

# CATALOG & TECHNICAL GUIDE – INCH



## HOLEMAKING



## **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, holmaking 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.

WELCOME TO SECO HOLEMAKING



	Alphanumeric index .....	5-7
	Guidelines.....	9-15
<b>Niagara Cutter™ Universal / Seco Feedmax™</b>	Range overview and technical information.....	16-26
	Niagara Cutter™ Universal / Seco Feedmax™ .....	27-115
	Guidelines and cutting data.....	116-141
<b>Crownloc®</b>	Range overview and technical information.....	142-146
	Crownloc® - tools and crowns.....	147-159
	Guidelines and cutting data.....	160-171
<b>Crownloc®Plus</b>	Range overview and technical information.....	172-175
	Crownloc®Plus - tools and crowns.....	176-189
	Guidelines and cutting data.....	190-195
<b>Perfomax®</b>	Range overview and technical information.....	196-202
	Perfomax® - tools .....	203-243
	Guidelines, inserts and cutting data .....	244-272
<b>Holders for drills</b>	Holders .....	274-275
<b>Threading</b>	Range overview .....	276-277
<b>Thread milling</b>	Technical information .....	278-284
	Threadmaster™ and Drilling Threadmaster™ Threadmilling cutters and inserts.....	285-293
<b>Niagara Cutter™ Thread mills</b>	Niagara Cutter™ Thread mills - tools .....	294-299
<b>Seco Reaming</b>	Range overview .....	300-302
<b>Nanofix™</b>	Range overview and technical information.....	303-308
	Nanofix™ - reamers and toolholders.....	309-318
	Guidelines and cutting data.....	319-322
<b>Precimaster™Plus</b>	Range overview and technical information.....	323-333
	Precimaster™ Plus - heads and shanks.....	334-342
	Guidelines and cutting data.....	343-347
<b>Bifix®</b>	Range overview and technical information.....	348-352
	Bifix® - heads, shanks and blades .....	353-361
	Guidelines, inserts and cutting data .....	362-368
<b>Precifix™</b>	Range overview and technical information.....	369-372
	Precifix™ - heads, shanks and blades .....	373-388
	Guidelines, inserts and cutting data .....	389-393

<b>Xfix™</b>	Range overview, technical information and inserts.....	394-399
	Xfix™ - heads and shanks.....	400-426
	Guidelines and cutting data.....	427-433
<b>Holders for reamers</b>	Overview.....	434-435
<b>Adjustable holders</b>	Adjustable holders .....	436-443
	Guidelines.....	444-445
<b>Floating holders</b>	Range overview .....	446
	Floating holders .....	447-456
<b>Setting fixture</b>	.....	457-462
<b>Boring heads</b>	Range overview .....	463-465
<b>Rough boring heads, EPB 750</b>	Range overview .....	466-469
	Heads / Holders .....	470-474
	Instructions / Assembly and operation .....	475-479
<b>Rough boring heads, EPB 610</b>	Range overview and technical information.....	480-482
	Heads / Holders .....	483-485
	Instructions .....	486-487
<b>Fine boring heads, Axiabore™</b>	Range overview and technical information.....	488-495
	Heads / Tools / Holders / Kits.....	496-515
	Instructions / Assembly and operation .....	516-521
<b>Fine boring kit, axial type</b>	.....	522-523
<b>Fine boring heads, radial type</b>	Range overview and technical information.....	524-528
	Heads / Holders .....	529-535
	Instructions / Assembly and operation .....	536-539
<b>Bridge bar boring heads</b>	Range overview and technical information.....	540-552
	Holdes and Adapters / Bars / Blocks / Cartridges .....	553-557
	Instructions / Assembly and operation .....	558-563
<b>Liteline™</b>	Range overview and technical information.....	564-567
	Heads / Arbors / Intermediates / Adapters .....	568-577
	Instructions / Assembly and operation .....	578
<b>Custom boring solutions</b>	.....	579
<b>Inserts for boring</b>	Code key / Grades / Guidelines .....	580-583
	Inserts / Cutting data .....	584-588
	Insert locking accessories and spare parts.....	589

Drilling

Threading

Reaming

Boring heads

Holemaking tolerances

SMG

<b>Torque keys</b>	.....	590
<b>Boring heads, Graflex or Seco-Capto connections</b>	Connection locking advice and spare parts .....	591-596
<b>Holemaking tolerances</b>	.....	597-605
<b>Spare part and accessory index</b>	.....	606-607
<b>Declaration of conformity</b>	.....	608-610
<b>SMG*</b>	Workpiece Materials – Classification, SMG* v2.....	611-623

\* SMG = Seco Material Group

<b>0</b>			
03H	.....	606	
<b>5</b>			
5880	.....	606	
<b>9</b>			
90F	.....	606	
90M	.....	606	
950A	.....	606	
<b>A</b>			
A610	.....	484-485	
A724	.....	533	
A725	.....	533, 569	
A726	.....	533	
A729	.....	534	
A731	.....	553-556	
A750	.....	470, 472-474	
A760	.....	496-497, 501	
A761	.....	499	
A762	.....	500	
A763	.....	500	
A765	.....	500, 502	
A780	.....	530, 568	
A782	.....	533	
A789	.....	535	
A790	.....	532	
AFG0629	.....	507	
<b>B</b>			
BAS25	.....	505-506	
BDA16	.....	504	
BM*6100	.....	274	
BM*6101	.....	275	
BMA	.....	242	
BMH	.....	242	
<b>C</b>			
C.-390.140	.....	404, 411, 418, 425	
C.-390.272	.....	404, 411, 418, 425	
C.-390.369	.....	404, 411, 418	
C.-390.410	.....	404, 411, 418, 425	
C.-390.540	.....	404, 411, 418, 425	
C.-390.55	.....	404, 411, 418	
C.-390.555	.....	404, 411, 418	
C.-390.558	.....	411, 425	
C.-390.58	.....	404, 411, 418, 425	
C.-391.01	.....	405, 412, 419, 425	
C.-391.02	.....	405, 412	
C.-391.0401	.....	574	
C.-A390B.45	.....	404, 411, 418	
C.-A390B.545	.....	404, 411, 418	
C3-391.0750	.....	471	
C3-391.0760	.....	498	
C3-391.0780	.....	531	
C4-391.0750	.....	471	
C4-391.0780	.....	531	
C5-391.0750	.....	471	
C5-391.0760	.....	498	
C5-391.0780	.....	531	
C6-391.0401	.....	574	
C6-391.0750	.....	471	
C6-391.0780	.....	531	
C8-391.0401	.....	574	
C8-391.0750	.....	471	
C8-391.0780	.....	531	
<b>D</b>			
DTM	.....	288	
<b>E</b>			
E0050731200	.....	553	
E3416731200	.....	553	
E3471731200	.....	553	
E9306731200	.....	553	
EM*2502	.....	573	
EM*2504	.....	573	
EM*3414	.....	406, 413, 420, 572	
EM*3416	.....	406, 413, 420, 426, 572	
EM*3469	.....	406, 413, 420, 571	
EM*3471	.....	406, 413, 420, 426, 571	
EM*4466	.....	420	
EM*4468	.....	413, 420, 426	
EM*9304	.....	413, 420, 570	
EM*9306	.....	406, 413, 420, 426, 570	
EM2502	.....	573	
EM2504	.....	573	
EM3414	.....	572	
EM3416	.....	572	
EM3469	.....	571	
EM3471	.....	571	
EM4468	.....	420	
EM9304	.....	406, 570	
EM9306	.....	426, 570	
<b>G</b>			
GL32	.....	483, 529	
GL40	.....	483, 529	
GL50	.....	483, 529	
<b>H</b>			
HF100	.....	425-426	
HF32	.....	404, 406	
HF55	.....	411, 413	
HF80	.....	418, 420	
HF85	.....	400, 407, 414, 421	
HF85B	.....	401, 408, 415, 422	
HF86	.....	402, 409, 416, 423	
HF86B	.....	403, 410, 417, 424	
<b>K</b>			
KX 03 (EPB)	.....	582	
<b>M</b>			
M402	.....	243, 406, 413, 420, 426, 575, 577	
M403	.....	576-577	
<b>N</b>			
ND1103	.....	27-30	
ND1103A	.....	31-34	
ND1105A	.....	35-39	
NF06	.....	309-310, 312	

NF10	310-312
NFQF	317-318
NS06	313-314, 316
NS10	314-316
NTM100	294
NTM120	295
NTM160	296
NTM200	297
NTM300	298
NTM400	299

## P

PCGNL16CA	557
PF84	373, 376, 379, 381, 384, 386
PM07	374-375
PM08	377-378
PM11	380
PM15	382-383
PM19	385
PMX06	336-340
PMX08	336, 338-340
PMX12	336-340
PMX16	336-340
PMX5	341
PMX6	342

## R

R396.18	289
R396.19	289-290

## S

SAH	437-443
SCGL	557
SD100	158-159
SD101	147-148
SD103	149-150
SD105	151-152
SD107	153-154
SD200	86-87
SD203	51-55, 83-85, 90-91, 100-101, 113
SD203A	56-60, 82, 92-95, 102-104, 108-109, 114
SD205	115
SD205A	61-66, 96-99, 105-107, 111-112
SD206	67
SD206A	68
SD207A	69-72
SD212A	73
SD216A	74-75
SD22	41-45
SD220A	76
SD225A	77
SD230A	78-79
SD245A	80
SD26	46-50
SD265A	81
SD403	176-179
SD405	180-183
SD408	184-187
SD502	203-207
SD503	208-215
SD504	216-223
SD505	224-226

SD542	227-228
SD572	229-231
SD602	238, 240
SFH	447-456
SR80	353-355
SR81	356-358
SR82	359
SSRCL	557
STGCR/L..CA	557
STRCR/L..CA	557
STSCR/L..CA	557
STTCR/L..CA	557

## T

TM	285-287
----	---------



**1**  
13NMS. .... 291

**3**  
396.19 ..... 292-293

**C**  
CCGT ..... 584-585  
CCGW ..... 584  
CCMT ..... 584-585  
CCMW ..... 584  
CNMG ..... 586  
CPGT ..... 585

**L**  
LNEG ..... 388, 398

**P**  
P0 ..... 361  
P00 ..... 361  
P1 ..... 361  
P2 ..... 361  
P4 ..... 361

**R**  
R396.19 ..... 293  
RNAX ..... 388, 398

**S**  
SCGX ..... 247  
SCMT ..... 585  
SD100 ..... 155-157  
SD400 ..... 188-189  
SPGX ..... 248

**T**  
TCGT ..... 584-585  
TCGW ..... 584  
TCMT ..... 584-585  
TCMW ..... 584

**W**  
WBGT ..... 584  
WBGW ..... 584  
WCMX ..... 249

## At Seco we make every effort to give you the best in drilling, reaming, threading and boring Our comprehensive range of holemaking tools are second-to-none

We have years of experience of 'challenging' holemaking applications. Our R&D and metal cutting expertise consistently yields new and more productive solutions. But most importantly, we pride ourselves on offering the highest service level, and on being engaged in making our customers as cost-effective and competitive as possible.

Seco Tools will take responsibility and assist in all areas to create the hole, including technical troubleshooting.

We supply complete holemaking know-how, including drilling, reaming, threading and boring – finding ways and processes making you more competitive. And we offer great simplicity by streamlining administration, support and service through one contact. The result?

You don't need to worry about holemaking we take care of the complete process.

### As a Seco customer, you are offered:

- One stop shopping of high quality metal cutting tools, solutions and services
- Simplicity of contacts, purchasing, stock, technical support, consultancy and process solutions
- A range of high performance holemaking tools covering drilling, reaming, threading and boring
- One supplier responsible for the quality of the finished hole - or even for the complete machining of the finished part
- Complete holemaking know-how, including drilling, reaming, threading and boring
- Greatly increased process security with close cooperation together with one knowledgeable supplier
- The highest tool quality offering great productivity and cost reduction opportunities



## What are you looking for in making a hole?

	Drilling			Threading			Boring		Reaming		
	Seco Feedmax™ Niagara Cutter™ Universal	Crownloc® Crownloc®Plus	Perfo-max®	Threadmaster™	Niagara Cutter™ Thread mills	Thread milling 396.18/396.19	EPB 750, EPB 610 Rough boring/Bridge bar boring	EPB 760, EPB 780 EPB 790, EPB 780..L Fine boring	Nanofix™/ PrecimasterPlus™	Bifix®/ Precifix™	Xfix™
Page	16-141	142-195	196-272	276-293	294-299	289-290	466-487, 540-563	488-539	303-347	348-393	394-433
IT	7-9	9-10	12				9-10	5-6	6-8	6-7	6-7
	0.0008"	0.002"	-				0.0002"	0.0002"	Follow the pre-bore	Follow the pre-bore	Follow the pre-bore
	0.0008"	0.002"	-				0.0008"	0.0004"	0.0003"	0.0002"	0.0002"
	1,0	1,6	2,0				1,0	0,6	0,6	0,25	0,6
tctr	-	-	-				-	-	-	-	-
Thread form	-	-	-	M MF UNC UNF NPT NPTF NPTF BSP	ISO UN NPT NPTF	ISO UN W NPT NPTF BSPT	-	-	-	-	-



### Positioning accuracy

Seco Feedmax, A750 rough boring heads and the whole range of fine boring heads are the holemaking tools that offer the best positioning accuracy.



### Hole geometry

For excellent hole geometry, such as as roundness and straightness, all of Seco's drilling, boring and reaming tools offer the same high and consistent quality. Seco's boring heads will always guarantee the best results on straightness.



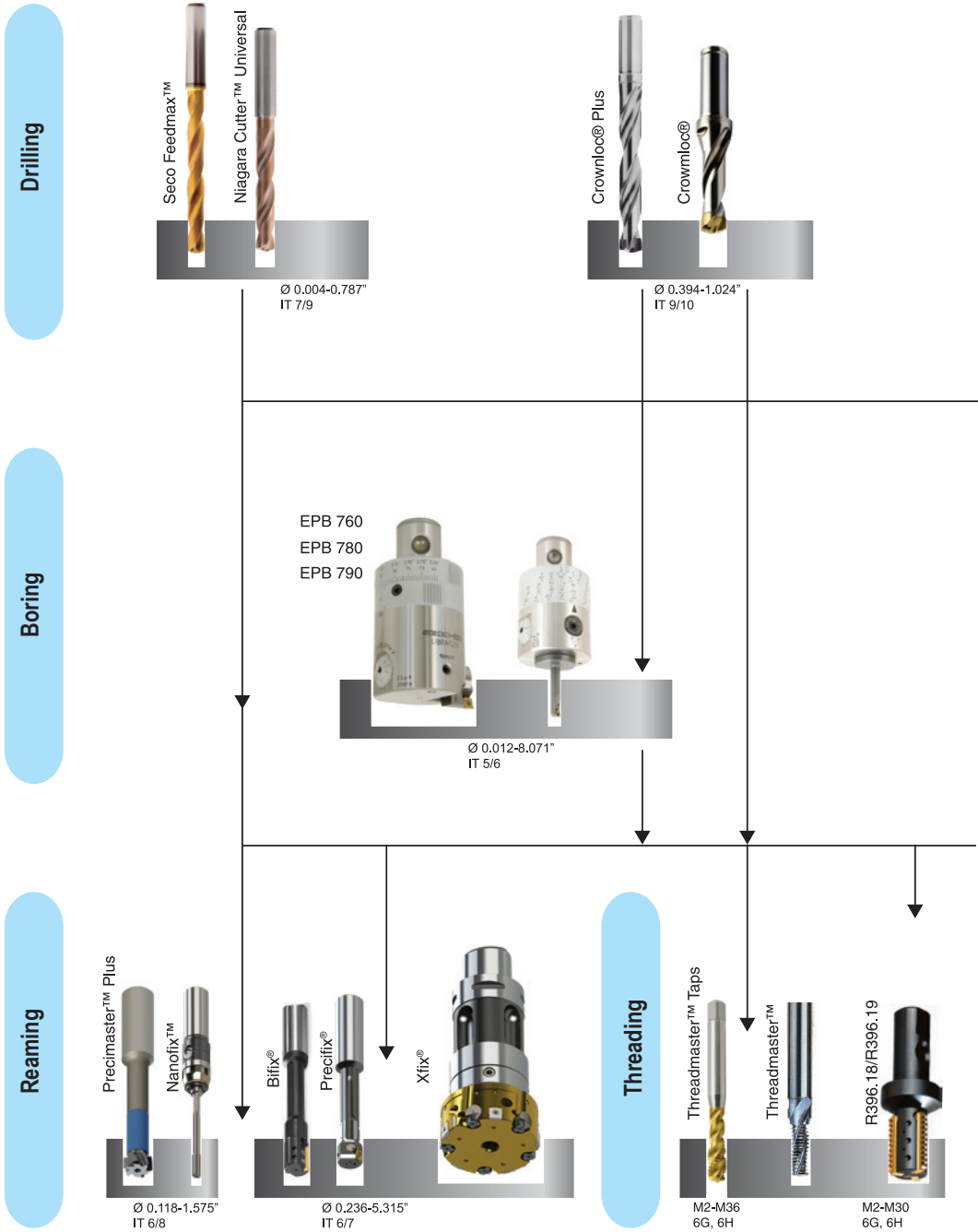
### Surface finish

For a really smooth hole surface Bifix/Precifix is your first choice, and Seco's fine boring heads offer a full range of machining capabilities.

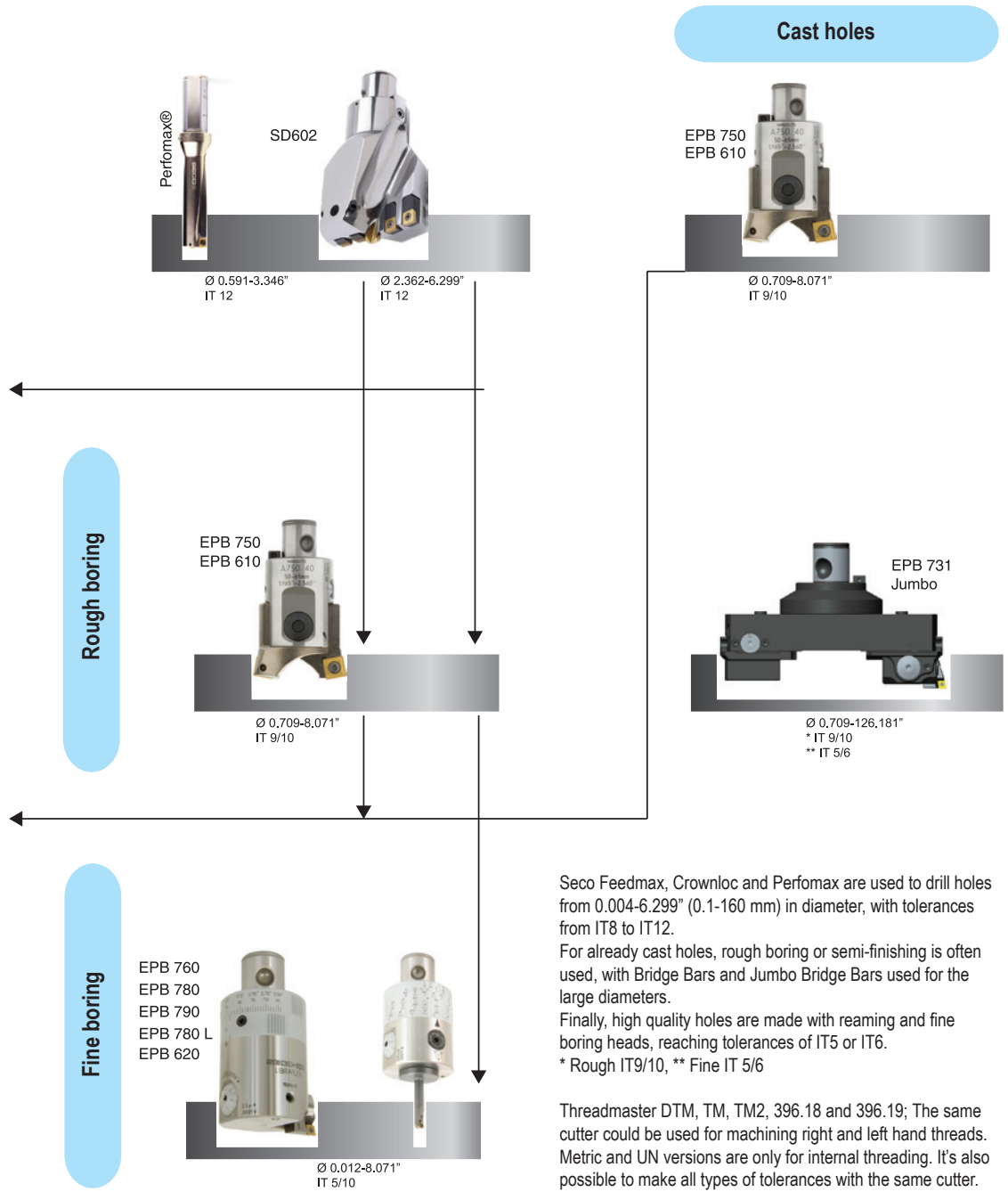
tctr = Thread Tolerance Class

IT = Hole tolerance

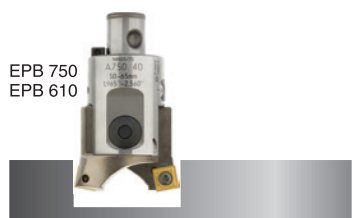
## TOOL GUIDE – Inch



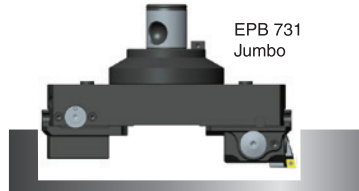
## TOOL GUIDE – Inch



### Cast holes



$\text{Ø } 0.709\text{--}8.071''$   
IT 9/10



$\text{Ø } 0.709\text{--}126.181''$   
\* IT 9/10  
\*\* IT 5/6

Seco Feedmax, Crownloc and Performax are used to drill holes from 0.004-6.299" (0.1-160 mm) in diameter, with tolerances from IT8 to IT12.

For already cast holes, rough boring or semi-finishing is often used, with Bridge Bars and Jumbo Bridge Bars used for the large diameters.

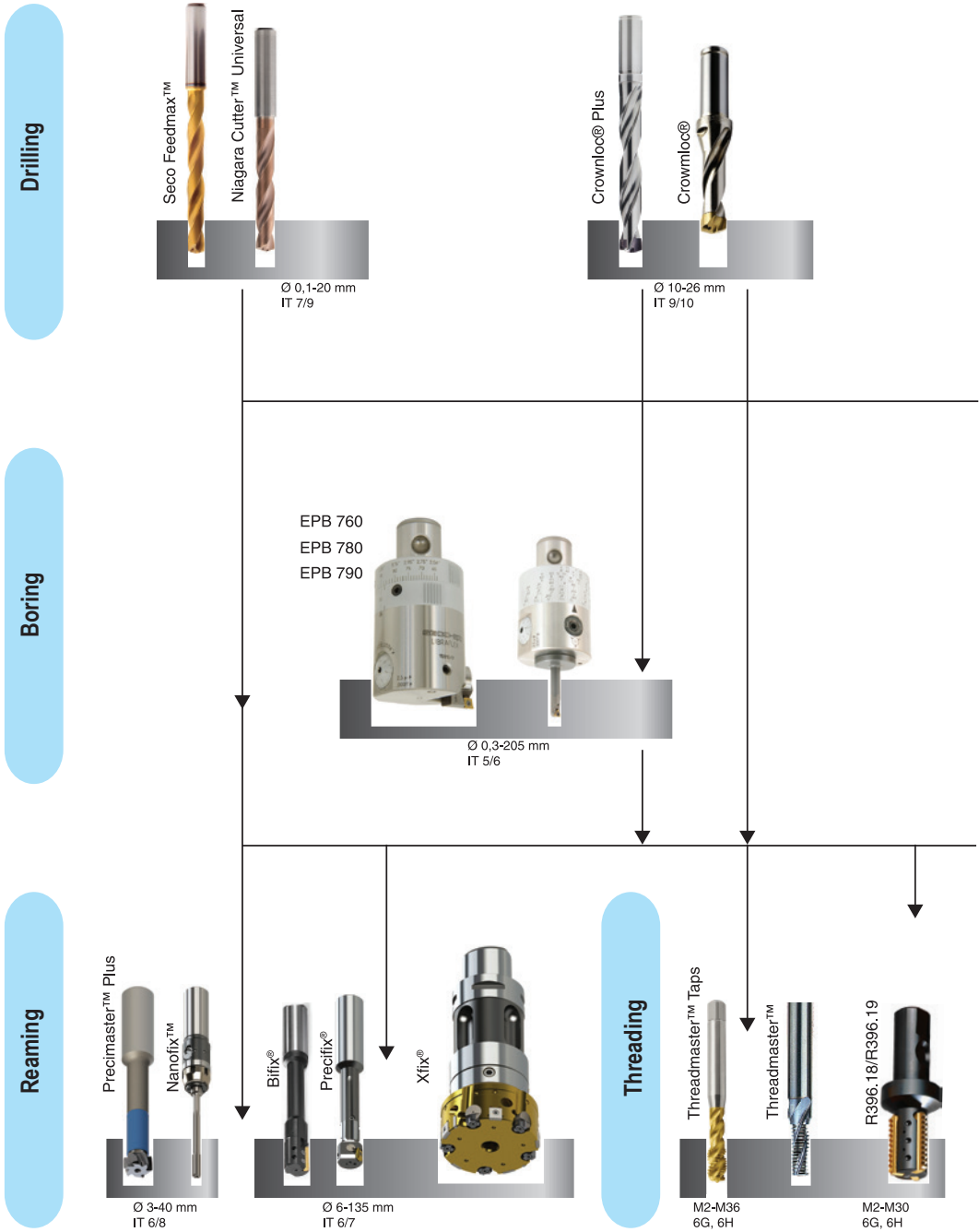
Finally, high quality holes are made with reaming and fine boring heads, reaching tolerances of IT5 or IT6.

\* Rough IT9/10, \*\* Fine IT 5/6

Threadmaster DTM, TM, TM2, 396.18 and 396.19; The same cutter could be used for machining right and left hand threads. Metric and UN versions are only for internal threading. It's also possible to make all types of tolerances with the same cutter.

Threadmaster Tap: Available in the most popular threads and tolerances in both cutting and forming taps.

## TOOL GUIDE – Metric



## TOOL GUIDE – Metric

### Cast holes



Performax®  
 Ø 15-85 mm  
 IT 12

SD602

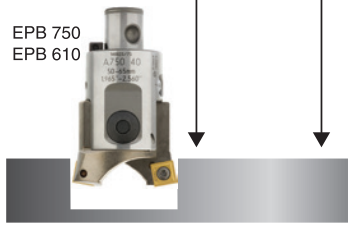
Ø 60-160 mm  
 IT 12



EPB 750  
 EPB 610

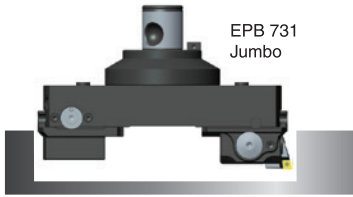
Ø 18-205 mm  
 IT 9/10

### Rough boring



EPB 750  
 EPB 610

Ø 18-205 mm  
 IT 9/10



EPB 731  
 Jumbo

Ø 18-3205 mm  
 \* IT 9/10  
 \*\* IT 5/6

### Fine boring

EPB 760  
 EPB 780  
 EPB 790  
 EPB 780 L  
 EPB 620



Ø 0.3-205 mm  
 IT 5/10

Seco Feedmax, Crownloc and Performax are used to drill holes from 0.004-6.299" (0.1-160 mm) in diameter, with tolerances from IT8 to IT12.

For already cast holes, rough boring or semi-finishing is often used, with Bridge Bars and Jumbo Bridge Bars used for the large diameters.

Finally, high quality holes are made with reaming and fine boring heads, reaching tolerances of IT5 or IT6.

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Threadmaster DTM, TM, TM2, 396.18 and 396.19; The same cutter could be used for machining right and left hand threads. Metric and UN versions are only for internal threading. It's also possible to make all types of tolerances with the same cutter.

Threadmaster Tap: Available in the most popular threads and tolerances in both cutting and forming taps.

## Drilling at Seco

- Seco can offer one stop shopping of high quality drills, solutions and services
- We have years of experience in 'challenging' drill applications
- Seco has a full range of drill products that fits all applications and materials in all industry segments, like Automotive, Energy, Medical etc.
- The wide diameter range of Seco drills from 0.0039-3.346" (0.1-85 mm) with the Feedmax™ (solid carbide drills), Crownloc® (exchangeable tip drills) and Perfomax® (Indexable drills), covers the most common thread sizes in the market
- Now Seco is releasing a new solid carbide drill line, Niagara Cutter™ Universal, that makes Seco's offer complete
- More information about the drill products can be found at, [www.secotools.com](http://www.secotools.com)

## Threading at Seco

- Seco can now offer all types of threading methods
- For many years Seco have been the market leader in thread turning with the well known Snap-Tap® products
- During the last ten years Seco has been established as a leading supplier of tools for thread milling, with the solid Threadmaster™ and Drilling Threadmaster as well as 396.19 with indexable carbide inserts
- Seco is also supplier of chasers for the Oil & Gas industry
- Now Seco is also supplying threading taps which makes Seco's product offering for threading tools complete
- All threading products are supported by the 'Threading Wizard' machining guidance software, available from [www.secotools.com](http://www.secotools.com)

### Thread tapping

- Available as both cutting and forming taps
- An easy, well known and productive threading process
- Can be used for both rotating and non-rotating applications
- Good chip control
- Easy to thread in deep holes





## Drilling range – Choice of drill

### Seco Feedmax™ Solid carbide drills



#### PRODUCTIVITY

- High feeds and cutting speeds
- Close tolerance holes
- For applications with high stability
- For all workpiece materials

### Crownloc® & Crownloc®Plus Exchangeable crown drills



#### FLEXIBILITY

- Exchangeable carbide tips
- Geometries for different workpiece materials
- No regrinding
- Several tip diameters for each drill body

### Perfomax® Indexable insert drills



#### COST EFFECTIVENESS

- Grades and geometries for all workpiece materials
- Square inserts for low cost/hole
- Drilling, plunging, crossing holes with angled entrance or exit, boring, etc....
- High application security

# For high performance machining



## High performance and Universal solutions What are you looking for in your solid drill application?

### Niagara Cutter™ Universal – Versatile general performance solid carbide drill

Niagara Cutter™ Universal is a multi purpose general performance solid carbide drill, that can be used in a wide range of materials and applications in all industry segments. Thanks to the design with a strong self centering 140 degree drill point, polished chip flutes and the excellent quality of the drill - high capacity utilization, application security and versatility is provided at a very low cost.

With Niagara Cutter™ Universal stock holding cost can be reduced and greater machining flexibility is offered, leading to reduced set-up time.

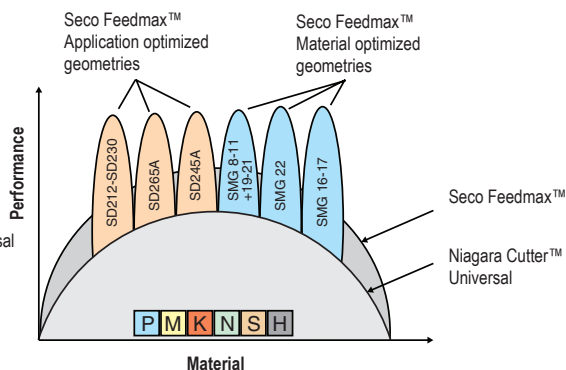
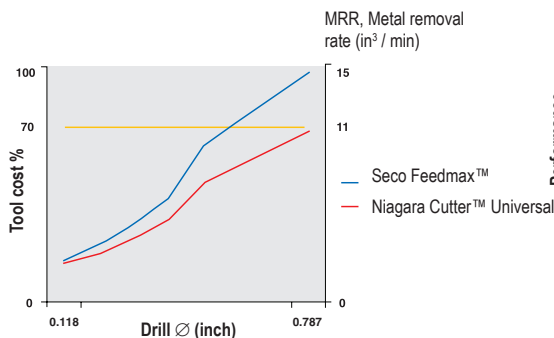
Niagara Cutter™ Universal is an alternative to Seco Feedmax in operations when versatility, flexibility and reduced stock holding cost are the main targets.

### Seco Feedmax™ – Productive high performance solid carbide drill

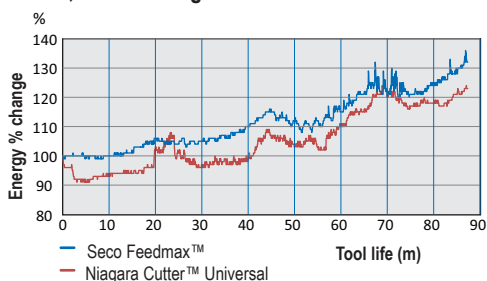
Seco Feedmax™ offers a unique combination of state-of-the-art carbide, coating- and geometry technology.

Seco Feedmax™ is designed for high productivity and low cost per hole with high feeds up to 0.028 in/rev and high cutting speeds up to 720 sf/ min. With excellent centering capabilities - high hole quality is achieved with no need for center drilling operations. Thanks to the modern coating with high hot hardness, the strong cutting edges with protective corner chamfers, high strength carbide rod, excellent chip evacuation capabilities and a superb cutting edge quality - a long and predictable tool life is achieved.

Seco Feedmax™ has a wide range of optimized geometries for different materials and applications, to obtain a good quality hole at the lowest cost.



### Tool life, lower cutting data



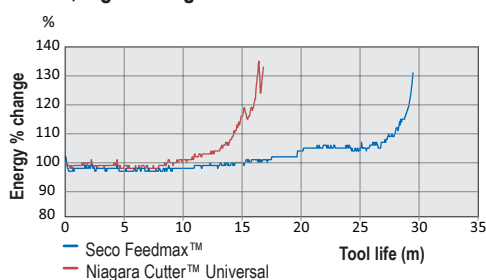
First hole is set as reference, 100% based on the spindle power Cutting data

$V_c = 295$  sf/min

$f = 0.006$  in/rev

Material =SMG 4, SS2244,  
DIN41CrMo4, AISI 4140

### Tool life, high cutting data



First hole is set as reference, 100% based on the spindle power Cutting data

$V_c = 525$  sf/min

$f = 0.009$  in/rev

Material =SMG 4, SS2244,  
DIN41CrMo4, AISI 4140

## Range overview

Seco Feedmax™ and Niagara Cutter™ Universal	∅ Range	Drill depth	Drill ∅ tolerance	Hole tolerance (1)	Surface finish (2)
ND1103, ND1103A Niagara Cutter™ Universal  Page(s) 27-34	0.118-0.787" (3-20 mm)	~ 3 x D	m7	IT 8-9	R <sub>a</sub> 39-79 μin R <sub>a</sub> 1-2 μm
ND1105A Niagara Cutter™ Universal  Page(s) 35-39	0.118-0.787" (3-20 mm)	~ 5 x D	m7	IT 8-9	R <sub>a</sub> 39-79 μin R <sub>a</sub> 1-2 μm
SD203, SD203A  Page(s) 51-60	0.079-0.787" (2-20 mm)	~ 3 x D	m7	IT 8-9	R <sub>a</sub> 39-79 μin R <sub>a</sub> 1-2 μm
SD205A  Page(s) 61-66	0.079-0.787" (2-20 mm)	~ 5 x D	m7	IT 8-9	R <sub>a</sub> 39-79 μin R <sub>a</sub> 1-2 μm
SD206, SD206A  Page(s) 67-68	<b>SD206</b> 0.028-0.079" (0.7-2.0 mm)  <b>SD206A</b> 0.039-0.079" (1-2 mm)	~ 6 x D	h6	IT 9	R <sub>a</sub> 39-79 μin R <sub>a</sub> 1-2 μm

1) Variations can occur depending on the material and the cutting data used.

2) Drill depth, cutting data, coolant pressure and material can cause deterioration of the surface finish.

## Range overview

Seco Feedmax™	∅ Range	Drill depth	Drill ∅ tolerance	Hole tolerance (1)	Surface finish (2)
SD207A  Page(s) 69-72	0.177-0.787" (4.5-20 mm)	~ 7 x D	m7	IT 9	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm
SD212A/SD216A  Page(s) 73-75	0.118-0.472" (3-12 mm)	~ 16 x D	m7	IT 9	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm
SD230A  Page(s) 78-79	0.157-0.394" (4-10 mm)	~ 30 x D	m7	IT 9	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm
SD245A  Page(s) 80	0.197-0.551" (5-14 mm)	~ 5 x D	m7	IT 8	R <sub>a</sub> 39-79 μin R <sub>a</sub> 1-2 μm
SD265A  Page(s) 81	0.236-0.630" (6-16 mm)	~ 5 x D	js6	IT 7	R <sub>a</sub> 39-79 μin R <sub>a</sub> 1-2 μm

1) Variations can occur depending on the material and the cutting data used.

2) Drill depth, cutting data, coolant pressure and material can cause deterioration of the surface finish.




## Range overview

Seco Feedmax™	∅ Range	Drill depth	Drill ∅ tolerance	Hole tolerance (1)	Surface finish (2)
Chamfer drills SD203A, SD205A    Page(s) 82-87	0.118-0.787" (3-20 mm)	~ 3 x D, ~ 5 x D	m7	IT 8-9	R <sub>a</sub> 39-79 µin R <sub>a</sub> 1-2 µm
SD203-M/SD203A-M, SD205-M/SD205A-M Superalloys    Page(s) 90-99	0.118-0.787" (3-20 mm)	~ 3 x D, ~ 5 x D	m7	IT 8-9	R <sub>a</sub> 39-79 µin R <sub>a</sub> 1-2 µm
SD203-T/SD203A-T, SD205-T/SD205A-T Titanium alloys    Page(s) 100-107	0.118-0.787" (3-20 mm)	~ 3 x D, ~ 5 x D	m7	IT 8-9	R <sub>a</sub> 39-79 µin R <sub>a</sub> 1-2 µm
SD203A-N Aluminum    Page(s) 108-109	0.098-0.551" (2.5-14 mm)	~ 3 x D	m7	IT 8-9	R <sub>a</sub> 39-79 µin R <sub>a</sub> 1-2 µm
SD205A-C1, -C2 Diamond coated drills for composites    Page(s) 111-112	0.125-0.500" (3.2-12.7 mm)	~ 5 x D	m7	IT 9	–

1) Variations can occur depending on the material and the cutting data used.

2) Drill depth, cutting data, coolant pressure and material can cause deterioration of the surface finish.

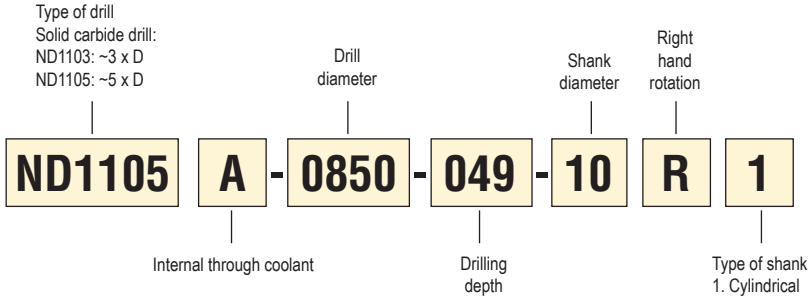
## Range overview

Seco Feedmax™	∅ Range	Drill depth	Drill ∅ tolerance	Hole tolerance	Surface finish
<b>SD205-CX1, -CX2, -CX31</b> PCD drills for composites  Page(s) 113-115	0.128-0.375" (3.26-9.53 mm)	~ 5 x D	m7	IT9	-
<b>SD22</b>  Page(s) 41-45	0.004-0.079" (0.1-2.0 mm)	~ 2 x D	+0.0002"/0	-	-
<b>SD26</b>  Page(s) 46-50	0.004-0.079" (0.1-2.0 mm)	~ 6 x D	0/-0.0016"	-	-

1) Variations can occur depending on the material and the cutting data used.

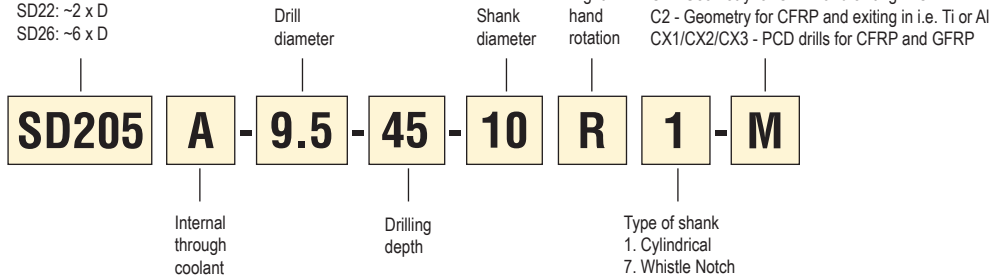
2) Drill depth, cutting data, coolant pressure and material can cause deterioration of the surface finish.

## Code key Niagara Cutter™ Universal



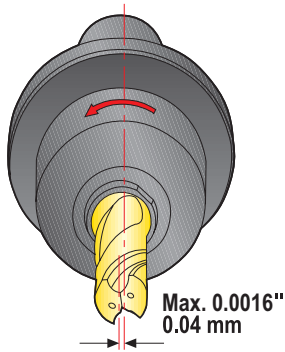
## Code key Seco Feedmax™

Type of drill  
Solid carbide drill:  
SD203: ~3 x D  
SD205: ~5 x D  
SD206: ~6 x D  
SD207: ~7 x D  
SD216: ~16 x D  
SD230: ~30 x D  
SD245: ~5 x D  
SD265: ~5 x D  
SD22: ~2 x D  
SD26: ~6 x D





## Set up



### Holding/run-out

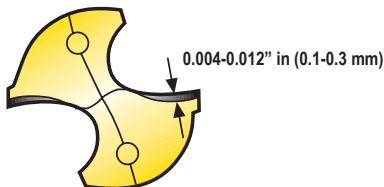
Drills with cylindrical shanks can be used with Shrinkfit holders, hydraulic chucks or collet chucks. Total indicated run-out <math><0.0016''</math> (0.04 mm). Keep the total indicated run-out of the drill within 0.0016" (0.04 mm) measured in the spindle.

### Stability

The stability of the application is important to obtain the best tool life and hole accuracy. Check the condition of the machine spindle, fixture and fixturing of the component to secure maximum stability and rigidity. Unstable conditions can cause tool breakages.

### Tool life

Drills should not be used with flank wear exceeding 0.004-0.012" (0.1–0.3 mm) measured at the largest point.



### Recommended tool holders

For best result use holders:  
 Type 5603 - Shrinkfit holders, DIN type  
 Type 5834 - Hydraulic chucks  
 Type 5672 - High precision collet chucks  
 For more information see EPB Tooling systems catalog.

#### Shrinkfit holder

(For cylindrical, -R1 shanks only)



#### Hydraulic chuck

(For cylindrical, -R1 shanks only)



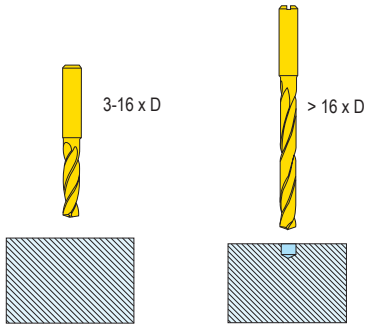
#### High precision collet chucks

(For cylindrical, -R1 shanks only)



## Machining methods

### Hole entrance on a machined surface

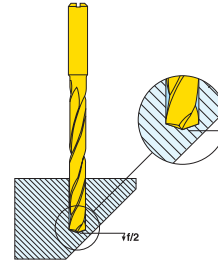


No pre-drilling or entrance feed needed.

When using a longer drill it's recommended to drill a pilot hole.

### Angled hole exits

Before hole exit reduce the feed/rev by 50%.

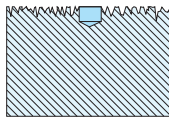


or use SD245A drills.

### Irregular/Angled hole entrance

If irregular or angle entrance use pre operations accordingly.

Pre drill with a short standard Feedmax.

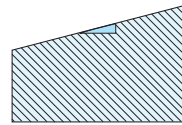


Irregular hole entrance

### Pre-machining alternatives



Machine a flat using an end mill from the Seco range.



Angled hole entrance

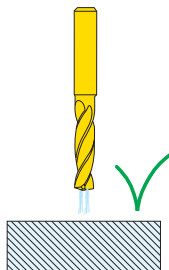
### Coolant recommendations

#### Coolant pressure\*

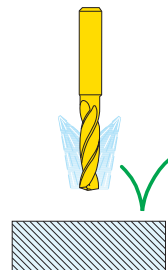
Minimum recommended coolant pressure 10 bar (145 PSI) with  $\leq 5 \times D$   
 Minimum recommended coolant pressure 30 bar (435 PSI) with  $> 5 \times D$   
 Minimum recommended coolant pressure 40 bar (580 PSI) with  $> 16 \times D$

#### Coolant mix

Recommended emulsion mix 6-8%. When drilling in stainless steels, superalloys and high strength steels a mix of 10% is recommended.



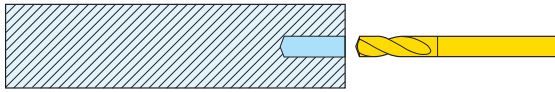
First choice



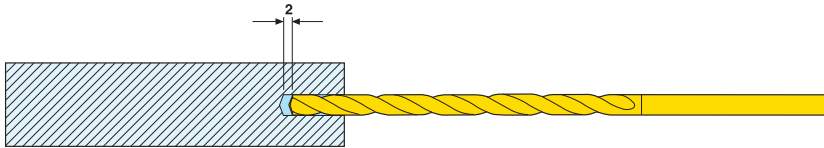
$\leq 5 \times D$

\* If lower coolant pressure is used adjust by reducing cutting data accordingly.

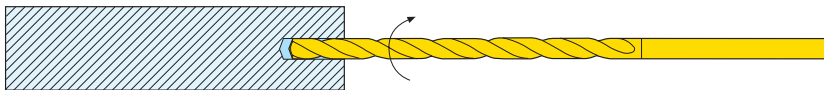
Machining methods - SD216A (16 x D) up to SD230A (30 x D)  
 Step by step



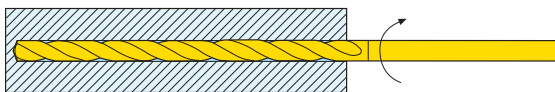
1. Drill a pilot hole 2-3 x D. Use a standard drill with the same diameter i.e. SD203A or ND1103 (with 140° point angle).



2. Enter the hole with the machine spindle stopped or use a low rpm (500). Stop 0.080" (2 mm) above the pilot hole depth.



3. Start the machine spindle and the coolant, drill with the recommended cutting data. (No peck drilling).

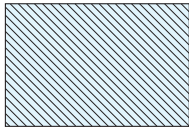


4. When reaching full depth, reduce the rpm to 500 and then retract the drill with 4 times the work feed to avoid retraction marks.

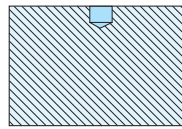
## Machining methods – Micro drills

### Pilot hole

SD22

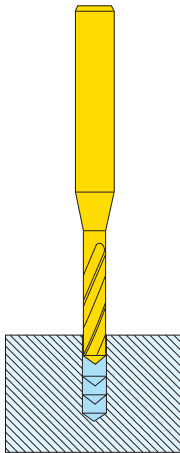


SD26



For optimal hole tolerance and positioning accuracy use an SD22 pilot drill of the same diameter.  
Below 0.039 inch (1 mm) diameter drill we highly recommend to use a pilot drill.

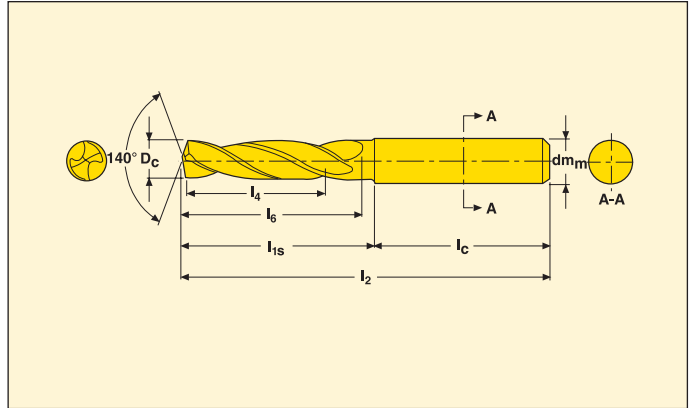
### Pecking



For long chipping materials a pecking cycle should be used.  
Generally peck every 1 x D drilling depth.

