	A380	AC-46200	AlSi8Cu3(Si)	3.2161	G-AlSi8Cu3					4251
	B26	AC-42000		3.2341	G-AlSi5Mg	A-S7G	LM25	3599	AC 4C	4244
		AW-6060	AlMgSi0.5	3.3206	AlMgSi0.5	A-GS/6060	(H9)			4103
		AW-6063	AlMgSi0.7	3.3210	AlMgSi0.7	A-GSUC/6061	(H10)		(A6063)	4104,4107
		AW-5005	AlMg1	3.3315	AlMg1	A-G0.6	N41			4106
		AW-7020	AlZn4.5Mg1	3.4335	AlZn4.5Mg1	A-Z5G/7020	H17			4425
		AW-7075		3.4365	AlZnMgCu1.5	A-Z5GU/7075	2L95/2L96		A7075	
	AMS 4442	MN65120	MgSe3Zn2Zr1	3.5103	G-MgSe3Zn2Zr1	ZRE1	MAG6-TE			
	AZ61A	MG-P-63	MgAl6Zn	3.5612	G-MgAl6Zn	G-A6-Z1	MAG-E-121			
	AZ80A	MG-P-61	MgAl8Zn	3.5812	G-MgAl8Zn	(G-A7-Z1)				
N2		AW-6082	AlMgSi1	3.2315	AlMgSi1	A-SGM0.7/6082	H30			4212
	B85	AC-43400	AlSi10Mg(Fe)	3.2381	G-AlSi10Mg	A-S10G	LM9			4253
	A413.2	AC-44200	AlSi12	3.2382	GD-AlSi12					
N3	B390.0		AlSi17Cu5						ADC14	
N11	CA952	CC331G		2.0940.01	CuAl10Fe	CuAl10Fe	AB1			5710
	CA955	CC333G		2.0975.01	CuAl10Ni	CuAl10Ni5Fe5	AB2			5716
			CuNi10Fe1Mn	2.0872	CuNi10Fe1Mn	CuNi10Fe1Mn	CN102			5667
					CuNi10Zn45					
			CW408J	2.0790	CuNi18Zn19Pb	CuNi18Zn19Pb1				
	CA937	CW352H		2.1176	CuPb10Sn	CuSn10Pb10	LB2			5640
		CC480K		2.1050.01	CuSn10	CuSn10	CT1			5443
				2.1087	CuSn10Zn					5458
		CW452K	CuSn6	2.1020	CuSn6	CuSn6	PB103		C5191	5428
		CW502L	CuZn15	2.0240	CuZn15	CuZn15	CZ102		C2300	5112
		CW706R	CuZn28Sn1	2.0470	CuZn28Sn1	CuZn29Sn1				5220
		CW508L	CuZn37	2.0321	CuZn37	CuZn37	CZ108			5150
		CW717R	CuZn38Sn1	2.0530	CuZn38Sn1					
		CW614N	CuZn39Pb3	2.0401	CuZn39Pb3	CuZn39Pb3	CZ121			5170
		CW612N	CuZn40Pb2	2.0402	CuZn40Pb2	CuZn39Pb2	CZ120			5168
		CW622N	CuZn44Pb2	2.0410	CuZn44Pb2		CZ104			5272