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



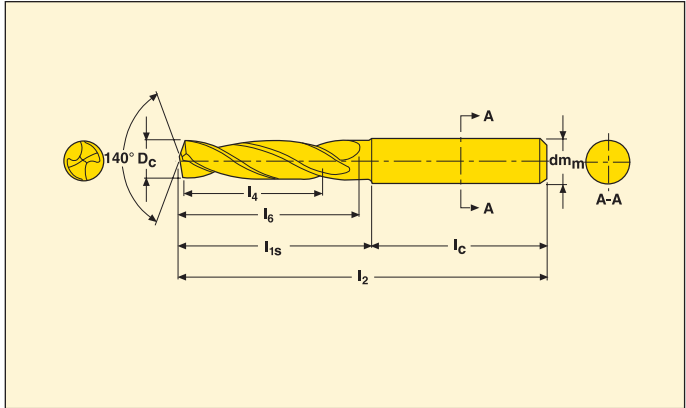
- External coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
0.1181	–	3.000	–	–	0.551	<a href="#">N00963</a>	<a href="#">ND1103-0300-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1220	–	3.100	–	–	0.551	<a href="#">N00724</a>	<a href="#">ND1103-0310-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1250	1/8	3.175	–	–	0.551	<a href="#">N00926</a>	<a href="#">ND1103-0318-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1260	–	3.200	–	–	0.551	<a href="#">N00725</a>	<a href="#">ND1103-0320-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1280	–	3.250	–	–	0.551	<a href="#">N00726</a>	<a href="#">ND1103-0325-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1299	–	3.300	–	M4	0.551	<a href="#">N00727</a>	<a href="#">ND1103-0330-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1339	–	3.400	–	–	0.551	<a href="#">N00728</a>	<a href="#">ND1103-0340-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1378	–	3.500	–	UNC8-32 / MF4X0.5 / UNF8-36	0.551	<a href="#">N00729</a>	<a href="#">ND1103-0350-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1406	9/64	3.572	–	–	0.551	<a href="#">N00927</a>	<a href="#">ND1103-0357-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1417	–	3.600	–	–	0.551	<a href="#">N00732</a>	<a href="#">ND1103-0360-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1437	–	3.650	–	–	0.551	<a href="#">N00733</a>	<a href="#">ND1103-0365-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1457	–	3.700	–	M4.5	0.551	<a href="#">N00734</a>	<a href="#">ND1103-0370-014-06R1</a>	2.441	1.024	1.417	0.787	0.236
0.1496	–	3.800	–	–	0.669	<a href="#">N00735</a>	<a href="#">ND1103-0380-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1535	–	3.900	4H7	UNC10-24	0.669	<a href="#">N00736</a>	<a href="#">ND1103-0390-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1563	5/32	3.969	–	–	0.669	<a href="#">N00928</a>	<a href="#">ND1103-0397-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1575	–	4.000	–	–	0.669	<a href="#">N00737</a>	<a href="#">ND1103-0400-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1614	–	4.100	–	UNF10-32	0.669	<a href="#">N00738</a>	<a href="#">ND1103-0410-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1654	–	4.200	–	M5	0.669	<a href="#">N00739</a>	<a href="#">ND1103-0420-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1693	–	4.300	–	–	0.669	<a href="#">N00742</a>	<a href="#">ND1103-0430-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1719	11/64	4.366	–	–	0.669	<a href="#">N00929</a>	<a href="#">ND1103-0437-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1732	–	4.400	–	UNC12-24 / MF5X0.5	0.669	<a href="#">N00743</a>	<a href="#">ND1103-0440-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1772	–	4.500	–	–	0.669	<a href="#">N00744</a>	<a href="#">ND1103-0450-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1811	–	4.600	–	M5	0.669	<a href="#">N00745</a>	<a href="#">ND1103-0460-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1831	–	4.650	–	M5	0.669	<a href="#">N00746</a>	<a href="#">ND1103-0465-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1850	–	4.700	–	–	0.669	<a href="#">N00747</a>	<a href="#">ND1103-0470-017-06R1</a>	2.598	1.181	1.417	0.945	0.236
0.1875	3/16	4.763	–	MF5	0.787	<a href="#">N00932</a>	<a href="#">ND1103-0476-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.1890	–	4.800	–	MF5	0.787	<a href="#">N00748</a>	<a href="#">ND1103-0480-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.1929	–	4.900	5H7	M6	0.787	<a href="#">N00749</a>	<a href="#">ND1103-0490-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.1969	–	5.000	–	UNC1/4-20	0.787	<a href="#">N00964</a>	<a href="#">ND1103-0500-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2008	–	5.100	–	–	0.787	<a href="#">N00752</a>	<a href="#">ND1103-0510-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2031	13/64	5.159	–	MF6X0.75	0.787	<a href="#">N00933</a>	<a href="#">ND1103-0516-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2047	–	5.200	–	–	0.787	<a href="#">N00753</a>	<a href="#">ND1103-0520-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2087	–	5.300	–	–	0.787	<a href="#">N00754</a>	<a href="#">ND1103-0530-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2126	–	5.400	–	UNF1/4-28	0.787	<a href="#">N00755</a>	<a href="#">ND1103-0540-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2165	–	5.500	–	–	0.787	<a href="#">N00756</a>	<a href="#">ND1103-0550-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2185	–	5.550	–	M6	0.787	<a href="#">N00757</a>	<a href="#">ND1103-0555-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2187	7/32	5.556	–	–	0.787	<a href="#">N00934</a>	<a href="#">ND1103-0556-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2205	–	5.600	–	–	0.787	<a href="#">N00758</a>	<a href="#">ND1103-0560-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2244	–	5.700	–	–	0.787	<a href="#">N00759</a>	<a href="#">ND1103-0570-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2283	–	5.800	6H6	–	0.787	<a href="#">N00762</a>	<a href="#">ND1103-0580-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2323	–	5.900	6H6/6H7	–	0.787	<a href="#">N00763</a>	<a href="#">ND1103-0590-020-06R1</a>	2.598	1.181	1.417	1.102	0.236
0.2344	15/64	5.953	–	M7	0.787	<a href="#">N00935</a>	<a href="#">ND1103-0595-020-06R1</a>	2.598	1.181	1.417	1.102	0.236

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



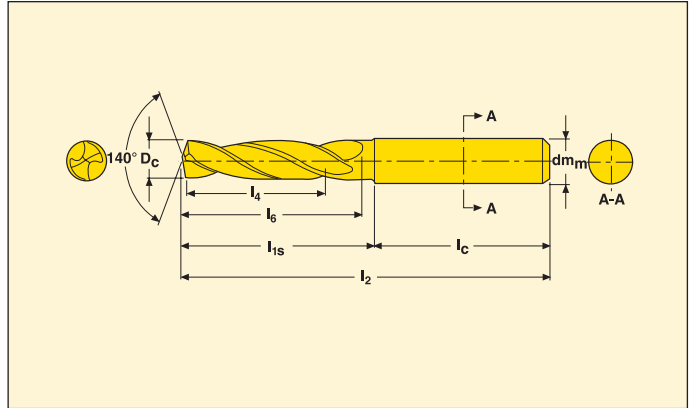
- External coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_{h6}$	
0.2362	–	6.000	–	NPTF1/16	–	0.787	N00764	ND1103-0600-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2402	–	6.100	–	–	–	0.945	N00765	ND1103-0610-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2441	–	6.200	–	–	–	0.945	N00766	ND1103-0620-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2480	–	6.300	–	–	–	0.945	N00767	ND1103-0630-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2500	1/4	6.350	–	–	–	0.945	N00936	ND1103-0635-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2520	–	6.400	–	–	–	0.945	N00787	ND1103-0640-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2559	–	6.500	–	UNC5/16-18	–	0.945	N00788	ND1103-0650-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2598	–	6.600	–	–	–	0.945	N00804	ND1103-0660-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2656	17/64	6.747	–	–	–	0.945	N00937	ND1103-0675-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2677	–	6.800	7H6	M8	–	0.945	N00805	ND1103-0680-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2717	7H6/7H7	6.900	7H6/7H7	UNF5/16-24	–	0.945	N00806	ND1103-0690-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2756	–	7.000	–	MF8X1	–	0.945	N00807	ND1103-0700-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2795	–	7.100	–	–	–	1.142	N00808	ND1103-0710-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2813	9/32	7.144	–	–	–	1.142	N00938	ND1103-0714-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2835	–	7.200	–	MF8X0.75	–	1.142	N00809	ND1103-0720-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2874	–	7.300	–	–	–	1.142	N00814	ND1103-0730-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2913	–	7.400	–	–	–	1.142	N00815	ND1103-0740-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2953	–	7.500	–	–	–	1.142	N00816	ND1103-0750-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2969	19/64	7.541	–	–	–	1.142	N00939	ND1103-0754-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2972	–	7.550	–	MF8	–	1.142	N00817	ND1103-0755-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2992	–	7.600	–	–	–	1.142	N00818	ND1103-0760-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3031	–	7.700	–	–	–	1.142	N00819	ND1103-0770-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3071	–	7.800	8H6	–	–	1.142	N00824	ND1103-0780-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3110	–	7.900	–	–	–	1.142	N00825	ND1103-0790-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3125	5/16	7.938	–	–	–	1.142	N00942	ND1103-0794-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3150	–	8.000	–	UNC3/8-16	–	1.142	N00826	ND1103-0800-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3189	–	8.100	–	–	–	1.378	N00827	ND1103-0810-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3228	–	8.200	–	–	–	1.378	N00828	ND1103-0820-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3268	–	8.300	–	–	–	1.378	N00829	ND1103-0830-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3281	21/64	8.334	–	–	–	1.378	N00943	ND1103-0833-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3307	–	8.400	–	NPT1/8 / NPTF1/8	–	1.378	N00834	ND1103-0840-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3346	–	8.500	–	M10	–	1.378	N00835	ND1103-0850-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3386	–	8.600	–	–	–	1.378	N00836	ND1103-0860-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3425	–	8.700	–	–	–	1.378	N00837	ND1103-0870-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3437	11/32	8.731	–	–	–	1.378	N00944	ND1103-0873-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3465	–	8.800	9H6	G1/8 / MF10X1.25	–	1.378	N00838	ND1103-0880-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3504	–	8.900	9H6/9H7	–	–	1.378	N00839	ND1103-0890-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3543	–	9.000	–	MF10X1	–	1.378	N00842	ND1103-0900-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3583	–	9.100	–	–	–	1.378	N00843	ND1103-0910-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3594	23/64	9.128	–	–	–	1.378	N00945	ND1103-0913-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3622	–	9.200	–	MF10X0.75	–	1.378	N00844	ND1103-0920-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3661	–	9.300	–	–	–	1.378	N00845	ND1103-0930-035-10R1	3.504	1.929	1.575	1.850	0.394

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



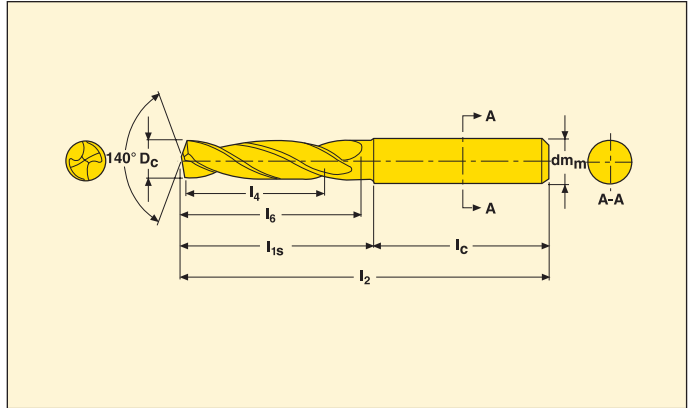
- External coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6	
0.3701	–	9.400	–	UNC7/16-14	–	1.378	N00846	ND1103-0940-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3740	–	9.500	–	–	–	1.378	N00847	ND1103-0950-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3750	3/8	9.525	–	–	–	1.378	N00946	ND1103-0953-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3760	–	9.550	–	–	MF10	1.378	N00848	ND1103-0955-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3780	–	9.600	–	–	–	1.378	N00849	ND1103-0960-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3819	–	9.700	–	–	–	1.378	N00852	ND1103-0970-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3858	–	9.800	10H6/10H7	–	–	1.378	N00853	ND1103-0980-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3898	–	9.900	10H6/10H7	UNF7/16-20	–	1.378	N00854	ND1103-0990-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3906	25/64	9.922	–	–	–	1.378	N00947	ND1103-0992-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3937	–	10.000	–	–	–	1.378	N00855	ND1103-1000-035-10R1	3.504	1.929	1.575	1.850	0.394
0.4016	–	10.200	–	M12	–	1.575	N00856	ND1103-1020-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4063	13/32	10.319	–	–	–	1.575	N00948	ND1103-1032-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4094	–	10.400	–	–	–	1.575	N00857	ND1103-1040-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4134	–	10.500	–	MF12X1.5	–	1.575	N00858	ND1103-1050-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4173	–	10.600	–	–	–	1.575	N00859	ND1103-1060-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4219	27/64	10.716	–	–	–	1.575	N00949	ND1103-1072-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4252	–	10.800	11H6/11H7	UNC1/2-13 / MF12X1.25	–	1.575	N00862	ND1103-1080-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4291	–	10.900	11H6/11H7	–	–	1.575	N00863	ND1103-1090-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4331	–	11.000	–	MF12X1 / NPTF1/4	–	1.575	N00864	ND1103-1100-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4370	–	11.100	–	NPT1/4	–	1.575	N00865	ND1103-1110-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4375	7/16	11.113	–	–	–	1.575	N00952	ND1103-1111-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4409	–	11.200	–	–	M12	1.575	N00866	ND1103-1120-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4449	–	11.300	–	–	–	1.575	N00867	ND1103-1130-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4488	–	11.400	–	–	–	1.575	N00868	ND1103-1140-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4528	–	11.500	–	UNF1/2-20	–	1.575	N00869	ND1103-1150-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4531	29/64	11.509	–	–	–	1.575	N00953	ND1103-1151-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4547	–	11.550	–	–	MF12	1.575	N00872	ND1103-1155-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4567	–	11.600	–	–	–	1.575	N00873	ND1103-1160-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4606	–	11.700	–	–	–	1.575	N00874	ND1103-1170-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4646	–	11.800	12H6/12H7	G1/4	–	1.575	N00875	ND1103-1180-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4685	–	11.900	12H6/12H7	–	–	1.575	N00876	ND1103-1190-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4687	15/32	11.906	–	–	–	1.575	N00954	ND1103-1191-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4724	–	12.000	–	M14	–	1.575	N00877	ND1103-1200-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4764	–	12.100	–	–	–	1.693	N00965	ND1103-1210-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4803	–	12.200	–	–	–	1.693	N00878	ND1103-1220-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4844	31/64	12.303	–	–	–	1.693	N00955	ND1103-1230-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4882	–	12.400	–	–	–	1.693	N00879	ND1103-1240-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4921	–	12.500	–	MF14X1.5	–	1.693	N00882	ND1103-1250-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4961	–	12.600	–	–	–	1.693	N00883	ND1103-1260-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5000	1/2	12.700	–	–	–	1.693	N00956	ND1103-1270-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5020	–	12.750	–	–	–	1.693	N00884	ND1103-1275-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5039	–	12.800	13H6/13H7	MF14X1.25	–	1.693	N00885	ND1103-1280-043-14R1	4.213	2.441	1.772	2.362	0.551

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

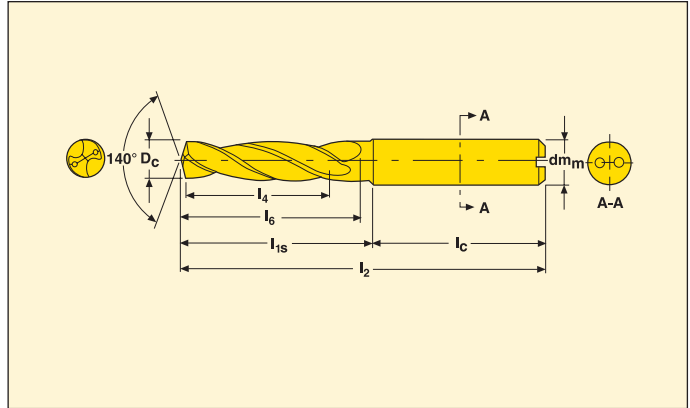
Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch				
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm$
0.5079	–	12.900	–	–	1.693	<a href="#">N00886</a>	ND1103-1290-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5118	–	13.000	–	MF14X1	1.693	<a href="#">N00887</a>	ND1103-1300-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5157	33/64	13.100	–	–	1.693	<a href="#">N00888</a>	ND1103-1310-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5197	–	13.200	–	–	1.693	<a href="#">N00889</a>	ND1103-1320-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5236	–	13.300	–	–	1.693	<a href="#">N00892</a>	ND1103-1330-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5276	–	13.400	–	–	1.693	<a href="#">N00893</a>	ND1103-1340-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5313	17/32	13.494	–	–	1.693	<a href="#">N00957</a>	ND1103-1349-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5315	–	13.500	–	–	1.693	<a href="#">N00894</a>	ND1103-1350-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5354	–	13.600	–	–	1.693	<a href="#">N00895</a>	ND1103-1360-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5394	–	13.700	–	–	1.693	<a href="#">N00896</a>	ND1103-1370-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5433	–	13.800	14H6/14H7	–	1.693	<a href="#">N00897</a>	ND1103-1380-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5472	35/64	13.900	14H6/14H7	–	1.693	<a href="#">N00898</a>	ND1103-1390-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5512	–	14.000	–	–	1.693	<a href="#">N00899</a>	ND1103-1400-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5591	–	14.200	–	–	1.772	<a href="#">N00902</a>	ND1103-1420-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5625	9/16	14.288	–	–	1.772	<a href="#">N00958</a>	ND1103-1429-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5709	–	14.500	–	MF16X1.5 / UNF5/8-18	1.772	<a href="#">N00903</a>	ND1103-1450-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5787	37/64	14.700	–	–	1.772	<a href="#">N00904</a>	ND1103-1470-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5807	–	14.750	–	–	1.772	<a href="#">N00905</a>	ND1103-1475-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5827	–	14.800	15H6/15H7	–	1.772	<a href="#">N00906</a>	ND1103-1480-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5906	–	15.000	–	MF16X1	1.772	<a href="#">N00907</a>	ND1103-1500-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5945	–	15.100	–	–	1.772	<a href="#">N00908</a>	ND1103-1510-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6024	–	15.300	–	–	1.772	<a href="#">N00909</a>	ND1103-1530-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6102	39/64	15.500	–	M18	1.772	<a href="#">N00912</a>	ND1103-1550-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6181	–	15.700	–	–	1.772	<a href="#">N00913</a>	ND1103-1570-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6220	–	15.800	16H6/16H7	–	1.772	<a href="#">N00914</a>	ND1103-1580-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6250	5/8	15.875	16H6/16H7	–	1.772	<a href="#">N00959</a>	ND1103-1588-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6299	–	16.000	–	–	1.772	<a href="#">N00915</a>	ND1103-1600-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6496	–	16.500	–	MF18X1.5	2.008	<a href="#">N00916</a>	ND1103-1650-051-18R1	4.843	2.953	1.890	2.874	0.709
0.6693	–	17.000	–	MF18X1	2.008	<a href="#">N00917</a>	ND1103-1700-051-18R1	4.843	2.953	1.890	2.874	0.709
0.6890	11/16	17.500	–	M20	2.008	<a href="#">N00918</a>	ND1103-1750-051-18R1	4.843	2.953	1.890	2.874	0.709
0.7087	–	18.000	–	–	2.008	<a href="#">N00919</a>	ND1103-1800-051-18R1	4.843	2.953	1.890	2.874	0.709
0.7283	–	18.500	–	MF20X1.5	2.165	<a href="#">N00922</a>	ND1103-1850-055-20R1	5.157	3.189	1.969	3.110	0.787
0.7480	–	19.000	–	G1/2 / MF20X1	2.165	<a href="#">N00923</a>	ND1103-1900-055-20R1	5.157	3.189	1.969	3.110	0.787
0.7500	3/4	19.050	–	–	2.165	<a href="#">N00962</a>	ND1103-1905-055-20R1	5.157	3.189	1.969	3.110	0.787
0.7677	49/64	19.500	–	M22	2.165	<a href="#">N00924</a>	ND1103-1950-055-20R1	5.157	3.189	1.969	3.110	0.787
0.7874	–	20.000	–	–	2.165	<a href="#">N00925</a>	ND1103-2000-055-20R1	5.157	3.189	1.969	3.110	0.787

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).



Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



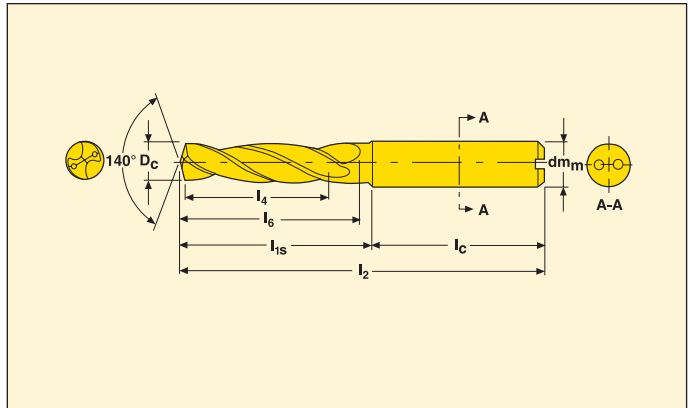
- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm, h6
0.1181	–	3.000	–	–	0.551	N00453	ND1103A-0300-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1220	–	3.100	–	–	0.551	N00525	ND1103A-0310-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1250	1/8	3.175	–	–	0.551	N00687	ND1103A-0318-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1260	–	3.200	–	–	0.551	N00526	ND1103A-0320-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1280	–	3.250	–	M3.5	0.551	N00527	ND1103A-0325-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1299	–	3.300	–	M4	0.551	N00528	ND1103A-0330-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1339	–	3.400	–	–	0.551	N00529	ND1103A-0340-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1378	–	3.500	–	UNC8-32 / MF4X0.5 / UNF8-36	0.551	N00532	ND1103A-0350-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1406	9/64	3.572	–	–	0.551	N00688	ND1103A-0357-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1417	–	3.600	–	–	0.551	N00533	ND1103A-0360-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1437	–	3.650	–	–	0.551	N00534	ND1103A-0365-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1457	–	3.700	–	M4.5	0.551	N00535	ND1103A-0370-014-06R1	2.441	1.024	1.417	0.787	0.236
0.1496	–	3.800	–	–	0.669	N00536	ND1103A-0380-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1535	–	3.900	4H7	UNC10-24	0.669	N00537	ND1103A-0390-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1563	5/32	3.969	–	–	0.669	N00689	ND1103A-0397-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1575	–	4.000	–	–	0.669	N00538	ND1103A-0400-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1614	–	4.100	–	UNF10-32	0.669	N00539	ND1103A-0410-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1654	–	4.200	–	M5	0.669	N00542	ND1103A-0420-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1693	–	4.300	–	–	0.669	N00543	ND1103A-0430-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1719	11/64	4.366	–	–	0.669	N00692	ND1103A-0437-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1772	–	4.500	–	UNC12-24 / MF5X0.5	0.669	N00545	ND1103A-0450-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1811	–	4.600	–	–	0.669	N00546	ND1103A-0460-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1831	–	4.650	–	M5	0.669	N00547	ND1103A-0465-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1850	–	4.700	–	–	0.669	N00548	ND1103A-0470-017-06R1	2.598	1.181	1.417	0.945	0.236
0.1875	3/16	4.763	–	–	0.787	N00693	ND1103A-0476-020-06R1	2.598	1.181	1.417	1.102	0.236
0.1890	–	4.800	–	MF5	0.787	N00549	ND1103A-0480-020-06R1	2.598	1.181	1.417	1.102	0.236
0.1929	–	4.900	5H7	–	0.787	N00552	ND1103A-0490-020-06R1	2.598	1.181	1.417	1.102	0.236
0.1969	–	5.000	–	M6	0.787	N00424	ND1103A-0500-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2008	–	5.100	–	UNC11/4-20	0.787	N00553	ND1103A-0510-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2031	13/64	5.159	–	–	0.787	N00694	ND1103A-0516-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2047	–	5.200	–	MF6X0.75	0.787	N00564	ND1103A-0520-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2087	–	5.300	–	–	0.787	N00554	ND1103A-0530-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2126	–	5.400	–	–	0.787	N00555	ND1103A-0540-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2165	–	5.500	–	UNF11/4-28	0.787	N00556	ND1103A-0550-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2185	–	5.550	–	–	0.787	N00557	ND1103A-0555-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2187	7/32	5.566	–	–	0.787	N00695	ND1103A-0556-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2205	–	5.600	–	–	0.787	N00558	ND1103A-0560-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2244	–	5.700	–	–	0.787	N00559	ND1103A-0570-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2283	–	5.800	6H6	–	0.787	N00562	ND1103A-0580-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2323	–	5.900	6H6/6H7	–	0.787	N00563	ND1103A-0590-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2344	15/64	5.933	–	–	0.787	N00696	ND1103A-0595-020-06R1	2.598	1.181	1.417	1.102	0.236
0.2362	–	6.000	–	M7	0.787	N00565	ND1103A-0600-020-06R1	2.598	1.181	1.417	1.102	0.236

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



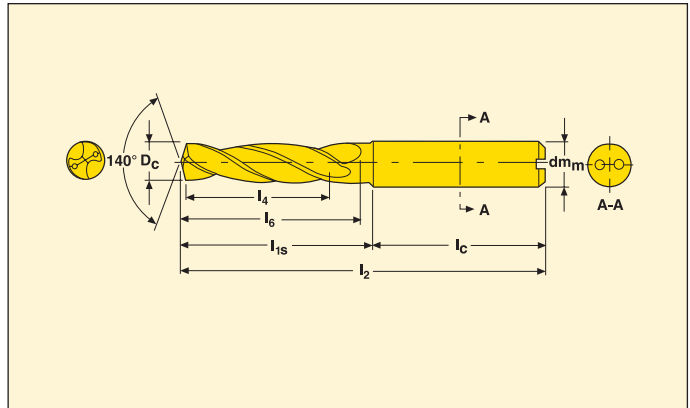
- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm h6	
0.2402	–	6.100	–	NPTF1/16	–	0.945	<a href="#">N00566</a>	ND1103A-0610-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2441	–	6.200	–	–	–	0.945	<a href="#">N00567</a>	ND1103A-0620-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2480	–	6.300	–	–	–	0.945	<a href="#">N00568</a>	ND1103A-0630-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2500	1/4	6.350	–	–	–	0.945	<a href="#">N00697</a>	ND1103A-0635-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2520	–	6.400	–	–	–	0.945	<a href="#">N00569</a>	ND1103A-0640-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2559	–	6.500	–	–	–	0.945	<a href="#">N00572</a>	ND1103A-0650-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2598	–	6.600	–	UNC5/16-18	–	0.945	<a href="#">N00573</a>	ND1103A-0660-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2638	–	6.700	–	–	–	0.945	<a href="#">N00544</a>	ND1103A-0670-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2656	17/64	6.747	–	–	–	0.945	<a href="#">N00698</a>	ND1103A-0675-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2677	–	6.800	7H6	M8	–	0.945	<a href="#">N00574</a>	ND1103A-0680-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2717	–	6.900	7H6/7H7	UNF5/16-24	–	0.945	<a href="#">N00575</a>	ND1103A-0690-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2756	–	7.000	–	MF8X1	–	0.945	<a href="#">N00576</a>	ND1103A-0700-024-08R1	3.110	1.693	1.417	1.339	0.315
0.2795	–	7.100	–	–	–	1.142	<a href="#">N00577</a>	ND1103A-0710-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2813	9/32	7.144	–	–	–	1.142	<a href="#">N00699</a>	ND1103A-0714-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2835	–	7.200	–	MF8X0.75	–	1.142	<a href="#">N00578</a>	ND1103A-0720-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2874	–	7.300	–	–	–	1.142	<a href="#">N00579</a>	ND1103A-0730-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2913	–	7.400	–	–	–	1.142	<a href="#">N00582</a>	ND1103A-0740-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2953	–	7.500	–	–	–	1.142	<a href="#">N00423</a>	ND1103A-0750-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2969	19/64	7.541	–	–	–	1.142	<a href="#">N00702</a>	ND1103A-0754-029-08R1	3.110	1.693	1.417	1.614	0.315
0.2972	–	7.550	–	MF8	1.142	<a href="#">N00583</a>	ND1103A-0755-029-08R1	3.110	1.693	1.417	1.614	0.315	
0.2992	–	7.600	–	–	–	1.142	<a href="#">N00584</a>	ND1103A-0760-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3031	–	7.700	–	–	–	1.142	<a href="#">N00585</a>	ND1103A-0770-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3071	–	7.800	8H6	–	–	1.142	<a href="#">N00586</a>	ND1103A-0780-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3110	–	7.900	8H6/8H7	–	–	1.142	<a href="#">N00587</a>	ND1103A-0790-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3125	5/16	7.938	–	–	–	1.142	<a href="#">N00703</a>	ND1103A-0794-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3150	–	8.000	–	UNC3/8-16	–	1.142	<a href="#">N00588</a>	ND1103A-0800-029-08R1	3.110	1.693	1.417	1.614	0.315
0.3189	–	8.100	–	–	–	1.378	<a href="#">N00589</a>	ND1103A-0810-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3228	–	8.200	–	–	–	1.378	<a href="#">N00592</a>	ND1103A-0820-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3268	–	8.300	–	–	–	1.378	<a href="#">N00593</a>	ND1103A-0830-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3281	21/64	8.334	–	–	–	1.378	<a href="#">N00704</a>	ND1103A-0833-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3307	–	8.400	–	NPT1/8 / NPTF1/8	–	1.378	<a href="#">N00594</a>	ND1103A-0840-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3346	–	8.500	–	M10	–	1.378	<a href="#">N00595</a>	ND1103A-0850-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3386	–	8.600	–	–	–	1.378	<a href="#">N00596</a>	ND1103A-0860-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3425	–	8.700	–	–	–	1.378	<a href="#">N00597</a>	ND1103A-0870-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3437	11/32	8.731	–	–	–	1.378	<a href="#">N00705</a>	ND1103A-0873-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3465	–	8.800	9H6	G1/8 / MF10X1.25	–	1.378	<a href="#">N00598</a>	ND1103A-0880-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3504	–	8.900	9H6/9H7	–	–	1.378	<a href="#">N00599</a>	ND1103A-0890-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3543	–	9.000	–	MF10X1	–	1.378	<a href="#">N00602</a>	ND1103A-0900-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3583	–	9.100	–	–	–	1.378	<a href="#">N00603</a>	ND1103A-0910-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3594	23/64	9.128	–	–	–	1.378	<a href="#">N00706</a>	ND1103A-0913-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3622	–	9.200	–	MF10X0.75	–	1.378	<a href="#">N00604</a>	ND1103A-0920-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3661	–	9.300	–	–	–	1.378	<a href="#">N00605</a>	ND1103A-0930-035-10R1	3.504	1.929	1.575	1.850	0.394

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



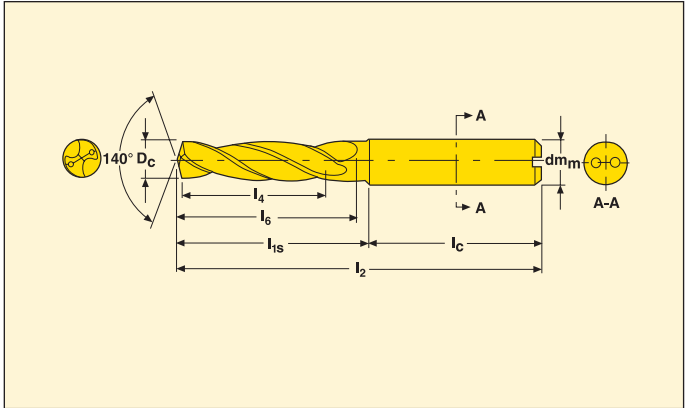
- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6	
0.3701	–	9.400	–	UNC7/16-14	–	1.378	N00606	ND1103A-0940-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3740	–	9.500	–	–	–	1.378	N00607	ND1103A-0950-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3750	3/8	9.525	–	–	–	1.378	N00707	ND1103A-0953-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3760	–	9.550	–	–	MF10	1.378	N00608	ND1103A-0955-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3780	–	9.600	–	–	–	1.378	N00609	ND1103A-0960-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3819	–	9.700	–	–	–	1.378	N00612	ND1103A-0970-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3858	–	9.800	10H6/10H7	–	–	1.378	N00613	ND1103A-0980-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3898	–	9.900	10H6/10H7	UNF7/16-20	–	1.378	N00614	ND1103A-0990-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3906	25/64	9.922	–	–	–	1.378	N00708	ND1103A-0992-035-10R1	3.504	1.929	1.575	1.850	0.394
0.3937	–	10.000	–	–	–	1.378	N00615	ND1103A-1000-035-10R1	3.504	1.929	1.575	1.850	0.394
0.4016	–	10.200	–	M12	–	1.575	N00616	ND1103A-1020-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4063	13/32	10.319	–	–	–	1.575	N00709	ND1103A-1032-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4094	–	10.400	–	–	–	1.575	N00617	ND1103A-1040-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4134	–	10.500	–	MF12X1.5	–	1.575	N00618	ND1103A-1050-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4173	–	10.600	–	–	–	1.575	N00619	ND1103A-1060-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4219	27/64	10.716	–	–	–	1.575	N00712	ND1103A-1072-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4252	–	10.800	11H6/11H7	UNC1/2-13 / MF12X1.25	–	1.575	N00622	ND1103A-1080-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4291	–	10.900	11H6/11H7	–	–	1.575	N00623	ND1103A-1090-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4331	–	11.000	–	MF12X1 / NPTF1/4	–	1.575	N00624	ND1103A-1100-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4370	–	11.100	–	NPT1/4	–	1.575	N00625	ND1103A-1110-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4375	7/16	11.113	–	–	–	1.575	N00713	ND1103A-1111-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4409	–	11.200	–	–	M12	1.575	N00626	ND1103A-1120-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4449	–	11.300	–	–	–	1.575	N00627	ND1103A-1130-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4488	–	11.400	–	–	–	1.575	N00628	ND1103A-1140-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4528	–	11.500	–	UNF1/2-20	–	1.575	N00629	ND1103A-1150-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4531	29/64	11.509	–	–	–	1.575	N00714	ND1103A-1151-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4547	–	11.550	–	–	MF12	1.575	N00632	ND1103A-1155-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4567	–	11.600	–	–	–	1.575	N00633	ND1103A-1160-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4606	–	11.700	–	–	–	1.575	N00634	ND1103A-1170-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4646	–	11.800	12H6/12H7	G1/4	–	1.575	N00635	ND1103A-1180-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4685	–	11.900	12H6/12H7	–	–	1.575	N00636	ND1103A-1190-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4687	15/32	11.906	12H6/12H7	–	–	1.575	N00715	ND1103A-1191-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4724	–	12.000	–	M14	–	1.575	N00637	ND1103A-1200-040-12R1	4.016	2.244	1.772	2.165	0.472
0.4764	–	12.100	–	–	–	1.693	N00638	ND1103A-1210-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4803	–	12.200	–	–	–	1.693	N00639	ND1103A-1220-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4844	31/64	12.303	–	–	–	1.693	N00716	ND1103A-1230-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4882	–	12.400	–	–	–	1.693	N00642	ND1103A-1240-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4921	–	12.500	–	MF14X1.5	–	1.693	N00643	ND1103A-1250-043-14R1	4.213	2.441	1.772	2.362	0.551
0.4961	–	12.600	–	–	–	1.693	N00644	ND1103A-1260-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5000	1/2	12.700	–	–	–	1.693	N00717	ND1103A-1270-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5020	–	12.750	–	–	–	1.693	N00645	ND1103A-1275-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5039	–	12.800	13H6/13H7	MF14X1.25	–	1.693	N00646	ND1103A-1280-043-14R1	4.213	2.441	1.772	2.362	0.551

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



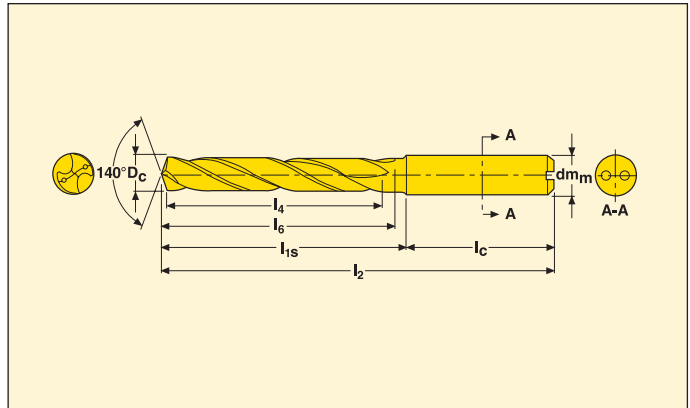
- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm h6	
0.5079	–	12.900	13H6/13H7	–	–	1.693	<a href="#">N00647</a>	ND1103A-1290-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5118	–	13.000	–	MF14X1	–	1.693	<a href="#">N00648</a>	ND1103A-1300-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5157	33/64	13.100	–	–	M14	1.693	<a href="#">N00649</a>	ND1103A-1310-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5197	–	13.200	–	–	–	1.693	<a href="#">N00652</a>	ND1103A-1320-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5236	–	13.300	–	–	–	1.693	<a href="#">N00653</a>	ND1103A-1330-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5276	–	13.400	–	–	–	1.693	<a href="#">N00654</a>	ND1103A-1340-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5313	17/32	13.494	–	–	–	1.693	<a href="#">N00718</a>	ND1103A-1349-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5315	–	13.500	–	–	–	1.693	<a href="#">N00655</a>	ND1103A-1350-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5354	–	13.600	–	–	–	1.693	<a href="#">N00656</a>	ND1103A-1360-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5394	–	13.700	–	–	–	1.693	<a href="#">N00657</a>	ND1103A-1370-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5433	–	13.800	14H6/14H7	–	–	1.693	<a href="#">N00658</a>	ND1103A-1380-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5472	35/64	13.900	14H6/14H7	–	–	1.693	<a href="#">N00659</a>	ND1103A-1390-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5512	–	14.000	–	–	–	1.693	<a href="#">N00662</a>	ND1103A-1400-043-14R1	4.213	2.441	1.772	2.362	0.551
0.5591	–	14.200	–	–	–	1.772	<a href="#">N00663</a>	ND1103A-1420-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5625	9/16	14.288	–	–	–	1.772	<a href="#">N00719</a>	ND1103A-1429-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5709	–	14.500	–	MF16X1.5 / UNF5/8-18	–	1.772	<a href="#">N00664</a>	ND1103A-1450-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5787	37/64	14.700	–	–	–	1.772	<a href="#">N00665</a>	ND1103A-1470-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5807	–	14.750	–	–	–	1.772	<a href="#">N00666</a>	ND1103A-1475-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5827	–	14.800	15H6/15H7	–	–	1.772	<a href="#">N00667</a>	ND1103A-1480-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5906	–	15.000	–	MF16X1	–	1.772	<a href="#">N00668</a>	ND1103A-1500-045-16R1	4.528	2.638	1.890	2.559	0.630
0.5945	–	15.100	–	–	M16	1.772	<a href="#">N00669</a>	ND1103A-1510-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6024	–	15.300	–	–	–	1.772	<a href="#">N00672</a>	ND1103A-1530-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6102	39/64	15.500	–	M18	–	1.772	<a href="#">N00673</a>	ND1103A-1550-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6181	–	15.700	–	–	–	1.772	<a href="#">N00674</a>	ND1103A-1570-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6220	–	15.800	16H6/16H7	–	–	1.772	<a href="#">N00675</a>	ND1103A-1580-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6250	5/8	15.875	16H6/16H7	–	–	1.772	<a href="#">N00722</a>	ND1103A-1588-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6299	–	16.000	–	–	–	1.772	<a href="#">N00676</a>	ND1103A-1600-045-16R1	4.528	2.638	1.890	2.559	0.630
0.6496	–	16.500	–	MF18X1.5	–	2.008	<a href="#">N00677</a>	ND1103A-1650-051-18R1	4.843	2.953	1.890	2.874	0.709
0.6693	–	17.000	–	MF18X1	–	2.008	<a href="#">N00678</a>	ND1103A-1700-051-18R1	4.843	2.953	1.890	2.874	0.709
0.6890	11/16	17.500	–	M20	–	2.008	<a href="#">N00679</a>	ND1103A-1750-051-18R1	4.843	2.953	1.890	2.874	0.709
0.7087	–	18.000	–	–	–	2.008	<a href="#">N00682</a>	ND1103A-1800-051-18R1	4.843	2.953	1.890	2.874	0.709
0.7283	–	18.500	–	MF20X1.5	–	2.165	<a href="#">N00683</a>	ND1103A-1850-055-20R1	5.157	3.189	1.969	3.110	0.787
0.7480	–	19.000	–	G1/2 / MF20X1	–	2.165	<a href="#">N00684</a>	ND1103A-1900-055-20R1	5.157	3.189	1.969	3.110	0.787
0.7500	3/4	19.050	–	–	–	2.165	<a href="#">N00723</a>	ND1103A-1905-055-20R1	5.157	3.189	1.969	3.110	0.787
0.7677	49/64	19.500	–	M22	–	2.165	<a href="#">N00685</a>	ND1103A-1950-055-20R1	5.157	3.189	1.969	3.110	0.787
0.7874	–	20.000	–	–	–	2.165	<a href="#">N00686</a>	ND1103A-2000-055-20R1	5.157	3.189	1.969	3.110	0.787

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



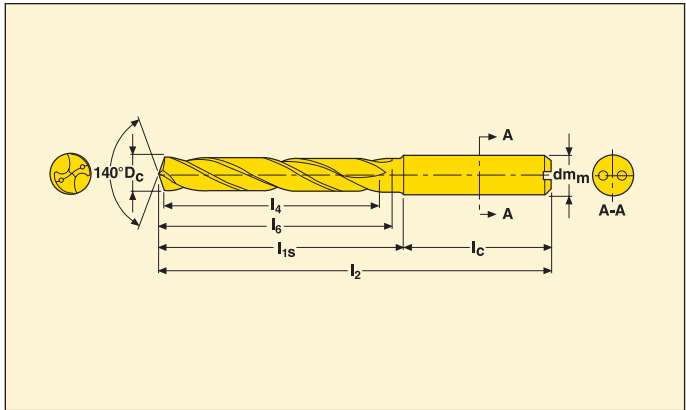
- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>3</sub>	l <sub>4</sub>	dm <sub>m</sub> h6
0.1181	–	3.000	–	–	0.906	N00966	ND1105A-0300-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1220	–	3.100	–	–	0.906	N00967	ND1105A-0310-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1250	1/8	3.175	–	–	0.906	N12142	ND1105A-0318-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1260	–	3.200	–	–	0.906	N00968	ND1105A-0320-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1280	–	3.250	–	M3.5	0.906	N00969	ND1105A-0325-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1299	–	3.300	–	M4	0.906	N00972	ND1105A-0330-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1339	–	3.400	–	–	0.906	N00973	ND1105A-0340-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1378	–	3.500	–	UNC8-32 / MF4X0.5 / UNF8-36	0.906	N00974	ND1105A-0350-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1406	9/64	3.572	–	–	0.906	N12143	ND1105A-0357-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1417	–	3.600	–	–	0.906	N00975	ND1105A-0360-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1437	–	3.650	–	–	0.906	N00976	ND1105A-0365-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1457	–	3.700	–	M4.5	0.906	N00977	ND1105A-0370-023-06R1	2.598	1.181	1.417	1.102	0.236
0.1496	–	3.800	–	–	1.142	N00978	ND1105A-0380-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1535	–	3.900	4H7	UNC10-24	1.142	N00979	ND1105A-0390-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1563	5/32	3.969	–	–	1.142	N12144	ND1105A-0397-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1575	–	4.000	–	–	1.142	N00982	ND1105A-0400-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1614	–	4.100	–	UNF10-32	1.142	N00983	ND1105A-0410-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1654	–	4.200	–	M5	1.142	N00984	ND1105A-0420-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1693	–	4.300	–	–	1.142	N00985	ND1105A-0430-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1719	11/64	4.366	–	–	1.142	N12145	ND1105A-0437-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1732	–	4.400	–	–	1.142	N00986	ND1105A-0440-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1772	–	4.500	–	UNC12-24 / MF5X0.5	1.142	N00987	ND1105A-0450-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1811	–	4.600	–	–	1.142	N00988	ND1105A-0460-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1831	–	4.650	–	M5	1.142	N00989	ND1105A-0465-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1850	–	4.700	–	–	1.142	N00992	ND1105A-0470-029-06R1	2.913	1.496	1.417	1.417	0.236
0.1875	3/16	4.763	–	–	1.378	N12146	ND1105A-0476-035-06R1	3.228	1.811	1.417	1.732	0.236
0.1890	–	4.800	–	MF5	1.378	N12177	ND1105A-0480-035-06R1	3.228	1.811	1.417	1.732	0.236
0.1929	–	4.900	5H7	–	1.378	N00993	ND1105A-0490-035-06R1	3.228	1.811	1.417	1.732	0.236
0.1969	–	5.000	–	M6	1.378	N00994	ND1105A-0500-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2008	–	5.100	–	UNC11/4-20	1.378	N00995	ND1105A-0510-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2031	13/64	5.159	–	–	1.378	N12147	ND1105A-0516-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2047	–	5.200	–	MF6X0.75	1.378	N00996	ND1105A-0520-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2087	–	5.300	–	–	1.378	N00997	ND1105A-0530-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2126	–	5.400	–	–	1.378	N00998	ND1105A-0540-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2165	–	5.500	–	UNF1/4-28	1.378	N00999	ND1105A-0550-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2185	–	5.550	–	–	1.378	N12178	ND1105A-0555-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2187	7/32	5.556	–	–	1.378	N12148	ND1105A-0556-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2205	–	5.600	–	–	1.378	N01002	ND1105A-0560-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2244	–	5.700	–	–	1.378	N01003	ND1105A-0570-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2283	–	5.800	6H6	–	1.378	N01004	ND1105A-0580-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2323	–	5.900	6H6/6H7	–	1.378	N01005	ND1105A-0590-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2344	15/64	5.953	–	–	1.378	N12149	ND1105A-0595-035-06R1	3.228	1.811	1.417	1.732	0.236

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



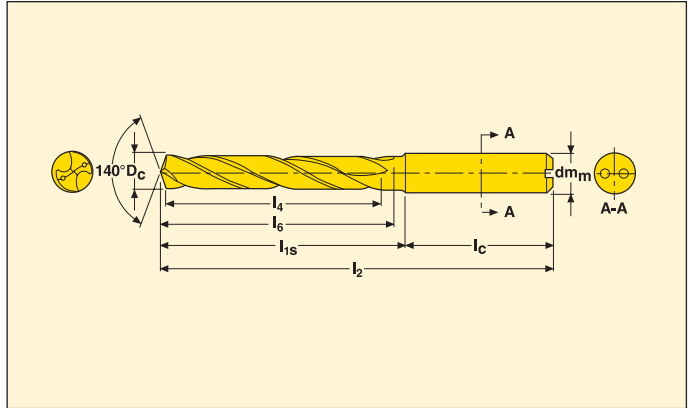
- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
0.2362	–	6.000	–	–	1.378	<a href="#">N01006</a>	ND1105A-0600-035-06R1	3.228	1.811	1.417	1.732	0.236
0.2402	–	6.100	–	–	1.693	<a href="#">N01007</a>	ND1105A-0610-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2441	–	6.200	–	–	1.693	<a href="#">N01008</a>	ND1105A-0620-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2480	–	6.300	–	–	1.693	<a href="#">N01009</a>	ND1105A-0630-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2500	1/4	6.350	–	–	1.693	<a href="#">N12152</a>	ND1105A-0635-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2520	–	6.400	–	–	1.693	<a href="#">N01012</a>	ND1105A-0640-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2559	–	6.500	–	–	1.693	<a href="#">N01013</a>	ND1105A-0650-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2598	–	6.600	–	–	1.693	<a href="#">N01014</a>	ND1105A-0660-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2638	–	6.700	–	–	1.693	<a href="#">N01015</a>	ND1105A-0670-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2656	17/64	6.747	–	–	1.693	<a href="#">N12153</a>	ND1105A-0675-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2677	–	6.800	7H6	–	1.693	<a href="#">N01016</a>	ND1105A-0680-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2717	–	6.900	7H6/7H7	–	1.693	<a href="#">N01017</a>	ND1105A-0690-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2756	–	7.000	–	–	1.693	<a href="#">N01018</a>	ND1105A-0700-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2795	–	7.100	–	–	1.693	<a href="#">N01019</a>	ND1105A-0710-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2813	9/32	7.144	–	–	1.693	<a href="#">N12154</a>	ND1105A-0714-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2835	–	7.200	–	–	1.693	<a href="#">N01022</a>	ND1105A-0720-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2874	–	7.300	–	–	1.693	<a href="#">N01023</a>	ND1105A-0730-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2913	–	7.400	–	–	1.693	<a href="#">N01024</a>	ND1105A-0740-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2953	–	7.500	–	–	1.693	<a href="#">N01025</a>	ND1105A-0750-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2969	19/64	7.541	–	–	1.693	<a href="#">N12155</a>	ND1105A-0754-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2972	–	7.550	–	–	1.693	<a href="#">N01026</a>	ND1105A-0755-043-08R1	3.583	2.165	1.417	2.087	0.315
0.2992	–	7.600	–	–	1.693	<a href="#">N01027</a>	ND1105A-0760-043-08R1	3.583	2.165	1.417	2.087	0.315
0.3031	–	7.700	–	–	1.693	<a href="#">N01028</a>	ND1105A-0770-043-08R1	3.583	2.165	1.417	2.087	0.315
0.3071	–	7.800	8H6	–	1.693	<a href="#">N01029</a>	ND1105A-0780-043-08R1	3.583	2.165	1.417	2.087	0.315
0.3110	–	7.900	8H6/8H7	–	1.693	<a href="#">N01032</a>	ND1105A-0790-043-08R1	3.583	2.165	1.417	2.087	0.315
0.3125	5/16	7.938	–	–	1.693	<a href="#">N12156</a>	ND1105A-0794-043-08R1	3.583	2.165	1.417	2.087	0.315
0.3150	–	8.000	–	–	1.693	<a href="#">N01033</a>	ND1105A-0800-043-08R1	3.583	2.165	1.417	2.087	0.315
0.3189	–	8.100	–	–	1.929	<a href="#">N01034</a>	ND1105A-0810-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3228	–	8.200	–	–	1.929	<a href="#">N01035</a>	ND1105A-0820-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3268	–	8.300	–	–	1.929	<a href="#">N01036</a>	ND1105A-0830-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3281	21/64	8.334	–	–	1.929	<a href="#">N12157</a>	ND1105A-0833-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3307	–	8.400	–	–	1.929	<a href="#">N01037</a>	ND1105A-0840-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3346	–	8.500	–	–	1.929	<a href="#">N01038</a>	ND1105A-0850-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3386	–	8.600	–	–	1.929	<a href="#">N01039</a>	ND1105A-0860-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3425	–	8.700	–	–	1.929	<a href="#">N01042</a>	ND1105A-0870-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3437	11/32	8.731	–	–	1.929	<a href="#">N12158</a>	ND1105A-0873-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3465	–	8.800	9H6	–	1.929	<a href="#">N01043</a>	ND1105A-0880-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3504	–	8.900	9H6/9H7	–	1.929	<a href="#">N01044</a>	ND1105A-0890-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3543	–	9.000	–	–	1.929	<a href="#">N01045</a>	ND1105A-0900-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3583	–	9.100	–	–	1.929	<a href="#">N01046</a>	ND1105A-0910-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3594	23/64	9.128	–	–	1.929	<a href="#">N12159</a>	ND1105A-0913-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3622	–	9.200	–	–	1.929	<a href="#">N01047</a>	ND1105A-0920-049-10R1	4.055	2.480	1.575	2.402	0.394

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



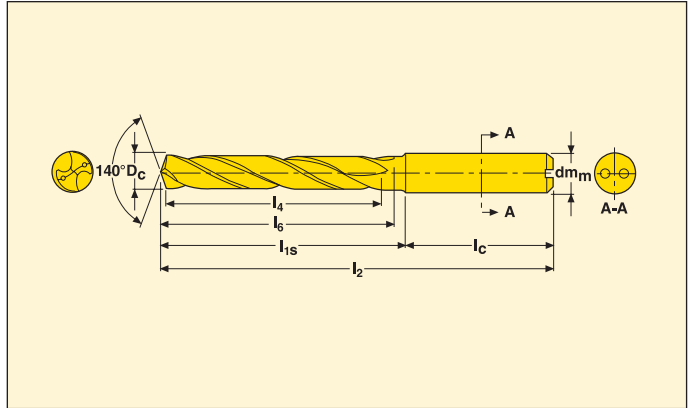
- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
0.3661	–	9.300	–	–	1.929	<a href="#">N09239</a>	ND1105A-0930-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3701	–	9.400	–	UNC7/16-14	1.929	<a href="#">N09242</a>	ND1105A-0940-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3740	–	9.500	–	–	1.929	<a href="#">N09243</a>	ND1105A-0950-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3750	3/8	9.525	–	–	1.929	<a href="#">N12162</a>	ND1105A-0953-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3760	–	9.550	–	MF10	1.929	<a href="#">N09244</a>	ND1105A-0955-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3780	–	9.600	–	–	1.929	<a href="#">N09245</a>	ND1105A-0960-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3819	–	9.700	–	–	1.929	<a href="#">N09246</a>	ND1105A-0970-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3858	–	9.800	10H6/10H7	–	1.929	<a href="#">N09247</a>	ND1105A-0980-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3898	–	9.900	10H6/10H7	UNF7/16-20	1.929	<a href="#">N09249</a>	ND1105A-0990-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3906	25/64	9.922	–	–	1.929	<a href="#">N12163</a>	ND1105A-0992-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3937	–	10.000	–	–	1.929	<a href="#">N09252</a>	ND1105A-1000-049-10R1	4.055	2.480	1.575	2.402	0.394
0.3976	–	10.100	–	–	2.205	<a href="#">N09253</a>	ND1105A-1010-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4016	–	10.200	–	M12	2.205	<a href="#">N09254</a>	ND1105A-1020-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4055	–	10.300	–	–	2.205	<a href="#">N09255</a>	ND1105A-1030-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4063	13/32	10.319	–	–	2.205	<a href="#">N12164</a>	ND1105A-1032-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4094	–	10.400	–	–	2.205	<a href="#">N09256</a>	ND1105A-1040-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4134	–	10.500	–	MF12X1.5	2.205	<a href="#">N09257</a>	ND1105A-1050-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4173	–	10.600	–	–	2.205	<a href="#">N09259</a>	ND1105A-1060-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4213	–	10.700	–	–	2.205	<a href="#">N09262</a>	ND1105A-1070-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4219	27/64	10.716	–	–	2.205	<a href="#">N12165</a>	ND1105A-1072-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4252	–	10.800	11H6/11H7	UNC1/2-13 / MF12X1.25	2.205	<a href="#">N09263</a>	ND1105A-1080-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4291	–	10.900	11H6/11H7	–	2.205	<a href="#">N09264</a>	ND1105A-1090-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4331	–	11.000	–	MF12X1 / NPTF1/4	2.205	<a href="#">N09265</a>	ND1105A-1100-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4370	–	11.100	–	NPT1/4	2.205	<a href="#">N09266</a>	ND1105A-1110-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4375	7/16	11.113	–	–	2.205	<a href="#">N12166</a>	ND1105A-1111-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4409	–	11.200	–	–	2.205	<a href="#">N09267</a>	ND1105A-1120-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4449	–	11.300	–	MF12	2.205	<a href="#">N09269</a>	ND1105A-1130-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4488	–	11.400	–	–	2.205	<a href="#">N09272</a>	ND1105A-1140-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4528	–	11.500	–	UNF1/2-20	2.205	<a href="#">N09273</a>	ND1105A-1150-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4531	29/64	11.509	–	–	2.205	<a href="#">N12167</a>	ND1105A-1151-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4547	–	11.550	–	MF12	2.205	<a href="#">N09274</a>	ND1105A-1155-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4567	–	11.600	–	–	2.205	<a href="#">N09275</a>	ND1105A-1160-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4606	–	11.700	–	–	2.205	<a href="#">N09276</a>	ND1105A-1170-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4646	–	11.800	12H6/12H7	G1/4	2.205	<a href="#">N09277</a>	ND1105A-1180-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4685	–	11.900	12H6/12H7	–	2.205	<a href="#">N09279</a>	ND1105A-1190-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4687	15/32	11.906	–	–	2.205	<a href="#">N12168</a>	ND1105A-1191-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4724	–	12.000	–	M14	2.205	<a href="#">N09282</a>	ND1105A-1200-056-12R1	4.646	2.874	1.772	2.795	0.472
0.4764	–	12.100	–	–	2.362	<a href="#">N09283</a>	ND1105A-1210-060-14R1	4.882	3.110	1.772	3.031	0.551
0.4803	–	12.200	–	–	2.362	<a href="#">N09284</a>	ND1105A-1220-060-14R1	4.882	3.110	1.772	3.031	0.551
0.4823	–	12.250	–	–	2.362	<a href="#">N09285</a>	ND1105A-1225-060-14R1	4.882	3.110	1.772	3.031	0.551
0.4844	31/64	12.303	–	–	2.362	<a href="#">N12169</a>	ND1105A-1230-060-14R1	4.882	3.110	1.772	3.031	0.551
0.4882	–	12.400	–	–	2.362	<a href="#">N09286</a>	ND1105A-1240-060-14R1	4.882	3.110	1.772	3.031	0.551

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

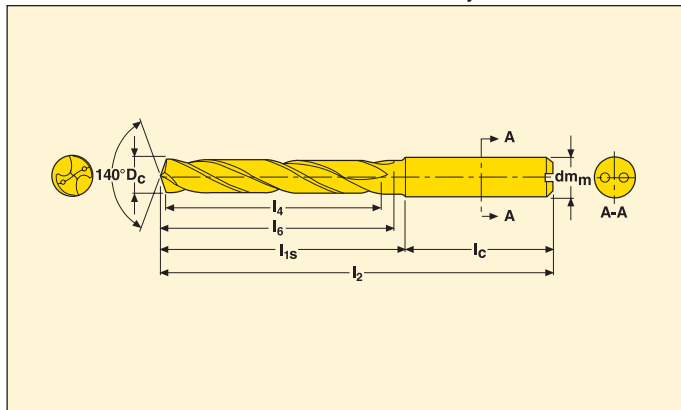
Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch				
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_m h_6$
0.4921	–	12.500	–	–	2.362	<a href="#">N09287</a>	ND1105A-1250-060-14R1	4.882	3.110	1.772	3.031	0.551
0.4961	–	12.600	–	–	2.362	<a href="#">N09289</a>	ND1105A-1260-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5000	1/2	12.700	–	–	2.362	<a href="#">N12172</a>	ND1105A-1270-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5020	–	12.750	–	–	2.362	<a href="#">N09292</a>	ND1105A-1275-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5039	–	12.800	13H6/13H7	–	2.362	<a href="#">N09293</a>	ND1105A-1280-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5079	–	12.900	13H6/13H7	–	2.362	<a href="#">N09294</a>	ND1105A-1290-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5118	–	13.000	–	–	2.362	<a href="#">N09295</a>	ND1105A-1300-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5157	33/64	13.100	–	M14	2.362	<a href="#">N09296</a>	ND1105A-1310-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5197	–	13.200	–	–	2.362	<a href="#">N09297</a>	ND1105A-1320-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5236	–	13.300	–	–	2.362	<a href="#">N09299</a>	ND1105A-1330-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5276	–	13.400	–	–	2.362	<a href="#">N09302</a>	ND1105A-1340-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5313	17/32	13.494	–	–	2.362	<a href="#">N12173</a>	ND1105A-1349-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5315	–	13.500	–	–	2.362	<a href="#">N09303</a>	ND1105A-1350-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5354	–	13.600	–	–	2.362	<a href="#">N09304</a>	ND1105A-1360-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5394	–	13.700	–	–	2.362	<a href="#">N09305</a>	ND1105A-1370-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5433	–	13.800	14H6/14H7	–	2.362	<a href="#">N09306</a>	ND1105A-1380-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5472	35/64	13.900	14H6/14H7	–	2.362	<a href="#">N09307</a>	ND1105A-1390-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5512	–	14.000	–	M16	2.362	<a href="#">N09309</a>	ND1105A-1400-060-14R1	4.882	3.110	1.772	3.031	0.551
0.5551	–	14.100	–	–	2.480	<a href="#">N09313</a>	ND1105A-1410-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5591	–	14.200	–	–	2.480	<a href="#">N09316</a>	ND1105A-1420-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5625	9/16	14.288	–	–	2.480	<a href="#">N12174</a>	ND1105A-1429-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5630	–	14.300	–	NPT3/8 / NPTF3/8	2.480	<a href="#">N09317</a>	ND1105A-1430-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5669	–	14.400	–	–	2.480	<a href="#">N09319</a>	ND1105A-1440-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5709	–	14.500	–	MF16X1.5 / UNF5/8-18	2.480	<a href="#">N09323</a>	ND1105A-1450-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5748	–	14.600	–	–	2.480	<a href="#">N09326</a>	ND1105A-1460-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5787	37/64	14.700	–	–	2.480	<a href="#">N09353</a>	ND1105A-1470-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5807	–	14.750	–	–	2.480	<a href="#">N10398</a>	ND1105A-1475-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5827	–	14.800	15H6/15H7	–	2.480	<a href="#">N11428</a>	ND1105A-1480-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5866	–	14.900	15H6/15H7	–	2.480	<a href="#">N11460</a>	ND1105A-1490-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5906	–	15.000	–	MF16X1	2.480	<a href="#">N11929</a>	ND1105A-1500-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5945	19/32	15.100	–	M16	2.480	<a href="#">N12077</a>	ND1105A-1510-063-16R1	5.236	3.346	1.890	3.268	0.630
0.5984	–	15.200	–	–	2.480	<a href="#">N12078</a>	ND1105A-1520-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6024	–	15.300	–	–	2.480	<a href="#">N12079</a>	ND1105A-1530-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6063	–	15.400	–	–	2.480	<a href="#">N12082</a>	ND1105A-1540-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6102	39/64	15.500	–	M18	2.480	<a href="#">N12083</a>	ND1105A-1550-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6142	–	15.600	–	–	2.480	<a href="#">N12084</a>	ND1105A-1560-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6181	–	15.700	–	–	2.480	<a href="#">N12085</a>	ND1105A-1570-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6220	–	15.800	16H6/16H7	–	2.480	<a href="#">N12086</a>	ND1105A-1580-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6250	5/8	15.875	16H6/16H7	–	2.480	<a href="#">N12175</a>	ND1105A-1588-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6260	–	15.900	16H6/16H7	–	2.480	<a href="#">N12087</a>	ND1105A-1590-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6299	–	16.000	–	–	2.480	<a href="#">N12088</a>	ND1105A-1600-063-16R1	5.236	3.346	1.890	3.268	0.630
0.6339	–	16.100	–	–	2.795	<a href="#">N12089</a>	ND1105A-1610-071-18R1	5.630	3.740	1.890	3.661	0.709

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).



Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 128
- Coating: AlCrN
- Hole tolerance: IT8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch				
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6
0.6378	–	16.200	–	–	2.795	<a href="#">N12092</a>	ND1105A-1620-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6417	41/64	16.300	–	–	2.795	<a href="#">N12093</a>	ND1105A-1630-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6457	–	16.400	–	–	2.795	<a href="#">N12094</a>	ND1105A-1640-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6496	–	16.500	–	MF18X1.5	2.795	<a href="#">N12095</a>	ND1105A-1650-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6535	–	16.600	–	–	2.795	<a href="#">N12096</a>	ND1105A-1660-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6575	21/32	16.700	–	–	2.795	<a href="#">N12097</a>	ND1105A-1670-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6594	–	16.750	–	–	2.795	<a href="#">N12098</a>	ND1105A-1675-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6614	–	16.800	17H6/17H7	–	2.795	<a href="#">N12099</a>	ND1105A-1680-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6654	–	16.900	17H6/17H7	–	2.795	<a href="#">N12102</a>	ND1105A-1690-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6693	–	17.000	–	MF18X1	2.795	<a href="#">N12103</a>	ND1105A-1700-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6732	43/64	17.100	–	–	2.795	<a href="#">N12104</a>	ND1105A-1710-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6772	–	17.200	–	–	2.795	<a href="#">N12105</a>	ND1105A-1720-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6811	–	17.300	–	–	2.795	<a href="#">N12106</a>	ND1105A-1730-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6850	–	17.400	–	–	2.795	<a href="#">N12107</a>	ND1105A-1740-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6890	11/16	17.500	–	M20	2.795	<a href="#">N12108</a>	ND1105A-1750-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6929	–	17.600	–	NPTF1/2	2.795	<a href="#">N12109</a>	ND1105A-1760-071-18R1	5.630	3.740	1.890	3.661	0.709
0.6969	–	17.700	–	–	2.795	<a href="#">N12112</a>	ND1105A-1770-071-18R1	5.630	3.740	1.890	3.661	0.709
0.7008	–	17.800	–	–	2.795	<a href="#">N12113</a>	ND1105A-1780-071-18R1	5.630	3.740	1.890	3.661	0.709
0.7047	45/64	17.900	18H6/18H7	NPT1/2	2.795	<a href="#">N12114</a>	ND1105A-1790-071-18R1	5.630	3.740	1.890	3.661	0.709
0.7087	–	18.000	–	–	2.795	<a href="#">N12115</a>	ND1105A-1800-071-18R1	5.630	3.740	1.890	3.661	0.709
0.7126	–	18.100	–	–	3.031	<a href="#">N12116</a>	ND1105A-1810-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7165	–	18.200	–	–	3.031	<a href="#">N12117</a>	ND1105A-1820-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7205	23/32	18.300	–	–	3.031	<a href="#">N12118</a>	ND1105A-1830-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7244	–	18.400	–	–	3.031	<a href="#">N12119</a>	ND1105A-1840-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7283	–	18.500	–	MF20X1.5	3.031	<a href="#">N12122</a>	ND1105A-1850-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7323	–	18.600	–	–	3.031	<a href="#">N12123</a>	ND1105A-1860-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7362	47/64	18.700	–	–	3.031	<a href="#">N12124</a>	ND1105A-1870-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7402	–	18.800	19H6/19H7	–	3.031	<a href="#">N12125</a>	ND1105A-1880-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7441	–	18.900	19H6/19H7	–	3.031	<a href="#">N12126</a>	ND1105A-1890-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7480	–	19.000	–	G1/2 / MF20X1	3.031	<a href="#">N12127</a>	ND1105A-1900-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7500	3/4	19.050	–	–	3.031	<a href="#">N12176</a>	ND1105A-1905-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7520	–	19.100	–	–	3.031	<a href="#">N12128</a>	ND1105A-1910-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7559	–	19.200	–	–	3.031	<a href="#">N12129</a>	ND1105A-1920-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7598	–	19.300	–	–	3.031	<a href="#">N12132</a>	ND1105A-1930-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7638	–	19.400	–	–	3.031	<a href="#">N12133</a>	ND1105A-1940-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7677	49/64	19.500	–	M22	3.031	<a href="#">N12134</a>	ND1105A-1950-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7717	–	19.600	–	–	3.031	<a href="#">N12135</a>	ND1105A-1960-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7756	–	19.700	–	–	3.031	<a href="#">N12136</a>	ND1105A-1970-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7795	–	19.800	20H6/20H7	–	3.031	<a href="#">N12137</a>	ND1105A-1980-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7835	25/32	19.900	20H6/20H7	–	3.031	<a href="#">N12138</a>	ND1105A-1990-077-20R1	6.024	4.055	1.969	3.976	0.787
0.7874	–	20.000	–	–	3.031	<a href="#">N12139</a>	ND1105A-2000-077-20R1	6.024	4.055	1.969	3.976	0.787

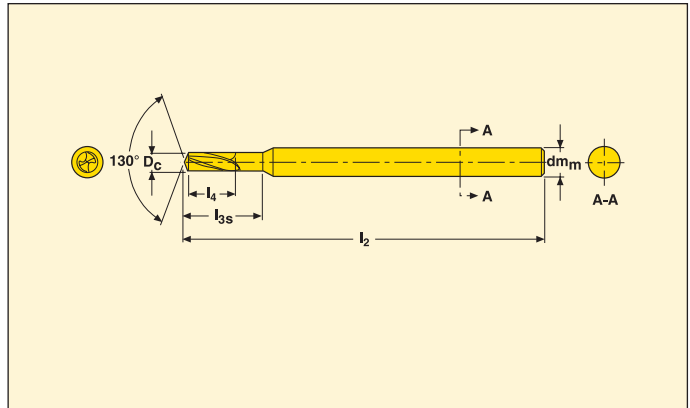
\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

## Micro drill



Drilling depth ~ 2 X D (Pilot drill)

Cylindrical shank

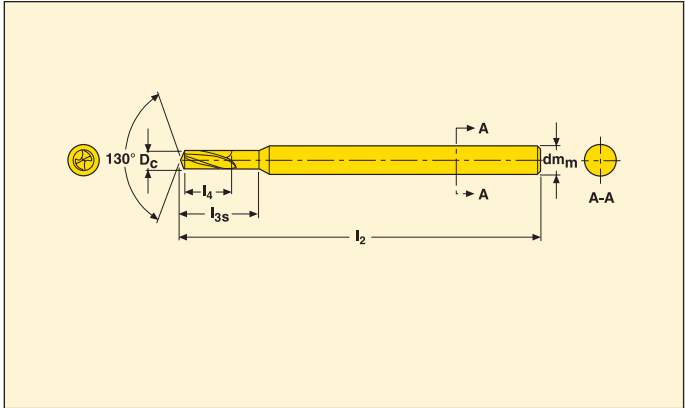


- External coolant
- For cutting data see page(s) 139-141
- Uncoated

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{3s}$	$d_m$
0.0039	0.10	0.008	63867	SD22-0.10-0.20-3R1	1.496	0.022	0.118
0.0043	0.11	0.009	63379	SD22-0.11-0.22-3R1	1.496	0.022	0.118
0.0047	0.12	0.009	59005	SD22-0.12-0.24-3R1	1.496	0.022	0.118
0.0051	0.13	0.010	59011	SD22-0.13-0.26-3R1	1.496	0.024	0.118
0.0055	0.14	0.011	59020	SD22-0.14-0.28-3R1	1.496	0.024	0.118
0.0059	0.15	0.012	63868	SD22-0.15-0.30-3R1	1.496	0.024	0.118
0.0063	0.16	0.013	59027	SD22-0.16-0.32-3R1	1.496	0.024	0.118
0.0067	0.17	0.013	59033	SD22-0.17-0.34-3R1	1.496	0.028	0.118
0.0071	0.18	0.014	59051	SD22-0.18-0.36-3R1	1.496	0.028	0.118
0.0075	0.19	0.015	59058	SD22-0.19-0.38-3R1	1.496	0.028	0.118
0.0079	0.20	0.016	63869	SD22-0.20-0.40-3R1	1.496	0.030	0.118
0.0083	0.21	0.017	59063	SD22-0.21-0.42-3R1	1.496	0.030	0.118
0.0087	0.22	0.017	59069	SD22-0.22-0.44-3R1	1.496	0.031	0.118
0.0091	0.23	0.018	63385	SD22-0.23-0.46-3R1	1.496	0.031	0.118
0.0094	0.24	0.019	63386	SD22-0.24-0.48-3R1	1.496	0.031	0.118
0.0098	0.25	0.020	63870	SD22-0.25-0.50-3R1	1.496	0.035	0.118
0.0102	0.26	0.020	63387	SD22-0.26-0.52-3R1	1.496	0.035	0.118
0.0106	0.27	0.021	63388	SD22-0.27-0.54-3R1	1.496	0.035	0.118
0.0110	0.28	0.022	63389	SD22-0.28-0.56-3R1	1.496	0.039	0.118
0.0114	0.29	0.023	63390	SD22-0.29-0.58-3R1	1.496	0.039	0.118
0.0118	0.30	0.024	63871	SD22-0.30-0.60-3R1	1.496	0.047	0.118
0.0122	0.31	0.024	63391	SD22-0.31-0.62-3R1	1.496	0.047	0.118
0.0126	0.32	0.025	63392	SD22-0.32-0.64-3R1	1.496	0.047	0.118
0.0130	0.33	0.026	63393	SD22-0.33-0.66-3R1	1.496	0.047	0.118
0.0134	0.34	0.027	63394	SD22-0.34-0.68-3R1	1.496	0.053	0.118
0.0138	0.35	0.028	63872	SD22-0.35-0.70-3R1	1.496	0.053	0.118
0.0142	0.36	0.028	63395	SD22-0.36-0.72-3R1	1.496	0.053	0.118
0.0146	0.37	0.029	63396	SD22-0.37-0.74-3R1	1.496	0.053	0.118
0.0150	0.38	0.030	63397	SD22-0.38-0.76-3R1	1.496	0.059	0.118
0.0154	0.39	0.031	63398	SD22-0.39-0.78-3R1	1.496	0.059	0.118
0.0157	0.40	0.031	63873	SD22-0.40-0.80-3R1	1.496	0.063	0.118
0.0161	0.41	0.032	63399	SD22-0.41-0.82-3R1	1.496	0.063	0.118
0.0165	0.42	0.033	63400	SD22-0.42-0.84-3R1	1.496	0.063	0.118
0.0169	0.43	0.034	63401	SD22-0.43-0.86-3R1	1.496	0.063	0.118
0.0173	0.44	0.035	63402	SD22-0.44-0.88-3R1	1.496	0.063	0.118
0.0177	0.45	0.035	63874	SD22-0.45-0.90-3R1	1.496	0.063	0.118
0.0181	0.46	0.036	63403	SD22-0.46-0.92-3R1	1.496	0.067	0.118
0.0185	0.47	0.037	63404	SD22-0.47-0.94-3R1	1.496	0.067	0.118
0.0189	0.48	0.038	63405	SD22-0.48-0.96-3R1	1.496	0.067	0.118
0.0193	0.49	0.039	63406	SD22-0.49-0.98-3R1	1.496	0.067	0.118
0.0197	0.50	0.039	63875	SD22-0.50-1.00-3R1	1.496	0.067	0.118
0.0201	0.51	0.040	63407	SD22-0.51-1.02-3R1	1.496	0.071	0.118

## Drilling depth ~ 2 X D (Pilot drill)

Cylindrical shank

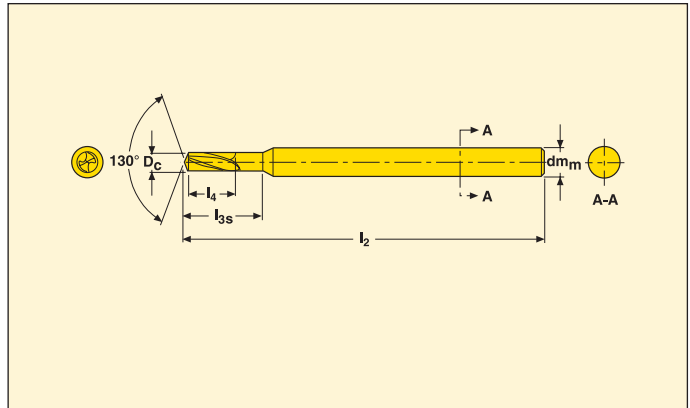


- External coolant
- For cutting data see page(s) 139-141
- Uncoated

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{3s}$	$dm_m$
0.0205	0.52	0.041	<a href="#">63408</a>	SD22-0.52-1.04-3R1	1.496	0.071	0.118
0.0209	0.53	0.042	<a href="#">63409</a>	SD22-0.53-1.06-3R1	1.496	0.071	0.118
0.0213	0.54	0.043	<a href="#">63411</a>	SD22-0.54-1.08-3R1	1.496	0.071	0.118
0.0217	0.55	0.043	<a href="#">63876</a>	SD22-0.55-1.10-3R1	1.496	0.071	0.118
0.0220	0.56	0.044	<a href="#">63412</a>	SD22-0.56-1.12-3R1	1.496	0.075	0.118
0.0224	0.57	0.045	<a href="#">63413</a>	SD22-0.57-1.14-3R1	1.496	0.075	0.118
0.0228	0.58	0.046	<a href="#">63414</a>	SD22-0.58-1.16-3R1	1.496	0.075	0.118
0.0232	0.59	0.046	<a href="#">63415</a>	SD22-0.59-1.18-3R1	1.496	0.075	0.118
0.0236	0.60	0.047	<a href="#">63877</a>	SD22-0.60-1.20-3R1	1.496	0.075	0.118
0.0240	0.61	0.048	<a href="#">63417</a>	SD22-0.61-1.22-3R1	1.496	0.079	0.118
0.0244	0.62	0.049	<a href="#">63418</a>	SD22-0.62-1.24-3R1	1.496	0.079	0.118
0.0248	0.63	0.050	<a href="#">63420</a>	SD22-0.63-1.26-3R1	1.496	0.079	0.118
0.0252	0.64	0.050	<a href="#">63421</a>	SD22-0.64-1.28-3R1	1.496	0.079	0.118
0.0256	0.65	0.051	<a href="#">63878</a>	SD22-0.65-1.30-3R1	1.496	0.079	0.118
0.0260	0.66	0.052	<a href="#">63422</a>	SD22-0.66-1.32-3R1	1.496	0.083	0.118
0.0264	0.67	0.053	<a href="#">63423</a>	SD22-0.67-1.34-3R1	1.496	0.083	0.118
0.0268	0.68	0.054	<a href="#">63424</a>	SD22-0.68-1.36-3R1	1.496	0.083	0.118
0.0272	0.69	0.054	<a href="#">63425</a>	SD22-0.69-1.38-3R1	1.496	0.083	0.118
0.0276	0.70	0.055	<a href="#">63879</a>	SD22-0.70-1.40-3R1	1.496	0.083	0.118
0.0280	0.71	0.056	<a href="#">63426</a>	SD22-0.71-1.42-3R1	1.496	0.087	0.118
0.0283	0.72	0.057	<a href="#">63427</a>	SD22-0.72-1.44-3R1	1.496	0.087	0.118
0.0287	0.73	0.057	<a href="#">63428</a>	SD22-0.73-1.46-3R1	1.496	0.087	0.118
0.0291	0.74	0.058	<a href="#">63429</a>	SD22-0.74-1.48-3R1	1.496	0.087	0.118
0.0295	0.75	0.059	<a href="#">63880</a>	SD22-0.75-1.50-3R1	1.496	0.087	0.118
0.0299	0.76	0.060	<a href="#">63433</a>	SD22-0.76-1.52-3R1	1.496	0.091	0.118
0.0303	0.77	0.061	<a href="#">63434</a>	SD22-0.77-1.54-3R1	1.496	0.091	0.118
0.0307	0.78	0.061	<a href="#">63435</a>	SD22-0.78-1.56-3R1	1.496	0.091	0.118
0.0311	0.79	0.062	<a href="#">63436</a>	SD22-0.79-1.58-3R1	1.496	0.091	0.118
0.0315	0.80	0.063	<a href="#">63881</a>	SD22-0.80-1.60-3R1	1.496	0.091	0.118
0.0319	0.81	0.064	<a href="#">63438</a>	SD22-0.81-1.62-3R1	1.496	0.094	0.118
0.0323	0.82	0.065	<a href="#">63439</a>	SD22-0.82-1.64-3R1	1.496	0.094	0.118
0.0327	0.83	0.065	<a href="#">63440</a>	SD22-0.83-1.66-3R1	1.496	0.094	0.118
0.0331	0.84	0.066	<a href="#">63441</a>	SD22-0.84-1.68-3R1	1.496	0.094	0.118
0.0335	0.85	0.067	<a href="#">63882</a>	SD22-0.85-1.70-3R1	1.496	0.094	0.118
0.0339	0.86	0.068	<a href="#">63442</a>	SD22-0.86-1.72-3R1	1.496	0.098	0.118
0.0343	0.87	0.069	<a href="#">63443</a>	SD22-0.87-1.74-3R1	1.496	0.098	0.118
0.0346	0.88	0.069	<a href="#">63444</a>	SD22-0.88-1.76-3R1	1.496	0.098	0.118
0.0350	0.89	0.070	<a href="#">63445</a>	SD22-0.89-1.78-3R1	1.496	0.098	0.118
0.0354	0.90	0.071	<a href="#">63883</a>	SD22-0.90-1.80-3R1	1.496	0.098	0.118
0.0358	0.91	0.072	<a href="#">63446</a>	SD22-0.91-1.82-3R1	1.496	0.102	0.118
0.0362	0.92	0.072	<a href="#">63447</a>	SD22-0.92-1.84-3R1	1.496	0.102	0.118
0.0366	0.93	0.073	<a href="#">63448</a>	SD22-0.93-1.86-3R1	1.496	0.102	0.118

Drilling depth ~ 2 X D (Pilot drill)

Cylindrical shank

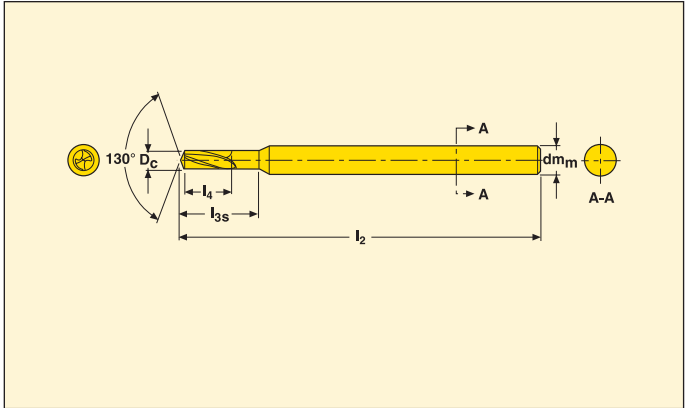


- External coolant
- For cutting data see page(s) 139-141
- Uncoated

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{3s}$	$dm_m$
0.0370	0.94	0.074	<a href="#">63449</a>	SD22-0.94-1.88-3R1	1.496	0.102	0.118
0.0374	0.95	0.075	<a href="#">63884</a>	SD22-0.95-1.90-3R1	1.496	0.102	0.118
0.0378	0.96	0.076	<a href="#">63450</a>	SD22-0.96-1.92-3R1	1.496	0.106	0.118
0.0382	0.97	0.076	<a href="#">63451</a>	SD22-0.97-1.94-3R1	1.496	0.106	0.118
0.0386	0.98	0.077	<a href="#">63452</a>	SD22-0.98-1.96-3R1	1.496	0.106	0.118
0.0390	0.99	0.078	<a href="#">63453</a>	SD22-0.99-1.98-3R1	1.496	0.106	0.118
0.0394	1.00	0.079	<a href="#">63885</a>	SD22-1.00-2.00-3R1	1.496	0.106	0.118
0.0398	1.01	0.080	<a href="#">63454</a>	SD22-1.01-2.02-3R1	1.496	0.138	0.118
0.0402	1.02	0.080	<a href="#">63455</a>	SD22-1.02-2.04-3R1	1.496	0.138	0.118
0.0406	1.03	0.081	<a href="#">63457</a>	SD22-1.03-2.06-3R1	1.496	0.138	0.118
0.0409	1.04	0.082	<a href="#">63458</a>	SD22-1.04-2.08-3R1	1.496	0.138	0.118
0.0413	1.05	0.083	<a href="#">63459</a>	SD22-1.05-2.10-3R1	1.496	0.138	0.118
0.0417	1.06	0.083	<a href="#">63460</a>	SD22-1.06-2.12-3R1	1.496	0.142	0.118
0.0421	1.07	0.084	<a href="#">63461</a>	SD22-1.07-2.14-3R1	1.496	0.142	0.118
0.0425	1.08	0.085	<a href="#">63462</a>	SD22-1.08-2.16-3R1	1.496	0.142	0.118
0.0429	1.09	0.086	<a href="#">63463</a>	SD22-1.09-2.18-3R1	1.496	0.142	0.118
0.0433	1.10	0.087	<a href="#">63886</a>	SD22-1.10-2.20-3R1	1.496	0.142	0.118
0.0437	1.11	0.087	<a href="#">63464</a>	SD22-1.11-2.22-3R1	1.496	0.146	0.118
0.0441	1.12	0.088	<a href="#">63467</a>	SD22-1.12-2.24-3R1	1.496	0.146	0.118
0.0445	1.13	0.089	<a href="#">63470</a>	SD22-1.13-2.26-3R1	1.496	0.146	0.118
0.0449	1.14	0.090	<a href="#">63471</a>	SD22-1.14-2.28-3R1	1.496	0.146	0.118
0.0453	1.15	0.091	<a href="#">63472</a>	SD22-1.15-2.30-3R1	1.496	0.146	0.118
0.0457	1.16	0.091	<a href="#">63473</a>	SD22-1.16-2.32-3R1	1.496	0.150	0.118
0.0461	1.17	0.092	<a href="#">63474</a>	SD22-1.17-2.34-3R1	1.496	0.150	0.118
0.0465	1.18	0.093	<a href="#">63475</a>	SD22-1.18-2.36-3R1	1.496	0.150	0.118
0.0469	1.19	0.094	<a href="#">63476</a>	SD22-1.19-2.38-3R1	1.496	0.150	0.118
0.0472	1.20	0.094	<a href="#">63887</a>	SD22-1.20-2.40-3R1	1.496	0.150	0.118
0.0476	1.21	0.095	<a href="#">63477</a>	SD22-1.21-2.42-3R1	1.496	0.165	0.118
0.0480	1.22	0.096	<a href="#">63478</a>	SD22-1.22-2.44-3R1	1.496	0.165	0.118
0.0484	1.23	0.097	<a href="#">63479</a>	SD22-1.23-2.46-3R1	1.496	0.165	0.118
0.0488	1.24	0.098	<a href="#">63480</a>	SD22-1.24-2.48-3R1	1.496	0.165	0.118
0.0492	1.25	0.098	<a href="#">63481</a>	SD22-1.25-2.50-3R1	1.496	0.165	0.118
0.0496	1.26	0.099	<a href="#">63482</a>	SD22-1.26-2.52-3R1	1.496	0.169	0.118
0.0500	1.27	0.100	<a href="#">63483</a>	SD22-1.27-2.54-3R1	1.496	0.169	0.118
0.0504	1.28	0.101	<a href="#">63484</a>	SD22-1.28-2.56-3R1	1.496	0.169	0.118
0.0508	1.29	0.102	<a href="#">63485</a>	SD22-1.29-2.58-3R1	1.496	0.169	0.118
0.0512	1.30	0.102	<a href="#">63888</a>	SD22-1.30-2.60-3R1	1.496	0.169	0.118
0.0516	1.31	0.103	<a href="#">63486</a>	SD22-1.31-2.62-3R1	1.496	0.173	0.118
0.0520	1.32	0.104	<a href="#">63487</a>	SD22-1.32-2.64-3R1	1.496	0.173	0.118
0.0524	1.33	0.105	<a href="#">63488</a>	SD22-1.33-2.66-3R1	1.496	0.173	0.118
0.0528	1.34	0.106	<a href="#">63489</a>	SD22-1.34-2.68-3R1	1.496	0.173	0.118
0.0531	1.35	0.106	<a href="#">63490</a>	SD22-1.35-2.70-3R1	1.496	0.173	0.118

## Drilling depth ~ 2 X D (Pilot drill)

Cylindrical shank

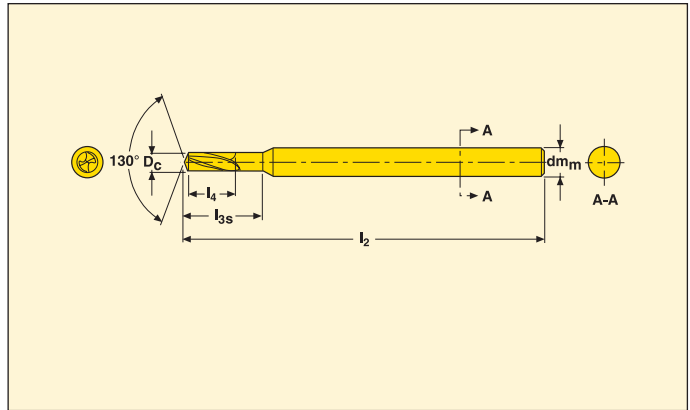


- External coolant
- For cutting data see page(s) 139-141
- Uncoated

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{3s}$	$dm_m$
0.0535	1.36	0.107	<a href="#">63491</a>	SD22-1.36-2.72-3R1	1.496	0.177	0.118
0.0539	1.37	0.108	<a href="#">63492</a>	SD22-1.37-2.74-3R1	1.496	0.177	0.118
0.0543	1.38	0.109	<a href="#">63493</a>	SD22-1.38-2.76-3R1	1.496	0.177	0.118
0.0547	1.39	0.109	<a href="#">63494</a>	SD22-1.39-2.78-3R1	1.496	0.177	0.118
0.0551	1.40	0.110	<a href="#">63889</a>	SD22-1.40-2.80-3R1	1.496	0.177	0.118
0.0555	1.41	0.111	<a href="#">63495</a>	SD22-1.41-2.82-3R1	1.496	0.181	0.118
0.0559	1.42	0.112	<a href="#">63496</a>	SD22-1.42-2.84-3R1	1.496	0.181	0.118
0.0563	1.43	0.113	<a href="#">63497</a>	SD22-1.43-2.86-3R1	1.496	0.181	0.118
0.0567	1.44	0.113	<a href="#">63498</a>	SD22-1.44-2.88-3R1	1.496	0.181	0.118
0.0571	1.45	0.114	<a href="#">63499</a>	SD22-1.45-2.90-3R1	1.496	0.181	0.118
0.0575	1.46	0.115	<a href="#">63500</a>	SD22-1.46-2.92-3R1	1.496	0.185	0.118
0.0579	1.47	0.116	<a href="#">63501</a>	SD22-1.47-2.94-3R1	1.496	0.185	0.118
0.0583	1.48	0.117	<a href="#">63502</a>	SD22-1.48-2.96-3R1	1.496	0.185	0.118
0.0587	1.49	0.117	<a href="#">63503</a>	SD22-1.49-2.98-3R1	1.496	0.185	0.118
0.0591	1.50	0.118	<a href="#">63890</a>	SD22-1.50-3.00-3R1	1.496	0.185	0.118
0.0594	1.51	0.119	<a href="#">63504</a>	SD22-1.51-3.02-3R1	1.496	0.201	0.118
0.0598	1.52	0.120	<a href="#">63506</a>	SD22-1.52-3.04-3R1	1.496	0.201	0.118
0.0602	1.53	0.120	<a href="#">63507</a>	SD22-1.53-3.06-3R1	1.496	0.201	0.118
0.0606	1.54	0.121	<a href="#">63508</a>	SD22-1.54-3.08-3R1	1.496	0.201	0.118
0.0610	1.55	0.122	<a href="#">63509</a>	SD22-1.55-3.10-3R1	1.496	0.201	0.118
0.0614	1.56	0.123	<a href="#">63510</a>	SD22-1.56-3.12-3R1	1.496	0.205	0.118
0.0618	1.57	0.124	<a href="#">63511</a>	SD22-1.57-3.14-3R1	1.496	0.205	0.118
0.0622	1.58	0.124	<a href="#">63512</a>	SD22-1.58-3.16-3R1	1.496	0.205	0.118
0.0626	1.59	0.125	<a href="#">63513</a>	SD22-1.59-3.18-3R1	1.496	0.205	0.118
0.0630	1.60	0.126	<a href="#">63891</a>	SD22-1.60-3.20-3R1	1.496	0.205	0.118
0.0634	1.61	0.127	<a href="#">63520</a>	SD22-1.61-3.22-3R1	1.496	0.209	0.118
0.0638	1.62	0.128	<a href="#">63530</a>	SD22-1.62-3.24-3R1	1.496	0.209	0.118
0.0642	1.63	0.128	<a href="#">63533</a>	SD22-1.63-3.26-3R1	1.496	0.209	0.118
0.0646	1.64	0.129	<a href="#">63539</a>	SD22-1.64-3.28-3R1	1.496	0.209	0.118
0.0650	1.65	0.130	<a href="#">63540</a>	SD22-1.65-3.30-3R1	1.496	0.209	0.118
0.0654	1.66	0.131	<a href="#">63550</a>	SD22-1.66-3.32-3R1	1.496	0.213	0.118
0.0657	1.67	0.131	<a href="#">63552</a>	SD22-1.67-3.34-3R1	1.496	0.213	0.118
0.0661	1.68	0.132	<a href="#">63560</a>	SD22-1.68-3.36-3R1	1.496	0.213	0.118
0.0665	1.69	0.133	<a href="#">63562</a>	SD22-1.69-3.38-3R1	1.496	0.213	0.118
0.0669	1.70	0.134	<a href="#">63892</a>	SD22-1.70-3.40-3R1	1.496	0.213	0.118
0.0673	1.71	0.135	<a href="#">63565</a>	SD22-1.71-3.42-3R1	1.496	0.217	0.118
0.0677	1.72	0.135	<a href="#">63570</a>	SD22-1.72-3.44-3R1	1.496	0.217	0.118
0.0681	1.73	0.136	<a href="#">63573</a>	SD22-1.73-3.46-3R1	1.496	0.217	0.118
0.0685	1.74	0.137	<a href="#">63580</a>	SD22-1.74-3.48-3R1	1.496	0.217	0.118
0.0689	1.75	0.138	<a href="#">63581</a>	SD22-1.75-3.50-3R1	1.496	0.217	0.118
0.0693	1.76	0.139	<a href="#">63582</a>	SD22-1.76-3.52-3R1	1.496	0.220	0.118
0.0697	1.77	0.139	<a href="#">63589</a>	SD22-1.77-3.54-3R1	1.496	0.220	0.118

Drilling depth ~ 2 X D (Pilot drill)

Cylindrical shank

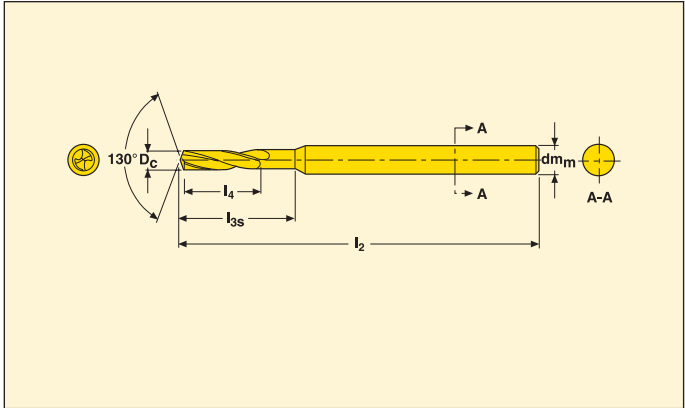


- External coolant
- For cutting data see page(s) 139-141
- Uncoated

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{3s}$	$dm_m$
0.0701	1.78	0.140	<a href="#">63590</a>	SD22-1.78-3.56-3R1	1.496	0.220	0.118
0.0705	1.79	0.141	<a href="#">63596</a>	SD22-1.79-3.58-3R1	1.496	0.220	0.118
0.0709	1.80	0.142	<a href="#">63893</a>	SD22-1.80-3.60-3R1	1.496	0.220	0.118
0.0713	1.81	0.143	<a href="#">63597</a>	SD22-1.81-3.62-3R1	1.496	0.224	0.118
0.0717	1.82	0.143	<a href="#">63600</a>	SD22-1.82-3.64-3R1	1.496	0.224	0.118
0.0720	1.83	0.144	<a href="#">63601</a>	SD22-1.83-3.66-3R1	1.496	0.224	0.118
0.0724	1.84	0.145	<a href="#">63602</a>	SD22-1.84-3.68-3R1	1.496	0.224	0.118
0.0728	1.85	0.146	<a href="#">63603</a>	SD22-1.85-3.70-3R1	1.496	0.224	0.118
0.0732	1.86	0.146	<a href="#">63604</a>	SD22-1.86-3.72-3R1	1.496	0.228	0.118
0.0736	1.87	0.147	<a href="#">63609</a>	SD22-1.87-3.74-3R1	1.496	0.228	0.118
0.0740	1.88	0.148	<a href="#">63610</a>	SD22-1.88-3.76-3R1	1.496	0.228	0.118
0.0744	1.89	0.149	<a href="#">63615</a>	SD22-1.89-3.78-3R1	1.496	0.228	0.118
0.0748	1.90	0.150	<a href="#">63894</a>	SD22-1.90-3.80-3R1	1.496	0.228	0.118
0.0752	1.91	0.150	<a href="#">63616</a>	SD22-1.91-3.82-3R1	1.496	0.232	0.118
0.0756	1.92	0.151	<a href="#">63617</a>	SD22-1.92-3.84-3R1	1.496	0.232	0.118
0.0760	1.93	0.152	<a href="#">63618</a>	SD22-1.93-3.86-3R1	1.496	0.232	0.118
0.0764	1.94	0.153	<a href="#">63619</a>	SD22-1.94-3.88-3R1	1.496	0.232	0.118
0.0768	1.95	0.154	<a href="#">63620</a>	SD22-1.95-3.90-3R1	1.496	0.232	0.118
0.0772	1.96	0.154	<a href="#">63621</a>	SD22-1.96-3.92-3R1	1.496	0.236	0.118
0.0776	1.97	0.155	<a href="#">63622</a>	SD22-1.97-3.94-3R1	1.496	0.236	0.118
0.0780	1.98	0.156	<a href="#">63623</a>	SD22-1.98-3.96-3R1	1.496	0.236	0.118
0.0783	1.99	0.157	<a href="#">63624</a>	SD22-1.99-3.98-3R1	1.496	0.236	0.118
0.0787	2.00	0.157	<a href="#">63895</a>	SD22-2.00-4.00-3R1	1.496	0.236	0.118