SMG

UNS	U.N.E./ I.H.A.	GOST	Misc. Brands	Condition	Structure
F11601		Sc 15			Grey cast iron (GCI)
F12101		Sc 20			Grey cast iron (GCI)
					Grey cast iron (GCI)
F12401		Sc 25			Grey cast iron (GCI)
F13101		Sc 30			Grey cast iron (GCI)
F13502		Sc 35			Grey cast iron (GCI)
					Compacted graphite irons (CGI)
					Compacted graphite irons (CGI)
					Compacted graphite irons (CGI)
					Compacted graphite irons (CGI)
					Compacted graphite irons (CGI)
F24130				Tempered	Malleable cast irons (MCI)
					Nodular cast irons (SGI)
F32800	FGE 38-17	Vc 42-12			Nodular cast irons (SGI)
F32800		Vc 42-12			Nodular cast irons (SGI)
F33800	FGE 50-7	Vc 50-2			Nodular cast irons (SGI)
F34100	FGE 60-2	Vc 60-2			Nodular cast irons (SGI)
F34800	FGE 70-2	Vc 70-2			Nodular cast irons (SGI)
ADI grade 5					Austempered cast irons (ADI)
ADI grade 2					Austempered cast irons (ADI)
ADI grade 3					Austempered cast irons (ADI)
ADI grade 4					Austempered cast irons (ADI)
ADI grade 1					Austempered cast irons (ADI)
F41002			Ni-Resist 2		Austenitic lamellar cast irons
F41004			Ni-Resist 3		Austenitic lamellar cast irons
F41000			Ni-Resist 1		Austenitic lamellar cast irons
F43006			Ni-Resist D-5		Austenitic nodular cast irons
F43000			Ni-Resist D-2		Austenitic nodular cast irons
F43003			Ni-Resist D-3		Austenitic nodular cast irons
-			Nodumag		Austenitic nodular cast irons
F43010			Ni-Resist D-2M		Austenitic nodular cast irons
AA1050A					
AA3103					
AA3003					
AA2014					
AA2011					
A13800					
AA6060					
AA6005					
AA5005					
AA7020					
AA7075					
M12330					
M11600					
AA6082					
A13600					
C95200		BrA9ZH3L			
C95500		BrA10ZH4N4L			
C70600					
C76300					
C93700					
C90700					
C90500					
C51900		BrOF6.5-0.15			
C23000		L90			
C44300		LOMsh70-1-0.05			
C27200					
C46400		LO60-1			
C38500					
C37800					
C68700		LAMsh77-2-0.05			