Drilling depth ~ 6 X D

Cylindrical shank



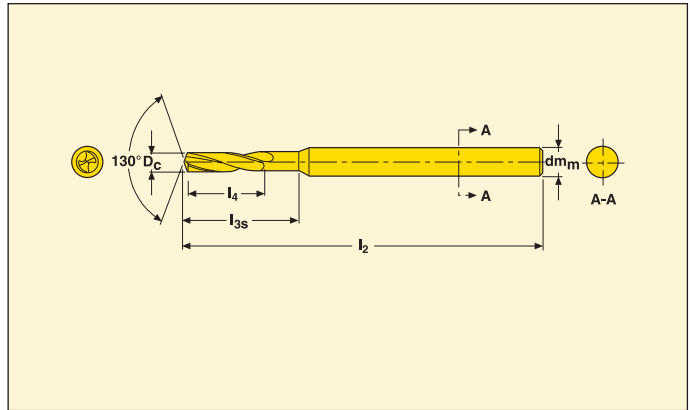
- External coolant
- For cutting data see page(s) 139-141
- Uncoated

Drill diameter		Max drilling depth I <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch		
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)				I <sub>2</sub>	I <sub>3s</sub>	dm <sub>m</sub>
0.0039	0.10	0.016	<a href="#">63896</a>	SD26-0.10-0.40-3R1	1.496	0.028	0.118
0.0043	0.11	0.016	<a href="#">63625</a>	SD26-0.11-0.40-3R1	1.496	0.028	0.118
0.0047	0.12	0.016	<a href="#">63626</a>	SD26-0.12-0.40-3R1	1.496	0.028	0.118
0.0051	0.13	0.026	<a href="#">63627</a>	SD26-0.13-0.65-3R1	1.496	0.039	0.118
0.0055	0.14	0.026	<a href="#">63628</a>	SD26-0.14-0.65-3R1	1.496	0.039	0.118
0.0059	0.15	0.035	<a href="#">63897</a>	SD26-0.15-0.65-3R1	1.496	0.055	0.118
0.0063	0.16	0.035	<a href="#">63629</a>	SD26-0.16-0.90-3R1	1.496	0.055	0.118
0.0067	0.17	0.035	<a href="#">63630</a>	SD26-0.17-0.90-3R1	1.496	0.055	0.118
0.0071	0.18	0.035	<a href="#">63631</a>	SD26-0.18-0.90-3R1	1.496	0.055	0.118
0.0075	0.19	0.035	<a href="#">63632</a>	SD26-0.19-0.90-3R1	1.496	0.055	0.118
0.0079	0.20	0.049	<a href="#">63898</a>	SD26-0.20-1.25-3R1	1.496	0.071	0.118
0.0083	0.21	0.049	<a href="#">63633</a>	SD26-0.21-1.25-3R1	1.496	0.071	0.118
0.0087	0.22	0.049	<a href="#">63634</a>	SD26-0.22-1.25-3R1	1.496	0.071	0.118
0.0091	0.23	0.049	<a href="#">63635</a>	SD26-0.23-1.25-3R1	1.496	0.071	0.118
0.0094	0.24	0.049	<a href="#">63636</a>	SD26-0.24-1.25-3R1	1.496	0.071	0.118
0.0098	0.25	0.061	<a href="#">63899</a>	SD26-0.25-1.55-3R1	1.496	0.087	0.118
0.0102	0.26	0.061	<a href="#">63637</a>	SD26-0.26-1.55-3R1	1.496	0.087	0.118
0.0106	0.27	0.061	<a href="#">63638</a>	SD26-0.27-1.55-3R1	1.496	0.087	0.118
0.0110	0.28	0.061	<a href="#">63639</a>	SD26-0.28-1.55-3R1	1.496	0.087	0.118
0.0114	0.29	0.061	<a href="#">63640</a>	SD26-0.29-1.55-3R1	1.496	0.087	0.118
0.0118	0.30	0.071	<a href="#">63900</a>	SD26-0.30-1.80-3R1	1.496	0.094	0.118
0.0122	0.31	0.071	<a href="#">63641</a>	SD26-0.31-1.80-3R1	1.496	0.094	0.118
0.0126	0.32	0.071	<a href="#">63642</a>	SD26-0.32-1.80-3R1	1.496	0.094	0.118
0.0130	0.33	0.071	<a href="#">63643</a>	SD26-0.33-1.80-3R1	1.496	0.094	0.118
0.0134	0.34	0.071	<a href="#">63644</a>	SD26-0.34-1.80-3R1	1.496	0.094	0.118
0.0138	0.35	0.087	<a href="#">63901</a>	SD26-0.35-2.20-3R1	1.496	0.110	0.118
0.0142	0.36	0.087	<a href="#">63645</a>	SD26-0.36-2.20-3R1	1.496	0.110	0.118
0.0146	0.37	0.087	<a href="#">63646</a>	SD26-0.37-2.20-3R1	1.496	0.110	0.118
0.0150	0.38	0.087	<a href="#">63647</a>	SD26-0.38-2.20-3R1	1.496	0.110	0.118
0.0154	0.39	0.106	<a href="#">63648</a>	SD26-0.39-2.70-3R1	1.496	0.142	0.118
0.0157	0.40	0.106	<a href="#">63903</a>	SD26-0.40-2.70-3R1	1.496	0.142	0.118
0.0161	0.41	0.106	<a href="#">63649</a>	SD26-0.41-2.70-3R1	1.496	0.142	0.118
0.0165	0.42	0.106	<a href="#">63650</a>	SD26-0.42-2.70-3R1	1.496	0.142	0.118
0.0169	0.43	0.106	<a href="#">63651</a>	SD26-0.43-2.70-3R1	1.496	0.142	0.118
0.0173	0.44	0.106	<a href="#">63652</a>	SD26-0.44-2.70-3R1	1.496	0.142	0.118
0.0177	0.45	0.106	<a href="#">63904</a>	SD26-0.45-2.70-3R1	1.496	0.142	0.118
0.0181	0.46	0.106	<a href="#">63653</a>	SD26-0.46-2.70-3R1	1.496	0.142	0.118
0.0185	0.47	0.106	<a href="#">63654</a>	SD26-0.47-2.70-3R1	1.496	0.142	0.118
0.0189	0.48	0.106	<a href="#">63655</a>	SD26-0.48-2.70-3R1	1.496	0.142	0.118
0.0193	0.49	0.126	<a href="#">63656</a>	SD26-0.49-3.20-3R1	1.496	0.157	0.118
0.0197	0.50	0.126	<a href="#">63905</a>	SD26-0.50-3.20-3R1	1.496	0.157	0.118
0.0201	0.51	0.126	<a href="#">63657</a>	SD26-0.51-3.20-3R1	1.496	0.157	0.118



Drilling depth ~ 6 X D

Cylindrical shank

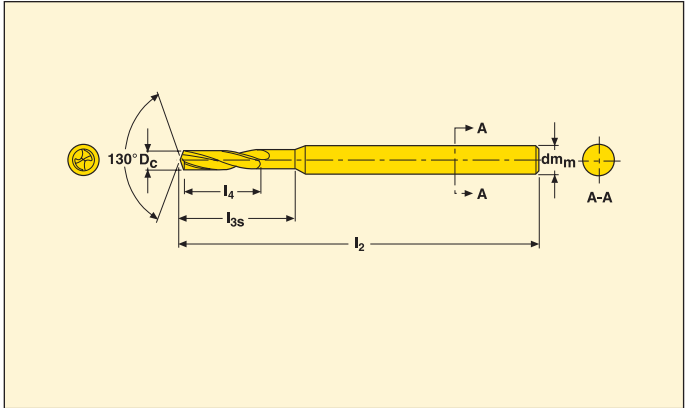


- External coolant
- For cutting data see page(s) 139-141
- Uncoated

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{3s}$	$dm_m$
0.0205	0.52	0.126	63658	SD26-0.52-3.20-3R1	1.496	0.157	0.118
0.0209	0.53	0.126	63659	SD26-0.53-3.20-3R1	1.496	0.157	0.118
0.0213	0.54	0.142	63660	SD26-0.54-3.60-3R1	1.496	0.177	0.118
0.0217	0.55	0.142	63906	SD26-0.55-3.60-3R1	1.496	0.177	0.118
0.0220	0.56	0.142	63661	SD26-0.56-3.60-3R1	1.496	0.177	0.118
0.0224	0.57	0.142	63662	SD26-0.57-3.60-3R1	1.496	0.177	0.118
0.0228	0.58	0.142	63663	SD26-0.58-3.60-3R1	1.496	0.177	0.118
0.0232	0.59	0.142	63664	SD26-0.59-3.60-3R1	1.496	0.177	0.118
0.0236	0.60	0.142	63907	SD26-0.60-3.60-3R1	1.496	0.177	0.118
0.0240	0.61	0.142	63665	SD26-0.61-3.90-3R1	1.496	0.177	0.118
0.0244	0.62	0.154	63666	SD26-0.62-3.90-3R1	1.496	0.197	0.118
0.0248	0.63	0.154	63667	SD26-0.63-3.90-3R1	1.496	0.197	0.118
0.0252	0.64	0.154	63668	SD26-0.64-3.90-3R1	1.496	0.197	0.118
0.0256	0.65	0.154	63908	SD26-0.65-3.90-3R1	1.496	0.197	0.118
0.0260	0.66	0.154	63669	SD26-0.66-3.90-3R1	1.496	0.197	0.118
0.0264	0.67	0.154	63670	SD26-0.67-3.90-3R1	1.496	0.197	0.118
0.0268	0.68	0.177	63671	SD26-0.68-4.50-3R1	1.496	0.220	0.118
0.0272	0.69	0.177	63672	SD26-0.69-4.50-3R1	1.496	0.220	0.118
0.0276	0.70	0.177	63909	SD26-0.70-4.50-3R1	1.496	0.220	0.118
0.0280	0.71	0.177	63673	SD26-0.71-4.50-3R1	1.496	0.220	0.118
0.0283	0.72	0.177	63674	SD26-0.72-4.50-3R1	1.496	0.220	0.118
0.0287	0.73	0.177	63675	SD26-0.73-4.50-3R1	1.496	0.220	0.118
0.0291	0.74	0.177	63676	SD26-0.74-4.50-3R1	1.496	0.220	0.118
0.0295	0.75	0.177	63910	SD26-0.75-4.50-3R1	1.496	0.220	0.118
0.0299	0.76	0.197	63677	SD26-0.76-5.00-3R1	1.496	0.248	0.118
0.0303	0.77	0.197	63678	SD26-0.77-5.00-3R1	1.496	0.248	0.118
0.0307	0.78	0.197	63679	SD26-0.78-5.00-3R1	1.496	0.248	0.118
0.0311	0.79	0.197	63680	SD26-0.79-5.00-3R1	1.496	0.248	0.118
0.0315	0.80	0.197	63911	SD26-0.80-5.00-3R1	1.496	0.248	0.118
0.0319	0.81	0.197	63681	SD26-0.81-5.00-3R1	1.496	0.248	0.118
0.0323	0.82	0.197	63682	SD26-0.82-5.00-3R1	1.496	0.248	0.118
0.0327	0.83	0.197	63683	SD26-0.83-5.00-3R1	1.496	0.248	0.118
0.0331	0.84	0.197	63684	SD26-0.84-5.00-3R1	1.496	0.248	0.118
0.0335	0.85	0.197	63912	SD26-0.85-5.00-3R1	1.496	0.248	0.118
0.0339	0.86	0.224	63685	SD26-0.86-5.70-3R1	1.496	0.280	0.118
0.0343	0.87	0.224	63686	SD26-0.87-5.70-3R1	1.496	0.280	0.118
0.0346	0.88	0.224	63687	SD26-0.88-5.70-3R1	1.496	0.280	0.118
0.0350	0.89	0.224	63688	SD26-0.89-5.70-3R1	1.496	0.280	0.118
0.0354	0.90	0.224	63913	SD26-0.90-5.70-3R1	1.496	0.280	0.118
0.0358	0.91	0.224	63689	SD26-0.91-5.70-3R1	1.496	0.280	0.118
0.0362	0.92	0.224	63690	SD26-0.92-5.70-3R1	1.496	0.280	0.118
0.0366	0.93	0.224	63691	SD26-0.93-5.70-3R1	1.496	0.280	0.118

Drilling depth ~ 6 X D

Cylindrical shank

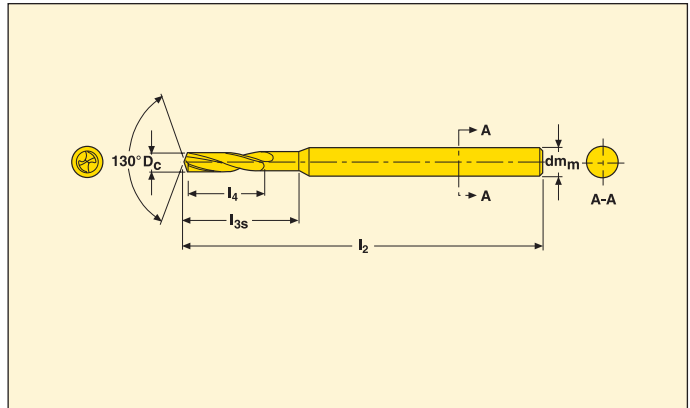


- External coolant
- For cutting data see page(s) 139-141
- Uncoated

Drill diameter		Max drilling depth $I_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$I_2$	$I_{3s}$	$dm_m$
0.0370	0.94	0.224	<a href="#">63692</a>	SD26-0.94-5.70-3R1	1.496	0.280	0.118
0.0374	0.95	0.224	<a href="#">63914</a>	SD26-0.95-5.70-3R1	1.496	0.280	0.118
0.0378	0.96	0.256	<a href="#">63693</a>	SD26-0.96-6.50-3R1	1.496	0.315	0.118
0.0382	0.97	0.256	<a href="#">63694</a>	SD26-0.97-6.50-3R1	1.496	0.315	0.118
0.0386	0.98	0.256	<a href="#">63695</a>	SD26-0.98-6.50-3R1	1.496	0.315	0.118
0.0390	0.99	0.256	<a href="#">63696</a>	SD26-0.99-6.50-3R1	1.496	0.315	0.118
0.0394	1.00	0.256	<a href="#">63915</a>	SD26-1.00-6.50-3R1	1.496	0.315	0.118
0.0398	1.01	0.256	<a href="#">63697</a>	SD26-1.01-6.50-3R1	1.496	0.315	0.118
0.0402	1.02	0.256	<a href="#">63698</a>	SD26-1.02-6.50-3R1	1.496	0.315	0.118
0.0406	1.03	0.256	<a href="#">63699</a>	SD26-1.03-6.50-3R1	1.496	0.315	0.118
0.0409	1.04	0.256	<a href="#">63700</a>	SD26-1.04-6.50-3R1	1.496	0.315	0.118
0.0413	1.05	0.256	<a href="#">63701</a>	SD26-1.05-6.50-3R1	1.496	0.315	0.118
0.0417	1.06	0.287	<a href="#">63703</a>	SD26-1.06-7.30-3R1	1.496	0.354	0.118
0.0421	1.07	0.287	<a href="#">63704</a>	SD26-1.07-7.30-3R1	1.496	0.354	0.118
0.0425	1.08	0.287	<a href="#">63705</a>	SD26-1.08-7.30-3R1	1.496	0.354	0.118
0.0429	1.09	0.287	<a href="#">63706</a>	SD26-1.09-7.30-3R1	1.496	0.354	0.118
0.0433	1.10	0.287	<a href="#">63916</a>	SD26-1.10-7.30-3R1	1.496	0.354	0.118
0.0437	1.11	0.287	<a href="#">63707</a>	SD26-1.11-7.30-3R1	1.496	0.354	0.118
0.0441	1.12	0.287	<a href="#">63708</a>	SD26-1.12-7.30-3R1	1.496	0.354	0.118
0.0445	1.13	0.287	<a href="#">63709</a>	SD26-1.13-7.30-3R1	1.496	0.354	0.118
0.0449	1.14	0.287	<a href="#">63710</a>	SD26-1.14-7.30-3R1	1.496	0.354	0.118
0.0453	1.15	0.287	<a href="#">63711</a>	SD26-1.15-7.30-3R1	1.496	0.354	0.118
0.0457	1.16	0.323	<a href="#">63712</a>	SD26-1.16-8.20-3R1	1.496	0.394	0.118
0.0461	1.17	0.323	<a href="#">63713</a>	SD26-1.17-8.20-3R1	1.496	0.394	0.118
0.0465	1.18	0.323	<a href="#">63714</a>	SD26-1.18-8.20-3R1	1.496	0.394	0.118
0.0469	1.19	0.323	<a href="#">63715</a>	SD26-1.19-8.20-3R1	1.496	0.394	0.118
0.0472	1.20	0.323	<a href="#">63917</a>	SD26-1.20-8.20-3R1	1.496	0.394	0.118
0.0476	1.21	0.323	<a href="#">63716</a>	SD26-1.21-8.20-3R1	1.496	0.394	0.118
0.0480	1.22	0.323	<a href="#">63717</a>	SD26-1.22-8.20-3R1	1.496	0.394	0.118
0.0484	1.23	0.323	<a href="#">63718</a>	SD26-1.23-8.20-3R1	1.496	0.394	0.118
0.0488	1.24	0.323	<a href="#">63719</a>	SD26-1.24-8.20-3R1	1.496	0.394	0.118
0.0492	1.25	0.323	<a href="#">63720</a>	SD26-1.25-8.20-3R1	1.496	0.394	0.118
0.0496	1.26	0.323	<a href="#">63721</a>	SD26-1.26-8.20-3R1	1.496	0.394	0.118
0.0500	1.27	0.323	<a href="#">63722</a>	SD26-1.27-8.20-3R1	1.496	0.394	0.118
0.0504	1.28	0.323	<a href="#">63723</a>	SD26-1.28-8.20-3R1	1.496	0.394	0.118
0.0508	1.29	0.323	<a href="#">63724</a>	SD26-1.29-8.20-3R1	1.496	0.394	0.118
0.0512	1.30	0.323	<a href="#">63918</a>	SD26-1.30-8.20-3R1	1.496	0.394	0.118
0.0516	1.31	0.362	<a href="#">63725</a>	SD26-1.31-9.20-3R1	1.496	0.441	0.118
0.0520	1.32	0.362	<a href="#">63726</a>	SD26-1.32-9.20-3R1	1.496	0.441	0.118
0.0524	1.33	0.362	<a href="#">63727</a>	SD26-1.33-9.20-3R1	1.496	0.441	0.118
0.0528	1.34	0.362	<a href="#">63728</a>	SD26-1.34-9.20-3R1	1.496	0.441	0.118
0.0531	1.35	0.362	<a href="#">63729</a>	SD26-1.35-9.20-3R1	1.496	0.441	0.118

Drilling depth ~ 6 X D

Cylindrical shank



- External coolant
- For cutting data see page(s) 139-141
- Uncoated

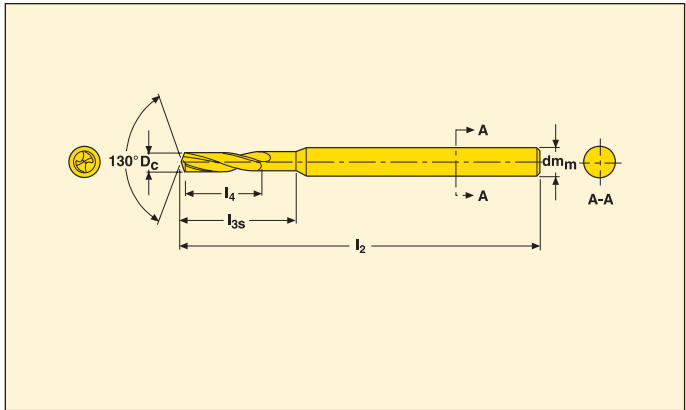
Drill diameter		Max drilling depth $I_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$I_2$	$I_{3s}$	$d_m$
0.0535	1.36	0.362	63730	SD26-1.36-9.20-3R1	1.496	0.441	0.118
0.0539	1.37	0.362	63731	SD26-1.37-9.20-3R1	1.496	0.441	0.118
0.0543	1.38	0.362	63732	SD26-1.38-9.20-3R1	1.496	0.441	0.118
0.0547	1.39	0.362	63733	SD26-1.39-9.20-3R1	1.496	0.441	0.118
0.0551	1.40	0.362	63920	SD26-1.40-9.20-3R1	1.496	0.441	0.118
0.0555	1.41	0.362	63734	SD26-1.41-9.20-3R1	1.496	0.441	0.118
0.0559	1.42	0.362	63735	SD26-1.42-9.20-3R1	1.496	0.441	0.118
0.0563	1.43	0.362	63736	SD26-1.43-9.20-3R1	1.496	0.441	0.118
0.0567	1.44	0.362	63737	SD26-1.44-9.20-3R1	1.496	0.441	0.118
0.0571	1.45	0.362	63738	SD26-1.45-9.20-3R1	1.496	0.441	0.118
0.0575	1.46	0.362	63739	SD26-1.46-9.20-3R1	1.496	0.441	0.118
0.0579	1.47	0.362	63740	SD26-1.47-9.20-3R1	1.496	0.441	0.118
0.0583	1.48	0.362	63741	SD26-1.48-9.20-3R1	1.496	0.441	0.118
0.0587	1.49	0.362	63742	SD26-1.49-9.20-3R1	1.496	0.441	0.118
0.0591	1.50	0.362	63921	SD26-1.50-9.20-3R1	1.496	0.441	0.118
0.0594	1.51	0.441	63743	SD26-1.51-11.20-3R1	1.496	0.528	0.118
0.0598	1.52	0.441	63744	SD26-1.52-11.20-3R1	1.496	0.528	0.118
0.0602	1.53	0.441	63745	SD26-1.53-11.20-3R1	1.496	0.528	0.118
0.0606	1.54	0.441	63746	SD26-1.54-11.20-3R1	1.496	0.528	0.118
0.0610	1.55	0.441	63747	SD26-1.55-11.20-3R1	1.496	0.528	0.118
0.0614	1.56	0.441	63748	SD26-1.56-11.20-3R1	1.496	0.528	0.118
0.0618	1.57	0.441	63749	SD26-1.57-11.20-3R1	1.496	0.528	0.118
0.0622	1.58	0.441	63750	SD26-1.58-11.20-3R1	1.496	0.528	0.118
0.0626	1.59	0.441	63751	SD26-1.59-11.20-3R1	1.496	0.528	0.118
0.0630	1.60	0.441	63922	SD26-1.60-11.20-3R1	1.496	0.528	0.118
0.0634	1.61	0.441	63752	SD26-1.61-11.20-3R1	1.496	0.528	0.118
0.0638	1.62	0.441	63753	SD26-1.62-11.20-3R1	1.496	0.528	0.118
0.0642	1.63	0.441	63754	SD26-1.63-11.20-3R1	1.496	0.528	0.118
0.0646	1.64	0.441	63755	SD26-1.64-11.20-3R1	1.496	0.528	0.118
0.0650	1.65	0.441	63756	SD26-1.65-11.20-3R1	1.496	0.528	0.118
0.0654	1.66	0.441	63757	SD26-1.66-11.20-3R1	1.496	0.528	0.118
0.0657	1.67	0.441	63758	SD26-1.67-11.20-3R1	1.496	0.528	0.118
0.0661	1.68	0.441	63759	SD26-1.68-11.20-3R1	1.496	0.528	0.118
0.0665	1.69	0.441	63760	SD26-1.69-11.20-3R1	1.496	0.528	0.118
0.0669	1.70	0.441	63923	SD26-1.70-11.20-3R1	1.496	0.528	0.118
0.0673	1.71	0.441	63761	SD26-1.71-11.20-3R1	1.496	0.528	0.118
0.0677	1.72	0.441	63762	SD26-1.72-11.20-3R1	1.496	0.528	0.118
0.0681	1.73	0.441	63763	SD26-1.73-11.20-3R1	1.496	0.528	0.118
0.0685	1.74	0.441	63764	SD26-1.74-11.20-3R1	1.496	0.528	0.118
0.0689	1.75	0.441	63765	SD26-1.75-11.20-3R1	1.496	0.528	0.118
0.0693	1.76	0.441	63766	SD26-1.76-11.20-3R1	1.496	0.528	0.118
0.0697	1.77	0.441	63767	SD26-1.77-11.20-3R1	1.496	0.528	0.118

Drilling depth ~ 6 X D

Cylindrical shank



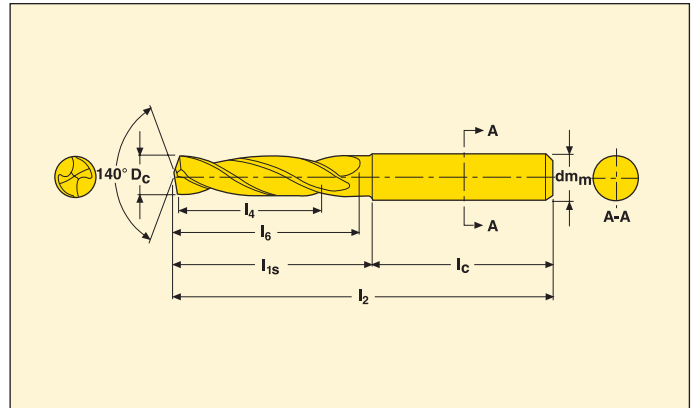
- External coolant
- For cutting data see page(s) 139-141
- Uncoated



Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{3s}$	$dm_m$
0.0701	1.78	0.441	63768	SD26-1.78-11.20-3R1	1.496	0.528	0.118
0.0705	1.79	0.441	63769	SD26-1.79-11.20-3R1	1.496	0.528	0.118
0.0709	1.80	0.441	63924	SD26-1.80-11.20-3R1	1.496	0.528	0.118
0.0713	1.81	0.441	63770	SD26-1.81-11.20-3R1	1.496	0.528	0.118
0.0717	1.82	0.441	63771	SD26-1.82-11.20-3R1	1.496	0.528	0.118
0.0720	1.83	0.441	63772	SD26-1.83-11.20-3R1	1.496	0.528	0.118
0.0724	1.84	0.441	63773	SD26-1.84-11.20-3R1	1.496	0.528	0.118
0.0728	1.85	0.441	63774	SD26-1.85-11.20-3R1	1.496	0.528	0.118
0.0732	1.86	0.441	63775	SD26-1.86-11.20-3R1	1.496	0.528	0.118
0.0736	1.87	0.441	63776	SD26-1.87-11.20-3R1	1.496	0.528	0.118
0.0740	1.88	0.441	63777	SD26-1.88-11.20-3R1	1.496	0.528	0.118
0.0744	1.89	0.441	63778	SD26-1.89-11.20-3R1	1.496	0.528	0.118
0.0748	1.90	0.441	63925	SD26-1.90-11.20-3R1	1.496	0.528	0.118
0.0752	1.91	0.441	63779	SD26-1.91-11.20-3R1	1.496	0.528	0.118
0.0756	1.92	0.441	63780	SD26-1.92-11.20-3R1	1.496	0.528	0.118
0.0760	1.93	0.441	63781	SD26-1.93-11.20-3R1	1.496	0.528	0.118
0.0764	1.94	0.441	63782	SD26-1.94-11.20-3R1	1.496	0.528	0.118
0.0768	1.95	0.441	63783	SD26-1.95-11.20-3R1	1.496	0.528	0.118
0.0772	1.96	0.441	63784	SD26-1.96-11.20-3R1	1.496	0.528	0.118
0.0776	1.97	0.441	63790	SD26-1.97-11.20-3R1	1.496	0.528	0.118
0.0780	1.98	0.441	63791	SD26-1.98-11.20-3R1	1.496	0.528	0.118
0.0783	1.99	0.441	63792	SD26-1.99-11.20-3R1	1.496	0.528	0.118
0.0787	2.00	0.441	63926	SD26-2.00-11.20-3R1	1.496	0.528	0.118

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

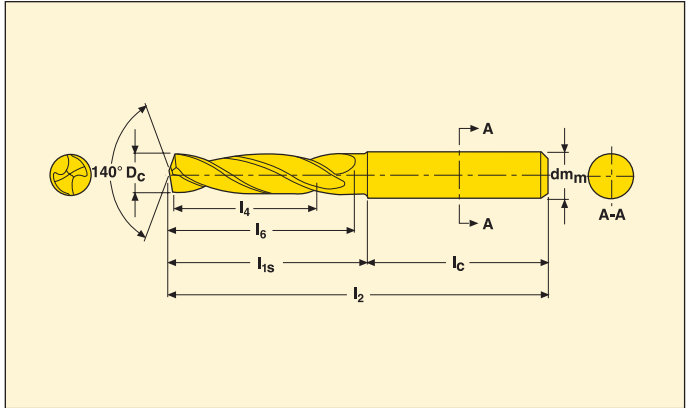
Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch				
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6
0.0787	-	2.0	-	-	0.276	34878	SD203-2.0-7-4R1	1.61	0.51	1.10	0.43	0.157
0.0827	-	2.1	-	-	0.276	34879	SD203-2.1-7-4R1	1.61	0.51	1.10	0.43	0.157
0.0866	-	2.2	-	-	0.276	34880	SD203-2.2-7-4R1	1.61	0.51	1.10	0.43	0.157
0.0906	-	2.3	-	-	0.315	34881	SD203-2.3-8-4R1	1.73	0.63	1.10	0.51	0.157
0.0937	3/32	2.38	-	-	0.315	34882	SD203-00937-031-0157R1	1.73	0.63	1.10	0.51	0.157
0.0945	-	2.4	-	-	0.315	34883	SD203-2.4-8-4R1	1.73	0.63	1.10	0.51	0.157
0.0984	-	2.5	-	-	0.315	34884	SD203-2.5-8-4R1	1.73	0.63	1.10	0.51	0.157
0.1024	-	2.6	-	-	0.315	34885	SD203-2.6-8-4R1	1.73	0.63	1.10	0.51	0.157
0.1063	-	2.7	-	-	0.354	34886	SD203-2.7-9-4R1	1.73	0.63	1.10	0.59	0.157
0.1094	7/64	2.78	-	-	0.354	34887	SD203-01095-035-0157R1	1.73	0.63	1.10	0.59	0.157
0.1102	-	2.8	-	-	0.354	34888	SD203-2.8-9-4R1	1.73	0.63	1.10	0.59	0.157
0.1142	-	2.9	-	-	0.354	34889	SD203-2.9-9-4R1	1.73	0.63	1.10	0.59	0.157
0.1181	-	3.0	-	-	0.551	18874	SD203-3.0-14-6R1	2.44	1.02	1.42	0.79	0.236
0.1220	-	3.1	-	-	0.551	18876	SD203-3.1-14-6R1	2.44	1.02	1.42	0.79	0.236
0.1250	1/8	3.175	-	-	0.551	19431	SD203-01250-055-0236R1	2.44	1.02	1.42	0.79	0.236
0.1260	-	3.2	-	-	0.551	18877	SD203-3.2-14-6R1	2.44	1.02	1.42	0.79	0.236
0.1299	-	3.3	-	M4	0.551	18878	SD203-3.3-14-6R1	2.44	1.02	1.42	0.79	0.236
0.1339	-	3.4	-	-	0.551	18879	SD203-3.4-14-6R1	2.44	1.02	1.42	0.79	0.236
0.1378	-	3.5	-	UNC8-32/MF4X0.5/UNF8-36	0.591	18881	SD203-3.5-15-6R1	2.44	1.02	1.42	0.79	0.236
0.1406	9/64	3.571	-	-	0.591	19433	SD203-01406-059-0236R1	2.44	1.02	1.42	0.79	0.236
0.1417	-	3.6	-	-	0.591	18883	SD203-3.6-15-6R1	2.44	1.02	1.42	0.79	0.236
0.1457	-	3.7	-	M4.5	0.591	18884	SD203-3.7-15-6R1	2.44	1.02	1.42	0.79	0.236
0.1496	-	3.8	-	-	0.669	18886	SD203-3.8-17-6R1	2.60	1.18	1.42	0.94	0.236
0.1535	-	3.9	4 H7	UNC10-24	0.669	18887	SD203-3.9-17-6R1	2.60	1.18	1.42	0.94	0.236
0.1563	5/32	3.97	-	-	0.669	19435	SD203-01563-067-0236R1	2.60	1.18	1.42	0.94	0.236
0.1575	-	4.0	-	-	0.669	18888	SD203-4.0-17-6R1	2.60	1.18	1.42	0.94	0.236
0.1614	-	4.1	-	UNF10-32	0.669	18891	SD203-4.1-17-6R1	2.60	1.18	1.42	0.94	0.236
0.1654	-	4.2	-	M5	0.669	18892	SD203-4.2-17-6R1	2.60	1.18	1.42	0.94	0.236
0.1693	-	4.3	-	-	0.709	18896	SD203-4.3-18-6R1	2.60	1.18	1.42	0.94	0.236
0.1719	11/64	4.366	-	-	0.709	19437	SD203-01719-071-0236R1	2.60	1.18	1.42	0.94	0.236
0.1732	-	4.4	-	UNC12-24/MF5X0.5	0.709	18899	SD203-4.4-18-6R1	2.60	1.18	1.42	0.94	0.236
0.1772	-	4.5	-	-	0.709	18901	SD203-4.5-18-6R1	2.60	1.18	1.42	0.94	0.236
0.1811	-	4.6	-	-	0.709	18902	SD203-4.6-18-6R1	2.60	1.18	1.42	1.02	0.236
0.1850	-	4.7	-	-	0.709	18903	SD203-4.7-18-6R1	2.60	1.18	1.42	1.02	0.236
0.1875	3/16	4.763	-	-	0.787	19438	SD203-01875-079-0236R1	2.60	1.18	1.42	1.02	0.236
0.1890	-	4.8	-	-	0.787	18904	SD203-4.8-20-6R1	2.60	1.18	1.42	1.10	0.236
0.1929	-	4.9	5 H7	M6	0.787	18906	SD203-4.9-20-6R1	2.60	1.18	1.42	1.10	0.236
0.1969	-	5.0	-	UNC1/4-20	0.787	18907	SD203-5.0-20-6R1	2.60	1.18	1.42	1.10	0.236
0.2008	-	5.1	-	-	0.787	18908	SD203-5.1-20-6R1	2.60	1.18	1.42	1.10	0.236
0.2031	13/64	5.159	-	-	0.787	19439	SD203-02031-079-0236R1	2.60	1.18	1.42	1.10	0.236
0.2047	-	5.2	-	-	0.787	18909	SD203-5.2-20-6R1	2.60	1.18	1.42	1.10	0.236
0.2165	-	5.5	-	-	0.827	18911	SD203-5.5-21-6R1	2.60	1.18	1.42	1.10	0.236

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

For intermediate diameters see the Custom Design software.

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch				
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_m$ h6
0.2188	7/32	5.558	–	–	0.827	19441	SD203-02188-083-0236R1	2.60	1.18	1.42	1.10	0.236
0.2283	–	5.8	6 H6	–	0.827	18912	SD203-5.8-21-6R1	2.60	1.18	1.42	1.10	0.236
0.2323	–	5.9	6 H6/6 H7	–	0.827	34890	SD203-5.9-21-6R1	2.60	1.18	1.42	1.10	0.236
0.2344	15/64	5.954	–	–	0.827	19442	SD203-02344-083-0236R1	2.60	1.18	1.42	1.10	0.236
0.2362	–	6.0	–	NPTF1/16	0.827	18913	SD203-6.0-21-6R1	2.60	1.18	1.42	1.10	0.236
0.2500	1/4	6.35	–	–	0.906	19443	SD203-02500-091-0315R1	3.11	1.69	1.42	1.34	0.315
0.2559	–	6.5	–	UNC5/16-18	0.906	18914	SD203-6.5-23-8R1	3.11	1.69	1.42	1.34	0.315
0.2598	–	6.6	–	–	0.906	18916	SD203-6.6-23-8R1	3.11	1.69	1.42	1.34	0.315
0.2656	17/64	6.746	–	–	0.984	19444	SD203-02656-098-0315R1	3.11	1.69	1.42	1.34	0.315
0.2677	–	6.8	7 H6	M8	0.984	18917	SD203-6.8-25-8R1	3.11	1.69	1.42	1.34	0.315
0.2717	–	6.9	7 H6/7 H7	UNF5/16-24	0.984	18918	SD203-6.9-25-8R1	3.11	1.69	1.42	1.34	0.315
0.2756	–	7.0	–	MF8X1	0.984	18919	SD203-7.0-25-8R1	3.11	1.69	1.42	1.34	0.315
0.2813	9/32	7.145	–	–	0.984	19445	SD203-02813-098-0315R1	3.11	1.69	1.42	1.61	0.315
0.2953	–	7.5	–	–	0.984	18921	SD203-7.5-25-8R1	3.11	1.69	1.42	1.61	0.315
0.2969	19/64	7.541	–	–	1.063	19494	SD203-02969-106-0315R1	3.11	1.69	1.42	1.61	0.315
0.3071	–	7.8	8 H6	–	1.063	18922	SD203-7.8-27-8R1	3.11	1.69	1.42	1.61	0.315
0.3110	–	7.9	8 H6/8 H7	–	1.063	34891	SD203-7.9-27-8R1	3.11	1.69	1.42	1.61	0.315
0.3125	5/16	7.938	–	–	1.063	19446	SD203-03125-106-0315R1	3.11	1.69	1.42	1.61	0.315
0.3150	–	8.0	–	UNC3/8-16	1.063	18924	SD203-8.0-27-8R1	3.11	1.69	1.42	1.61	0.315
0.3228	–	8.2	–	–	1.063	34892	SD203-8.2-27-10R1	3.50	1.93	1.57	1.85	0.394
0.3281	21/64	8.334	–	–	1.063	19448	SD203-03281-106-0394R1	3.50	1.93	1.57	1.85	0.394
0.3346	–	8.5	–	M10	1.063	18926	SD203-8.5-27-10R1	3.50	1.93	1.57	1.85	0.394
0.3425	–	8.7	–	–	1.142	34893	SD203-8.7-27-10R1	3.50	1.93	1.57	1.85	0.394
0.3438	11/32	8.733	–	–	1.142	19449	SD203-03438-114-0394R1	3.50	1.93	1.57	1.85	0.394
0.3465	–	8.8	9 H6	G1/8/MF10X1.25	1.142	18927	SD203-8.8-29-10R1	3.50	1.93	1.57	1.85	0.394
0.3504	–	8.9	9 H6/9 H7	–	1.142	34894	SD203-8.9-29-10R1	3.50	1.93	1.57	1.85	0.394
0.3543	–	9.0	–	MF10X1	1.142	18928	SD203-9.0-29-10R1	3.50	1.93	1.57	1.85	0.394
0.3594	23/64	9.129	–	–	1.142	19450	SD203-03594-114-0394R1	3.50	1.93	1.57	1.85	0.394
0.3740	–	9.5	–	–	1.142	18929	SD203-9.5-29-10R1	3.50	1.93	1.57	1.85	0.394
0.3750	3/8	9.525	–	–	1.220	19451	SD203-03750-122-0394R1	3.50	1.93	1.57	1.85	0.394
0.3858	–	9.8	10 H6/10 H7	–	1.220	18931	SD203-9.8-31-10R1	3.50	1.93	1.57	1.85	0.394
0.3898	–	9.9	10 H6/10 H7	UNF7/16-20	1.220	34895	SD203-9.9-31-10R1	3.50	1.93	1.57	1.85	0.394
0.3906	25/64	9.921	–	–	1.220	19452	SD203-03906-122-0394R1	3.50	1.93	1.57	1.85	0.394
0.3937	–	10.0	–	–	1.220	18932	SD203-10.0-31-10R1	3.50	1.93	1.57	1.85	0.394
0.4016	–	10.2	–	M12	1.220	18933	SD203-10.2-31-12R1	4.02	2.24	1.77	2.17	0.472
0.4063	13/32	10.32	–	–	1.220	19453	SD203-04063-122-0472R1	4.02	2.24	1.77	2.17	0.472
0.4094	–	10.4	–	–	1.220	37925	SD203-10.4-31-12R1	4.02	2.24	1.77	2.17	0.472
0.4134	–	10.5	–	MF12X1.5	1.220	18934	SD203-10.5-31-12R1	4.02	2.24	1.77	2.17	0.472
0.4219	27/64	10.716	–	–	1.299	19460	SD203-04219-130-0472R1	4.02	2.24	1.77	2.17	0.472
0.4252	–	10.8	11 H6/11 H7	UNC1/2-13/MF12X1.25	1.299	18936	SD203-10.8-33-12R1	4.02	2.24	1.77	2.17	0.472
0.4331	–	11.0	–	MF12X1/NPTF1/4	1.299	18937	SD203-11.0-33-12R1	4.02	2.24	1.77	2.17	0.472
0.4375	7/16	11.113	–	–	1.299	19462	SD203-04375-130-0472R1	4.02	2.24	1.77	2.17	0.472

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

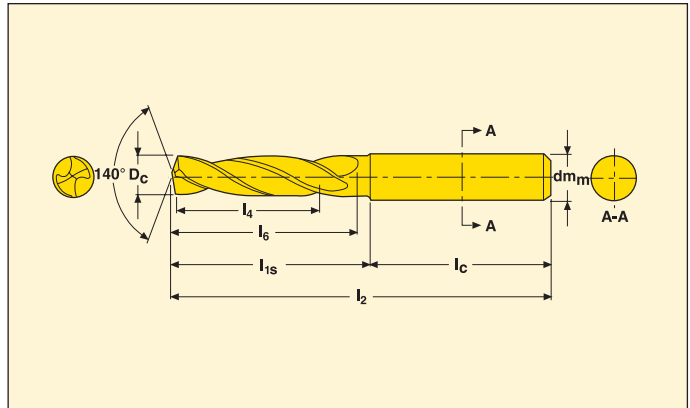
For intermediate diameters see the Custom Design software.

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9



Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6	
0.4528	–	11.5	–	UNF1/2-20	–	1.299	18938	SD203-11.5-33-12R1	4.02	2.24	1.77	2.17	0.472
0.4531	29/64	11.509	–	–	–	1.299	19466	SD203-04531-130-0472R1	4.02	2.24	1.77	2.17	0.472
0.4646	–	11.8	12 H6/12 H7	G1/4	–	1.299	18939	SD203-11.8-33-12R1	4.02	2.24	1.77	2.17	0.472
0.4688	15/32	11.908	12 H6/12 H7	–	–	1.417	19476	SD203-04688-142-0472R1	4.02	2.24	1.77	2.17	0.472
0.4724	–	12.0	–	M14	–	1.417	18941	SD203-12.0-36-12R1	4.02	2.24	1.77	2.17	0.472
0.4823	–	12.25	–	–	–	1.417	34897	SD203-12.25-36-14R1	4.21	2.44	1.77	2.36	0.551
0.4843	–	12.3	–	–	–	1.417	18942	SD203-12.3-36-14R1	4.21	2.44	1.77	2.36	0.551
0.4844	31/64	12.304	–	–	–	1.417	19477	SD203-04844-142-0551R1	4.21	2.44	1.77	2.36	0.551
0.4921	–	12.5	–	MF14X1.5	–	1.417	18943	SD203-12.5-36-14R1	4.21	2.44	1.77	2.36	0.551
0.5000	1/2	12.7	–	–	–	1.417	19479	SD203-05000-142-0551R1	4.21	2.44	1.77	2.36	0.551
0.5039	–	12.8	13 H6/13 H7	MF14X1.25	–	1.417	37983	SD203-12.8-36-14R1	4.21	2.44	1.77	2.36	0.551
0.5118	–	13.0	–	MF14X1	–	1.417	18944	SD203-13.0-36-14R1	4.21	2.44	1.77	2.36	0.551
0.5156	33/64	13.096	–	–	–	1.457	19481	SD203-05156-146-0551R1	4.21	2.44	1.77	2.36	0.551
0.5312	17/32	13.492	–	–	–	1.457	19483	SD203-05312-146-0551R1	4.21	2.44	1.77	2.36	0.551
0.5315	–	13.5	–	–	–	1.457	18946	SD203-13.5-37-14R1	4.21	2.44	1.77	2.36	0.551
0.5433	–	13.8	14 H6/14 H7	–	–	1.457	34899	SD203-13.8-37-14R1	4.21	2.44	1.77	2.36	0.551
0.5469	35/64	13.891	14 H6/14 H7	–	–	1.457	19491	SD203-05469-146-0551R1	4.21	2.44	1.77	2.36	0.551
0.5512	–	14.0	–	–	–	1.457	18949	SD203-14.0-37-14R1	4.21	2.44	1.77	2.36	0.551
0.5591	–	14.2	–	–	–	1.496	18951	SD203-14.2-38-16R1	4.53	2.64	1.89	2.56	0.630
0.5625	9/16	14.288	–	–	–	1.496	19493	SD203-05625-149-0630R1	4.53	2.64	1.89	2.56	0.630
0.5709	–	14.5	–	MF16X1.5/UNF5/8-18	–	1.496	18952	SD203-14.5-38-16R1	4.53	2.64	1.89	2.56	0.630
0.5827	–	14.8	15 H6/15 H7	–	–	1.496	34901	SD203-14.8-38-16R1	4.53	2.64	1.89	2.56	0.630
0.5906	–	15.0	–	MF16X1	–	1.496	18953	SD203-15.0-38-16R1	4.53	2.64	1.89	2.56	0.630
0.6004	–	15.25	–	–	–	1.535	18956	SD203-15.25-39-16R1	4.53	2.64	1.89	2.56	0.630
0.6102	–	15.5	–	M18	–	1.535	18957	SD203-15.5-39-16R1	4.53	2.64	1.89	2.56	0.630
0.6220	–	15.8	16 H6/16 H7	–	–	1.535	37984	SD203-15.8-39-16R1	4.53	2.64	1.89	2.56	0.630
0.6299	–	16.0	–	–	–	1.535	18958	SD203-16.0-39-16R1	4.53	2.64	1.89	2.56	0.630
0.6496	–	16.5	–	MF18X1.5	–	1.575	18959	SD203-16.5-40-18R1	4.84	2.95	1.89	2.87	0.709
0.6614	–	16.8	17 H6/17 H7	–	–	1.575	34904	SD203-16.8-40-18R1	4.84	2.95	1.89	2.87	0.709
0.6693	–	17.0	–	MF18X1	–	1.575	18961	SD203-17.0-40-18R1	4.84	2.95	1.89	2.87	0.709
0.6890	–	17.5	–	M20	–	1.614	18962	SD203-17.5-41-18R1	4.84	2.95	1.89	2.87	0.709
0.7008	–	17.8	18 H6/18 H7	–	–	1.614	34906	SD203-17.8-41-18R1	4.84	2.95	1.89	2.87	0.709
0.7087	–	18.0	–	–	–	1.614	18964	SD203-18.0-41-18R1	4.84	2.95	1.89	2.87	0.709
0.7283	–	18.5	–	MF20X1.5	–	1.929	18966	SD203-18.5-49-20R1	5.16	3.19	1.97	3.11	0.787
0.7402	–	18.8	19 H6/19 H7	–	–	1.929	34907	SD203-18.8-49-20R1	5.16	3.19	1.97	3.11	0.787
0.7480	–	19.0	–	G1/2/MF20X1	–	1.929	18968	SD203-19.0-49-20R1	5.16	3.19	1.97	3.11	0.787
0.7677	–	19.5	–	M22	–	1.929	18971	SD203-19.5-49-20R1	5.16	3.19	1.97	3.11	0.787
0.7795	–	19.8	20 H6/20 H7	–	–	1.929	34909	SD203-19.8-49-20R1	5.16	3.19	1.97	3.11	0.787
0.7874	–	20.0	–	–	–	1.929	18972	SD203-20.0-49-20R1	5.16	3.19	1.97	3.11	0.787

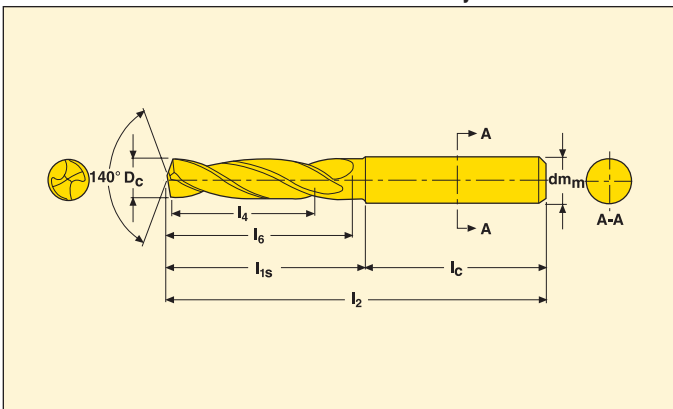
\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).  
For intermediate diameters see the Custom Design software.

Custom intermediate diameters – drilling depth ~ 3 x D – Inch diameter

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9



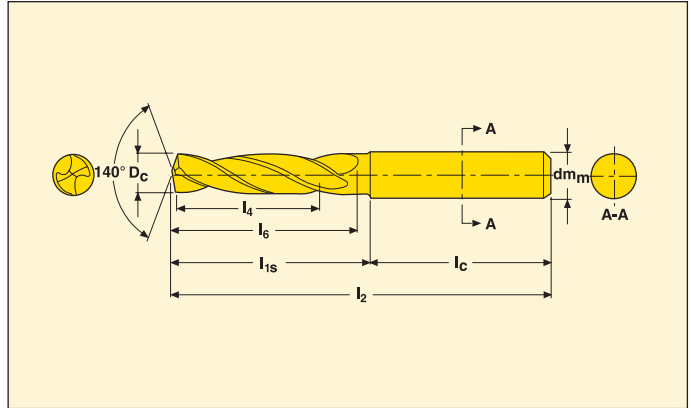
Drill dia. Dc (inch)	Max drilling depth l4 (inch)	Part No.	Dimensions in inch				
			l2	l1s	lc	l6	dm <sub>m</sub> h6
0.0787-0.0866	0.276	SD203-x.xxxx-028-0157R1	1.614	0.512	1.102	0.433	0.157
0.0870-0.1024	0.315	SD203-x.xxxx-031-0157R1	1.732	0.630	1.102	0.512	0.157
0.1028-0.1177	0.354	SD203-x.xxxx-035-0157R1	1.732	0.630	1.102	0.591	0.157
0.1181-0.1339	0.551	SD203-x.xxxx-055-0236R1	2.441	1.024	1.417	0.787	0.236
0.1343-0.1476	0.591	SD203-x.xxxx-059-0236R1	2.441	1.024	1.417	0.787	0.236
0.1480-0.1654	0.669	SD203-x.xxxx-067-0236R1	2.598	1.181	1.417	0.945	0.236
0.1657-0.1772	0.709	SD203-x.xxxx-071-0236R1	2.598	1.181	1.417	0.945	0.236
0.1776-0.1870	0.709	SD203-x.xxxx-071-0236R1	2.598	1.181	1.417	1.024	0.236
0.1874-0.2047	0.787	SD203-x.xxxx-079-0236R1	2.598	1.181	1.417	1.102	0.236
0.2051-0.2402	0.827	SD203-x.xxxx-083-0236R1	2.598	1.181	1.417	1.102	0.236
0.2362-0.2598	0.906	SD203-x.xxxx-091-0315R1	3.110	1.693	1.417	1.339	0.315
0.2602-0.2756	0.984	SD203-x.xxxx-098-0315R1	3.110	1.693	1.417	1.339	0.315
0.2760-0.2953	0.984	SD203-x.xxxx-098-0315R1	3.110	1.693	1.417	1.614	0.315
0.2957-0.3189	1.063	SD203-x.xxxx-106-0315R1	3.110	1.693	1.417	1.614	0.315
0.3150-0.3386	1.063	SD203-x.xxxx-106-0394R1	3.504	1.929	1.575	1.850	0.394
0.3390-0.3740	1.142	SD203-x.xxxx-114-0394R1	3.504	1.929	1.575	1.850	0.394
0.3744-0.3976	1.220	SD203-x.xxxx-122-0394R1	3.504	1.929	1.575	1.850	0.394
0.3937-0.4134	1.220	SD203-x.xxxx-122-0472R1	4.016	2.244	1.772	2.165	0.472
0.4138-0.4646	1.299	SD203-x.xxxx-130-0472R1	4.016	2.244	1.772	2.165	0.472
0.4650-0.4764	1.417	SD203-x.xxxx-142-0472R1	4.016	2.244	1.772	2.165	0.472
0.4331-0.5118	1.417	SD203-x.xxxx-142-0551R1	4.213	2.441	1.772	2.362	0.551
0.5118-0.5551	1.457	SD203-x.xxxx-146-0551R1	4.213	2.441	1.772	2.362	0.551
0.5512-0.5906	1.496	SD203-x.xxxx-150-0630R1	4.528	2.638	1.890	2.559	0.630
0.5909-0.6339	1.535	SD203-x.xxxx-154-0630R1	4.528	2.638	1.890	2.559	0.630
0.6299-0.6693	1.575	SD203-x.xxxx-157-0709R1	4.843	2.953	1.890	2.874	0.709
0.6697-0.7126	1.614	SD203-x.xxxx-161-0709R1	4.843	2.953	1.890	2.874	0.709
0.7087-0.7913	1.929	SD203-x.xxxx-193-0787R1	5.157	3.189	1.969	3.110	0.787

The drills are available in ∅ increments of 0.0004". Fill in required cutting ∅ instead of -x.xxxx- according to the ordering example. Cutting ∅ tolerance is equal to m7 unless otherwise specified. Ordering example for ∅ 1/4 inch (0.2500): SD203-0.2500-091-0315R1. Also available for intermediate diameters in the Custom Design software.



Custom intermediate diameters – drilling depth ~ 3 x D – Metric diameter

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill dia. D <sub>C</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	d <sub>m</sub> h6
2.00-2.20	7	SD203-x.xx-7-4R1	41	13	28	11	4
2.21-2.60	8	SD203-x.xx-8-4R1	44	16	28	13	4
2.61-2.99	9	SD203-x.xx-9-4R1	44	16	28	15	4
3.00-3.40	14	SD203-x.xx-14-6R1	62	26	36	20	6
3.41-3.75	15	SD203-x.xx-15-6R1	62	26	36	20	6
3.76-4.20	17	SD203-x.xx-17-6R1	66	30	36	24	6
4.21-4.50	18	SD203-x.xx-18-6R1	66	30	36	24	6
4.51-4.75	18	SD203-x.xx-18-6R1	66	30	36	26	6
4.76-5.20	20	SD203-x.xx-20-6R1	66	30	36	28	6
5.21-6.00	21	SD203-x.xx-21-6R1	66	30	36	28	6
6.01-6.60	23	SD203-x.xx-23-8R1	79	43	36	34	8
6.61-7.00	25	SD203-x.xx-25-8R1	79	43	36	34	8
7.01-7.50	25	SD203-x.xx-25-8R1	79	43	36	41	8
7.51-8.00	27	SD203-x.xx-27-8R1	79	43	36	41	8
8.01-8.60	27	SD203-x.xx-27-10R1	89	49	40	47	10
8.61-9.50	29	SD203-x.xx-29-10R1	89	49	40	47	10
9.51-10.00	31	SD203-x.xx-31-10R1	89	49	40	47	10
10.01-10.50	31	SD203-xx.xx-31-12R1	102	57	45	55	12
10.51-11.80	33	SD203-xx.xx-33-12R1	102	57	45	55	12
11.81-12.00	36	SD203-xx.xx-36-12R1	102	57	45	55	12
12.01-13.00	36	SD203-xx.xx-36-14R1	107	62	45	60	14
13.01-14.00	37	SD203-xx.xx-37-14R1	107	62	45	60	14
14.01-15.00	38	SD203-xx.xx-38-16R1	115	67	48	65	16
15.01-16.00	39	SD203-xx.xx-39-16R1	115	67	48	65	16
16.01-17.00	40	SD203-xx.xx-40-18R1	123	75	48	73	18
17.01-18.00	41	SD203-xx.xx-41-18R1	123	75	48	73	18
18.01-20.00	49	SD203-xx.xx-49-20R1	131	81	50	79	20

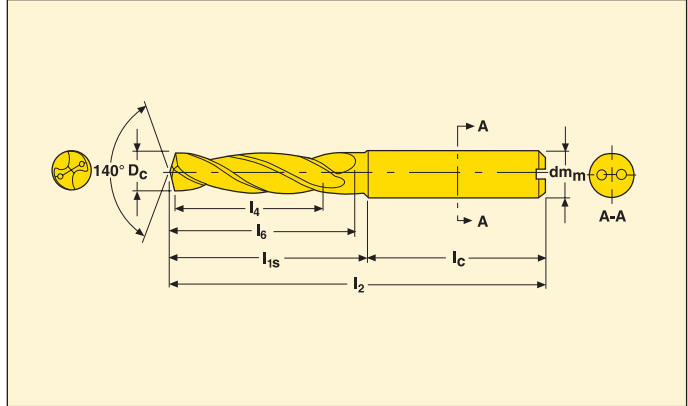
The drills are available in Ø increments of 0.01 mm. Fill in required cutting Ø instead of -xx.xx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 11.3 mm: SD203-11.3-33-12R1. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

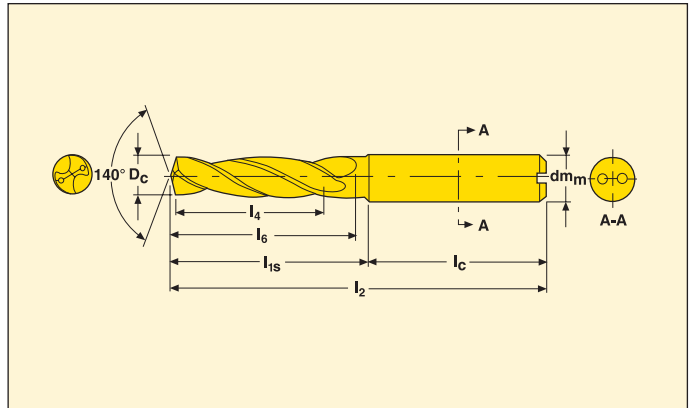


Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch				
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_{m,h6}$
0.0787	-	2.0	-	-	0.276	34911	SD203A-2.0-7-4R1	1.614	0.512	1.102	0.433	0.157
0.0827	-	2.1	-	-	0.276	34912	SD203A-2.1-7-4R1	1.614	0.512	1.102	0.433	0.157
0.0866	-	2.2	-	-	0.276	34913	SD203A-2.2-7-4R1	1.614	0.512	1.102	0.433	0.157
0.0906	-	2.3	-	-	0.315	34914	SD203A-2.3-8-4R1	1.732	0.630	1.102	0.512	0.157
0.0925	-	2.35	-	-	0.315	44127	SD203A-2.35-8-4R1	1.732	0.630	1.102	0.512	0.157
0.0937	3/32	2.38	-	-	0.315	34915	SD203A-00937-031-0157R1	1.732	0.630	1.102	0.512	0.157
0.0945	-	2.4	-	-	0.315	34916	SD203A-2.4-8-4R1	1.732	0.630	1.102	0.512	0.157
0.0984	-	2.5	-	-	0.315	34917	SD203A-2.5-8-4R1	1.732	0.630	1.102	0.512	0.157
0.1024	-	2.6	-	-	0.315	34918	SD203A-2.6-8-4R1	1.732	0.630	1.102	0.512	0.157
0.1063	-	2.7	-	-	0.354	34919	SD203A-2.7-9-4R1	1.732	0.630	1.102	0.591	0.157
0.1094	7/64	2.78	-	-	0.354	34920	SD203A-01095-035-0157R1	1.732	0.630	1.102	0.591	0.157
0.1102	-	2.8	-	-	0.354	34921	SD203A-2.8-9-4R1	1.732	0.630	1.102	0.591	0.157
0.1142	-	2.9	-	-	0.354	34922	SD203A-2.9-9-4R1	1.732	0.630	1.102	0.591	0.157
0.1181	-	3.0	-	-	0.551	18973	SD203A-3.0-14-6R1	2.441	1.024	1.417	0.787	0.236
0.1339	-	3.4	-	-	0.551	37986	SD203A-3.4-14-6R1	2.441	1.024	1.417	0.787	0.236
0.1378	-	3.5	UNC8-32/MF4X0.5/UNF8-36	-	0.591	18974	SD203A-3.5-15-6R1	2.441	1.024	1.417	0.787	0.236
0.1496	-	3.8	-	-	0.669	37987	SD203A-3.8-17-6R1	2.598	1.181	1.417	0.945	0.236
0.1575	-	4.0	-	-	0.669	18976	SD203A-4.0-17-6R1	2.598	1.181	1.417	0.945	0.236
0.1654	-	4.2	M5	-	0.669	18977	SD203A-4.2-17-6R1	2.598	1.181	1.417	0.945	0.236
0.1693	-	4.3	-	-	0.709	34923	SD203A-4.3-18-6R1	2.598	1.181	1.417	0.945	0.236
0.1772	-	4.5	UNC12-25/MF5X0.5	-	0.709	33266	SD203A-4.5-18-6R1	2.598	1.181	1.417	0.945	0.236
0.1890	-	4.8	-	MF5	0.787	37988	SD203A-4.8-20-6R1	2.598	1.181	1.417	1.102	0.236
0.1929	-	4.9	5 H7	-	0.787	34924	SD203A-4.9-20-6R1	2.598	1.181	1.417	1.102	0.236
0.1969	-	5.0	M6	-	0.787	18978	SD203A-5.0-20-6R1	2.598	1.181	1.417	1.102	0.236
0.2008	-	5.1	UNC1/4-20	-	0.787	18979	SD203A-5.1-20-6R1	2.598	1.181	1.417	1.102	0.236
0.2047	-	5.2	MF6X0.75	-	0.787	18980	SD203A-5.2-20-6R1	2.598	1.181	1.417	1.102	0.236
0.2165	-	5.5	UNF1/4-28	-	0.827	18981	SD203A-5.5-21-6R1	2.598	1.181	1.417	1.102	0.236
0.2344	15/64	5.954	-	-	0.827	19496	SD203A-02344-083-0236R1	2.598	1.181	1.417	1.102	0.236
0.2283	-	5.8	6 H6	-	0.827	37989	SD203A-5.8-21-6R1	2.598	1.181	1.417	1.102	0.236
0.1929	-	4.9	6 H6/6 H7	-	0.787	34925	SD203A-5.9-21-6R1	2.598	1.181	1.417	1.102	0.236
0.2362	-	6.0	M7	-	0.827	18982	SD203A-6.0-21-6R1	2.598	1.181	1.417	1.102	0.236
0.2500	1/4	6.35	-	-	0.906	19497	SD203A-02500-091-0315R1	3.110	1.693	1.417	1.339	0.315
0.2559	-	6.5	-	-	0.906	18983	SD203A-6.5-23-8R1	3.110	1.693	1.417	1.339	0.315
0.2598	-	6.6	UNC5/6-18	-	0.906	18984	SD203A-6.6-23-8R1	3.110	1.693	1.417	1.339	0.315
0.2656	17/64	6.746	-	-	0.984	19498	SD203A-02656-098-0315R1	3.110	1.693	1.417	1.339	0.315
0.2677	-	6.8	7 H6	-	0.984	18985	SD203A-6.8-25-8R1	3.110	1.693	1.417	1.339	0.315
0.2717	-	6.9	7 H6/7 H7	-	0.984	18986	SD203A-6.9-25-8R1	3.110	1.693	1.417	1.339	0.315
0.2756	-	7.0	MF8X1	-	0.984	18987	SD203A-7.0-25-8R1	3.110	1.693	1.417	1.339	0.315
0.2813	9/32	7.145	-	-	0.984	19499	SD203A-02813-098-0315R1	3.110	1.693	1.417	1.614	0.315
0.2953	-	7.5	-	-	0.984	18988	SD203A-7.5-25-8R1	3.110	1.693	1.417	1.614	0.315
0.2969	19/64	7.541	-	-	1.063	19501	SD203A-02969-106-0315R1	3.110	1.693	1.417	1.614	0.315

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

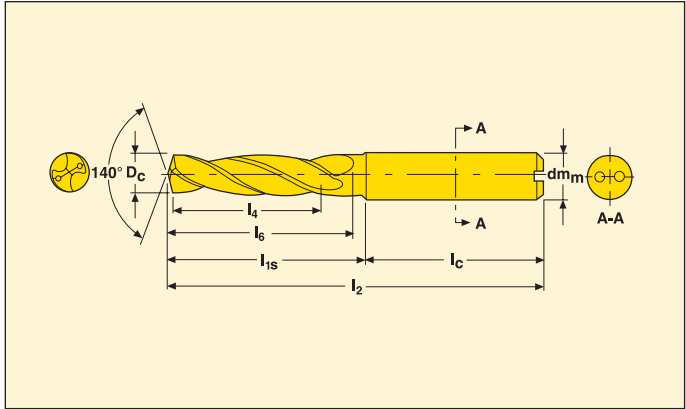
Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6	
0.3071	–	7.8	8 H6	–	1.063	18989	SD203A-7.8-27-8R1	3.110	1.693	1.417	1.614	0.315	
0.3110	–	7.9	8 H6/8 H7	–	1.063	34926	SD203A-7.9-27-8R1	3.110	1.693	1.417	1.614	0.315	
0.3125	5/16	7.938	–	–	1.063	19503	SD203A-03125-106-0315R1	3.110	1.693	1.417	1.614	0.315	
0.3150	–	8.0	–	UNC3/8-16	–	1.063	18990	SD203A-8.0-27-8R1	3.110	1.693	1.417	1.614	0.315
0.3189	–	8.1	–	–	–	1.063	18991	SD203A-8.1-27-10R1	3.504	1.929	1.575	1.850	0.394
0.3228	–	8.2	–	–	–	1.063	18992	SD203A-8.2-27-10R1	3.504	1.929	1.575	1.850	0.394
0.3281	21/64	8.334	–	–	–	1.063	19504	SD203A-03281-106-0394R1	3.504	1.929	1.575	1.850	0.394
0.3346	–	8.5	–	–	–	1.063	18993	SD203A-8.5-27-10R1	3.504	1.929	1.575	1.850	0.394
0.3386	–	8.6	–	–	–	1.063	18994	SD203A-8.6-27-10R1	3.504	1.929	1.575	1.850	0.394
0.3425	–	8.7	–	–	–	1.142	37990	SD203A-8.7-29-10R1	3.504	1.929	1.575	1.850	0.394
0.3438	11/32	8.733	–	–	–	1.142	19506	SD203A-03438-114-0394R1	3.504	1.929	1.575	1.850	0.394
0.3465	–	8.8	9 H6	G1/8/MF10X1.25	–	1.142	18995	SD203A-8.8-29-10R1	3.504	1.929	1.575	1.850	0.394
0.3504	–	8.9	9 H6/9 H7	–	–	1.142	34927	SD203A-8.9-29-10R1	3.504	1.929	1.575	1.850	0.394
0.3543	–	9.0	–	MF10X1	–	1.142	18996	SD203A-9.0-29-10R1	3.504	1.929	1.575	1.850	0.394
0.3594	23/64	9.129	–	–	–	1.142	19507	SD203A-03594-114-0394R1	3.504	1.929	1.575	1.850	0.394
0.3740	–	9.5	–	–	–	1.142	18997	SD203A-9.5-29-10R1	3.504	1.929	1.575	1.850	0.394
0.3750	3/8	9.525	–	–	–	1.220	19508	SD203A-03750-122-0394R1	3.504	1.929	1.575	1.850	0.394
0.3839	–	9.75	–	–	–	1.220	35057	SD203A-9.75-31-10R1	3.504	1.929	1.575	1.850	0.394
0.3858	–	9.8	10 H6/10 H7	–	–	1.220	18998	SD203A-9.8-31-10R1	3.504	1.929	1.575	1.850	0.394
0.3898	–	9.9	10 H6/10 H7	UNF7/16-20	–	1.220	38358	SD203A-9.9-31-10R1	3.504	1.929	1.575	1.850	0.394
0.3906	25/64	9.921	–	–	–	1.220	19509	SD203A-03906-122-0394R1	3.504	1.929	1.575	1.850	0.394
0.3937	–	10.0	–	–	–	1.220	18999	SD203A-10.0-31-10R1	3.504	1.929	1.575	1.850	0.394
0.4016	–	10.2	–	M12	–	1.220	19000	SD203A-10.2-31-12R1	4.016	2.244	1.772	2.165	0.472
0.4063	13/32	10.32	–	–	–	1.220	19511	SD203A-04063-122-0472R1	4.016	2.244	1.772	2.165	0.472
0.4094	–	10.4	–	–	–	1.220	34928	SD203A-10.4-31-12R1	4.016	2.244	1.772	2.165	0.472
0.4134	–	10.5	–	MF12X1.5	–	1.220	19005	SD203A-10.5-31-12R1	4.016	2.244	1.772	2.165	0.472
0.4219	27/64	10.716	–	–	–	1.299	19512	SD203A-04219-130-0472R1	4.016	2.244	1.772	2.165	0.472
0.4252	–	10.8	11 H6/11 H7	UNC1/2-13/MF12X1.25	–	1.299	19010	SD203A-10.8-33-12R1	4.016	2.244	1.772	2.165	0.472
0.4331	–	11.0	–	MF12X1/NPTF1/4	–	1.299	19022	SD203A-11.0-33-12R1	4.016	2.244	1.772	2.165	0.472
0.4375	7/16	11.113	–	–	–	1.299	19514	SD203A-04375-130-0472R1	4.016	2.244	1.772	2.165	0.472
0.4528	–	11.5	–	UNF1/2-20	–	1.299	19023	SD203A-11.5-33-12R1	4.016	2.244	1.772	2.165	0.472
0.4531	29/64	11.509	–	–	–	1.299	19517	SD203A-04531-130-0472R1	4.016	2.244	1.772	2.165	0.472
0.4646	–	11.8	12 H6/12 H7	G1/4	–	1.299	19024	SD203A-11.8-33-12R1	4.016	2.244	1.772	2.165	0.472
0.4688	15/32	11.908	12 H6/12 H7	–	–	1.417	19519	SD203A-04688-142-0472R1	4.016	2.244	1.772	2.165	0.472
0.4724	–	12.0	–	–	–	1.417	19026	SD203A-12.0-36-12R1	4.016	2.244	1.772	2.165	0.472
0.4823	–	12.25	–	M14	–	1.417	38359	SD203A-12.25-36-14R1	4.213	2.441	1.772	2.362	0.551
0.4843	–	12.3	–	–	–	1.417	19027	SD203A-12.3-36-14R1	4.213	2.441	1.772	2.362	0.551
0.4844	31/64	12.304	–	–	–	1.417	19526	SD203A-04844-142-0551R1	4.213	2.441	1.772	2.362	0.551
0.4921	–	12.5	–	MF14X1.5	–	1.417	19028	SD203A-12.5-36-14R1	4.213	2.441	1.772	2.362	0.551
0.5000	1/2	12.7	–	–	–	1.417	19527	SD203A-05000-142-0551R1	4.213	2.441	1.772	2.362	0.551
0.5039	–	12.8	13 H6/13 H7	MF14X1.25	–	1.417	34929	SD203A-12.8-36-14R1	4.213	2.441	1.772	2.362	0.551
0.5118	–	13.0	–	MF14X1	–	1.417	19031	SD203A-13.0-36-14R1	4.213	2.441	1.772	2.362	0.551

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

For intermediate diameters see the Custom Design software.

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



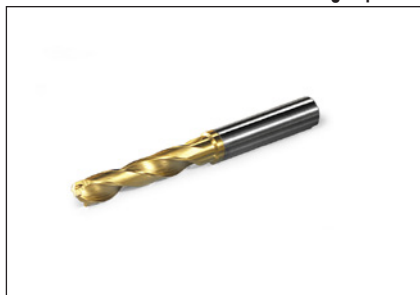
- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth I <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							I <sub>2</sub>	I <sub>1s</sub>	I <sub>c</sub>	I <sub>6</sub>	dm <sub>m</sub> h6
0.5156	33/64	13.096	-	-	1.457	19532	SD203A-05156-146-0551R1	4.213	2.441	1.772	2.362	0.551
0.5312	17/32	13.492	-	-	1.457	19533	SD203A-05312-146-0551R1	4.213	2.441	1.772	2.362	0.551
0.5315	-	13.5	-	-	1.457	19032	SD203A-13.5-37-14R1	4.213	2.441	1.772	2.362	0.551
0.5433	-	13.8	14 H6/14 H7	-	1.457	38360	SD203A-13.8-37-14R1	4.213	2.441	1.772	2.362	0.551
0.5469	35/64	13.891	14 H6/14 H7	-	1.457	19536	SD203A-05469-146-0551R1	4.213	2.441	1.772	2.362	0.551
0.5512	-	14.0	-	-	1.457	19033	SD203A-14.0-37-14R1	4.213	2.441	1.772	2.362	0.551
0.5610	-	14.25	-	-	1.496	38361	SD203A-14.25-38-16R1	4.528	2.638	1.890	2.559	0.630
0.5709	-	14.5	-	MF16X1.5/UNF5/8-18	1.496	19034	SD203A-14.5-38-16R1	4.528	2.638	1.890	2.559	0.630
0.5827	-	14.8	15 H6/15 H7	-	1.496	34930	SD203A-14.8-38-16R1	4.528	2.638	1.890	2.559	0.630
0.5906	-	15.0	-	MF16X1	1.496	19036	SD203A-15.0-38-16R1	4.528	2.638	1.890	2.559	0.630
0.6102	-	15.5	-	M18	1.535	19037	SD203A-15.5-39-16R1	4.528	2.638	1.890	2.559	0.630
0.6220	-	15.8	16 H6/16 H7	-	1.535	38362	SD203A-15.8-39-16R1	4.528	2.638	1.890	2.559	0.630
0.6299	-	16.0	-	-	1.535	19038	SD203A-16.0-39-16R1	4.528	2.638	1.890	2.559	0.630
0.6496	-	16.5	-	MF18X1.5	1.575	19039	SD203A-16.5-40-18R1	4.843	2.953	1.890	2.874	0.709
0.6614	-	16.8	17 H6/17 H7	-	1.575	38363	SD203A-16.8-40-18R1	4.843	2.953	1.890	2.874	0.709
0.6693	-	17.0	-	MF18X1	1.575	19041	SD203A-17.0-40-18R1	4.843	2.953	1.890	2.874	0.709
0.6890	-	17.5	-	M20	1.614	19042	SD203A-17.5-41-18R1	4.843	2.953	1.890	2.874	0.709
0.7008	-	17.8	18 H6/18 H7	-	1.614	34933	SD203A-17.8-41-18R1	4.843	2.953	1.890	2.874	0.709
0.7087	-	18.0	-	-	1.614	19043	SD203A-18.0-41-18R1	4.843	2.953	1.890	2.874	0.709
0.7283	-	18.5	-	MF20X1.5	1.929	19045	SD203A-18.5-49-20R1	5.157	3.189	1.969	3.110	0.787
0.7402	-	18.8	19 H6/19 H7	-	1.929	34935	SD203A-18.8-49-20R1	5.157	3.189	1.969	3.110	0.787
0.7480	-	19.0	-	G1/2/MF20X1	1.929	19046	SD203A-19.0-49-20R1	5.157	3.189	1.969	3.110	0.787
0.7500	3/4	19.05	-	-	1.929	19047	SD203A-19.05-49-20R1	5.157	3.189	1.969	3.110	0.787
0.7677	-	19.5	-	M22	1.929	19048	SD203A-19.5-49-20R1	5.157	3.189	1.969	3.110	0.787
0.7795	-	19.8	20 H6/20 H7	-	1.929	34937	SD203A-19.8-49-20R1	5.157	3.189	1.969	3.110	0.787
0.7874	-	20.0	-	-	1.929	19049	SD203A-20.0-49-20R1	5.157	3.189	1.969	3.110	0.787

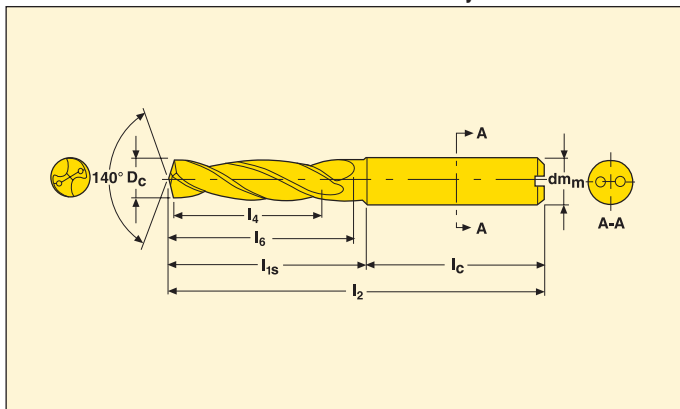
\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).  
For intermediate diameters see the Custom Design software.

Custom intermediate diameters – drilling depth ~ 3 x D – Inch diameter

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

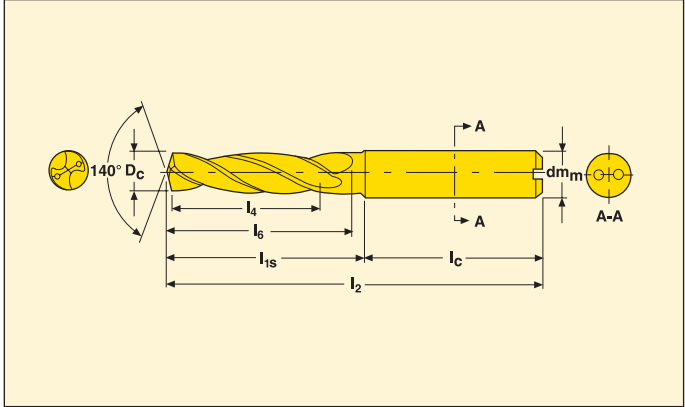


Drill dia. $D_c$ (inch)	Max drilling depth $l_4$ (inch)	Part No.	Dimensions in inch				
			$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_{h6}$
0.0787-0.0866	0.276	SD203A-x.xxxx-028-0157R1	1.614	0.512	1.102	0.433	0.157
0.0870-0.1024	0.315	SD203A-x.xxxx-031-0157R1	1.732	0.630	1.102	0.512	0.157
0.1028-0.1177	0.354	SD203A-x.xxxx-035-0157R1	1.732	0.630	1.102	0.591	0.157
0.1181-0.1339	0.551	SD203A-x.xxxx-055-0236R1	2.441	1.024	1.417	0.787	0.236
0.1343-0.1476	0.591	SD203A-x.xxxx-059-0236R1	2.441	1.024	1.417	0.787	0.236
0.1480-0.1654	0.669	SD203A-x.xxxx-067-0236R1	2.598	1.181	1.417	0.945	0.236
0.1657-0.1772	0.709	SD203A-x.xxxx-071-0236R1	2.598	1.181	1.417	0.945	0.236
0.1776-0.1870	0.709	SD203A-x.xxxx-071-0236R1	2.598	1.181	1.417	1.024	0.236
0.1874-0.2047	0.787	SD203A-x.xxxx-079-0236R1	2.598	1.181	1.417	1.102	0.236
0.2051-0.2402	0.827	SD203A-x.xxxx-083-0236R1	2.598	1.181	1.417	1.102	0.236
0.2362-0.2598	0.906	SD203A-x.xxxx-091-0315R1	3.110	1.693	1.417	1.339	0.315
0.2602-0.2756	0.984	SD203A-x.xxxx-098-0315R1	3.110	1.693	1.417	1.339	0.315
0.2760-0.2953	0.984	SD203A-x.xxxx-098-0315R1	3.110	1.693	1.417	1.614	0.315
0.2957-0.3189	1.063	SD203A-x.xxxx-106-0315R1	3.110	1.693	1.417	1.614	0.315
0.3150-0.3386	1.063	SD203A-x.xxxx-106-0394R1	3.504	1.929	1.575	1.850	0.394
0.3390-0.3740	1.142	SD203A-x.xxxx-114-0394R1	3.504	1.929	1.575	1.850	0.394
0.3744-0.3976	1.220	SD203A-x.xxxx-122-0394R1	3.504	1.929	1.575	1.850	0.394
0.3937-0.4134	1.220	SD203A-x.xxxx-122-0472R1	4.016	2.244	1.772	2.165	0.472
0.4138-0.4646	1.299	SD203A-x.xxxx-130-0472R1	4.016	2.244	1.772	2.165	0.472
0.4650-0.4764	1.417	SD203A-x.xxxx-142-0472R1	4.016	2.244	1.772	2.165	0.472
0.4724-0.5118	1.417	SD203A-x.xxxx-142-0551R1	4.213	2.441	1.772	2.362	0.551
0.5118-0.5551	1.457	SD203A-x.xxxx-146-0551R1	4.213	2.441	1.772	2.362	0.551
0.5512-0.5906	1.496	SD203A-x.xxxx-150-0630R1	4.528	2.638	1.890	2.559	0.630
0.5909-0.6339	1.535	SD203A-x.xxxx-154-0630R1	4.528	2.638	1.890	2.559	0.630
0.6299-0.6693	1.575	SD203A-x.xxxx-157-0709R1	4.843	2.953	1.890	2.874	0.709
0.6697-0.7126	1.614	SD203A-x.xxxx-161-0709R1	4.843	2.953	1.890	2.874	0.709
0.7087-0.7913	1.929	SD203A-x.xxxx-193-0787R1	5.157	3.189	1.969	3.110	0.787

The drills are available in  $\varnothing$  increments of 0.0004". Fill in required cutting  $\varnothing$  instead of -x.xxxx- according to the ordering example. Cutting  $\varnothing$  tolerance is equal to m7 unless otherwise specified. Ordering example for  $\varnothing$  1/4 inch (0.2500): SD203A-0.2500-091-0315R1. Also available for intermediate diameters in the Custom Design software.

Custom intermediate diameters – drilling depth ~ 3 x D – Metric diameter

Cylindrical shank DIN 6537A



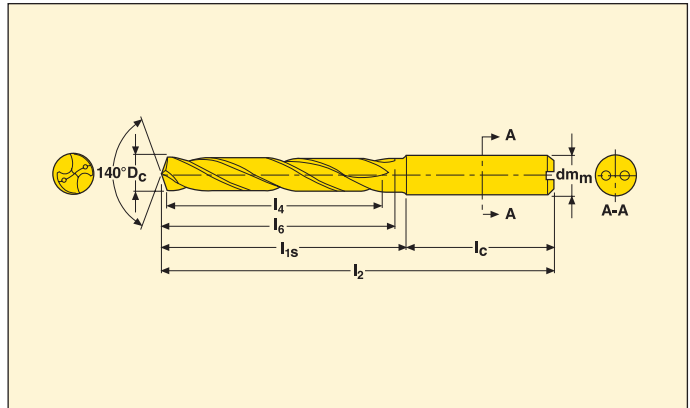
- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>5</sub>	dm <sub>m</sub> h6
2.00-2.20	7	SD203A-x.xx-7-4R1	41	13	28	11	4
2.21-2.60	8	SD203A-x.xx-8-4R1	44	16	28	13	4
2.61-2.99	9	SD203A-x.xx-9-4R1	44	16	28	15	4
3.00-3.40	14	SD203A-x.xx-14-6R1	62	26	36	20	6
3.41-3.75	15	SD203A-x.xx-15-6R1	62	26	36	20	6
3.76-4.20	17	SD203A-x.xx-17-6R1	66	30	36	24	6
4.21-4.50	18	SD203A-x.xx-18-6R1	66	30	36	24	6
4.51-4.75	18	SD203A-x.xx-18-6R1	66	30	36	26	6
4.76-5.20	20	SD203A-x.xx-20-6R1	66	30	36	28	6
5.21-6.00	21	SD203A-x.xx-21-6R1	66	30	36	28	6
6.01-6.60	23	SD203A-x.xx-23-8R1	79	43	36	34	8
6.61-7.00	25	SD203A-x.xx-25-8R1	79	43	36	34	8
7.01-7.50	25	SD203A-x.xx-25-8R1	79	43	36	41	8
7.51-8.00	27	SD203A-x.xx-27-8R1	79	43	36	41	8
8.01-8.60	27	SD203A-x.xx-27-10R1	89	49	40	47	10
8.61-9.50	29	SD203A-x.xx-29-10R1	89	49	40	47	10
9.51-10.00	31	SD203A-x.xx-31-10R1	89	49	40	47	10
10.01-10.50	31	SD203A-xx.xx-31-12R1	102	57	45	55	12
10.51-11.80	33	SD203A-xx.xx-33-12R1	102	57	45	55	12
11.81-12.00	36	SD203A-xx.xx-36-12R1	102	57	45	55	12
12.01-13.00	36	SD203A-xx.xx-36-14R1	107	62	45	60	14
13.01-14.00	37	SD203A-xx.xx-37-14R1	107	62	45	60	14
14.01-15.00	38	SD203A-xx.xx-38-16R1	115	67	48	65	16
15.01-16.00	39	SD203A-xx.xx-39-16R1	115	67	48	65	16
16.01-17.00	40	SD203A-xx.xx-40-18R1	123	75	48	73	18
17.01-18.00	41	SD203A-xx.xx-41-18R1	123	75	48	73	18
18.01-20.00	49	SD203A-xx.xx-49-20R1	131	81	50	79	20

The drills are available in Ø increments of 0.01 mm. Fill in required cutting Ø instead of -xx.xx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 11.3 mm: SD203A-11.3-33-12R1. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

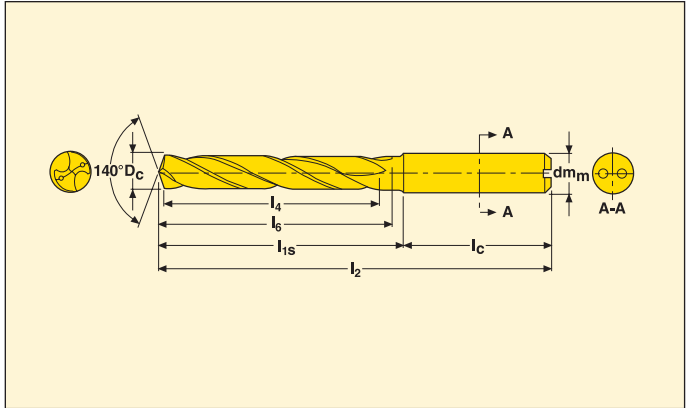
Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
0.0787	–	2.0	–	–	0.472	34939	SD205A-2.0-12-4R1	1.811	0.709	1.102	0.591	0.157
0.0827	–	2.1	–	–	0.472	34940	SD205A-2.1-12-4R1	1.811	0.709	1.102	0.591	0.157
0.0866	–	2.2	–	–	0.472	34941	SD205A-2.2-12-4R1	1.811	0.709	1.102	0.591	0.157
0.0906	–	2.3	–	–	0.472	34943	SD205A-2.3-12-4R1	1.811	0.709	1.102	0.591	0.157
0.0945	–	2.4	–	–	0.512	34945	SD205A-2.4-13-4R1	1.969	0.866	1.102	0.709	0.157
0.0984	–	2.5	–	–	0.512	34946	SD205A-2.5-13-4R1	1.969	0.866	1.102	0.709	0.157
0.1024	–	2.6	–	–	0.512	34947	SD205A-2.6-13-4R1	1.969	0.866	1.102	0.709	0.157
0.1063	–	2.7	–	–	0.591	34948	SD205A-2.7-15-4R1	1.969	0.866	1.102	0.827	0.157
0.1095	7/64	2.781	–	–	0.591	34949	SD205A-01095-059-0157R1	1.969	0.866	1.102	0.827	0.157
0.1102	–	2.8	–	–	0.591	34950	SD205A-2.8-15-4R1	1.969	0.866	1.102	0.827	0.157
0.1142	–	2.9	–	–	0.591	34951	SD205A-2.9-15-4R1	1.969	0.866	1.102	0.827	0.157
0.1181	–	3.0	–	–	0.827	17884	SD205A-3.0-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1220	–	3.1	–	–	0.827	17886	SD205A-3.1-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1260	–	3.2	–	–	0.827	17887	SD205A-3.2-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1280	–	3.25	–	M3.5	0.827	85534	SD205A-3.25-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1299	–	3.3	–	M4	0.827	17888	SD205A-3.3-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1339	–	3.4	–	–	0.827	17889	SD205A-3.4-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1378	–	3.5	–	UNC8-32/MF4X0.5/UNF8-36	0.827	17891	SD205A-3.5-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1417	–	3.6	–	–	0.827	17893	SD205A-3.6-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1457	–	3.7	–	M4.5	0.827	17894	SD205A-3.7-21-6R1	2.598	1.181	1.417	1.024	0.236
0.1496	–	3.8	–	–	1.063	17896	SD205A-3.8-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1535	–	3.9	4 H7	UNC10-24	1.063	17897	SD205A-3.9-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1575	–	4.0	–	–	1.063	17898	SD205A-4.0-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1614	–	4.1	–	UNF10-32	1.063	17899	SD205A-4.1-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1654	–	4.2	–	M5	1.063	17901	SD205A-4.2-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1693	–	4.3	–	–	1.063	17902	SD205A-4.3-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1732	–	4.4	–	–	1.063	17903	SD205A-4.4-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1772	–	4.5	–	UNC12-24/MF5X0.5	1.063	17904	SD205A-4.5-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1811	–	4.6	–	–	1.063	17906	SD205A-4.6-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1831	–	4.65	–	–	1.063	85602	SD205A-4.65-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1850	–	4.7	–	–	1.063	17907	SD205A-4.7-27-6R1	2.913	1.496	1.417	1.339	0.236
0.1890	–	4.8	–	–	1.260	17908	SD205A-4.8-32-6R1	3.228	1.811	1.417	1.732	0.236
0.1929	–	4.9	5 H7	–	1.260	17909	SD205A-4.9-32-6R1	3.228	1.811	1.417	1.732	0.236
0.1969	–	5.0	–	M6	1.260	17911	SD205A-5.0-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2008	–	5.1	–	UNC1/4-20	1.260	17912	SD205A-5.1-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2047	–	5.2	–	MF6X0.75	1.260	17913	SD205A-5.2-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2087	–	5.3	–	–	1.260	17914	SD205A-5.3-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2126	–	5.4	–	–	1.260	17916	SD205A-5.4-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2165	–	5.5	–	UNF1/4-28	1.260	17917	SD205A-5.5-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2185	–	5.55	–	–	1.260	85603	SD205A-5.55-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2205	–	5.6	–	–	1.260	17918	SD205A-5.6-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2244	–	5.7	–	–	1.260	17919	SD205A-5.7-32-6R1	3.228	1.811	1.417	1.732	0.236

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

For intermediate diameters see the Custom Design software.

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6	
0.2283	–	5.8	6 H6	–	–	1.260	17920	SD205A-5.8-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2323	–	5.9	6 H6/6 H7	–	–	1.260	17921	SD205A-5.9-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2343	15/64	5.951	–	–	–	1.260	17782	SD205A-02343-126-0236R1	3.228	1.811	1.417	1.732	0.236
0.2362	–	6.0	–	M7	–	1.260	17922	SD205A-6.0-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2402	–	6.1	–	NPTF1/16	–	1.260	17923	SD205A-6.1-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2441	–	6.2	–	–	–	1.378	17924	SD205A-6.2-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2480	–	6.3	–	–	–	1.378	17926	SD205A-6.3-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2500	1/4	6.35	–	–	–	1.378	17783	SD205A-02500-138-0315R1	3.583	2.165	1.417	2.087	0.315
0.2520	–	6.4	–	–	–	1.378	17927	SD205A-6.4-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2559	–	6.5	–	–	–	1.378	17928	SD205A-6.5-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2579	–	6.55	–	–	–	1.378	85604	SD205A-6.55-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2598	–	6.6	–	UNC5/16-18	–	1.378	17929	SD205A-6.6-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2618	–	6.65	–	–	–	1.378	85605	SD205A-6.65-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2638	–	6.7	–	–	–	1.378	17930	SD205A-6.7-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2656	17/64	6.747	–	–	–	1.575	17784	SD205A-02656-157-0315R1	3.583	2.165	1.417	2.087	0.315
0.2677	–	6.8	7 H6	M8	–	1.575	17931	SD205A-6.8-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2717	–	6.9	7 H6/ H7	UNF5/16-24	–	1.575	17932	SD205A-6.9-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2756	–	7.0	–	MF8X1	–	1.575	17933	SD205A-7.0-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2795	–	7.1	–	–	–	1.575	17934	SD205A-7.1-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2813	9/32	7.144	–	–	–	1.575	17788	SD205A-02813-157-0315R1	3.583	2.165	1.417	2.087	0.315
0.2835	–	7.2	–	MF8X0.75	–	1.575	17935	SD205A-7.2-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2874	–	7.3	–	–	–	1.575	17936	SD205A-7.3-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2913	–	7.4	–	–	–	1.575	17937	SD205A-7.4-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2953	–	7.5	–	–	–	1.575	17938	SD205A-7.5-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2969	19/64	7.541	–	–	–	1.654	17789	SD205A-02969-165-0315R1	3.583	2.165	1.417	2.087	0.315
0.2972	–	7.55	–	MF8	–	1.654	85606	SD205A-7.55-42-8R1	3.583	2.165	1.417	2.087	0.315
0.2992	–	7.6	–	–	–	1.654	17939	SD205A-7.6-42-8R1	3.583	2.165	1.417	2.087	0.315
0.3012	–	7.65	–	–	–	1.654	85592	SD205A-7.65-42-8R1	3.583	2.165	1.417	2.087	0.315
0.3031	–	7.7	–	–	–	1.654	17940	SD205A-7.7-42-8R1	3.583	2.165	1.417	2.087	0.315
0.3071	–	7.8	8 H6	–	–	1.654	17941	SD205A-7.8-42-8R1	3.583	2.165	1.417	2.087	0.315
0.3110	–	7.9	8 H6/ 8 H7	–	–	1.654	17942	SD205A-7.9-42-8R1	3.583	2.165	1.417	2.087	0.315
0.3125	5/16	7.938	–	–	–	1.654	17791	SD205A-03125-165-0315R1	3.583	2.165	1.417	2.087	0.315
0.3150	–	8.0	–	UNC3/8-16	–	1.654	17943	SD205A-8.0-42-8R1	3.583	2.165	1.417	2.087	0.315
0.3189	–	8.1	–	–	–	1.654	17944	SD205A-8.1-42-10R1	4.055	2.480	1.575	2.402	0.394
0.3228	–	8.2	–	–	–	1.654	17946	SD205A-8.2-42-10R1	4.055	2.480	1.575	2.402	0.394
0.3268	–	8.3	–	–	–	1.654	17947	SD205A-8.3-42-10R1	4.055	2.480	1.575	2.402	0.394
0.3281	21/64	8.334	–	–	–	1.654	17792	SD205A-03281-165-0394R1	4.055	2.480	1.575	2.402	0.394
0.3307	–	8.4	–	NPT1/8/NPTF1/8	–	1.654	17948	SD205A-8.4-42-10R1	4.055	2.480	1.575	2.402	0.394
0.3346	–	8.5	–	M10	–	1.654	17949	SD205A-8.5-42-10R1	4.055	2.480	1.575	2.402	0.394
0.3386	–	8.6	–	–	–	1.772	17951	SD205A-8.6-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3425	–	8.7	–	–	–	1.772	17952	SD205A-8.7-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3438	11/32	8.733	–	–	–	1.772	17793	SD205A-03438-177-0394R1	4.055	2.480	1.575	2.402	0.394

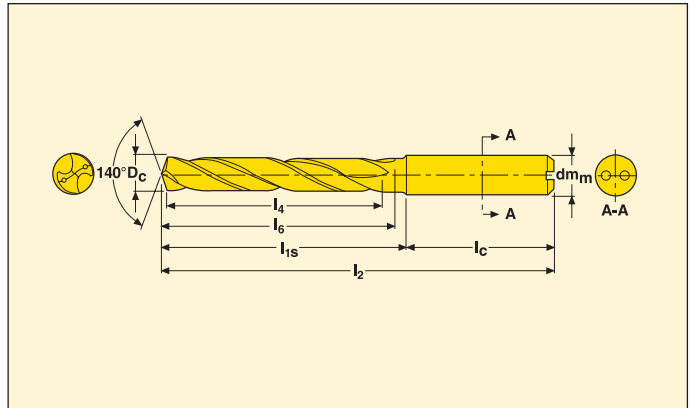
\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

For intermediate diameters see the Custom Design software.



Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

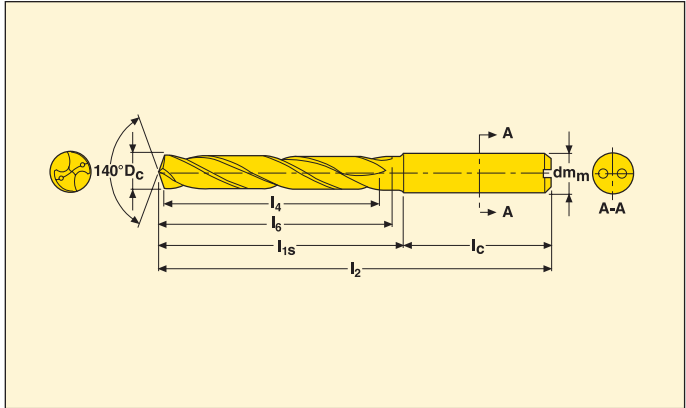
Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6	
0.3465	–	8.8	9 H6	G1/8/MF10X1.25	–	1.772	17953	SD205A-8.8-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3504	–	8.9	9 H6/9 H7	–	–	1.772	17954	SD205A-8.9-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3543	–	9.0	–	MF10X1	–	1.772	17956	SD205A-9.0-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3583	–	9.1	–	–	–	1.772	17957	SD205A-9.1-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3594	23/64	9.128	–	–	–	1.772	17794	SD205A-03594-177-0394R1	4.055	2.480	1.575	2.402	0.394
0.3622	–	9.2	–	MF10X0.75	–	1.772	17958	SD205A-9.2-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3661	–	9.3	–	–	–	1.772	17959	SD205A-9.3-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3701	–	9.4	–	UNC7/16-14	–	1.772	17961	SD205A-9.4-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3740	–	9.5	–	–	–	1.772	17962	SD205A-9.5-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3750	3/8	9.525	–	–	–	1.890	17796	SD205A-03750-189-0394R1	4.055	2.480	1.575	2.402	0.394
0.3760	–	9.55	–	MF10	1.890	85607	SD205A-9.55-48-10R1	4.055	2.480	1.575	2.402	0.394	
0.3780	–	9.6	–	–	–	1.890	17963	SD205A-9.6-48-10R1	4.055	2.480	1.575	2.402	0.394
0.3819	–	9.7	–	–	–	1.890	17964	SD205A-9.7-48-10R1	4.055	2.480	1.575	2.402	0.394
0.3839	–	9.75	–	–	–	1.890	35058	SD205A-9.75-48-10R1	4.055	2.480	1.575	2.402	0.394
0.3858	–	9.8	10 H6/10 H7	–	–	1.890	17965	SD205A-9.8-48-10R1	4.055	2.480	1.575	2.402	0.394
0.3898	–	9.9	10 H6/10 H7	UNF7/16-20	–	1.890	17966	SD205A-9.9-48-10R1	4.055	2.480	1.575	2.402	0.394
0.3906	25/64	9.922	–	–	–	1.890	17797	SD205A-03906-189-0394R1	4.055	2.480	1.575	2.402	0.394
0.3937	–	10.0	–	–	–	1.890	17967	SD205A-10.0-48-10R1	4.055	2.480	1.575	2.402	0.394
0.4016	–	10.2	–	M12	–	1.890	17968	SD205A-10.2-48-12R1	4.646	2.874	1.772	2.795	0.472
0.4063	13/32	10.319	–	–	–	1.890	17798	SD205A-04063-189-0472R1	4.646	2.874	1.772	2.795	0.472
0.4094	–	10.4	–	–	–	1.890	38364	SD205A-10.4-48-12R1	4.646	2.874	1.772	2.795	0.472
0.4134	–	10.5	–	MF12X1.5	–	1.890	17969	SD205A-10.5-48-12R1	4.646	2.874	1.772	2.795	0.472
0.4213	–	10.7	–	–	–	2.205	17970	SD205A-10.7-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4219	27/64	10.716	–	–	–	2.205	17799	SD205A-04219-221-0472R1	4.646	2.874	1.772	2.795	0.472
0.4252	–	10.8	11 H6/11 H7	UNC1/2-13/MF12X1.25	–	2.205	17971	SD205A-10.8-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4331	–	11.0	–	MF12X1/NPTF1/4	–	2.205	17974	SD205A-11.0-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4370	–	11.10	–	NPT1/4	–	2.205	85608	SD205A-11.10-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4375	7/16	11.113	–	–	–	2.205	17801	SD205A-04375-221-0472R1	4.646	2.874	1.772	2.795	0.472
0.4409	–	11.2	–	–	–	2.205	17976	SD205A-11.2-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4449	–	11.3	–	–	–	2.205	17977	SD205A-11.3-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4488	–	11.40	–	–	–	2.205	85595	SD205A-11.40-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4528	–	11.5	–	UNF1/2-20	–	2.205	17978	SD205A-11.5-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4531	29/64	11.509	–	–	–	2.205	17802	SD205A-04531-221-0472R1	4.646	2.874	1.772	2.795	0.472
0.4547	–	11.55	–	MF12	2.205	85609	SD205A-11.55-56-12R1	4.646	2.874	1.772	2.795	0.472	
0.4606	–	11.7	–	–	–	2.205	17979	SD205A-11.7-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4646	–	11.8	12 H6/12H7	G1/4	–	2.205	17981	SD205A-11.8-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4688	15/32	11.908	12 H6/12 H7	–	–	2.205	17803	SD205A-04688-221-0472R1	4.646	2.874	1.772	2.795	0.472
0.4724	–	12.0	–	M14	–	2.205	17982	SD205A-12.0-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4823	–	12.25	–	–	–	2.205	38365	SD205A-12.25-56-14R1	4.882	3.110	1.772	3.031	0.551
0.4843	–	12.3	–	–	–	2.205	17983	SD205A-12.3-56-14R1	4.882	3.110	1.772	3.031	0.551
0.4921	–	12.5	–	MF14X1.5	–	2.205	17984	SD205A-12.5-56-14R1	4.882	3.110	1.772	3.031	0.551
0.5000	1/2	12.7	–	–	–	2.205	17804	SD205A-05000-221-0551R1	4.882	3.110	1.772	3.031	0.551

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

For intermediate diameters see the Custom Design software.

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

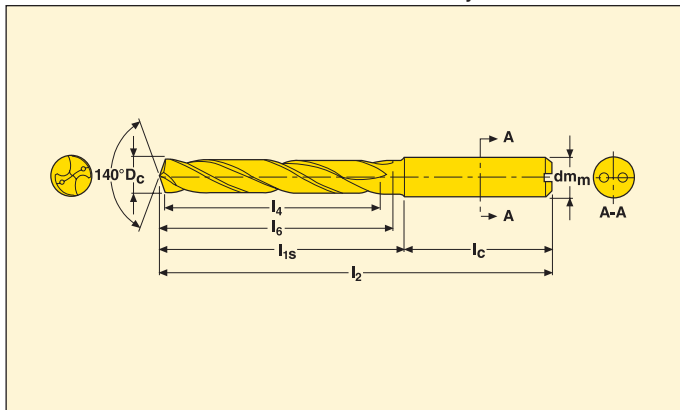
Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_m$ h6	
0.5039	–	12.8	13 H6/13 H7	MF14X1.25	–	2.205	17986	SD205A-12.8-56-14R1	4.882	3.110	1.772	3.031	0.551
0.5118	–	13.0	–	MF14X1	–	2.205	17987	SD205A-13.0-56-14R1	4.882	3.110	1.772	3.031	0.551
0.5157	–	13.1	–	–	M14	2.323	17988	SD205A-13.1-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5236	–	13.3	–	–	–	2.323	17989	SD205A-13.3-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5276	–	13.40	–	–	–	2.323	85597	SD205A-13.40-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5312	17/32	13.492	–	–	–	2.323	17806	SD205A-05312-232-0551R1	4.882	3.110	1.772	3.031	0.551
0.5315	–	13.5	–	–	–	2.323	17991	SD205A-13.5-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5335	–	13.55	–	–	–	2.323	85598	SD205A-13.55-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5394	–	13.7	–	–	–	2.323	17992	SD205A-13.7-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5433	–	13.8	14 H6/14 H7	–	–	2.323	17993	SD205A-13.8-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5469	35/64	13.891	–	–	–	2.323	34953	SD205A-05469-232-0551R1	4.882	3.110	1.772	3.031	0.551
0.5512	–	14.0	–	–	–	2.323	17994	SD205A-14.0-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5591	–	14.2	–	–	–	2.362	17995	SD205A-14.2-60-16R1	5.236	3.346	1.890	3.268	0.630
0.5610	–	14.25	–	–	–	2.362	38366	SD205A-14.25-60-16R1	5.236	3.346	1.890	3.268	0.630
0.5625	9/16	14.288	–	–	–	2.362	17807	SD205A-05625-236-0630R1	5.236	3.346	1.890	3.268	0.630
0.5709	–	14.5	–	–	–	2.362	17996	SD205A-14.5-60-16R1	5.236	3.346	1.890	3.268	0.630
0.5787	–	14.7	–	–	–	2.362	17998	SD205A-14.7-60-16R1	5.236	3.346	1.890	3.268	0.630
0.5827	–	14.8	15 H6/15 H7	–	–	2.362	17999	SD205A-14.8-60-16R1	5.236	3.346	1.890	3.268	0.630
0.5906	–	15.0	–	MF16X1	–	2.362	18000	SD205A-15.0-60-16R1	5.236	3.346	1.890	3.268	0.630
0.5945	–	15.10	–	–	M16	2.441	85610	SD205A-15.10-62-16R1	5.236	3.346	1.890	3.268	0.630
0.6004	–	15.25	–	–	–	2.441	18001	SD205A-15.25-62-16R1	5.236	3.346	1.890	3.268	0.630
0.6024	–	15.30	–	–	–	2.441	85600	SD205A-15.30-62-16R1	5.236	3.346	1.890	3.268	0.630
0.6102	–	15.5	–	M18	–	2.441	18002	SD205A-15.5-62-16R1	5.236	3.346	1.890	3.268	0.630
0.6181	–	15.7	–	–	–	2.441	18003	SD205A-15.7-62-16R1	5.236	3.346	1.890	3.268	0.630
0.6220	–	15.8	16 H6/16 H7	–	–	2.441	18004	SD205A-15.8-62-16R1	5.236	3.346	1.890	3.268	0.630
0.6250	5/8	15.875	16 H6/16 H7	–	–	2.441	17808	SD205A-06250-244-0630R1	5.236	3.346	1.890	3.268	0.630
0.6299	–	16.0	–	–	–	2.441	18005	SD205A-16.0-62-16R1	5.236	3.346	1.890	3.268	0.630
0.6398	–	16.25	–	–	–	2.520	85611	SD205A-16.25-64-18R1	5.630	3.740	1.890	3.661	0.709
0.6496	–	16.5	–	MF18X1.5	–	2.520	18006	SD205A-16.5-64-18R1	5.630	3.740	1.890	3.661	0.709
0.6563	21/32	16.669	–	–	–	2.520	17809	SD205A-06563-252-0709R1	5.630	3.740	1.890	3.661	0.709
0.6575	–	16.7	–	–	–	2.520	18007	SD205A-16.7-64-18R1	5.630	3.740	1.890	3.661	0.709
0.6614	–	16.8	17 H6/17 H7	–	–	2.520	18008	SD205A-16.8-64-18R1	5.630	3.740	1.890	3.661	0.709
0.6693	–	17.0	–	MF18X1	–	2.520	18009	SD205A-17.0-64-18R1	5.630	3.740	1.890	3.661	0.709
0.6875	11/16	17.463	–	–	–	2.598	18111	SD205A-06875-260-0709R1	5.630	3.740	1.890	3.661	0.709
0.6890	–	17.5	–	M20	–	2.598	17811	SD205A-17.5-66-18R1	5.630	3.740	1.890	3.661	0.709
0.7008	–	17.8	18 H6/18 H7	–	–	2.598	38367	SD205A-17.8-66-18R1	5.630	3.740	1.890	3.661	0.709
0.7087	–	18.0	–	–	–	2.598	18012	SD205A-18.0-66-18R1	5.630	3.740	1.890	3.661	0.709
0.7283	–	18.5	–	MF20X1.5	–	2.795	18014	SD205A-18.5-71-20R1	6.024	4.055	1.969	3.976	0.787
0.7402	–	18.8	19 H6/19 H7	–	–	2.795	34958	SD205A-18.8-71-20R1	6.024	4.055	1.969	3.976	0.787
0.7480	–	19.0	–	G1/2/MF20X1	–	2.795	18016	SD205A-19.0-71-20R1	6.024	4.055	1.969	3.976	0.787
0.7500	3/4	19.05	–	–	–	2.795	18017	SD205A-19.05-71-20R1	6.024	4.055	1.969	3.976	0.787
0.7795	–	19.8	20 H6/20 H7	–	–	2.795	38368	SD205A-19.8-71-20R1	6.024	4.055	1.969	3.976	0.787
0.7874	–	20.0	–	–	–	2.795	18019	SD205A-20.0-71-20R1	6.024	4.055	1.969	3.976	0.787

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

For intermediate diameters see the Custom Design software.

Custom intermediate diameters – drilling depth ~ 5 x D – Inch diameter

Cylindrical shank DIN 6537A



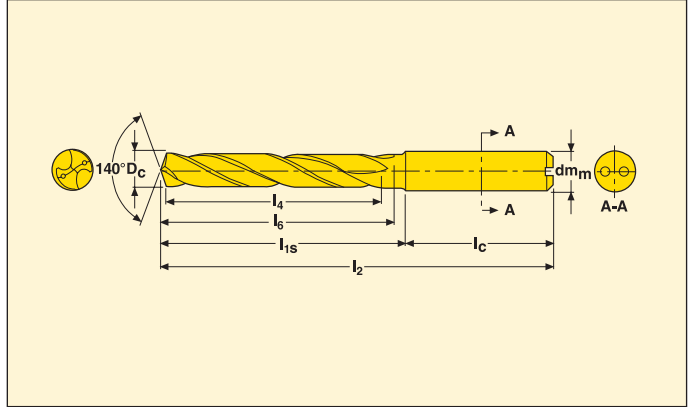
- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	Part No.	Dimensions in inch				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm h6
0.0787-0.0906	0.472	SD205A-x.xxxx-047-0157R1	1.811	0.709	1.102	0.591	0.157
0.0909-0.1024	0.512	SD205A-x.xxxx-051-0157R1	1.969	0.866	1.102	0.709	0.157
0.1028-0.1177	0.591	SD205A-x.xxxx-059-0157R1	1.969	0.866	1.102	0.827	0.157
0.1181-0.1476	0.827	SD205A-x.xxxx-083-0236R1	2.598	1.181	1.417	1.024	0.236
0.1480-0.1870	1.063	SD205A-x.xxxx-106-0236R1	2.913	1.496	1.417	1.339	0.236
0.1874-0.2402	1.260	SD205A-x.xxxx-126-0236R1	3.228	1.811	1.417	1.732	0.236
0.2362-0.2638	1.378	SD205A-x.xxxx-138-0315R1	3.583	2.165	1.417	2.087	0.315
0.2642-0.2953	1.575	SD205A-x.xxxx-157-0315R1	3.583	2.165	1.417	2.087	0.315
0.2957-0.3189	1.654	SD205A-x.xxxx-165-0315R1	3.583	2.165	1.417	2.087	0.315
0.3150-0.3346	1.654	SD205A-x.xxxx-165-0394R1	4.055	2.480	1.575	2.402	0.394
0.3350-0.3740	1.772	SD205A-x.xxxx-177-0394R1	4.055	2.480	1.575	2.402	0.394
0.3744-0.3976	1.890	SD205A-x.xxxx-189-0394R1	4.055	2.480	1.575	2.402	0.394
0.3937-0.4134	1.890	SD205A-x.xxxx-189-0472R1	4.646	2.874	1.772	2.795	0.472
0.4138-0.4764	2.205	SD205A-x.xxxx-220-0472R1	4.646	2.874	1.772	2.795	0.472
0.4724-0.5118	2.205	SD205A-x.xxxx-220-0551R1	4.882	3.110	1.772	3.031	0.551
0.5118-0.5551	2.323	SD205A-x.xxxx-232-0551R1	4.882	3.110	1.772	3.031	0.551
0.5512-0.5906	2.362	SD205A-x.xxxx-236-0630R1	5.236	3.346	1.890	3.268	0.630
0.5909-0.6339	2.441	SD205A-x.xxxx-244-0630R1	5.236	3.346	1.890	3.268	0.630
0.6299-0.6693	2.520	SD205A-x.xxxx-252-0709R1	5.630	3.740	1.890	3.661	0.709
0.6697-0.7126	2.598	SD205A-x.xxxx-260-0709R1	5.630	3.740	1.890	3.661	0.709
0.7087-0.7913	2.795	SD205A-x.xxxx-280-0787R1	6.024	4.055	1.969	3.976	0.787

The drills are available in ∅ increments of 0.0004". Fill in required cutting ∅ instead of -x.xxxx- according to the ordering example. Cutting ∅ tolerance is equal to m7 unless otherwise specified. Ordering example for ∅ 1/4 inch (0.2500): SD205A-0.2500-138-0315R1. Also available for intermediate diameters in the Custom Design software.

Custom intermediate diameters – drilling depth ~ 5 x D – Metric diameter

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

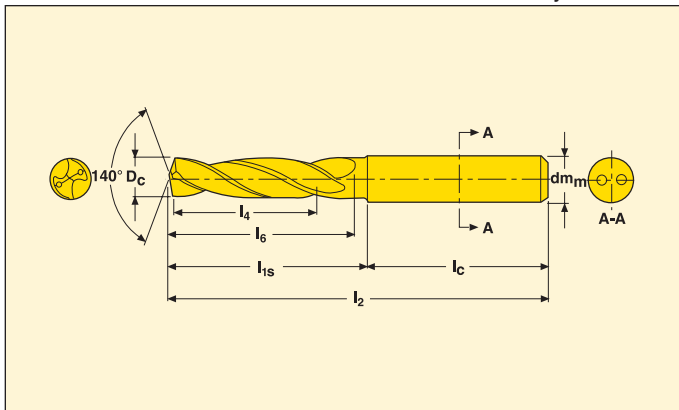
Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
2.00-2.30	12	SD205A-x.xx-12-4R1	46	18	28	15	4
2.31-2.60	13	SD205A-x.xx-13-4R1	50	22	28	18	4
2.61-2.99	15	SD205A-x.xx-15-4R1	50	22	28	21	4
3.00-3.75	21	SD205A-x.xx-21-6R1	66	30	36	26	6
3.76-4.75	27	SD205A-x.xx-27-6R1	74	38	36	34	6
4.76-6.00	32	SD205A-x.xx-32-6R1	82	46	36	44	6
6.01-6.70	35	SD205A-x.xx-35-8R1	91	55	36	53	8
6.71-7.50	40	SD205A-x.xx-40-8R1	91	55	36	53	8
7.51-8.00	42	SD205A-x.xx-42-8R1	91	55	36	53	8
8.01-8.50	42	SD205A-x.xx-42-10R1	103	63	40	61	10
8.51-9.50	45	SD205A-x.xx-45-10R1	103	63	40	61	10
9.51-10.00	48	SD205A-x.xx-48-10R1	103	63	40	61	10
10.01-10.50	48	SD205A-xx.xx-48-12R1	118	73	45	71	12
10.51-12.00	56	SD205A-xx.xx-56-12R1	118	73	45	71	12
12.01-13.00	56	SD205A-xx.xx-56-14R1	124	79	45	77	14
13.01-14.00	59	SD205A-xx.xx-59-14R1	124	79	45	77	14
14.01-15.00	60	SD205A-xx.xx-60-16R1	133	85	48	83	16
15.01-16.00	62	SD205A-xx.xx-62-16R1	133	85	48	83	16
16.01-17.00	64	SD205A-xx.xx-64-18R1	143	95	48	93	18
17.01-18.00	66	SD205A-xx.xx-66-18R1	143	95	48	93	18
18.01-20.00	71	SD205A-xx.xx-71-20R1	153	103	50	101	20

The drills are available in Ø increments of 0.01 mm. Fill in required cutting Ø instead of -xx.xx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 11.3 mm: SD205A-11.3-56-12R1. Also available for intermediate diameters in the Custom Design software.



Drilling depth ~ 6 x D

Cylindrical shank

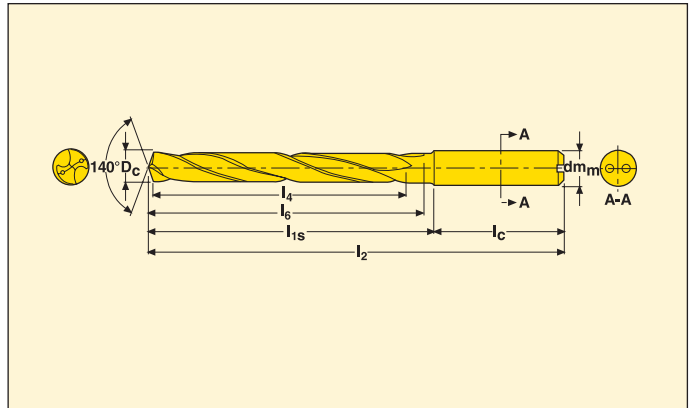


- A=Internal coolant
- For cutting data see page(s) 134
- Coating: TiAlN
- Hole tolerance IT9

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch		
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{1s}$	$dm_m$
0.0394	1.0	0.236	<a href="#">63941</a>	SD206A-1.00-6.0-3R1	1.496	0.315	0.118
0.0433	1.1	0.260	<a href="#">63942</a>	SD206A-1.10-6.6-3R1	1.496	0.339	0.118
0.0472	1.20	0.283	<a href="#">63943</a>	SD206A-1.20-7.2-3R1	1.496	0.362	0.118
0.0512	1.30	0.307	<a href="#">63944</a>	SD206A-1.30-7.8-3R1	1.496	0.386	0.118
0.0551	1.40	0.331	<a href="#">63945</a>	SD206A-1.40-8.4-3R1	1.496	0.409	0.118
0.0591	1.50	0.354	<a href="#">63946</a>	SD206A-1.50-9.0-3R1	1.496	0.433	0.118
0.0630	1.60	0.378	<a href="#">63947</a>	SD206A-1.60-9.6-3R1	1.496	0.457	0.118
0.0669	1.70	0.402	<a href="#">63948</a>	SD206A-1.70-10.2-3R1	1.496	0.480	0.118
0.0709	1.80	0.425	<a href="#">63949</a>	SD206A-1.80-10.8-3R1	1.496	0.504	0.118
0.0748	1.90	0.449	<a href="#">63950</a>	SD206A-1.90-11.4-3R1	1.496	0.528	0.118
0.0787	2.00	0.472	<a href="#">63951</a>	SD206A-2.00-12.0-3R1	1.969	0.551	0.118

Drilling depth ~ 7 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 135
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

Drill diameter		Reamer size*	Tap thread type	Forming tap	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)							$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6	
0.1772	-	4.5	-	-	1.772	34964	SD207A-4.5-45-6R1	3.701	2.283	1.417	2.205	0.236	
0.1890	-	4.8	5 H7	-	1.772	34965	SD207A-4.8-45-6R1	3.701	2.283	1.417	2.205	0.236	
0.1969	-	5.0	-	UNC1/4-20	1.772	34967	SD207A-5.0-45-6R1	3.701	2.283	1.417	2.205	0.236	
0.2165	-	5.5	-	-	M6	1.772	18064	SD207A-5.5-45-6R1	3.701	2.283	1.417	2.205	0.236
0.2283	-	5.8	6 H6/6 H7	-	1.772	38369	SD207A-5.8-45-6R1	3.701	2.283	1.417	2.205	0.236	
0.2362	-	6.0	-	NPTF1/16	1.772	18066	SD207A-6.0-45-6R1	3.701	2.283	1.417	2.205	0.236	
0.2500	1/4	6.35	-	-	2.244	18068	SD207A-6.35-57-8R1	4.331	2.913	1.417	2.638	0.315	
0.2559	-	6.5	-	UNC5/16-18	2.244	18069	SD207A-6.5-57-8R1	4.331	2.913	1.417	2.638	0.315	
0.2677	-	6.8	7 H6	M8	2.244	18070	SD207A-6.8-57-8R1	4.331	2.913	1.417	2.638	0.315	
0.2717	-	6.9	7 H6/7 H7	UNF5/16-24	2.244	18071	SD207A-6.9-57-8R1	4.331	2.913	1.417	2.638	0.315	
0.2756	-	7.0	-	MF8X1	2.244	18072	SD207A-7.0-57-8R1	4.331	2.913	1.417	2.638	0.315	
0.2953	-	7.5	-	-	2.244	18073	SD207A-7.5-57-8R1	4.331	2.913	1.417	2.835	0.315	
0.3071	-	7.8	8 H6/8 H7	-	2.244	18074	SD207A-7.8-57-8R1	4.331	2.913	1.417	2.835	0.315	
0.3150	-	8.0	-	UNC3/8-16	2.244	18075	SD207A-8.0-57-8R1	4.331	2.913	1.417	2.835	0.315	
0.3346	-	8.5	-	M10	2.441	18076	SD207A-8.5-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3386	-	8.6	-	-	2.441	18078	SD207A-8.6-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3425	-	8.7	-	-	2.441	38370	SD207A-8.7-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3465	-	8.8	9 H6/9 H7	G1/8/MF10X1.25	2.441	38371	SD207A-8.8-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3543	-	9.0	-	MF10X1	2.441	18079	SD207A-9.0-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3740	-	9.5	-	-	2.441	18080	SD207A-9.5-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3748	3/8	9.52	-	-	2.441	18083	SD207A-9.52-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3839	-	9.75	-	-	2.441	38372	SD207A-9.75-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3858	-	9.8	10 H6/10 H7	-	2.441	38373	SD207A-9.8-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.3937	-	10.0	-	-	2.441	18084	SD207A-10.0-62-10R1	4.803	3.228	1.575	3.150	0.394	
0.4016	-	10.2	-	M12	2.835	18086	SD207A-10.2-72-12R1	5.551	3.780	1.772	3.701	0.472	
0.4094	-	10.4	-	-	2.835	38374	SD207A-10.4-72-12R1	5.551	3.780	1.772	3.701	0.472	
0.4134	-	10.5	-	MF12X1.5	2.835	18088	SD207A-10.5-72-12R1	5.551	3.780	1.772	3.701	0.472	
0.4252	-	10.8	11 H6/11 H7	UNC1/2-13/MF12X1.25	2.835	38375	SD207A-10.8-72-12R1	5.551	3.780	1.772	3.701	0.472	
0.4331	-	11.0	-	MF12X1/NPTF1/4	2.835	18090	SD207A-11.0-72-12R1	5.551	3.780	1.772	3.701	0.472	
0.4528	-	11.5	-	UNF1/2-20	2.835	18091	SD207A-11.5-72-12R1	5.551	3.780	1.772	3.701	0.472	
0.4646	-	11.8	12 H6/12 H7	G1/4	2.835	38431	SD207A-11.8-72-12R1	5.551	3.780	1.772	3.701	0.472	
0.4724	-	12.0	-	M14	2.835	18093	SD207A-12.0-72-12R1	5.551	3.780	1.772	3.701	0.472	
0.4823	-	12.25	-	-	3.268	34972	SD207A-12.25-83-14R1	6.102	4.331	1.772	4.252	0.551	
0.4921	-	12.5	-	MF14X1.5	3.268	18094	SD207A-12.5-83-14R1	6.102	4.331	1.772	4.252	0.551	
0.5000	1/2	12.7	-	-	3.268	18098	SD207A-12.7-83-14R1	6.102	4.331	1.772	4.252	0.551	
0.5039	-	12.8	13 H6/13 H7	MF14X1.25	3.268	34973	SD207A-12.8-83-14R1	6.102	4.331	1.772	4.252	0.551	
0.5118	-	13.0	-	MF14X1	3.268	18099	SD207A-13.0-83-14R1	6.102	4.331	1.772	4.252	0.551	
0.5315	-	13.5	-	-	3.268	18105	SD207A-13.5-83-14R1	6.102	4.331	1.772	4.252	0.551	
0.5433	-	13.8	14 H6/14 H7	-	3.268	38432	SD207A-13.8-83-14R1	6.102	4.331	1.772	4.252	0.551	
0.5512	-	14.0	-	-	3.268	18106	SD207A-14.0-83-14R1	6.102	4.331	1.772	4.252	0.551	
0.5610	-	14.25	-	-	3.622	34976	SD207A-14.25-92-16R1	6.732	4.843	1.890	4.764	0.630	
0.5709	-	14.5	-	MF16X1.5/UNF5/8-18	3.622	18107	SD207A-14.5-92-16R1	6.732	4.843	1.890	4.764	0.630	

\* For further information regarding reaming (see page(s) 302) and threading (see page(s) 277).

For intermediate diameters see the Custom Design software.

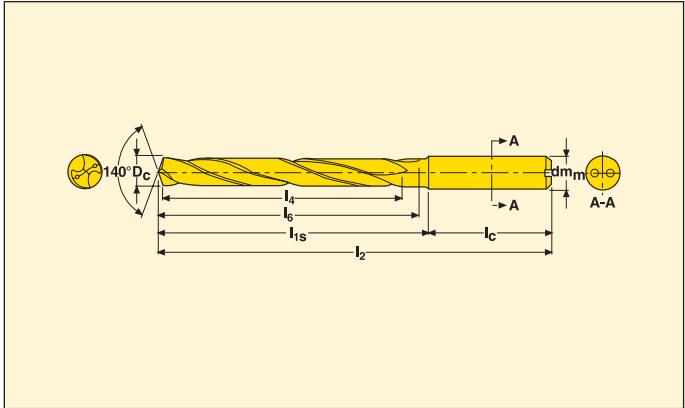






Custom intermediate diameters – drilling depth ~ 7 x D – Metric diameter

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 135
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>g</sub>	dm <sub>m</sub> h6
4.50-5.49	45	SD207A-x.xx-45-6R1	94	58	36	56	6
5.50-6.00	45	SD207A-x.xx-45-6R1	94	58	36	56	6
6.01-7.00	57	SD207A-x.xx-57-8R1	110	74	36	67	8
7.01-8.00	57	SD207A-x.xx-57-8R1	110	74	36	72	8
8.01-10.00	62	SD207A-x.xx-62-10R1	122	82	40	80	10
10.01-12.00	72	SD207A-x.xx-72-12R1	141	96	45	94	12
12.01-14.00	83	SD207A-xx.xx-83-14R1	155	110	45	108	14
14.01-16.00	92	SD207A-xx.xx-92-16R1	171	123	48	121	16
16.01-18.00	103	SD207A-xx.xx-103-18R1	185	137	48	135	18
18.01-20.00	112	SD207A-xx.xx-112-20R1	200	150	50	148	20

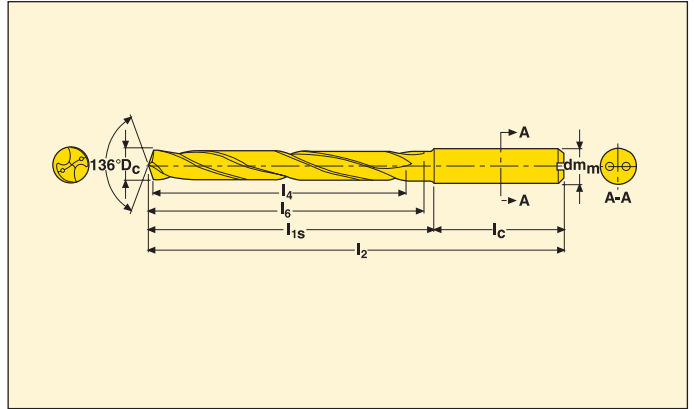
The drills are available in ∅ increments of 0.01 mm. Fill in required cutting ∅ instead of -xx.xx- according to the ordering example. Cutting ∅ tolerance is equal to m7 unless otherwise specified. Ordering example for ∅ 11.3 mm: SD207A-11.3-72-12R1. Also available for intermediate diameters in the Custom Design software.

Custom intermediate diameters – drilling depth ~ 12 x D – Metric diameter

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting and machining data see page(s) 135
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

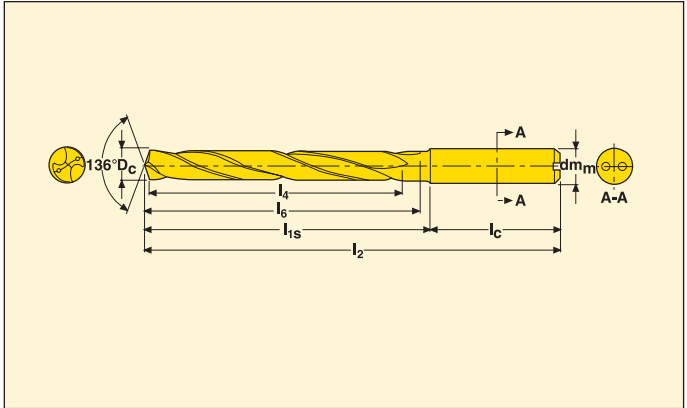


Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>g</sub>	dm <sub>m</sub> h6
4.76-6.00	66	SD212A-x.xx-66-6R1	116	80	36	76	6
6.01-8.00	84	SD212A-x.xx-84-8R1	138	102	36	98	8
8.01-10.00	108	SD212A-x.xx-108-10R1	169	129	40	125	10
10.01-12.00	132	SD212A-x.xx-132-12R1	201	156	45	152	12
12.01-14.00	159	SD212A-x.xx-159-14R1	232	187	45	183	14

The drills are available in Ø increments of 0.01 mm. Fill in required cutting Ø instead of -xx.xx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 12.5 mm: SD212A-12.5-132-12R1. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 16 x D

Cylindrical shank DIN 6537A



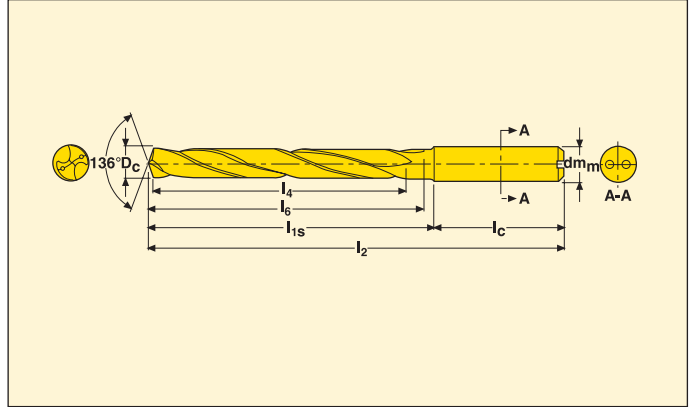
- A=Internal coolant
- For cutting data see page(s) 135
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_m$ h6	
0.1181	–	3	1.969	58862	SD216A-3.0-50-4R1	3.465	2.362	1.102	2.205	0.157
0.1378	–	3.5	2.362	58863	SD216A-3.5-60-4R1	3.898	2.795	1.102	2.638	0.157
0.1575	–	4	2.362	58864	SD216A-4.0-60-4R1	3.898	2.795	1.102	2.638	0.157
0.1772	–	4.5	2.756	58865	SD216A-4.5-70-6R1	4.606	3.189	1.417	3.110	0.236
0.1969	–	5	3.543	43018	SD216A-5.0-90-6R1	5.591	4.173	1.417	4.055	0.236
0.2165	–	5.5	3.543	43021	SD216A-5.5-90-6R1	5.591	4.173	1.417	4.055	0.236
0.2362	–	6	3.543	43023	SD216A-6.0-90-6R1	5.591	4.173	1.417	4.055	0.236
0.2500	1/4	6.35	4.724	44650	SD216A-6.35-120-8R1	6.969	5.551	1.417	5.394	0.315
0.2559	–	6.5	4.724	43026	SD216A-6.5-120-8R1	6.969	5.551	1.417	5.394	0.315
0.2756	–	7	4.724	43028	SD216A-7.0-120-8R1	6.969	5.551	1.417	5.394	0.315
0.2953	–	7.5	4.724	43031	SD216A-7.5-120-8R1	6.969	5.551	1.417	5.394	0.315
0.3150	–	8	4.724	43036	SD216A-8.0-120-8R1	6.969	5.551	1.417	5.394	0.315
0.3346	–	8.5	5.906	43038	SD216A-8.5-150-10R1	8.504	6.929	1.575	6.772	0.394
0.3543	–	9	5.906	43046	SD216A-9.0-150-10R1	8.504	6.929	1.575	6.772	0.394
0.3740	–	9.5	5.906	43048	SD216A-9.5-150-10R1	8.504	6.929	1.575	6.772	0.394
0.3748	3/8	9.52	5.906	44651	SD216A-9.52-150-10R1	8.504	6.929	1.575	6.772	0.394
0.3937	–	10	5.906	43056	SD216A-10.0-150-10R1	8.504	6.929	1.575	6.772	0.394
0.4134	–	10.5	7.087	43058	SD216A-10.5-180-12R1	10.079	8.307	1.772	8.150	0.472
0.4331	–	11	7.087	43059	SD216A-11.0-180-12R1	10.079	8.307	1.772	8.150	0.472
0.4528	–	11.5	7.087	43068	SD216A-11.5-180-12R1	10.079	8.307	1.772	8.150	0.472
0.4724	–	12	7.087	43071	SD216A-12.0-180-12R1	10.079	8.307	1.772	8.150	0.472

For intermediate diameters see the Custom Design software.

Custom intermediate diameters – drilling depth ~ 16 x D – Metric diameters

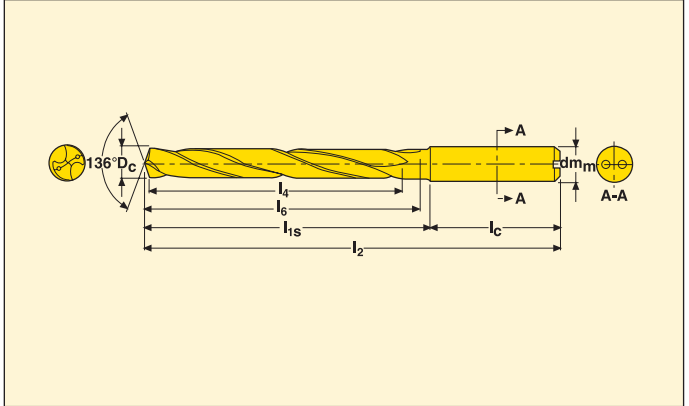
Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 135
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>C</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
3.00-3.30	50	SD216A-x.xx-50-4R1	88	60	28	56	4
4.00-4.10	60	SD216A-x.xx-60-4R1	99	71	28	67	4
4.00-4.75	70	SD216A-x.xx-70-6R1	117	81	36	79	6
4.76-6.10	90	SD216A-x.xx-90-6R1	142	106	36	103	6
6.00-8.10	120	SD216A-x.xx-120-8R1	177	141	36	137	8
8.00-10.10	152	SD216A-x.xx-152-10R1	216	176	40	172	10
10.00-12.10	180	SD216A-x.xx-180-12R1	256	211	45	207	12
12.00-14.10	212	SD216A-x.xx-212-14R1	285	240	45	236	14

The drills are available in ∅ increments of 0.01 mm. Fill in required cutting ∅ instead of -xx.xx- according to the ordering example. Cutting ∅ tolerance is equal to m7 unless otherwise specified. Ordering example for ∅ 11.3 mm: SD216A-11.3-180-12R1. Also available for intermediate diameters in the Custom Design software.



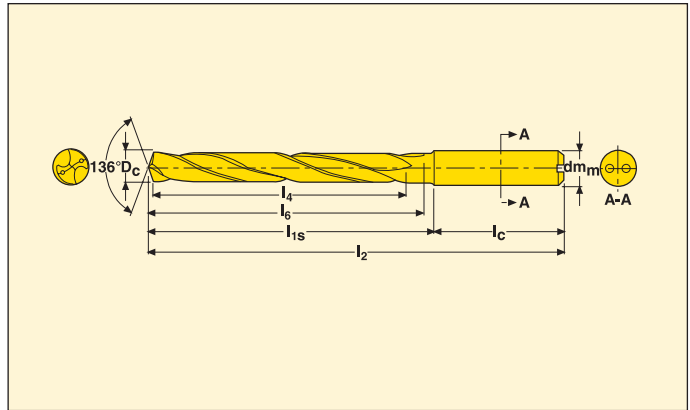
- A=Internal coolant
- For cutting and machining data see page(s) 136
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

Drill diameter		Max drilling depth $l_4$ (inch)	Part No.	Dimensions in inch				
$D_c$ (inch)	$D_c$ (mm)			$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6
0.1181-0.1299	3.00-3.30	2.480	SD220A-x.xx-63-4R1	3.976	2.874	1.102	2.717	0.157
0.1303-0.1575	3.31-4.00	2.756	SD220A-x.xx-70-4R1	4.488	3.386	1.102	3.228	0.157
0.1579-0.1870	4.01-4.75	3.543	SD220A-x.xx-90-6R1	5.433	4.016	1.417	3.858	0.236
0.1874-0.2362	4.76-6.00	4.331	SD220A-x.xx-110-6R1	6.299	4.882	1.417	4.724	0.236
0.2366-0.3150	6.01-8.00	5.709	SD220A-x.xx-145-8R1	7.835	6.417	1.417	6.260	0.315
0.3154-0.3937	8.01-10.00	7.283	SD220A-x.xx-185-10R1	9.685	8.110	1.575	7.953	0.394
0.3941-0.4724	10.01-12.00	8.858	SD220A-x.xx-225-12R1	11.575	9.803	1.772	9.646	0.472
0.4728-0.5512	12.01-14.00	10.433	SD220A-x.xx-265-14R1	13.307	11.535	1.772	11.378	0.551

The drills are available in  $\varnothing$  increments of 0.01 mm. Fill in required cutting  $\varnothing$  instead of -xx.xx- according to the ordering example. Cutting  $\varnothing$  tolerance is equal to m7 unless otherwise specified. Ordering example for  $\varnothing$  10.5 mm: SD220A-10.5-225-12R1. Also available for intermediate diameters in the Custom Design software.

Custom intermediate diameters – drilling depth  $\sim 25 \times D$

Cylindrical shank DIN 6537A



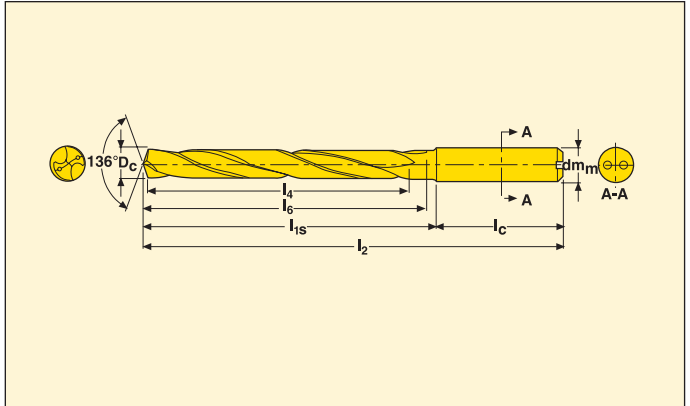
- A=Internal coolant
- For cutting and machining data see page(s) 136
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

Drill diameter		Max drilling depth $l_4$ (inch)	Part No.	Dimensions in inch				
$D_c$ (inch)	$D_c$ (mm)			$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6
0.1181-0.1299	3.00-3.30	3.110	SD225A-x.xx-79-4R1	4.606	3.504	1.102	3.346	0.157
0.1303-0.1614	3.31-4.10	3.701	SD225A-x.xx-94-4R1	5.236	4.134	1.102	3.976	0.157
0.1575-0.1870	4.00-4.75	4.409	SD225A-x.xx-112-6R1	6.299	4.882	1.417	4.764	0.236
0.1874-0.2402	4.76-6.10	5.512	SD225A-x.xx-140-6R1	7.480	6.063	1.417	5.945	0.236
0.2362-0.3189	6.00-8.10	7.402	SD225A-x.xx-188-8R1	9.488	8.071	1.417	7.953	0.315
0.3150-0.3976	8.00-10.10	9.213	SD225A-x.xx-234-10R1	11.614	10.039	1.575	9.921	0.394
0.3937-0.4764	10.00-12.10	11.063	SD225A-x.xx-281-12R1	13.780	12.008	1.772	11.890	0.472

The drills are available in  $\varnothing$  increments of 0.01 mm. Fill in required cutting  $\varnothing$  instead of -xx.xx- according to the ordering example. Cutting  $\varnothing$  tolerance is equal to m7 unless otherwise specified. Ordering example for  $\varnothing$  10.5 mm: SD225A-10.5-188-8R1. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 30 x D

Cylindrical shank DIN 6537A

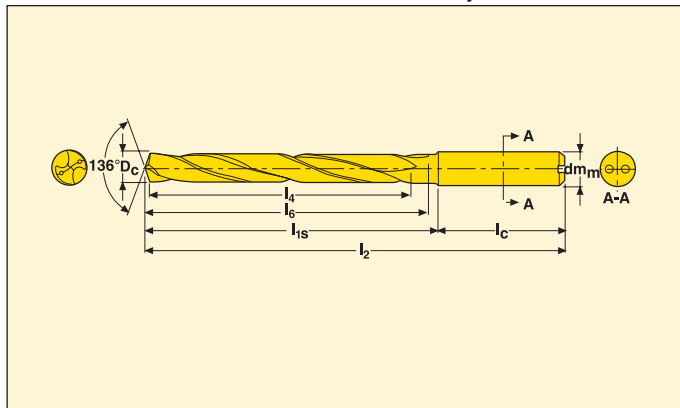


- A=Internal coolant
- For cutting data see page(s) 136
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_{m\ h6}$	
0.1575	–	4	4.409	<a href="#">58846</a>	SD230A-4.0-112-4R1	5.945	4.843	1.102	4.685	0.157
0.1772	–	4.5	5.315	<a href="#">58847</a>	SD230A-4.5-135-6R1	7.283	5.866	1.417	5.709	0.236
0.1969	–	5	6.693	<a href="#">58848</a>	SD230A-5.0-170-6R1	8.661	7.244	1.417	7.087	0.236
0.2165	–	5.5	6.693	<a href="#">58849</a>	SD230A-5.5-170-6R1	8.661	7.244	1.417	7.087	0.236
0.2362	–	6	6.693	<a href="#">58850</a>	SD230A-6.0-170-6R1	8.661	7.244	1.417	7.087	0.236
0.2500	1/4	6.35	8.858	<a href="#">58851</a>	SD230A-02500-886-0315R1	10.984	9.567	1.417	9.409	0.315
0.2559	–	6.5	8.858	<a href="#">58852</a>	SD230A-6.5-225-8R1	10.984	9.567	1.417	9.409	0.315
0.2756	–	7	8.858	<a href="#">58853</a>	SD230A-7.0-225-8R1	10.984	9.567	1.417	9.409	0.315
0.2953	–	7.5	8.858	<a href="#">58854</a>	SD230A-7.5-225-8R1	10.984	9.567	1.417	9.409	0.315
0.3125	5/16	7.938	8.858	<a href="#">58855</a>	SD230A-03125-886-0315R1	10.984	9.567	1.417	9.409	0.315
0.3150	–	8	8.858	<a href="#">58856</a>	SD230A-8.0-225-8R1	10.984	9.567	1.417	9.409	0.315
0.3346	–	8.5	11.220	<a href="#">58857</a>	SD230A-8.5-285-10R1	13.622	12.047	1.575	11.890	0.394
0.3543	–	9	11.220	<a href="#">58858</a>	SD230A-9.0-285-10R1	13.622	12.047	1.575	11.890	0.394
0.3740	–	9.5	11.220	<a href="#">58859</a>	SD230A-9.5-285-10R1	13.622	12.047	1.575	11.890	0.394
0.3750	3/8	9.525	11.220	<a href="#">58860</a>	SD230A-03750-1122-0394R1	13.622	12.047	1.575	11.890	0.394
0.3937	–	10	11.220	<a href="#">58861</a>	SD230A-10.0-285-10R1	13.622	12.047	1.575	11.890	0.394

For intermediate diameters see the Custom Design software.