SMG

SMG	AISI / ASTM	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS
S1										
S2										
S3		NiMo30		2.4810						
		NiMo16Cr15W		2.4819						
		NiCr19Fe19Nb5Mo3		2.4668						
				2.4669						
		NiCr20TiAl		2.4631						
		NiCr19Co18Mo4Ti3Al3								
		NiCr20Co13Mo4Ti3Al		2.4654						
S11				3.7024						
	AMS 4919									
S12	AMS 4943									
	AMS 4920, Grd 5	TiAl6V4		3.7164						
S13	AMS 4986				TiV10Fe2Al3					
H3	5115	16 MnCr 5	1.7131	1.7131	16 MnCr 5	16 MC 5	527 M 17	16 MnCr 5	SCR 415	2511
H5	4142, 4140	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M40	42 CrMo 4	SCM 440 (H)	2244
	1070	C 67S	1.1231	1.1231	Ck 67	XC 68	060 A 67	C 70		1770
	1078, 1080	C 75S	1.1248	1.1248	Ck 75	XC 75	060 A 78	C 75		1774, 1778
	1095	C 100S	1.1274	1.1274	Ck 101		060 A 96		SUP 4	1870
	W 1	C 105U	1.1545	1.1545	C 105 W1	Y1 105		C 100 KU		1880
	S1			1.2550	60 WCrV 7	55 WC 20		55 WCrV 8 KU		
	5155	55 Cr 3	1.7176	1.7176	55 Cr 3	55 C 3	527 A 60	55 Cr 3	SUP 9 (A)	2253
H7	L2	107 CrV 3	1.2210	1.2210	115 CrV 3	100 C 3		107 CrV 3 KU		
	O1			1.2510	100 MnCrW 4	90 MWCV 5	BO 1	95 MnWCr 5 KU	SKS 3	2140
	O2	90 MnCrV 8	1.2842	1.2842	90 MnCrV 8	90 MV 8	BO 2	90 MnVCr 8 KU		
	52100	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258
H8	H13	X 40 CrMoV 5 1	1.2344	1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	BH 13	X 40 CrMo 5 1 1 KU	SKD 61	2242
	A2	X 100 CrMoV 5	1.2363	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1 KU	SKD 12	2260
	D2	X 155 CrVMo 12 1		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	BD 2	X 155 CrVMo 12 1 KU	SKD 11	
				1.2436	X 210 CrW 12			X 215 CrW 12 1 KU	SKD 2	2312
				1.2601	X 165 CrMoV 12			X 165 CrMoW 12 KU		2310
	L6			1.2713	55 NiCrMoV 6	55 NCDV 7			SKT 4	
	M35	HS 6-5-2-5	1.3243	1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05-04-02		HS 6-5-2-5	SKH 55	2723
	M42	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	BM 42	HS 2-9-1-8	SKH 51	
	M2	HS 6-5-2	1.3343	1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	BM 2	HS 6-5-2	SKH 9, SKH 51	2722
	T1	HS 18-0-1	1.3355	1.3355	S 18-0-1	Z 80 WCV 18-04-01	BT 1	HS 18-0-1	SKH 2	
H11	420	X 20 Cr 13	1.4021	1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	X 20 Cr 13	SUS 420 J 1	2303
	440 A	X 70 CrMo 15	1.4109	1.4109	X 65 CrMo 14	Z 70 D 14			SUS 440 A	
	440 B	X 90 CrMoV 18	1.4112	1.4112	X 90 CrMoV 18	Z 2 CND 18 05	409 S 19	X CrTi 12	SUS 440 B	2327
	440 C	X 105 CrMo 17	1.4125	1.4125	X 105 CrMo 17	Z 100 CD 17		X 105 CrMo 17	SUS 440 C	
H12	XM-13	X 3 CrNiMoAl 13 8 2	1.4534	1.4534	X 3 CrNiMoAl 13 8 2					
	630	X 5 CrNiCuNb 16 4	1.4548	1.4542	X 5 CrNiCuNb 17 4	Z 6 CNU 17.4			SCS 24, SUS 630	
	AMS 5528	X 7 CrNiAl 17 7	1.4568	1.4568	X 7 CrNiAl 17 7	Z 9 CAN 17.7	301 S 81	X 7 CrNiAl 17 7	SUS 631	2388
	660	X 6 NiCrTiMoV 25 15	1.4980	1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15	HR 51		SUH 660	2570
H21	A128 Grade A	X 120 Mn 12	1.3401	1.3401	X 120 Mn 12	Z 120 M 12	BW 10		SC MnH 1	2183
H31	A532 IB (NiCr-LC	EN-GJN-HV520	0.9620	G-X330 NiCr 4 2	FB Ni4 Cr2 BC	Grade 2 A	Grade 2 A			05 12-00
	A532 IA (NiCr-HC)	EN-GJN-HV550	0.9625	G-X260 NiCr 4 2	FB Ni4 Cr2 HC	Grade 2 B	Grade 2 B			05 13-00
	A532 ID (Ni-HiCr)	EN-GJN-HV600(XCr11)	0.9630	G-X300 CrNiSi 9 5 2	FB Cr9 Ni5	Grade 2 C, D, E	Grade 2 C, D, E			04 57-00