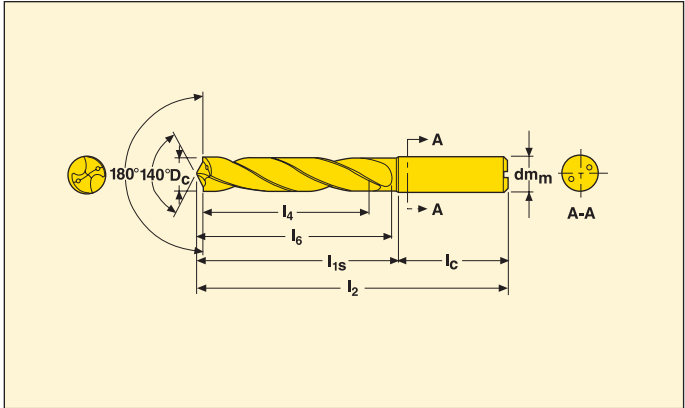
- A=Internal coolant
- For cutting data see page(s) 136
- Coating: TiAlN + TiN
- Hole tolerance: IT 9

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
3.00-3.30	95	SD230A-x.xx-95-4R1	133	105	28	101	4
3.31-4.00	112	SD230A-x.xx-112-4R1	151	123	28	119	4
4.01-4.75	135	SD230A-x.xx-135-6R1	185	149	36	145	6
4.76-6.00	170	SD230A-x.xx-170-6R1	220	184	36	180	6
6.01-8.00	225	SD230A-x.xx-225-8R1	279	243	36	239	8
8.01-10.00	285	SD230A-x.xx-285-10R1	346	306	40	302	10
10.01-12.00	300	SD230A-x.xx-300-12R1	369	324	45	320	12

The drills are available in Ø increments of 0.01 mm. Fill in required cutting Ø instead of -xx.xx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 6.5 mm: SD230A-6.5-225-8R1. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 5 X D

Cylindrical shank DIN 6537A



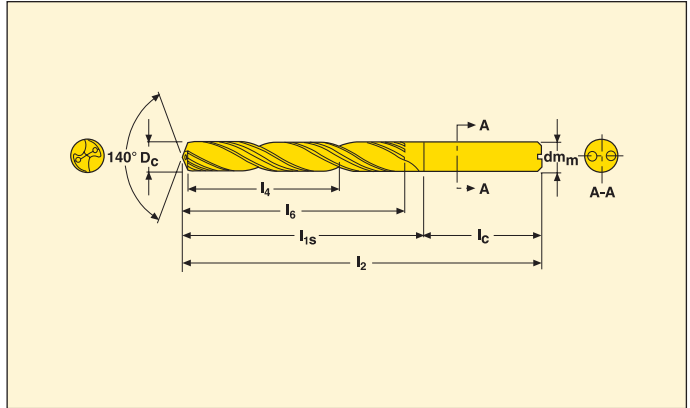
- A=Internal coolant
- For cutting data see page(s) 136
- Coating: TiAlN + TiN
- Hole tolerance: IT 8

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_{h6}$	
0.1969	–	5.0	1.260	<a href="#">53602</a>	SD245A-5.0-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2362	–	6.0	1.260	<a href="#">53603</a>	SD245A-6.0-32-6R1	3.228	1.811	1.417	1.732	0.236
0.2500	1/4	6.35	1.378	<a href="#">53604</a>	SD245A-02500-138-0315R1	3.583	2.165	1.417	2.087	0.315
0.2559	–	6.5	1.378	<a href="#">53618</a>	SD245A-6.5-35-8R1	3.583	2.165	1.417	2.087	0.315
0.2656	17/64	6.747	1.575	<a href="#">53619</a>	SD245A-02656-157-0315R1	3.583	2.165	1.417	2.087	0.315
0.2677	–	6.8	1.575	<a href="#">53693</a>	SD245A-6.8-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2756	–	7.0	1.575	<a href="#">53699</a>	SD245A-7.0-40-8R1	3.583	2.165	1.417	2.087	0.315
0.2813	9/32	7.144	1.575	<a href="#">53701</a>	SD245A-02813-157-0315R1	3.583	2.165	1.417	2.087	0.315
0.2953	–	7.5	1.575	<a href="#">53702</a>	SD245A-7.5-40-8R1	3.583	2.165	1.417	2.087	0.315
0.3125	5/16	7.938	1.654	<a href="#">53722</a>	SD245A-03125-165-0315R1	3.583	2.165	1.417	2.087	0.315
0.3150	–	8.0	1.654	<a href="#">53732</a>	SD245A-8.0-42-8R1	3.583	2.165	1.417	2.087	0.315
0.3346	–	8.5	1.654	<a href="#">53738</a>	SD245A-8.5-42-10R1	4.055	2.480	1.575	2.402	0.394
0.3543	–	9.0	1.772	<a href="#">53811</a>	SD245A-9.0-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3740	–	9.5	1.772	<a href="#">53751</a>	SD245A-9.5-45-10R1	4.055	2.480	1.575	2.402	0.394
0.3750	3/8	9.525	1.890	<a href="#">53752</a>	SD245A-03750-189-0394R1	4.055	2.480	1.575	2.402	0.394
0.3937	–	10.0	1.890	<a href="#">53818</a>	SD245A-10.0-48-10R1	4.055	2.480	1.575	2.402	0.394
0.4016	–	10.2	1.890	<a href="#">53753</a>	SD245A-10.2-48-12R1	4.646	2.874	1.772	2.795	0.472
0.4063	13/32	10.319	1.890	<a href="#">53754</a>	SD245A-04063-189-0472R1	4.646	2.874	1.772	2.795	0.472
0.4134	–	10.5	1.890	<a href="#">53760</a>	SD245A-10.5-48-12R1	4.646	2.874	1.772	2.795	0.472
0.4331	–	11.0	2.205	<a href="#">53819</a>	SD245A-11.0-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4375	7/16	11.113	2.205	<a href="#">53761</a>	SD245A-04375-221-0472R1	4.646	2.874	1.772	2.795	0.472
0.4528	–	11.5	2.205	<a href="#">53766</a>	SD245A-11.5-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4724	–	12.0	2.205	<a href="#">53769</a>	SD245A-12.0-56-12R1	4.646	2.874	1.772	2.795	0.472
0.4921	–	12.5	2.205	<a href="#">53787</a>	SD245A-12.5-56-14R1	4.882	3.110	1.772	3.031	0.551
0.5000	1/2	12.7	2.205	<a href="#">53788</a>	SD245A-05000-221-0551R1	4.882	3.110	1.772	3.031	0.551
0.5118	–	13.0	2.205	<a href="#">53789</a>	SD245A-13.0-56-14R1	4.882	3.110	1.772	3.031	0.551
0.5313	17/32	13.494	2.323	<a href="#">53807</a>	SD245A-05313-232-0551R1	4.882	3.110	1.772	3.031	0.551
0.5315	–	13.5	2.323	<a href="#">53808</a>	SD245A-13.5-59-14R1	4.882	3.110	1.772	3.031	0.551
0.5512	–	14.0	2.323	<a href="#">53810</a>	SD245A-14.0-59-14R1	4.882	3.110	1.772	3.031	0.551

For intermediate diameters see Custom Design software.

Drilling depth ~ 5 X D

Cylindrical shank DIN 6537A



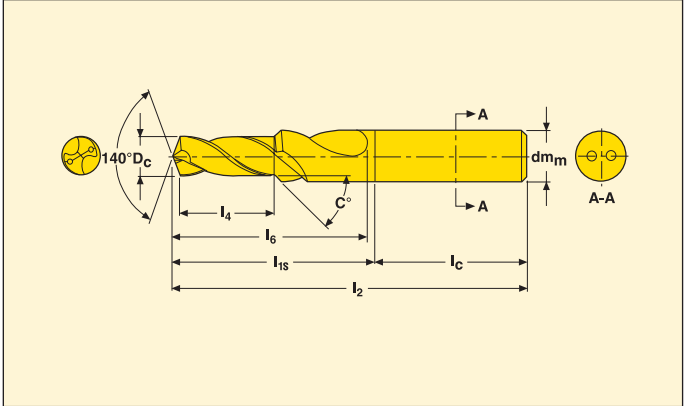
- A=Internal coolant
- For cutting data see page(s) 137
- Coating: TiAlN + TiN
- Hole tolerance: IT 7

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$	
0.2365	–	6.006	1.260	<a href="#">53820</a>	SD265A-6.006-32-6R1	3.228	1.811	1.417	1.732	0.236
0.3153	–	8.008	1.654	<a href="#">53821</a>	SD265A-8.008-42-8R1	3.583	2.165	1.417	2.087	0.315
0.3940	–	10.008	1.890	<a href="#">53830</a>	SD265A-10.008-48-10R1	4.055	2.480	1.575	2.402	0.394
0.4728	–	12.009	2.205	<a href="#">53831</a>	SD265A-12.009-56-12R1	4.646	2.874	1.772	2.795	0.472
0.5515	–	14.009	2.323	<a href="#">53840</a>	SD265A-14.009-59-14R1	4.882	3.110	1.772	3.031	0.551
0.6303	–	16.009	2.441	<a href="#">53841</a>	SD265A-16.009-62-16R1	5.236	3.346	1.890	3.268	0.630
0.2500	1/4	6.35	1.378	<a href="#">62520</a>	SD265A-02497-138-0315R1	3.583	2.165	1.417	2.087	0.315
0.3125	5/16	7.938	1.654	<a href="#">62521</a>	SD265A-03122-165-0315R1	3.583	2.165	1.417	2.087	0.315
0.3750	3/8	9.525	1.890	<a href="#">62522</a>	SD265A-03747-189-0394R1	4.055	2.480	1.575	2.402	0.394
0.5000	1/2	12.7	2.205	<a href="#">62523</a>	SD265A-04997-221-0551R1	4.882	3.110	1.772	3.031	0.551

For intermediate diameters see Custom Design software.  
Dowel pin standard ANSI / ASME B18.8.2-1995.

Chamfer drills – M4 - M16 Thread

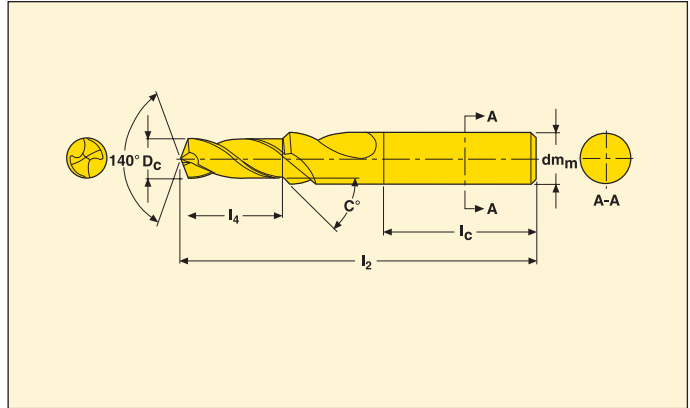
Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Tap thread type	Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Tap thread type	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm				
							l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
Normal pitch Metric thread	0.130	3.3	M4	11.4	22942	SD203A-C45-3.3-11.4-6R1	66	26	36	20	6
	0.134	3.4	M4	11.4	22943	SD203A-C45-3.4-11.4-6R1	66	26	36	20	6
	0.165	4.2	M5	13.6	22944	SD203A-C45-4.2-13.6-6R1	66	30	36	24	6
	0.169	4.3	M5	13.6	22946	SD203A-C45-4.3-13.6-6R1	66	30	36	24	6
	0.197	5.0	M6	16.5	22947	SD203A-C45-5.0-16.5-8R1	79	43	36	28	8
	0.201	5.1	M6	16.5	22948	SD203A-C45-5.1-16.5-8R1	79	43	36	28	8
	0.268	6.8	M8	21.0	22949	SD203A-C45-6.8-21-10R1	89	49	40	34	10
	0.272	6.9	M8	21.0	22950	SD203A-C45-6.9-21-10R1	89	49	40	34	10
	0.335	8.5	M10	25.5	22952	SD203A-C45-8.5-25.5-12R1	102	57	45	47	12
	0.343	8.7	M10	25.5	22953	SD203A-C45-8.7-25.5-12R1	102	57	45	47	12
	0.402	10.2	M12	30.0	22955	SD203A-C45-10.2-30.0-14R1	107	62	45	55	14
	0.409	10.4	M12	30.0	22956	SD203A-C45-10.4-30.0-14R1	107	62	45	55	14
	0.472	12.0	M14	34.5	22958	SD203A-C45-12.0-34.5-16R1	115	70	45	60	16
	0.482	12.25	M14	34.5	22959	SD203A-C45-12.25-34.5-16R1	115	70	45	60	16
	0.551	14.0	M16	38.5	22961	SD203A-C45-14.0-38.5-18R1	123	75	48	65	18
	0.561	14.25	M16	38.5	22962	SD203A-C45-14.25-38.5-18R1	123	75	48	65	18
Fine pitch Metric thread	0.276	7.0	M8x1.0	21.0	22951	SD203A-C45-7.0-21-10R1	89	49	40	34	10
	0.354	9.0	M10x1.0	25.5	22954	SD203A-C45-9.0-25.5-12R1	102	57	45	47	12
	0.413	10.5	M12x1.5	34.5	22957	SD203A-C45-10.5-30.0-14R1	107	62	45	55	14
	0.492	12.5	M14x1.5	34.5	22960	SD203A-C45-12.5-34.5-16R1	115	70	45	60	16
	0.571	14.5	M16x1.5	38.5	22963	SD203A-C45-14.5-38.5-18R1	123	75	48	65	18

## Chamfer drills – SD203 Custom intermediate diameters



- External coolant
- For cutting data see page(s) 129
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

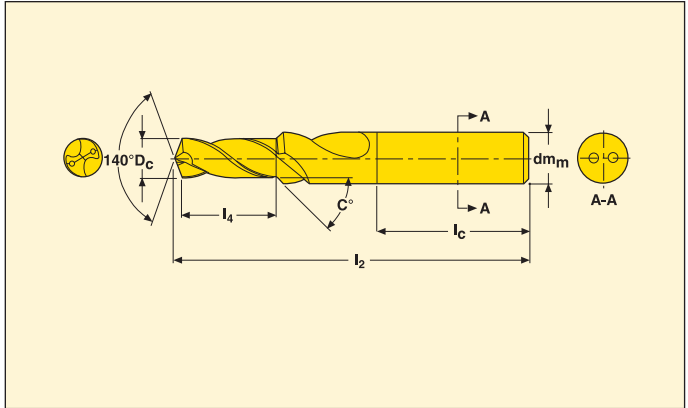
Drill dia. $D_c$ (mm)	Max Drilling depth $l_4$ (mm)	Part No.	Chamfer $C^\circ$	Dimensions in mm			
				$d_m$	$l_2$	$l_c$	Shank
3.00-5.50	5-15	SD203-Cxx-x.xx-xx.xx-6Rx	30-75	6	66	36	R1/R5
4.76-7.50	8-26	SD203-Cxx-x.xx-xx.xx-8Rx	30-75	8	79	36	R1/R5
6.00-9.50	5-28	SD203-Cxx-x.xx-xx.xx-10Rx	30-75	10	89	40	R1/R5
7.20-11.50	5-32	SD203-Cxx-x.xx-xx.xx-12Rx	30-75	12	102	45	R1/R5
8.40-13.50	5-33	SD203-Cxx-x.xx-xx.xx-14Rx	30-75	14	107	45	R1/R5
10.00-15.50	5-34	SD203-Cxx-x.xx-xx.xx-16Rx	30-75	16	115	48	R1/R5
12.00-17.50	5-39	SD203-Cxx-x.xx-xx.xx-18Rx	30-75	18	123	48	R1/R5
14.00-19.50	5-42	SD203-Cxx-x.xx-xx.xx-20Rx	30-75	20	131	50	R1/R5

For intermediate diameters see the Custom Design software.

## Chamfer drills – SD203A Custom intermediate diameters



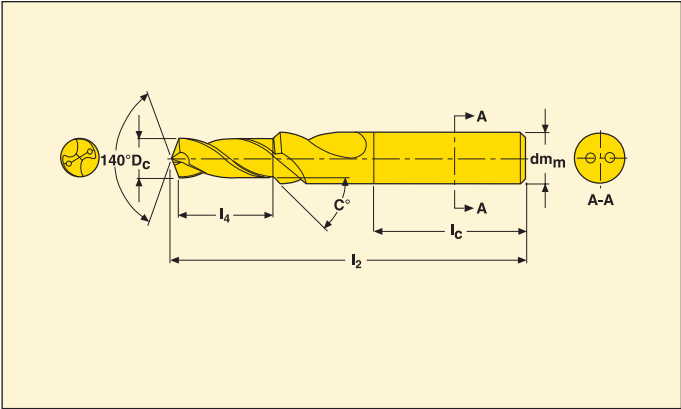
- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9



Drill dia. $D_c$ (mm)	Max Drilling depth $I_4$ (mm)	Part No.	Chamfer C (°)	Dimensions in mm			
				$d_m$	$I_2$	$I_c$	Shank
3.00-5.50	5-15	SD203A-Cxx-x.xx-xx.xx-6Rx	30-75	6	66	36	R1/R5
5.10-7.50	5-26	SD203A-Cxx-x.xx-xx.xx-8Rx	30-75	8	79	36	R1/R5
6.80-9.50	5-28	SD203A-Cxx-x.xx-xx.xx-10Rx	30-75	10	89	40	R1/R5
8.50-11.50	5-32	SD203A-Cxx-x.xx-xx.xx-12Rx	30-75	12	102	45	R1/R5
10.20-13.50	5-33	SD203A-Cxx-x.xx-xx.xx-14Rx	30-75	14	107	45	R1/R5
12.00-15.50	5-34	SD203A-Cxx-x.xx-xx.xx-16Rx	30-75	16	115	48	R1/R5
14.00-17.50	5-39	SD203A-Cxx-x.xx-xx.xx-18Rx	30-75	18	123	48	R1/R5
16.00-19.50	5-42	SD203A-Cxx-x.xx-xx.xx-20Rx	30-75	20	131	50	R1/R5

For intermediate diameters see the Custom Design software.

## Chamfer drills – SD205A Custom intermediate diameters



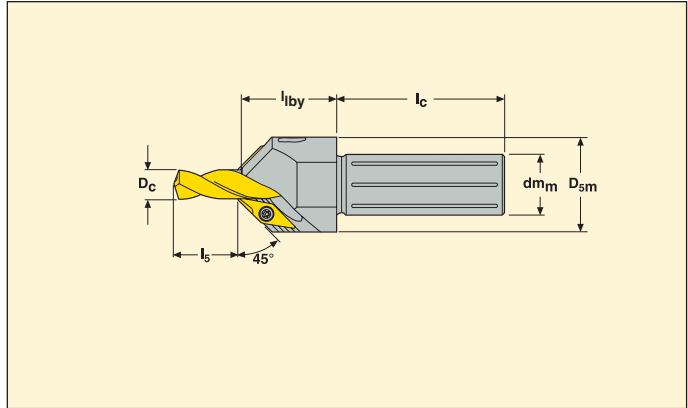
- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAIN + TiN
- Hole tolerance: IT 8-9

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Chamfer C (°)	Dimensions in mm			
				dm <sub>m</sub>	l <sub>2</sub>	l <sub>c</sub>	Shank
3.00-3.75	5-17	SD205A-Cxx-x.xx-xx.xx-6Rx	30-75	6	66	36	R1/R5
3.76-4.75	5-23	SD205A-Cxx-x.xx-xx.xx-6Rx	30-75	6	74	36	R1/R5
4.76-5.50	5-28	SD205A-Cxx-x.xx-xx.xx-6Rx	30-75	6	82	36	R1/R5
5.10-7.50	5-38	SD205A-Cxx-x.xx-xx.xx-8Rx	30-75	8	91	36	R1/R5
6.80-9.50	5-43	SD205A-Cxx-x.xx-xx.xx-10Rx	30-75	10	103	40	R1/R5
8.50-11.50	5-49	SD205A-Cxx-x.xx-xx.xx-12Rx	30-75	12	118	45	R1/R5
10.20-13.50	5-53	SD205A-Cxx-x.xx-xx.xx-14Rx	30-75	14	124	45	R1/R5
12.00-15.50	5-58	SD205A-Cxx-x.xx-xx.xx-16Rx	30-75	16	133	48	R1/R5
14.00-17.50	5-64	SD205A-Cxx-x.xx-xx.xx-18Rx	30-75	18	143	48	R1/R5
16.00-19.50	5-68	SD205A-Cxx-x.xx-xx.xx-20Rx	30-75	20	153	50	R1/R5

For intermediate diameters see the Custom Design software.

## Chamfer module

Inch version

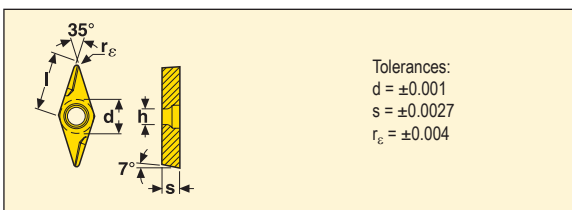


EDP No.	Part No.	Drill dia. D <sub>c</sub> (inch)	Drilling depth in inch					Dimensions in inch			
			SD203 l <sub>5</sub> (min-max)	SD203A l <sub>5</sub> (min-max)	SD205A l <sub>5</sub> (min-max)	SD207A l <sub>5</sub> (min-max)	Max chamfer depth	l <sub>2by</sub>	D <sub>5m</sub>	l <sub>c</sub>	dm <sub>m</sub>
24474	SD200-C45-6-500R1	0.158-0.240	0.157-0.669	0.157-0.669	0.394-1.063	1.181-1.772	0.110	0.984	0.827	1.614	0.500
24476	SD200-C45-8-625R1	0.237-0.315	0.591-1.063	0.591-1.063	0.945-1.378	1.654-2.244	0.110	0.984	0.984	1.752	0.625
24477	SD200-C45-10-625R1	0.315-0.394	0.669-1.220	0.669-1.220	1.339-1.890	1.850-2.441	0.110	0.984	0.984	1.752	0.625
24478	SD200-C45-12-750R1	0.394-0.472	0.827-1.417	0.827-1.417	1.575-2.205	2.244-2.835	0.110	0.984	1.102	1.831	0.750
24479	SD200-C45-14-750R1	0.473-0.551	0.866-1.457	0.866-1.457	1.693-2.323	2.677-3.268	0.110	0.984	1.181	1.831	0.750
24480	SD200-C45-16-1000R1	0.552-0.630	0.906-1.535	0.906-1.535	1.732-2.362	2.992-3.622	0.110	1.339	1.260	2.087	1.000

## Spare Parts, Parts included in delivery

For drill dia. (inch)	Insert screw	Locking screw	Insert key	Locking key	Cassette
	Insert	Module	Insert	Module	Module
0.157 - 0.630	CO2205-T07P	SH3040	T07P-2	H1.5-2D	SD200-3x7.3

## Insert

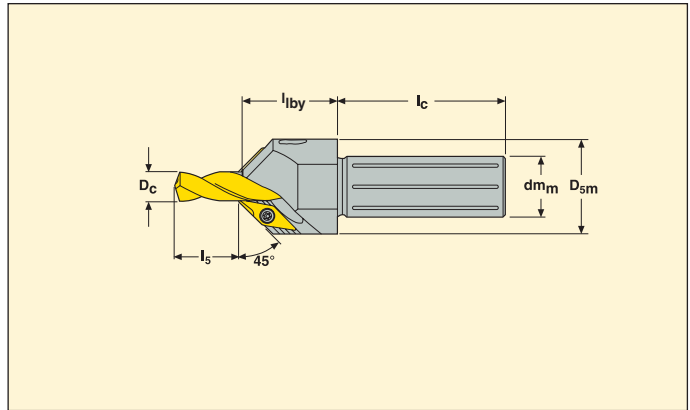


Size	Dimensions in inch				
	d	l	s	h	r <sub>E</sub>
C45	0.2187	0.354	0.098	0.114	0.008
Part No.	T400D				
SD200-C45					



## Chamfer module

Metric version

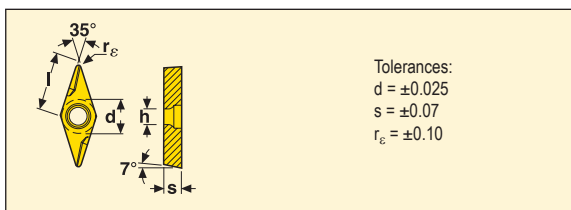


EDP No.	Part No.	Drill dia. D <sub>c</sub> (mm)	Drilling depth in mm					Max chamfer depth	Dimensions in mm			
			SD203 l <sub>5</sub> (min-max)	SD203A l <sub>5</sub> (min-max)	SD205A l <sub>5</sub> (min-max)	SD207A l <sub>5</sub> (min-max)	l <sub>2by</sub>		D <sub>5m</sub>	l <sub>c</sub>	dm <sub>m</sub>	
24462	SD200-C45-6R1	4.01-6.10	4-17	4-17	10-27	30-45	2.8	25	21	41	12.0	
24465	SD200-C45-8R1	6.01-8.00	15-27	15-27	24-35	42-57	2.8	25	25	44.5	16.0	
24467	SD200-C45-10R1	8.01-10.00	17-31	17-31	34-48	47-62	2.8	25	25	44.5	16.0	
24468	SD200-C45-12R1	10.01-12.00	21-36	21-36	40-56	57-72	2.8	25	28	46.5	20.0	
24470	SD200-C45-14R1	12.01-14.00	22-37	22-37	43-59	68-83	2.8	25	30	46.5	20.0	
24472	SD200-C45-16R1	14.01-16.00	23-39	23-39	44-60	76-92	2.8	34	32	53	25.0	

## Spare Parts, Parts included in delivery

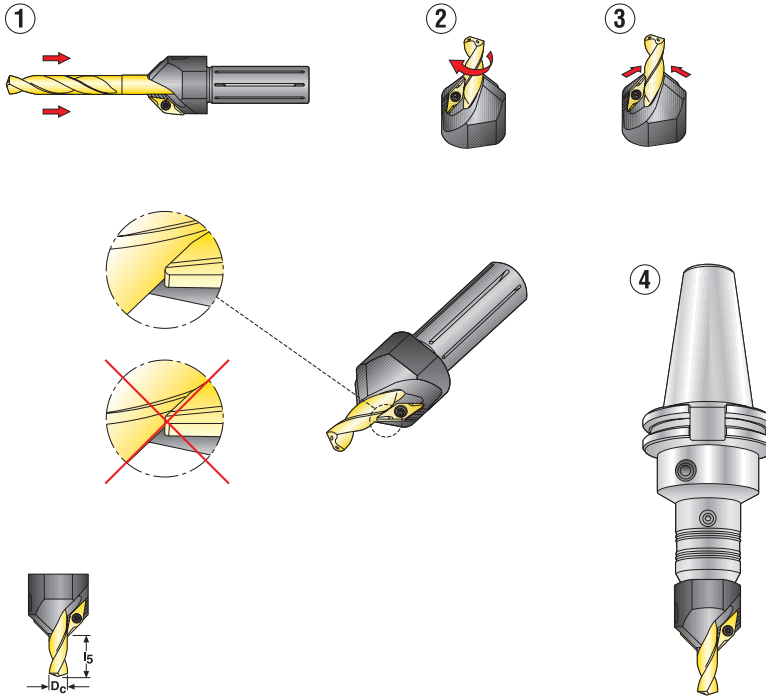
For drill dia. (mm)	Insert screw	Locking screw	Insert key	Locking key	Cassette
	Insert	Module	Insert	Module	Module
4.00 - 16.00	CO2205-T07P	SH3040	T07P-2	H1.5-2D	SD200-3x7.3

## Insert



Size	Dimensions in mm				
	d	l	s	h	r <sub>ε</sub>
C45	5.556	9.000	2.500	2.900	0.200
Part No.	T400D				
SD200-C45					

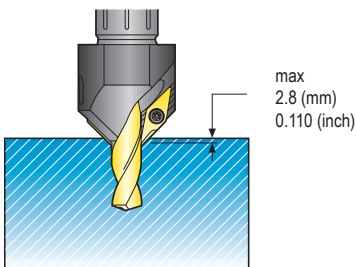
## Chamfer module mounting instructions



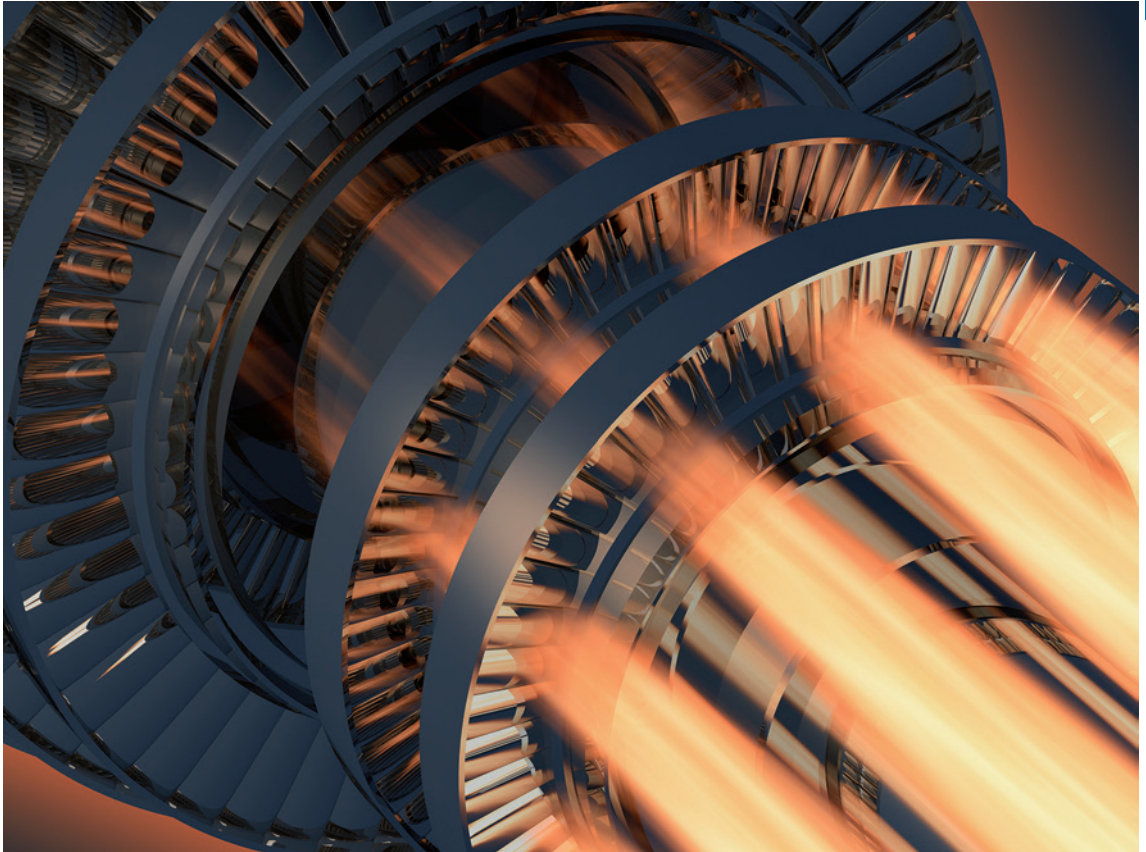
Drill diameter $D_c$		$l_4$ drilling depth (min-max)							
		SD203		SD203A		SD205A		SD207A	
(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)
4.00-4.75	0.157-0.187	4-17	0.157-0.669	4-17	0.157-0.669	10-27	0.394-1.063	30-45	1.181-1.772
4.76-6.00	0.187-0.236	6-20	0.236-0.787	6-20	0.236-0.787	18-32	0.709-1.260	30-45	1.181-1.772
6.01-8.00	0.237-0.315	15-27	0.591-1.063	15-27	0.591-1.063	28-42	1.102-1.654	42-57	1.654-2.244
8.01-10.00	0.315-0.394	17-31	0.669-1.220	17-31	0.669-1.220	34-48	1.339-1.890	47-62	1.850-2.441
10.01-12.00	0.394-0.472	21-36	0.827-1.417	21-36	0.827-1.417	40-56	1.575-2.205	57-72	2.244-2.835
12.01-14.00	0.473-0.551	22-37	0.866-1.457	22-37	0.866-1.457	43-59	1.693-2.323	68-83	2.677-3.268
14.01-16.00	0.552-0.630	23-39	0.906-1.535	23-39	0.906-1.535	44-60	1.732-2.362	76-92	2.992-3.622

To be used with cylindrical shank only (R1).

## Maximum chamfer depth

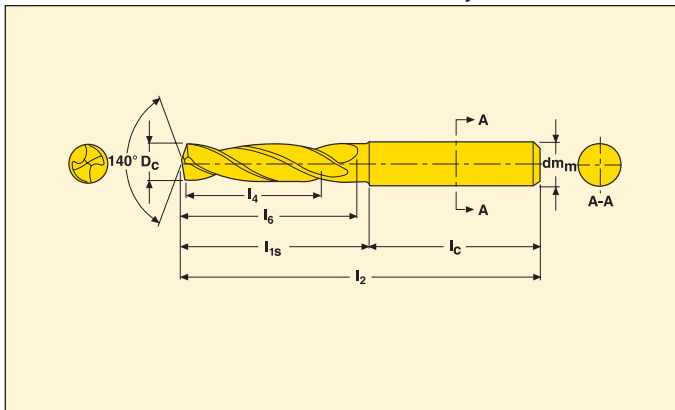


## For difficult to machine materials



Custom intermediate diameters – drilling depth ~ 3 x D – Inch diameter

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	Part No.	Dimensions in inch				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
0.1181-0.1339	0.551	SD203-x.xxxx-055-0236R1-M	2.441	1.024	1.417	0.787	0.236
0.1343-0.1476	0.591	SD203-x.xxxx-059-0236R1-M	2.441	1.024	1.417	0.787	0.236
0.1480-0.1654	0.669	SD203-x.xxxx-067-0236R1-M	2.598	1.181	1.417	0.945	0.236
0.1657-0.1772	0.709	SD203-x.xxxx-071-0236R1-M	2.598	1.181	1.417	0.945	0.236
0.1776-0.1870	0.709	SD203-x.xxxx-071-0236R1-M	2.598	1.181	1.417	1.024	0.236
0.1874-0.2047	0.787	SD203-x.xxxx-079-0236R1-M	2.598	1.181	1.417	1.102	0.236
0.2051-0.2402	0.827	SD203-x.xxxx-083-0236R1-M	2.598	1.181	1.417	1.102	0.236
0.2362-0.2598	0.906	SD203-x.xxxx-091-0315R1-M	3.110	1.693	1.417	1.339	0.315
0.2602-0.2756	0.984	SD203-x.xxxx-098-0315R1-M	3.110	1.693	1.417	1.339	0.315
0.2760-0.2953	0.984	SD203-x.xxxx-098-0315R1-M	3.110	1.693	1.417	1.614	0.315
0.2957-0.3189	1.063	SD203-x.xxxx-106-0315R1-M	3.110	1.693	1.417	1.614	0.315
0.3150-0.3386	1.063	SD203-x.xxxx-106-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3390-0.3740	1.142	SD203-x.xxxx-114-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3744-0.3976	1.220	SD203-x.xxxx-122-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3937-0.4134	1.220	SD203-x.xxxx-122-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4138-0.4646	1.299	SD203-x.xxxx-130-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4650-0.4764	1.417	SD203-x.xxxx-142-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4724-0.5118	1.417	SD203-x.xxxx-142-0551R1-M	4.213	2.441	1.772	2.362	0.551
0.5118-0.5551	1.457	SD203-x.xxxx-146-0551R1-M	4.213	2.441	1.772	2.362	0.551
0.5512-0.5906	1.496	SD203-x.xxxx-150-0630R1-M	4.528	2.638	1.890	2.559	0.630
0.5909-0.6339	1.535	SD203-x.xxxx-154-0630R1-M	4.528	2.638	1.890	2.559	0.630
0.6299-0.6693	1.575	SD203-x.xxxx-157-0709R1-M	4.843	2.953	1.890	2.874	0.709
0.6697-0.7126	1.614	SD203-x.xxxx-161-0709R1-M	4.843	2.953	1.890	2.874	0.709
0.7087-0.7913	1.929	SD203-x.xxxx-193-0787R1-M	5.157	3.189	1.969	3.110	0.787

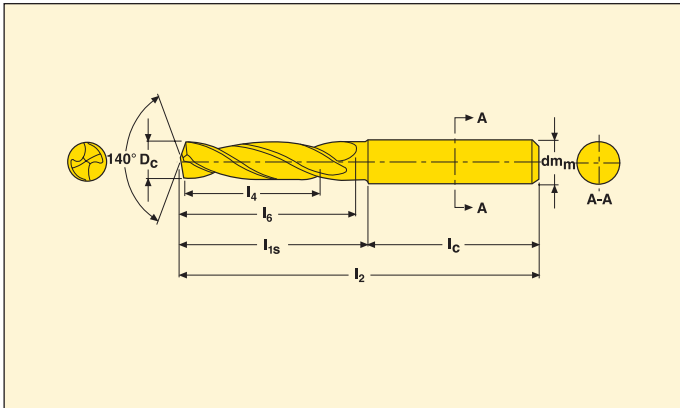
The drills are available in Ø increments of 0.0004". Fill in required cutting Ø instead of -x.xxxx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 1/4 inch (0.2500): SD203-0.2500-091-0315R1-M. Also available for intermediate diameters in the Custom Design software.

Custom intermediate diameters – drilling depth ~ 3 x D – Metric diameter

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

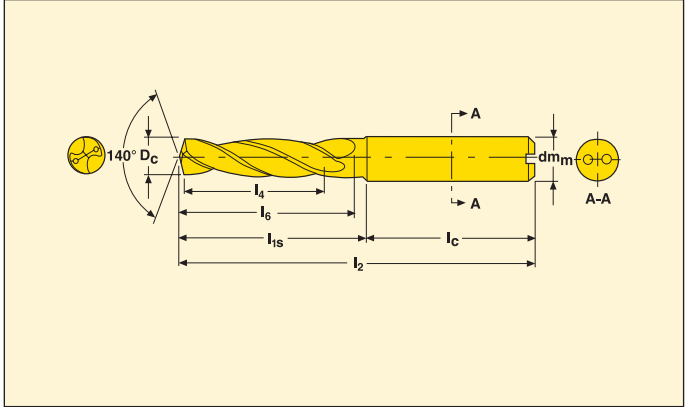


Drill dia. $D_c$ (mm)	Max Drilling depth $l_4$ (mm)	Part No.	Dimensions in mm				
			$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6
3.00-3.40	14	SD203-x.xx-14-6R1-M	62	26	36	20	6
3.41-3.75	15	SD203-x.xx-15-6R1-M	62	26	36	20	6
3.76-4.20	17	SD203-x.xx-17-6R1-M	66	30	36	24	6
4.21-4.50	18	SD203-x.xx-18-6R1-M	66	30	36	24	6
4.51-4.75	18	SD203-x.xx-18-6R1-M	66	30	36	26	6
4.76-5.20	20	SD203-x.xx-20-6R1-M	66	30	36	28	6
5.21-6.00	21	SD203-x.xx-21-6R1-M	66	30	36	28	6
6.00-6.60	23	SD203-x.xx-23-8R1-M	79	43	36	34	8
6.61-7.00	25	SD203-x.xx-25-8R1-M	79	43	36	34	8
7.01-7.50	25	SD203-x.xx-25-8R1-M	79	43	36	41	8
7.51-8.00	27	SD203-x.xx-27-8R1-M	79	43	36	41	8
8.01-8.60	27	SD203-x.xx-27-10R1-M	89	49	40	47	10
8.61-9.50	29	SD203-x.xx-29-10R1-M	89	49	40	47	10
9.51-10.00	31	SD203-x.xx-31-10R1-M	89	49	40	47	10
10.01-10.50	31	SD203-xx.xx-31-12R1-M	102	57	45	55	12
10.51-11.80	33	SD203-xx.xx-33-12R1-M	102	57	45	55	12
11.81-12.00	36	SD203-xx.xx-36-12R1-M	102	57	45	55	12
12.01-13.00	36	SD203-xx.xx-36-14R1-M	107	62	45	60	14
13.01-14.00	37	SD203-xx.xx-37-14R1-M	107	62	45	60	14
14.01-15.00	38	SD203-xx.xx-38-16R1-M	115	67	48	65	16
15.01-16.00	39	SD203-xx.xx-39-16R1-M	115	67	48	65	16
16.01-17.00	40	SD203-xx.xx-40-18R1-M	123	75	48	73	18
17.01-18.00	41	SD203-xx.xx-41-18R1-M	123	75	48	73	18
18.01-20.00	49	SD203-xx.xx-49-20R1-M	131	81	50	79	20

The drills are available in  $\varnothing$  increments of 0.01 mm. Fill in required cutting  $\varnothing$  instead of -xx.xx- according to the ordering example. Cutting  $\varnothing$  tolerance is equal to m7 unless otherwise specified. Ordering example for  $\varnothing$  11.3 mm: SD203-11.3-33-12R1-M. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



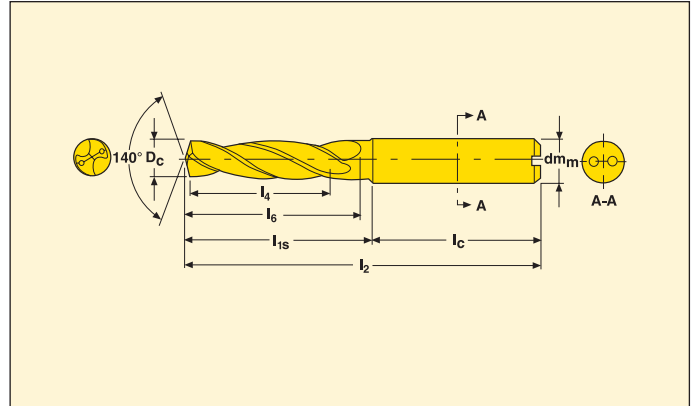
- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill diameter		Reamer size*	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)					$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_m$ h6	
0.1181	–	3.0	–	0.551	<a href="#">38435</a>	SD203A-3.0-14-6R1-M	2.441	1.024	1.417	0.787	0.236
0.1220	–	3.1	–	0.551	<a href="#">44839</a>	SD203A-3.1-14-6R1-M	2.441	1.024	1.417	0.787	0.236
0.1299	–	3.3	–	0.551	<a href="#">55562</a>	SD203A-3.3-14-6R1-M	2.441	1.024	1.417	0.787	0.236
0.1339	–	3.4	–	0.551	<a href="#">38436</a>	SD203A-3.4-14-6R1-M	2.441	1.024	1.417	0.787	0.236
0.1378	–	3.5	–	0.591	<a href="#">38437</a>	SD203A-3.5-15-6R1-M	2.441	1.024	1.417	0.787	0.236
0.1535	–	3.9	4 H7	0.669	<a href="#">38438</a>	SD203A-3.9-17-6R1-M	2.598	1.181	1.417	0.945	0.236
0.1575	–	4.0	–	0.669	<a href="#">38439</a>	SD203A-4.0-17-6R1-M	2.598	1.181	1.417	0.945	0.236
0.1654	–	4.2	–	0.669	<a href="#">44837</a>	SD203A-4.2-17-6R1-M	2.598	1.181	1.417	0.945	0.236
0.1693	–	4.3	–	0.709	<a href="#">38440</a>	SD203A-4.3-18-6R1-M	2.598	1.181	1.417	0.945	0.236
0.1772	–	4.5	–	0.709	<a href="#">38441</a>	SD203A-4.5-18-6R1-M	2.598	1.181	1.417	0.945	0.236
0.1875	3/16	4.763	–	0.787	<a href="#">19301</a>	SD203A-01875-079-0236R1-M	2.598	1.181	1.417	1.102	0.236
0.1890	–	4.8	–	0.787	<a href="#">55563</a>	SD203A-4.8-20-6R1-M	2.598	1.181	1.417	1.102	0.236
0.1929	–	4.9	5 H7	0.787	<a href="#">34988</a>	SD203A-4.9-20-6R1-M	2.598	1.181	1.417	1.102	0.236
0.1969	–	5.0	–	0.787	<a href="#">19229</a>	SD203A-5.0-20-6R1-M	2.598	1.181	1.417	1.102	0.236
0.2165	–	5.5	–	0.787	<a href="#">38442</a>	SD203A-5.5-21-6R1-M	2.598	1.181	1.417	1.102	0.236
0.2188	7/32	5.558	–	0.787	<a href="#">19303</a>	SD203A-02188-083-0236R1-M	2.598	1.181	1.417	1.102	0.236
0.2205	–	5.6	–	0.827	<a href="#">44833</a>	SD203A-5.6-21-6R1-M	2.598	1.181	1.417	1.102	0.236
0.2323	–	5.9	6 H6/6 H7	0.827	<a href="#">38443</a>	SD203A-5.9-21-6R1-M	2.598	1.181	1.417	1.102	0.236
0.2362	–	6.0	–	0.827	<a href="#">19232</a>	SD203A-6.0-21-6R1-M	2.598	1.181	1.417	1.102	0.236
0.2500	1/4	6.35	–	0.906	<a href="#">19304</a>	SD203A-02500-091-0315R1-M	3.110	1.693	1.417	1.339	0.315
0.2559	–	6.5	–	0.906	<a href="#">19234</a>	SD203A-6.5-23-8R1-M	3.110	1.693	1.417	1.339	0.315
0.2598	–	6.6	–	0.906	<a href="#">19237</a>	SD203A-6.6-23-8R1-M	3.110	1.693	1.417	1.339	0.315
0.2656	17/64	6.746	–	0.984	<a href="#">19305</a>	SD203A-02656-098-0315R1-M	3.110	1.693	1.417	1.339	0.315
0.2677	–	6.8	–	0.984	<a href="#">19238</a>	SD203A-6.8-25-8R1-M	3.110	1.693	1.417	1.339	0.315
0.2717	–	6.9	7 H6/6 H7	0.984	<a href="#">19242</a>	SD203A-6.9-25-8R1-M	3.110	1.693	1.417	1.339	0.315
0.2756	–	7.0	–	0.984	<a href="#">19243</a>	SD203A-7.0-25-8R1-M	3.110	1.693	1.417	1.339	0.315
0.2813	9/32	7.145	–	0.984	<a href="#">19311</a>	SD203A-02813-098-0315R1-M	3.110	1.693	1.417	1.614	0.315
0.2835	–	7.2	–	0.984	<a href="#">44835</a>	SD203A-7.2-25-8R1-M	3.110	1.693	1.417	1.614	0.315
0.2874	–	7.3	–	0.984	<a href="#">45170</a>	SD203A-7.3-25-8R1-M	3.110	1.693	1.417	1.614	0.315
0.2953	–	7.5	–	0.984	<a href="#">19245</a>	SD203A-7.5-25-8R1-M	3.110	1.693	1.417	1.614	0.315
0.2992	–	7.6	–	1.063	<a href="#">44836</a>	SD203A-7.6-27-8R1-M	3.110	1.693	1.417	1.614	0.315
0.3071	–	7.8	–	1.063	<a href="#">19247</a>	SD203A-7.8-27-8R1-M	3.110	1.693	1.417	1.614	0.315
0.3125	5/16	7.938	–	1.063	<a href="#">19313</a>	SD203A-03125-106-0315R1-M	3.110	1.693	1.417	1.614	0.315
0.3150	–	8.0	–	1.063	<a href="#">19252</a>	SD203A-8.0-27-8R1-M	3.110	1.693	1.417	1.614	0.315
0.3346	–	8.5	–	1.063	<a href="#">19254</a>	SD203A-8.5-27-10R1-M	3.504	1.929	1.575	1.850	0.394
0.3438	11/32	8.733	–	1.142	<a href="#">19314</a>	SD203A-03438-114-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3465	–	8.8	–	1.142	<a href="#">19267</a>	SD203A-8.8-29-10R1-M	3.504	1.929	1.575	1.850	0.394
0.3543	–	9.0	–	1.142	<a href="#">19268</a>	SD203A-9.0-29-10R1-M	3.504	1.929	1.575	1.850	0.394
0.3594	23/64	9.129	–	1.142	<a href="#">19315</a>	SD203A-03594-114-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3622	–	9.2	–	1.142	<a href="#">44838</a>	SD203A-9.2-29-10R1-M	3.504	1.929	1.575	1.850	0.394

\* For further information regarding reaming see page(s) 302.  
For intermediate diameters see the Custom Design software.