SMG

UNS	U.N.E./ I.H.A.	GOST	Misc. Brands	Condition	Structure
			Discalloy	Precipitation hardened	
			Haynes 25		
			Stellite 21		
			Stellite 31		
N10002			Hastelloy C		
N10276		KHN65MV	Hastelloy C-276		
			IN 100		
N07718			Inconel 718		
N07750			Inconel X-750	Solution treated	
N07080			Nimonic 80A		
			René 41		
N07500			Udimet 500		
N07001			Waspalloy		
			Ti	Commercially pure	Ti (α)
R54620			Ti 6-2-4-2	Annealed	Ti (α)
R56320			Ti 3Al-2.5V (grd 9)	Annealed	Ti (α+β)
R56400		VT6	Ti 6Al-4V	Annealed	Ti (α+β)
			Ti 10V-2Fe-3Al	Annealed	Ti (β)
G51170	F.1516	12KHN2		Case hardened	
G41400	F.1252	38HM		Quenched & Tempered	
G10700	F.5103	70		Quenched & Tempered	
G10780	F.5107	75		Quenched & Tempered	
G10950	F.5117			Quenched & Tempered	
	F.5118	U10A		Quenched & Tempered	
		5KHV2SF		Quenched & Tempered	
G51550				Quenched & Tempered	
T61202	F.520L	11KHF		Quenched & Tempered	
T31501	F.5220	9KHVG		Quenched & Tempered	
T31502		9G2F		Quenched & Tempered	
G51986	F.5230	SHKH15		Quenched & Tempered	
T20813	F.5318	4KH5MF1S		Quenched & Tempered	
T30102	F.5227	9KH5VF		Quenched & Tempered	
T30402	F.5211	KH12MF		Quenched & Tempered	
	F.5213	KH12		Quenched & Tempered	
		KH12MF		Quenched & Tempered	
T61206	F.520.S	5KHNM		Quenched & Tempered	
	F.5613	R6M5K5		Quenched & Tempered	
T11342		R2AM9K5		Quenched & Tempered	
T11302	F.5603	R6M5		Quenched & Tempered	
T12001		R18		Quenched & Tempered	
S42000	F.5261	20KH13		Quenched & Tempered	Martensite
S44002				Quenched & Tempered	Martensite
S44003		95KH18		Quenched & Tempered	Martensite
S44004		95KH18		Quenched & Tempered	Martensite
S13800			PH13-8Mo	Precipitation hardened	Martensite
S17400			17-4-PH	Precipitation hardened	Martensite
S17700		09KH17N7YU1	17-7-PH	Precipitation hardened	Austenite/ferrite
S66286			A286	Precipitation hardened	Austenite
F45001			Ni-Hard 2		White cast iron
F45000			Ni-Hard 1		White cast iron
F45003			Ni-Hard 4		White cast iron

Spare part and accessory index

EDP No.	Product Desc.
86959	117.10-620
13696	174.10-620
21593	174.10-652-T07P
10935	179.10-638
21769	19BDR05165
66670	19BDR06165
21770	19BDR08165
21677	19BDR10165
14579	220.17-695
05700	268-621
32866	335.18-607
27236	335.18-609
27239	335.18-611
00042	335.18-613F
59104	335.18-XL607
59105	335.18-XL609
59106	335.18-XL611
05785	335.25-612
20527	335.25-616
11938	335.25-620
09119	335.25-625
00374	5SMS795
55857	90M5
66671	90ZQ01
34155	AS6011
53560	AS6011F
21663	AU1114T-T15P
21648	AU8019-T15P
12622	C01804-T06P
10392	C02005-T06P
74718	C02052-T06P
98783	C02053-T06P
12625	C02204-T07P
16700	C02205-T07P
16783	C02245-T07P
12628	C02505-T08P
16711	C02506-T07P
07369	C02506-T08P
29348	C02508-T08P
24491	C02555-T08P
09961	C02707-T08P
09962	C02708-T08P
12225	C03006-T09P
00060	C03007-T09P
22370	C03008-T09P
01578	C03507-T10P
72055	C03508-T10P
00902	C03508-T15P
00813	C03509-T10P
12631	C03509-T15P
16715	C03510-T15P
11847	C03511-T10P
14611	C04008-H3
16717	C04008-T15P
04185	C04009-T15P
04199	C04011-T15P
04820	C04012-T15P
24191	C04013-T15P
62292	C04508-T20P
01577	C04510-T20P
12638	C05010-T20P
00059	C05013-T20P
12640	C05018-T20P
12655	C06013-T20P
00062	C06018-T25P
03751	C45011-T20P
36928	C73007-T09P

EDP No.	Product Desc.
16726	C93504-T09P
16727	C93505-T09P
16739	C94006-T15P
16740	C94008-T15P
16744	C94010-T15P
81177	C94055-T15P
53520	CA5010
23119	CH9411-T09P
20512	CL85012-T25P
34154	CW0608
53557	CW0608M
13442	CW0608S
04877	CW0810
79306	CW0816-RH
17467	CW0816-RHA
21592	F94009-T09P
12063	FS96018
12407	FS98030
35189	H00-1.3
39984	H00-1.5
35187	H00-1305
41225	H00-1505
39987	H00-1509
39985	H00-2.0
39986	H00-2.5
41226	H00-2009
40864	H00-2016
39988	H00-2020
41228	H00-2512
39989	H00-2530
36038	H00-2535
44246	H00-3.0
41224	H00-3020
44247	H00-4.0
44245	H00-4030
24158	H00T-3.0
24149	H00T-3050
24159	H00T-4.0
24150	H00T-4050
24151	H00T-4060
24160	H00T-5.0
24152	H00T-5080
24161	H00T-6.0
24153	H00T-60100
43063	H04-4
12700	H05-4
01779	H6B-H3.0
79307	L08022-T20P
27262	L257.9-120M
43885	L257.9-120-T11
27265	L257.9-120-T16
29245	L335.18-0810-05
59096	L335.18-0810XL-05
36674	L335.18-1012-06
59097	L335.18-1012XL-06
09688	L335.18-10-R5
59101	L335.18-10XL-R5
36685	L335.18-1215-08
59098	L335.18-1215XL-08
09689	L335.18-12-R6
59102	L335.18-12XL-R6
18368	L335.18-16-R8-D5
05749	L335.25-1317-09
05763	L335.25-1317XL-09
14644	L335.25-1721-12
14653	L335.25-1721XL-12
09790	L335.25-2126-14

EDP No.	Product Desc.
15398	L335.25-2126XL-14
78153	L335.25-2632-17
38444	LD5018F-T15P
21620	LD6018F-T20P
21621	LD6018T-T15P
21622	LD6019-T15P
21628	LD8018-T25P
21629	LD8020-T25P
74917	MC6S10X40
94807	MM-035023
83894	MM-035046
83895	MM-035091
83982	MM-05019
38586	MM-05044
83981	MM-06020
04924	MM-06032
83896	MM06-03518
83897	MM06-03544
94808	MM06-03564
03426	MM-06048
03427	MM-06116
38585	MM08-0524
83889	MM08-0543
94809	MM08-0582
23591	MM-10030
32461	MM10-061027
03428	MM-10062
42975	MM10-0627
83890	MM10-0651
94810	MM10-0688
03429	MM-10132
32462	MM12-061037
42977	MM12-0637
94806	MM16-10113
12794	MM16-1045
83893	MM16-1093
67607	MP00-10.080
14540	MP00-10.110
81567	MP00-10M
67608	MP00-12.120
14545	MP00-12.150
81570	MP00-12M
67609	MP00-16.190
81569	MP00-16M
81568	MP1016
32867	N335.18-08-R4
59103	N335.18-08XL-R4
52848	ON05AR
75754	ON09AL
74611	ON09AR
91623	P6SS4X8
29244	R335.18-0810-05
59093	R335.18-0810XL-05
36639	R335.18-1012-06
59094	R335.18-1012XL-06
10370	R335.18-10-R5
59099	R335.18-10XL-R5
36675	R335.18-1215-08
59095	R335.18-1215XL-08
09687	R335.18-12-R6
59100	R335.18-12XL-R6
18367	R335.18-16-R8-D5
05751	R335.25-1317-09
05761	R335.25-1317XL-09
14649	R335.25-1721-12
14655	R335.25-1721XL-12
18255	R335.25-2126-14

EDP No.	Product Desc.
15401	R335.25-2126XL-14
78152	R335.25-2632-17
00683	SE12AR-53
37940	SH6004-T08P
21580	SH6005-T09P
22277	SRP1604M0
23056	SRP2004M0
16685	T00-06P
03403	T00-06P03
01728	T00-06P05
16689	T00-07P
41232	T00-07P05
09618	T00-07P09
69934	T00-07P12
16692	T00-08P
12856	T00-08P12
16697	T00-09P
41233	T00-09P09
12857	T00-09P12
12858	T00-09P20
16641	T00-10P
05287	T00-10P20
16691	T00-10P30
16698	T00-15P
12859	T00-15P20
12860	T00-15P30
12870	T00-15P35
12871	T00-15P50
05101	T00-20P
35915	T00-20P35
05103	T00-20P50
24154	T00T-15P
24143	T00T-15P50
24155	T00T-20P
24144	T00T-20P50
39294	T00T-20P60
24145	T00T-20P80
24156	T00T-25P
35914	T00T-25P50
24146	T00T-25P60
24147	T00T-25P80
24157	T00T-30P
24148	T00T-30P80
16662	T06P-3
16665	T07P-2
16666	T07P-3
16667	T08P-2
10394	T08P-3
16673	T09P-2D
00064	T09P-3
00811	T10P-2D
00818	T10P-3
16674	T15P-2
16675	T15P-2D
10395	T15P-3
04200	T15P-4
20513	T15P-4ST
01573	T20P-3
01574	T20P-4
16678	T20P-7
00063	T25P-3
16680	T25P-4
43884	TN11PR
27275	TN16PR
02375	UC6S1/2UNFX1-1/2
03249	UC6S1/2UNFX2
61851	UC6S1/2UNFX2-1/2

Spare part and accessory index

EDP No.	Product Desc.
61845	UC6S1/2UNFX3
73735	UC6S1/2UNFX4
54900	UC6S1/4UNFX1
59965	UC6S3/4UNFX2
61848	UC6S3/4UNFX3

EDP No.	Product Desc.
61849	UC6S3/4UNFX4
97657	UC6S3/8UNFX11/2
12497	UC6S3/8UNFX1-1/4
73010	UC6S5/8UNFX11/2
56078	UC6S5/8UNFX1-1/4

EDP No.	Product Desc.
60010	UC6S5/8UNFX21/4
61847	UC6S5/8UNFX3-1/2
77918	UF6S1/2UNFX1-1/2
56067	UF6S3/4UNFX2
54475	UF6S3/8UNFX11/2

EDP No.	Product Desc.
74789	ULC6S3/4UNFX11/2
74790	ULC6S5/8UNFX11/2
81804	XN08PRN
57494	XO12PRN
57493	XO18PRN

Declaration of conformity

Cemented carbide inserts and insert carriers

Cemented carbide inserts and cemented carbide insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
These products meet all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Regrinding:
Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:
Seco Tools will buy back used inserts and solid carbide tools for recycling. Inserts and solid carbide tools should be separated from other metal waste (steel, aluminum, copper etc).
All packing material is fully recyclable.

CBN and PCD inserts

Inserts from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Regrinding:
Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:
Seco Tools will buy back used CBN- or PCD-tipped inserts for recycling. Inserts should be separated from other metal waste (steel, aluminum, copper etc). Solid CBN-inserts may be discarded as landfill waste.
All packing material is fully recyclable.

Black oxide insert carriers

Insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Disposal:
Used insert carriers may be sent for recycling together with ordinary steel waste (swarf and discarded steel scrap) for recycling.
All packing material is fully recyclable.

Declaration of conformity

Cermet inserts

Inserts from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Cermet grade C15M inserts do contain nickel and will leach nickel when in contact with the skin. Amount of leaching is higher than specified in norm SS-EN 1811 Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin.
These norms are intended for products that are in direct and prolonged contact with the skin and are therefore not directly applicable for cermet inserts. Persons with known allergic reactions to nickel are advised to wear protective gloves when handling cermet inserts.

Regrinding:
Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:
Used inserts may be recycled. Inserts should be separated from other metal waste (steel, aluminum, copper, etc) including cemented carbide inserts.
All packing material is fully recyclable.

Nickel coated insert carriers

Insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.
Insert carriers do contain nickel and will leach nickel when in contact with the skin. Amount of leaching is not higher then norm SS-EN 1811 Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin.
These norms are intended for products that are in direct and prolonged contact with the skin and are therefore not directly applicable for insert carriers. Persons with known allergic reactions to nickel are advised to wear protective gloves when handling nickel coated insert carriers.

Disposal:
Used tools maybe sent for recycling together with ordinary steel waste (swarf and discarded steel scrap) for recycling.
All packing material is fully recyclable.

Intentionally added alloying elements

Grade	Cemented carbide										Coating						
	W	Ti	Ta	Nb	Co	Cr	Ni	Mo	C	N	Ti	Al	C	N	O	Si	Nb
CP20	■				■				■		■			■			
CP200	■				■	■			■		■	■		■			
CP300	■	■	■	■	■				■		■	■		■			
CP500	■				■	■			■		■	■		■			
CP600	■				■	■			■		■	■		■			
C15M	■	■	■	■	■		■	■	■	■							
CF	■		■		■		■	■	■								
CM	■		■		■		■	■	■								
DP2000	■		■	■	■				■		■	■	■	■	■		
DP3000	■	■	■	■	■				■	■	■	■	■	■	■		
F15M	■				■	■			■		■	■		■			
F25M	■	■	■	■	■				■		■	■		■			
F30M	■				■	■			■		■	■		■			
F40M	■				■	■			■		■	■		■			
HX	■		■		■				■								
H02	■		■		■	■			■								
H15	■				■	■			■								
H25	■				■	■			■								
KX	■				■	■			■								
MH1000	■				■	■			■		■	■		■			
MK1500	■		■		■				■		■	■	■	■	■		
MK2050	■		■		■	■			■		■	■		■		■	
MM4500	■				■	■			■		■	■	■	■	■		
MP1020	■	■	■	■	■				■								
MP1500	■		■	■	■				■		■	■	■	■	■		
MP2500	■		■	■	■				■		■	■	■	■	■		
MP3000	■				■	■			■		■	■		■			
MS2500	■		■	■	■				■		■	■	■	■	■		
MS2050	■				■	■			■		■	■		■			■
RX1500	■		■		■		■	■	■		■	■		■			
RX2000	■		■		■	■			■		■	■		■			
T350M	■		■	■	■				■		■	■	■	■	■		
T25M	■		■	■	■				■		■		■	■			
TGK1500	■		■		■				■		■	■	■	■	■		
TGP25	■	■	■	■	■				■		■	■	■	■	■		
TGP35	■		■	■	■				■		■	■	■	■	■		
TGP45	■		■	■	■				■		■	■	■	■	■		
TH1000	■				■	■			■		■	■		■		■	
TH1500	■				■	■			■		■	■	■	■	■		
TK1001	■				■	■			■		■	■	■	■	■		
TK2001	■		■		■	■			■		■	■	■	■	■		
TM2000	■	■	■	■	■				■	■	■	■	■	■	■		
TM4000	■	■	■	■	■				■	■	■	■	■	■	■		
TP0500	■	■	■	■	■				■		■	■	■	■	■		
TP0501	■	■	■	■	■	■			■		■	■	■	■	■		
TP1020	■	■	■	■	■				■	■							
TP1030	■	■	■	■	■				■	■	■	■		■		■	
TP1500	■	■	■	■	■				■	■	■	■	■	■	■		
TP1501	■	■	■	■	■				■	■	■	■	■	■	■		
TP200	■	■	■	■	■				■	■	■	■	■	■	■		
TP2500	■	■	■	■	■				■	■	■	■	■	■	■		
TP2501	■	■	■	■	■	■			■	■	■	■	■	■	■		
TP40	■		■	■	■				■		■		■	■			
TS2000	■				■	■			■		■	■		■			
TS2500	■		■		■				■		■	■		■			
T250D	■				■	■			■		■	■		■			
T400D	■				■	■			■		■	■		■			
T100R	■		■		■	■			■		■	■		■			
T60M	■	■	■	■	■				■		■	■		■			
883	■		■		■				■								
890	■				■	■			■								

To find an Authorized Seco Distributor please visit SECOLOCATOR.COM

For more info on Seco Tools visit SECOTOOLS.COM/US

P-1601-9500 GT16-502

NORTH AMERICAN HEADQUARTERS
2805 Bellingham Drive
Troy, MI 48083
248-528-5220

For technical assistance call
1-800-832-8326

Technical specifications are subject to change without notice.

SECO