Drilling depth ~ 3 x D

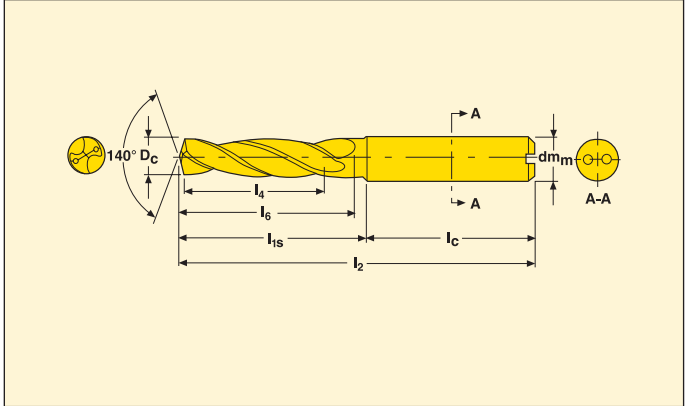
Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill diameter		Reamer size*	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)					l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6	
0.3661	–	9.3	–	1.142	<a href="#">55564</a>	SD203A-9.3-29-10R1-M	3.504	1.929	1.575	1.850	0.394
0.3740	–	9.5	–	1.142	<a href="#">19271</a>	SD203A-9.5-29-10R1-M	3.504	1.929	1.575	1.850	0.394
0.3750	3/8	9.525	–	1.142	<a href="#">19316</a>	SD203A-03750-122-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3858	–	9.8	–	1.220	<a href="#">19272</a>	SD203A-9.8-31-10R1-M	3.504	1.929	1.575	1.850	0.394
0.3898	–	9.9	10 H6/10 H7	1.220	<a href="#">38428</a>	SD203A-9.9-31-10R1-M	3.504	1.929	1.575	1.850	0.394
0.3937	–	10.0	–	1.220	<a href="#">19273</a>	SD203A-10.0-31-10R1-M	3.504	1.929	1.575	1.850	0.394
0.4016	–	10.2	–	1.220	<a href="#">19277</a>	SD203A-10.2-31-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4063	13/32	10.32	–	1.220	<a href="#">19322</a>	SD203A-04063-122-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4094	–	10.4	–	1.220	<a href="#">38427</a>	SD203A-10.4-31-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4134	–	10.5	–	1.220	<a href="#">19283</a>	SD203A-10.5-31-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4219	27/64	10.716	–	1.299	<a href="#">19323</a>	SD203A-04219-130-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4252	–	10.8	–	1.299	<a href="#">19284</a>	SD203A-10.8-33-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4291	–	10.9	11 H6/11 H7	1.299	34989	SD203A-10.9-33-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4331	–	11.0	–	1.299	<a href="#">19286</a>	SD203A-11.0-33-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4375	7/16	11.113	–	1.299	<a href="#">19325</a>	SD203A-04375-130-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4528	–	11.5	–	1.299	<a href="#">19287</a>	SD203A-11.5-33-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4646	–	11.8	–	1.299	<a href="#">19289</a>	SD203A-11.8-33-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4688	15/32	11.908	12 H6/12 H7	1.417	<a href="#">34990</a>	SD203A-04688-142-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4724	–	12.0	–	1.417	<a href="#">19291</a>	SD203A-12.0-36-12R1-M	4.016	2.244	1.772	2.165	0.472
0.4823	–	12.25	–	1.417	<a href="#">34991</a>	SD203A-12.25-36-14R1-M	4.213	2.441	1.772	2.362	0.551
0.4843	–	12.3	–	1.417	<a href="#">19292</a>	SD203A-12.3-36-14R1-M	4.213	2.441	1.772	2.362	0.551
0.4921	–	12.5	–	1.417	<a href="#">19293</a>	SD203A-12.5-36-14R1-M	4.213	2.441	1.772	2.362	0.551
0.5000	1/2	12.7	–	1.417	<a href="#">19326</a>	SD203A-05000-142-0551R1-M	4.213	2.441	1.772	2.362	0.551
0.5079	–	12.9	13 H6/13 H7	1.417	<a href="#">38426</a>	SD203A-12.9-36-14R1-M	4.213	2.441	1.772	2.362	0.551
0.5118	–	13.0	–	1.417	<a href="#">19294</a>	SD203A-13.0-36-14R1-M	4.213	2.441	1.772	2.362	0.551
0.5315	–	13.5	–	1.457	<a href="#">19295</a>	SD203A-13.5-37-14R1-M	4.213	2.441	1.772	2.362	0.551
0.5469	35/64	13.891	14 H6/14 H7	1.457	34993	SD203A-05469-146-0551R1-M	4.213	2.441	1.772	2.362	0.551
0.5512	–	14.0	–	1.457	<a href="#">19296</a>	SD203A-14.0-37-14R1-M	4.213	2.441	1.772	2.362	0.551
0.5610	–	14.25	–	1.496	<a href="#">34994</a>	SD203A-14.25-38-16R1-M	4.528	2.638	1.890	2.559	0.630

\* For further information regarding reaming see page(s) 302.  
For intermediate diameters see the Custom Design software.



- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

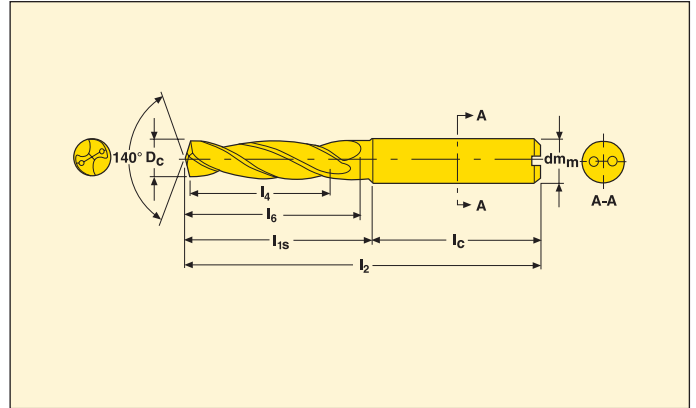
Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	Part No.	Dimensions in inch				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>g</sub>	dm <sub>m</sub> h6
0.1181-0.1339	0.551	SD203A-x.xxxx-055-0236R1-M	2.441	1.024	1.417	0.787	0.236
0.1343-0.1476	0.591	SD203A-x.xxxx-059-0236R1-M	2.441	1.024	1.417	0.787	0.236
0.1480-0.1654	0.669	SD203A-x.xxxx-067-0236R1-M	2.598	1.181	1.417	0.945	0.236
0.1657-0.1772	0.709	SD203A-x.xxxx-071-0236R1-M	2.598	1.181	1.417	0.945	0.236
0.1776-0.1870	0.709	SD203A-x.xxxx-071-0236R1-M	2.598	1.181	1.417	1.024	0.236
0.1874-0.2047	0.787	SD203A-x.xxxx-079-0236R1-M	2.598	1.181	1.417	1.102	0.236
0.2051-0.2402	0.827	SD203A-x.xxxx-083-0236R1-M	2.598	1.181	1.417	1.102	0.236
0.2362-0.2598	0.906	SD203A-x.xxxx-091-0315R1-M	3.110	1.693	1.417	1.339	0.315
0.2602-0.2756	0.984	SD203A-x.xxxx-098-0315R1-M	3.110	1.693	1.417	1.339	0.315
0.2760-0.2953	0.984	SD203A-x.xxxx-098-0315R1-M	3.110	1.693	1.417	1.614	0.315
0.2957-0.3189	1.063	SD203A-x.xxxx-106-0315R1-M	3.110	1.693	1.417	1.614	0.315
0.3150-0.3386	1.063	SD203A-x.xxxx-106-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3390-0.3740	1.142	SD203A-x.xxxx-114-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3744-0.3976	1.220	SD203A-x.xxxx-122-0394R1-M	3.504	1.929	1.575	1.850	0.394
0.3937-0.4134	1.220	SD203A-x.xxxx-122-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4138-0.4646	1.299	SD203A-x.xxxx-130-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4650-0.4764	1.417	SD203A-x.xxxx-142-0472R1-M	4.016	2.244	1.772	2.165	0.472
0.4724-0.5118	1.417	SD203A-x.xxxx-142-0551R1-M	4.213	2.441	1.772	2.362	0.551
0.5118-0.5551	1.457	SD203A-x.xxxx-146-0551R1-M	4.213	2.441	1.772	2.362	0.551
0.5512-0.5906	1.496	SD203A-x.xxxx-150-0630R1-M	4.528	2.638	1.890	2.559	0.630
0.5909-0.6339	1.535	SD203A-x.xxxx-154-0630R1-M	4.528	2.638	1.890	2.559	0.630
0.6299-0.6693	1.575	SD203A-x.xxxx-157-0709R1-M	4.843	2.953	1.890	2.874	0.709
0.6697-0.7126	1.614	SD203A-x.xxxx-161-0709R1-M	4.843	2.953	1.890	2.874	0.709
0.7087-0.7913	1.929	SD203A-x.xxxx-193-0787R1-M	5.157	3.189	1.969	3.110	0.787

The drills are available in Ø increments of 0.0004". Fill in required cutting Ø instead of -x.xxxx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 1/4 inch (0.2500): SD203A-0.2500-091-0315R1-M. Also available for intermediate diameters in the Custom Design software.



Custom intermediate diameters – drilling depth ~ 3 x D – Metric diameter

Cylindrical shank DIN 6537A



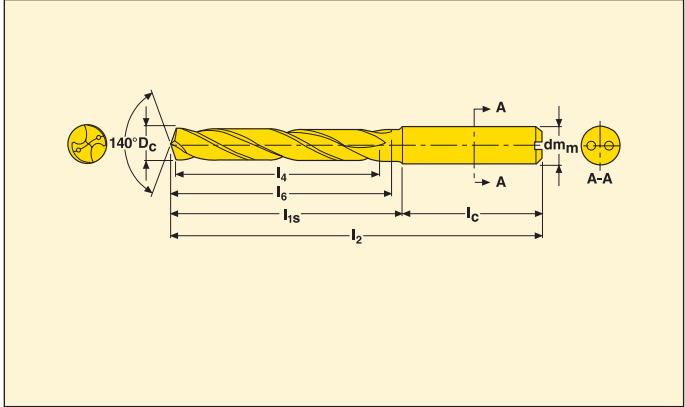
- A=Internal coolant
- For cutting data see page(s) 130-131
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm h6
3.00-3.40	14	SD203A-x.xx-14-6R1-M	62	26	36	20	6
3.41-3.75	15	SD203A-x.xx-15-6R1-M	62	26	36	20	6
3.76-4.20	17	SD203A-x.xx-17-6R1-M	66	30	36	24	6
4.21-4.50	18	SD203A-x.xx-18-6R1-M	66	30	36	24	6
4.51-4.75	18	SD203A-x.xx-18-6R1-M	66	30	36	26	6
4.76-5.20	20	SD203A-x.xx-20-6R1-M	66	30	36	28	6
5.21-6.00	21	SD203A-x.xx-21-6R1-M	66	30	36	24	6
6.01-6.60	23	SD203A-x.xx-23-8R1-M	79	43	36	34	8
6.61-7.00	25	SD203A-x.xx-25-8R1-M	79	43	36	34	8
7.01-7.50	25	SD203A-x.xx-25-8R1-M	79	43	36	41	8
7.51-8.00	27	SD203A-x.xx-27-8R1-M	79	43	36	41	8
8.01-8.60	27	SD203A-x.xx-27-10R1-M	89	49	40	47	10
8.61-9.50	29	SD203A-x.xx-29-10R1-M	89	49	40	47	10
9.51-10.00	31	SD203A-x.xx-31-10R1-M	89	49	40	47	10
10.01-10.50	31	SD203A-xx.xx-31-12R1-M	102	57	45	55	12
10.51-11.80	33	SD203A-xx.xx-33-12R1-M	102	57	45	55	12
11.81-12.00	36	SD203A-xx.xx-36-12R1-M	102	57	45	55	12
12.01-13.00	36	SD203A-xx.xx-36-14R1-M	107	62	45	60	14
13.01-14.00	37	SD203A-xx.xx-37-14R1-M	107	62	45	60	14
14.01-15.00	38	SD203A-xx.xx-38-16R-M	115	67	48	65	16
15.01-16.00	39	SD203A-xx.xx-39-16R-M	115	67	48	65	16
16.01-17.00	40	SD203A-xx.xx-40-18R1-M	123	75	48	73	18
17.01-18.00	41	SD203A-xx.xx-41-18R1-M	123	75	48	73	18
18.01-20.00	49	SD203A-xx.xx-49-20R1-M	131	81	50	79	20

The drills are available in Ø increments of 0.01 mm. Fill in required cutting Ø instead of -xx.xx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 11.3 mm: SD203A-11.3-33-12R1-M. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



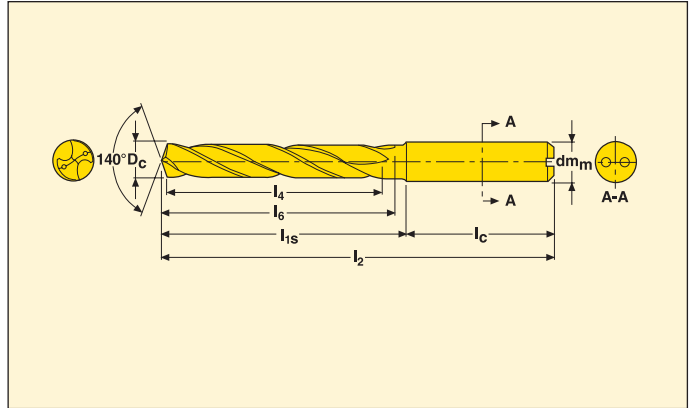
- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill diameter		Reamer size*	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)					$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_m$ h6	
0.1181	–	3.0	–	0.827	<a href="#">38425</a>	SD205A-3.0-21-6R1-M	2.598	1.181	1.417	1.024	0.236
0.1339	–	3.4	–	0.827	<a href="#">38424</a>	SD205A-3.4-21-6R1-M	2.598	1.181	1.417	1.024	0.236
0.1378	–	3.5	–	0.827	<a href="#">38423</a>	SD205A-3.5-21-6R1-M	2.598	1.181	1.417	1.024	0.236
0.1535	–	3.9	4 H7	1.063	34996	SD205A-3.9-27-6R1-M	2.913	1.496	1.417	1.339	0.236
0.1575	–	4.0	–	1.063	<a href="#">38422</a>	SD205A-4.0-27-6R1-M	2.913	1.496	1.417	1.339	0.236
0.1693	–	4.3	–	1.063	<a href="#">34997</a>	SD205A-4.3-27-6R1-M	2.913	1.496	1.417	1.339	0.236
0.1772	–	4.5	–	1.063	<a href="#">38421</a>	SD205A-4.5-27-6R1-M	2.913	1.496	1.417	1.339	0.236
0.1875	3/16	4.763	–	1.260	<a href="#">19197</a>	SD205A-01875-126-0236R1-M	3.228	1.811	1.417	1.732	0.236
0.1929	–	4.9	5 H7	1.260	<a href="#">34999</a>	SD205A-4.9-32-6R1-M	3.228	1.811	1.417	1.732	0.236
0.1969	–	5.0	–	1.260	<a href="#">19126</a>	SD205A-5.0-32-6R1-M	3.228	1.811	1.417	1.732	0.236
0.2165	–	5.5	–	1.260	<a href="#">38420</a>	SD205A-5.5-32-6R1-M	3.228	1.811	1.417	1.732	0.236
0.2188	7/32	5.558	–	1.260	<a href="#">19198</a>	SD205A-02188-126-0236R1-M	3.228	1.811	1.417	1.732	0.236
0.2362	–	6.0	–	1.260	<a href="#">19128</a>	SD205A-6.0-32-6R1-M	3.228	1.811	1.417	1.732	0.236
0.2500	1/4	6.35	–	1.378	<a href="#">19203</a>	SD205A-02500-138-0315R1-M	3.583	2.165	1.417	2.087	0.315
0.2559	–	6.5	–	1.378	<a href="#">19129</a>	SD205A-6.5-35-8R1-M	3.583	2.165	1.417	2.087	0.315
0.2598	–	6.6	–	1.378	<a href="#">19136</a>	SD205A-6.6-35-8R1-M	3.583	2.165	1.417	2.087	0.315
0.2677	–	6.8	–	1.575	<a href="#">19137</a>	SD205A-6.8-40-8R1-M	3.583	2.165	1.417	2.087	0.315
0.2717	–	6.9	7 H6/7 H7	1.575	<a href="#">19140</a>	SD205A-6.9-40-8R1-M	3.583	2.165	1.417	2.087	0.315
0.2756	–	7.0	–	1.575	<a href="#">19141</a>	SD205A-7.0-40-8R1-M	3.583	2.165	1.417	2.087	0.315
0.2813	9/32	7.145	–	1.575	<a href="#">19211</a>	SD205A-02813-157-0315R1-M	3.583	2.165	1.417	2.087	0.315
0.2953	–	7.5	–	1.575	<a href="#">19143</a>	SD205A-7.5-40-8R1-M	3.583	2.165	1.417	2.087	0.315
0.3071	–	7.8	–	1.654	19144	SD205A-7.8-42-8R1-M	3.583	2.165	1.417	2.087	0.315
0.3110	–	7.9	8 H6/8 H7	1.654	35000	SD205A-7.9-42-8R1-M	3.583	2.165	1.417	2.087	0.315
0.3125	5/16	7.938	–	1.654	<a href="#">19216</a>	SD205A-03125-165-0315R1-M	3.583	2.165	1.417	2.087	0.315
0.3150	–	8.0	–	1.654	<a href="#">19145</a>	SD205A-8.0-42-8R1-M	3.583	2.165	1.417	2.087	0.315
0.3346	–	8.5	–	1.654	<a href="#">19147</a>	SD205A-8.5-42-10R1-M	4.055	2.480	1.575	2.402	0.394
0.3438	11/32	8.733	–	1.772	19218	SD205A-03438-177-0394R1-M	4.055	2.480	1.575	2.402	0.394
0.3465	–	8.8	–	1.772	<a href="#">19148</a>	SD205A-8.8-45-10R1-M	4.055	2.480	1.575	2.402	0.394
0.3543	–	9.0	–	1.772	<a href="#">19149</a>	SD205A-9.0-45-10R1-M	4.055	2.480	1.575	2.402	0.394
0.3740	–	9.5	–	1.772	<a href="#">19150</a>	SD205A-9.5-45-10R1-M	4.055	2.480	1.575	2.402	0.394
0.3750	3/8	9.525	–	1.890	<a href="#">19221</a>	SD205A-03750-189-0394R1-M	4.055	2.480	1.575	2.402	0.394
0.3898	–	9.9	10 H6/10 H7	1.890	35002	SD205A-9.9-48-10R1-M	4.055	2.480	1.575	2.402	0.394
0.3937	–	10.0	–	1.890	<a href="#">19155</a>	SD205A-10.0-48-10R1-M	4.055	2.480	1.575	2.402	0.394
0.4016	–	10.2	–	1.890	<a href="#">19157</a>	SD205A-10.2-48-12R1-M	4.646	2.874	1.772	2.795	0.472
0.4094	–	10.4	–	1.890	35003	SD205A-10.4-48-12R1-M	4.646	2.874	1.772	2.795	0.472
0.4134	–	10.5	–	1.890	<a href="#">19162</a>	SD205A-10.5-48-12R1-M	4.646	2.874	1.772	2.795	0.472

\* For further information regarding reaming see page(s) 302.  
For intermediate diameters see the Custom Design software.

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



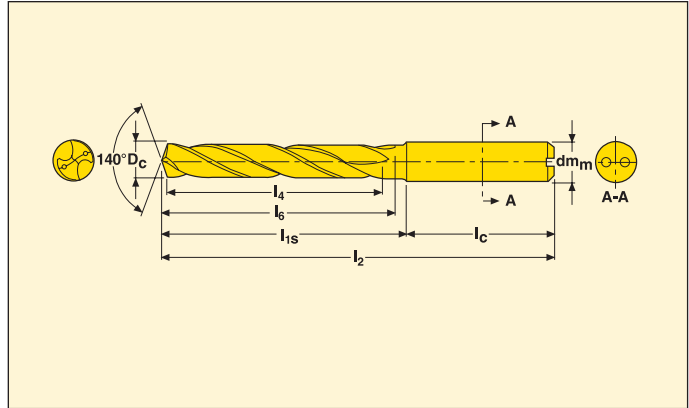
- A=Internal coolant
- For cutting data see page(s) 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

Drill diameter		Reamer size*	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)					l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6	
0.4252	–	10.8	–	2.205	19163	SD205A-10.8-56-12R1-M	4.646	2.874	1.772	2.795	0.472
0.4291	–	10.9	11 H6/11 H7	2.205	35004	SD205A-10.9-56-12R1-M	4.646	2.874	1.772	2.795	0.472
0.4331	–	11.0	–	2.205	19171	SD205A-11.0-56-12R1-M	4.646	2.874	1.772	2.795	0.472
0.4375	7/16	11.113	–	2.205	19227	SD205A-04375-221-0472R1-M	4.646	2.874	1.772	2.795	0.472
0.4528	–	11.5	–	2.205	19173	SD205A-11.5-56-12R1-M	4.646	2.874	1.772	2.795	0.472
0.4646	–	11.8	–	2.205	19176	SD205A-11.8-56-12R1-M	4.646	2.874	1.772	2.795	0.472
0.4688	15/32	11.908	12 H6/12 H7	2.205	35005	SD205A-04688-221-0472R1-M	4.646	2.874	1.772	2.795	0.472
0.4724	–	12.0	–	2.205	19188	SD205A-12.0-56-12R1-M	4.646	2.874	1.772	2.795	0.472
0.4823	–	12.25	–	2.205	35007	SD205A-12.25-56-14R1-M	4.882	3.110	1.772	3.031	0.551
0.4921	–	12.5	–	2.205	19191	SD205A-12.5-56-14R1-M	4.882	3.110	1.772	3.031	0.551
0.5079	–	12.9	13 H6/13 H7	2.205	35009	SD205A-12.9-56-14R1-M	4.882	3.110	1.772	3.031	0.551
0.5118	–	13.0	–	2.205	19192	SD205A-13.0-56-14R1-M	4.882	3.110	1.772	3.031	0.551
0.5315	–	13.5	–	2.323	19194	SD205A-13.5-59-14R1-M	4.882	3.110	1.772	3.031	0.551
0.5512	–	14.0	–	2.323	19196	SD205A-14.0-59-14R1-M	4.882	3.110	1.772	3.031	0.551
0.5610	–	14.25	–	2.362	35012	SD205A-14.25-60-16R1-M	5.236	3.346	1.890	3.268	0.630

\* For further information regarding reaming see page(s) 302.  
For intermediate diameters see the Custom Design software.

Custom intermediate diameters – drilling depth ~ 5 x D – Inch diameter

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting and machining data see pages 132-133
- Coating: TiAlN + TiN
- Hole tolerance: IT 8-9

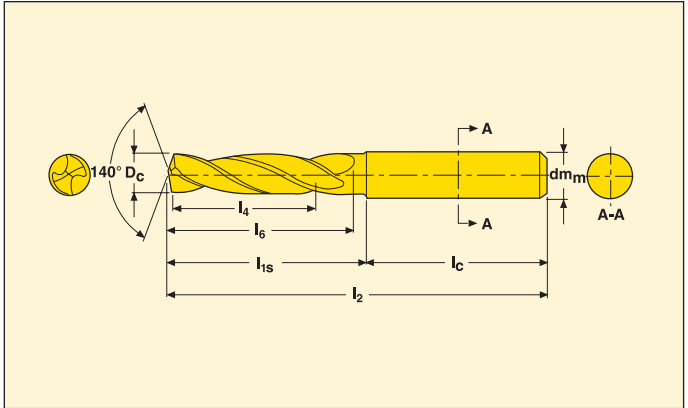
Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	Part No.	Dimensions in inch				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>g</sub>	dm <sub>m</sub> h6
0.1181-0.1476	0.827	SD205A-x-xxxx-083-0236R1-M	2.598	1.181	1.417	1.024	0.236
0.1480-0.1870	1.063	SD205A-x-xxxx-106-0236R1-M	2.913	1.496	1.417	1.339	0.236
0.1874-1.2402	1.260	SD205A-x-xxxx-126-0236R1-M	3.228	1.811	1.417	1.732	0.236
0.2406-0.2638	1.378	SD205A-x-xxxx-138-0315R1-M	3.583	2.165	1.417	2.087	0.315
0.2642-0.2953	1.575	SD205A-x-xxxx-157-0315R1-M	3.583	2.165	1.417	2.087	0.315
0.2957-0.3150	1.654	SD205A-x-xxxx-165-0315R1-M	3.583	2.165	1.417	2.087	0.315
0.3154-0.3346	1.654	SD205A-x-xxxx-165-0394R1-M	4.055	2.480	1.575	2.402	0.394
0.3350-0.3740	1.772	SD205A-x-xxxx-177-0394R1-M	4.055	2.480	1.575	2.402	0.394
0.3744-0.3937	1.890	SD205A-x-xxxx-189-0394R1-M	4.055	2.480	1.575	2.402	0.394
0.3941-0.4134	1.890	SD205A-x-xxxx-189-0472R1-M	4.646	2.874	1.772	2.795	0.472
0.4138-0.4724	2.205	SD205A-x-xxxx-221-0472R1-M	4.646	2.874	1.772	2.795	0.472
0.4728-0.5118	2.205	SD205A-x-xxxx-221-0551R1-M	4.882	3.110	1.772	3.031	0.551
0.5122-0.5512	2.323	SD205A-x-xxxx-232-0551R1-M	4.882	3.110	1.772	3.031	0.551
0.5516-0.5906	2.362	SD205A-x-xxxx-236-0630R1-M	5.236	3.346	1.890	3.268	0.630
0.5909-0.6299	2.441	SD205A-x-xxxx-244-0630R1-M	5.236	3.346	1.890	3.268	0.630
0.6303-0.6693	2.520	SD205A-x-xxxx-252-0709R1-M	5.630	3.740	1.890	3.661	0.709
0.6697-0.7087	2.598	SD205A-x-xxxx-260-0709R1-M	5.630	3.740	1.890	3.661	0.709

The drills are available in Ø increments of 0.0004". Fill in required cutting Ø instead of -x.xxx- according to the ordering example.  
Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 1/4 inch (0.2500): SD205A-0.2500-138-0315R1-M.  
Also available for intermediate diameters in the Custom Design software.



Custom intermediate diameters – drilling depth ~ 3 x D – Inch diameter

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Uncoated
- Hole tolerance: IT 8-9

Drill dia. Dc (inch)	Max drilling depth l4 (inch)	Part No.	Dimensions in inch				
			l2	l1s	lc	l6	dm_m h6
0.1181-0.1339	0.551	SD203-x.xxxx-055-0236R1-T	2.441	1.024	1.417	0.787	0.236
0.1343-0.1476	0.591	SD203-x.xxxx-059-0236R1-T	2.441	1.024	1.417	0.787	0.236
0.1480-0.1654	0.669	SD203-x.xxxx-067-0236R1-T	2.598	1.181	1.417	0.945	0.236
0.1657-0.1772	0.709	SD203-x.xxxx-071-0236R1-T	2.598	1.181	1.417	0.945	0.236
0.1776-0.1870	0.709	SD203-x.xxxx-071-0236R1-T	2.598	1.181	1.417	1.024	0.236
0.1874-0.2047	0.787	SD203-x.xxxx-079-0236R1-T	2.598	1.181	1.417	1.102	0.236
0.2051-0.2402	0.827	SD203-x.xxxx-083-0236R1-T	2.598	1.181	1.417	1.102	0.236
0.2362-0.2598	0.906	SD203-x.xxxx-091-0315R1-T	3.110	1.693	1.417	1.339	0.315
0.2602-0.2756	0.984	SD203-x.xxxx-098-0315R1-T	3.110	1.693	1.417	1.339	0.315
0.2760-0.2953	0.984	SD203-x.xxxx-098-0315R1-T	3.110	1.693	1.417	1.614	0.315
0.2957-0.3189	1.063	SD203-x.xxxx-106-0315R1-T	3.110	1.693	1.417	1.614	0.315
0.3150-0.3386	1.063	SD203-x.xxxx-106-0394R1-T	3.504	1.929	1.575	1.850	0.394
0.3390-0.3740	1.142	SD203-x.xxxx-114-0394R1-T	3.504	1.929	1.575	1.850	0.394
0.3744-0.3976	1.220	SD203-x.xxxx-122-0394R1-T	3.504	1.929	1.575	1.850	0.394
0.3937-0.4134	1.220	SD203-x.xxxx-122-0472R1-T	4.016	2.244	1.772	2.165	0.472
0.4138-0.4646	1.299	SD203-x.xxxx-130-0472R1-T	4.016	2.244	1.772	2.165	0.472
0.4650-0.4764	1.417	SD203-x.xxxx-142-0472R1-T	4.016	2.244	1.772	2.165	0.472
0.4724-0.5118	1.417	SD203-x.xxxx-142-0551R1-T	4.213	2.441	1.772	2.362	0.551
0.5118-0.5551	1.457	SD203-x.xxxx-146-0551R1-T	4.213	2.441	1.772	2.362	0.551
0.5512-0.5906	1.496	SD203-x.xxxx-150-0630R1-T	4.528	2.638	1.890	2.559	0.630
0.5909-0.6339	1.535	SD203-x.xxxx-154-0630R1-T	4.528	2.638	1.890	2.559	0.630
0.6299-0.6693	1.575	SD203-x.xxxx-157-0709R1-T	4.843	2.953	1.890	2.874	0.709
0.6697-0.7126	1.614	SD203-x.xxxx-161-0709R1-T	4.843	2.953	1.890	2.874	0.709
0.7087-0.7913	1.929	SD203-x.xxxx-193-0787R1-T	5.157	3.189	1.969	3.110	0.787

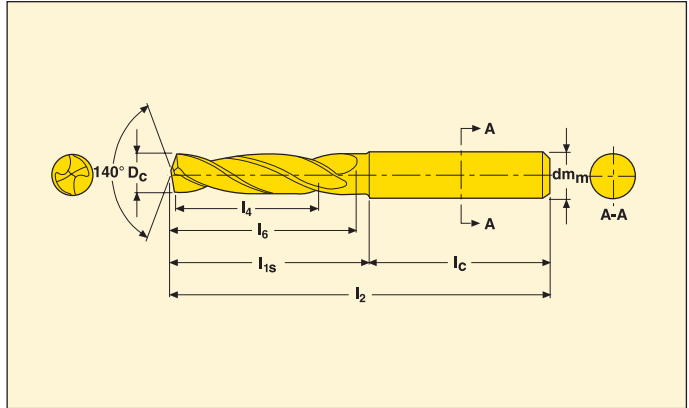
The drills are available in ∅ increments of 0.0004". Fill in required cutting ∅ instead of -x.xxxx- according to the ordering example.  
Cutting ∅ tolerance is equal to m7 unless otherwise specified. Ordering example for ∅ 1/4 inch (0.2500): SD203-0.2500-091-0315R1-T.  
Also available for intermediate diameters in the Custom Design software.

Custom intermediate diameters – drilling depth ~ 3 x D – Metric diameter

Cylindrical shank DIN 6537A



- External coolant
- For cutting data see page(s) 129
- Uncoated
- Hole tolerance: IT 8-9

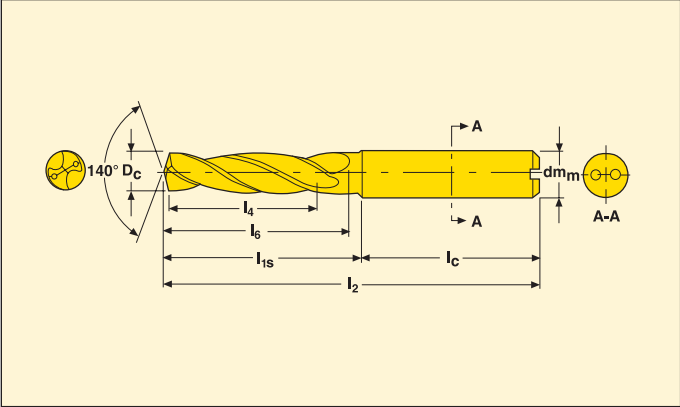


Drill dia. D <sub>C</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1S</sub>	l <sub>C</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
3.00-3.40	14	SD203-x.xx-14-6R1-T	62	26	36	20	6
3.41-3.75	15	SD203-x.xx-15-6R1-T	62	26	36	20	6
3.76-4.20	17	SD203-x.xx-17-6R1-T	66	30	36	24	6
4.21-4.50	18	SD203-x.xx-18-6R1-T	66	30	36	24	6
4.51-4.75	18	SD203-x.xx-18-6R1-T	66	30	36	26	6
4.76-5.20	20	SD203-x.xx-20-6R1-T	66	30	36	28	6
5.21-6.00	21	SD203-x.xx-21-6R1-T	66	30	36	28	6
6.00-6.60	23	SD203-x.xx-23-8R1-T	79	43	36	34	8
6.61-7.00	25	SD203-x.xx-25-8R1-T	79	43	36	34	8
7.01-7.50	25	SD203-x.xx-25-8R1-T	79	43	36	41	8
7.51-8.00	27	SD203-x.xx-27-8R1-T	79	43	36	41	8
8.01-8.60	27	SD203-x.xx-27-10R1-T	89	49	40	47	10
8.61-9.50	29	SD203-x.xx-29-10R1-T	89	49	40	47	10
9.51-10.00	31	SD203-x.xx-31-10R1-T	89	49	40	47	10
10.01-10.50	31	SD203-xx.xx-31-12R1-T	102	57	45	55	12
10.51-11.80	33	SD203-xx.xx-33-12R1-T	102	57	45	55	12
11.81-12.00	36	SD203-xx.xx-36-12R1-T	102	57	45	55	12
12.01-13.00	36	SD203-xx.xx-36-14R1-T	107	62	45	60	14
13.01-14.00	37	SD203-xx.xx-37-14R1-T	107	62	45	60	14
14.01-15.00	38	SD203-xx.xx-38-16R1-T	115	67	48	65	16
15.01-16.00	39	SD203-xx.xx-39-16R1-T	115	67	48	65	16
16.01-17.00	40	SD203-xx.xx-40-18R1-T	123	75	48	73	18
17.01-18.00	41	SD203-xx.xx-41-18R1-T	123	75	48	73	18
18.01-20.00	49	SD203-xx.xx-49-20R1-T	131	81	50	79	20

The drills are available in Ø increments of 0.01 mm. Fill in required cutting Ø instead of -xx.xx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 11.3 mm: SD203-11.3-33-12R1-T. Also available for intermediate diameters in the Custom Design software.

## Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 130-131
- Uncoated
- Hole tolerance: IT 8-9

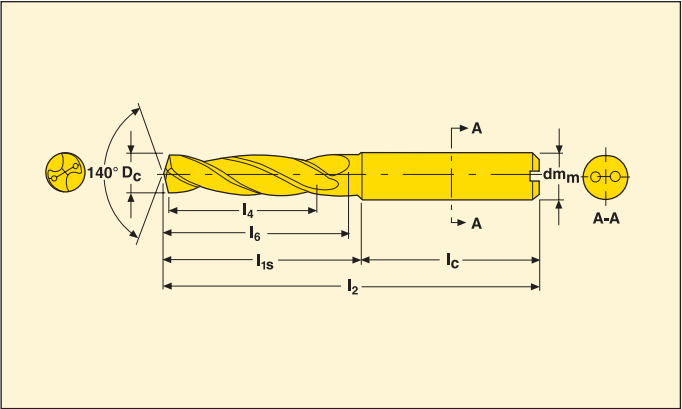
Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{1s}$	$l_c$	$l_g$	$dm_m$ h6	
0.188	3/16	4.763	0.787	<a href="#">32268</a>	SD203A-01875-079-0236R1-T	2.598	1.181	1.417	1.102	0.236
0.197	—	5.0	0.787	<a href="#">33464</a>	SD203A-5.0-20-6R1-T	2.598	1.181	1.417	1.102	0.236
0.219	7/32	5.558	0.787	<a href="#">32276</a>	SD203A-02188-083-0236R1-T	2.598	1.181	1.417	1.102	0.236
0.236	—	6.0	0.827	<a href="#">33465</a>	SD203A-6.0-21-6R1-T	2.598	1.181	1.417	1.102	0.236
0.250	1/4	6.35	0.906	<a href="#">32269</a>	SD203A-02500-091-0315R1-T	3.110	1.693	1.417	1.339	0.315
0.256	—	6.5	0.906	<a href="#">33466</a>	SD203A-6.5-23-8R1-T	3.110	1.693	1.417	1.339	0.315
0.266	17/64	6.746	0.984	32270	SD203A-02656-098-0315R1-T	3.110	1.693	1.417	1.339	0.315
0.272	—	6.9	0.984	<a href="#">33467</a>	SD203A-6.9-25-8R1-T	3.110	1.693	1.417	1.339	0.315
0.276	—	7.0	0.984	<a href="#">33468</a>	SD203A-7.0-25-8R1-T	3.110	1.693	1.417	1.339	0.315
0.281	9/32	7.145	0.984	<a href="#">32271</a>	SD203A-02813-098-0315R1-T	3.110	1.693	1.417	1.614	0.315
0.295	—	7.5	0.984	<a href="#">33469</a>	SD203A-7.5-25-8R1-T	3.110	1.693	1.417	1.614	0.315
0.313	5/16	7.938	1.063	<a href="#">32272</a>	SD203A-03125-106-0315R1-T	3.110	1.693	1.417	1.614	0.315
0.315	—	8.0	1.063	<a href="#">33470</a>	SD203A-8.0-27-8R1-T	3.110	1.693	1.417	1.614	0.315
0.335	—	8.5	1.063	<a href="#">33479</a>	SD203A-8.5-27-10R1-T	3.504	1.929	1.575	1.850	0.394
0.346	—	8.8	1.142	<a href="#">32273</a>	SD203A-8.8-29-10R1-T	3.504	1.929	1.575	1.850	0.394
0.354	—	9.0	1.142	<a href="#">33480</a>	SD203A-9.0-29-10R1-T	3.504	1.929	1.575	1.850	0.394
0.374	—	9.5	1.142	<a href="#">33481</a>	SD203A-9.5-29-10R1-T	3.504	1.929	1.575	1.850	0.394
0.394	—	10.0	1.220	<a href="#">33482</a>	SD203A-10.0-31-10R1-T	3.504	1.929	1.575	1.850	0.394
0.406	13/32	10.32	1.220	32274	SD203A-04063-122-0472R1-T	4.016	2.244	1.772	2.165	0.472
0.413	—	10.5	1.220	<a href="#">33484</a>	SD203A-10.5-31-12R1-T	4.016	2.244	1.772	2.165	0.472
0.433	—	11.0	1.299	<a href="#">32275</a>	SD203A-11.0-33-12R1-T	4.016	2.244	1.772	2.165	0.472
0.453	—	11.5	1.299	<a href="#">33488</a>	SD203A-11.5-33-12R1-T	4.016	2.244	1.772	2.165	0.472
0.472	—	12.0	1.417	<a href="#">33489</a>	SD203A-12.0-36-12R1-T	4.016	2.244	1.772	2.165	0.472

For intermediate diameters see the Custom Design software.



Custom intermediate diameters – drilling depth  $\sim 3 \times D$  – Inch diameter

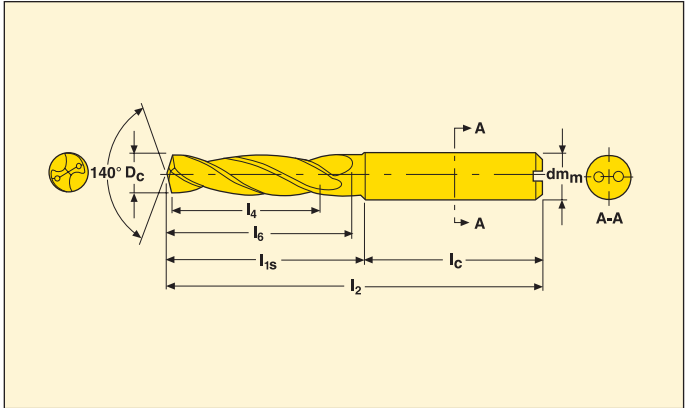
Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 130-131
- Uncoated
- Hole tolerance: IT 8-9

Drill dia. $D_c$ (inch)	Max drilling depth $l_4$ (inch)	Part No.	Dimensions in inch				
			$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6
0.1181-0.1339	0.551	SD203A-x.xxxx-055-0236R1-T	2.441	1.024	1.417	0.787	0.236
0.1343-0.1476	0.591	SD203A-x.xxxx-059-0236R1-T	2.441	1.024	1.417	0.787	0.236
0.1480-0.1654	0.669	SD203A-x.xxxx-067-0236R1-T	2.598	1.181	1.417	0.945	0.236
0.1657-0.1772	0.709	SD203A-x.xxxx-071-0236R1-T	2.598	1.181	1.417	0.945	0.236
0.1776-0.1870	0.709	SD203A-x.xxxx-071-0236R1-T	2.598	1.181	1.417	1.024	0.236
0.1874-0.2047	0.787	SD203A-x.xxxx-079-0236R1-T	2.598	1.181	1.417	1.102	0.236
0.2051-0.2402	0.827	SD203A-x.xxxx-083-0236R1-T	2.598	1.181	1.417	1.102	0.236
0.2362-0.2598	0.906	SD203A-x.xxxx-091-0315R1-T	3.110	1.693	1.417	1.339	0.315
0.2602-0.2756	0.984	SD203A-x.xxxx-098-0315R1-T	3.110	1.693	1.417	1.339	0.315
0.2760-0.2953	0.984	SD203A-x.xxxx-098-0315R1-T	3.110	1.693	1.417	1.614	0.315
0.2957-0.3189	1.063	SD203A-x.xxxx-106-0315R1-T	3.110	1.693	1.417	1.614	0.315
0.3150-0.3386	1.063	SD203A-x.xxxx-106-0394R1-T	3.504	1.929	1.575	1.850	0.394
0.3390-0.3740	1.142	SD203A-x.xxxx-114-0394R1-T	3.504	1.929	1.575	1.850	0.394
0.3744-0.3976	1.220	SD203A-x.xxxx-122-0394R1-T	3.504	1.929	1.575	1.850	0.394
0.3937-0.4134	1.220	SD203A-x.xxxx-122-0472R1-T	4.016	2.244	1.772	2.165	0.472
0.4138-0.4646	1.299	SD203A-x.xxxx-130-0472R1-T	4.016	2.244	1.772	2.165	0.472
0.4650-0.4764	1.417	SD203A-x.xxxx-142-0472R1-T	4.016	2.244	1.772	2.165	0.472
0.4724-0.5118	1.417	SD203A-x.xxxx-142-0551R1-T	4.213	2.441	1.772	2.362	0.551
0.5118-0.5551	1.457	SD203A-x.xxxx-146-0551R1-T	4.213	2.441	1.772	2.362	0.551
0.5512-0.5906	1.496	SD203A-x.xxxx-150-0630R1-T	4.528	2.638	1.890	2.559	0.630
0.5909-0.6339	1.535	SD203A-x.xxxx-154-0630R1-T	4.528	2.638	1.890	2.559	0.630
0.6299-0.6693	1.575	SD203A-x.xxxx-157-0709R1-T	4.843	2.953	1.890	2.874	0.709
0.6697-0.7126	1.614	SD203A-x.xxxx-161-0709R1-T	4.843	2.953	1.890	2.874	0.709
0.7087-0.7913	1.929	SD203A-x.xxxx-193-0787R1-T	5.157	3.189	1.969	3.110	0.787

The drills are available in  $\varnothing$  increments of 0.0004". Fill in required cutting  $\varnothing$  instead of -x.xxxx- according to the ordering example. Cutting  $\varnothing$  tolerance is equal to m7 unless otherwise specified. Ordering example for  $\varnothing$  1/4 inch (0.2500): SD203A-0.2500-091-0315R1-T. Also available for intermediate diameters in the Custom Design software.



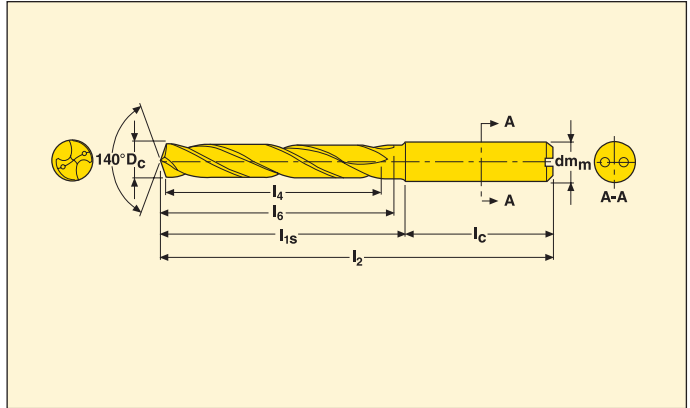
- A=Internal coolant
- For cutting data see page(s) 130-131
- Uncoated
- Hole tolerance: IT 8-9

Drill dia. $D_c$ (mm)	Max Drilling depth $l_4$ (mm)	Part No.	Dimensions in mm				
			$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm\ h6$
3.00-3.40	14	SD203A-x.xx-14-6R1-T	62	26	36	20	6
3.41-3.75	15	SD203A-x.xx-15-6R1-T	62	26	36	20	6
3.76-4.20	17	SD203A-x.xx-17-6R1-T	66	30	36	24	6
4.21-4.75	18	SD203A-x.xx-18-6R1-T	66	30	36	24	6
4.76-5.20	20	SD203A-x.xx-20-6R1-T	66	30	36	28	6
5.21-6.00	21	SD203A-x.xx-21-6R1-T	66	30	36	28	6
6.01-6.60	23	SD203A-x.xx-23-8R1-T	79	43	36	34	8
6.61-7.00	25	SD203A-x.xx-25-8R1-T	79	43	36	34	8
7.51-8.00	27	SD203A-x.xx-27-8R1-T	79	43	36	41	8
8.01-8.60	27	SD203A-x.xx-27-10R1-T	89	49	40	47	10
8.61-9.50	29	SD203A-x.xx-29-10R1-T	89	49	40	47	10
9.51-10.00	31	SD203A-x.xx-31-10R1-T	89	49	40	47	10
10.01-10.50	31	SD203A-xx.xx-31-12R1-T	102	57	45	55	12
10.51-11.80	33	SD203A-xx.xx-33-12R1-T	102	57	45	55	12
11.81-12.00	36	SD203A-xx.xx-36-12R1-T	102	57	45	55	12
12.01-13.00	36	SD203A-xx.xx-36-14R1-T	107	62	45	60	14
13.01-14.00	37	SD203A-xx.xx-37-14R1-T	107	62	45	60	14
14.01-15.00	38	SD203A-xx.xx-38-16R1-T	115	67	48	65	16
15.01-16.00	39	SD203A-xx.xx-39-16R1-T	115	67	48	65	16
16.01-17.00	40	SD203A-xx.xx-40-18R1-T	123	75	48	73	18
17.01-18.00	41	SD203A-xx.xx-41-18R1-T	123	75	48	73	18
18.01-20.00	49	SD203A-xx.xx-49-20R1-T	131	81	50	79	20

The drills are available in  $\varnothing$  increments of 0.01 mm. Fill in required cutting  $\varnothing$  instead of -xx.xx- according to the ordering example. Cutting  $\varnothing$  tolerance is equal to m7 unless otherwise specified. Ordering example for  $\varnothing$  11.3 mm: SD203A-11.3-33-12R1-T. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 132-133
- Uncoated
- Hole tolerance: IT 8-9

Drill diameter			Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (inch)	D <sub>c</sub> (mm)					l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm h6
0.188	3/16	4.763	1.260	32277	<b>SD205A-01875-126-0236R1-T</b>	3.228	1.811	1.417	1.732	0.236
0.256	–	6.5	1.378	35676	<b>SD205A-6.5-35-8R1-T</b>	3.583	2.165	1.417	2.087	0.315
0.266	17/64	6.746	1.575	32280	<b>SD205A-02656-157-0315R1-T</b>	3.583	2.165	1.417	2.087	0.315
0.272	–	6.9	1.575	32281	<b>SD205A-6.9-40-8R1-T</b>	3.583	2.165	1.417	2.087	0.315
0.281	9/32	7.145	1.575	32282	<b>SD205A-02813-157-0315R1-T</b>	3.583	2.165	1.417	2.087	0.315
0.315	–	8.0	1.654	32284	<b>SD205A-8.0-42-8R1-T</b>	3.583	2.165	1.417	2.087	0.315
0.413	–	10.5	1.890	32287	<b>SD205A-10.5-48-12R1-T</b>	4.646	2.874	1.772	2.795	0.472
0.453	–	11.5	2.205	32289	<b>SD205A-11.5-56-12R1-T</b>	4.646	2.874	1.772	2.795	0.472
0.472	–	12.0	2.205	33503	<b>SD205A-12.0-56-12R1-T</b>	4.646	2.874	1.772	2.795	0.472

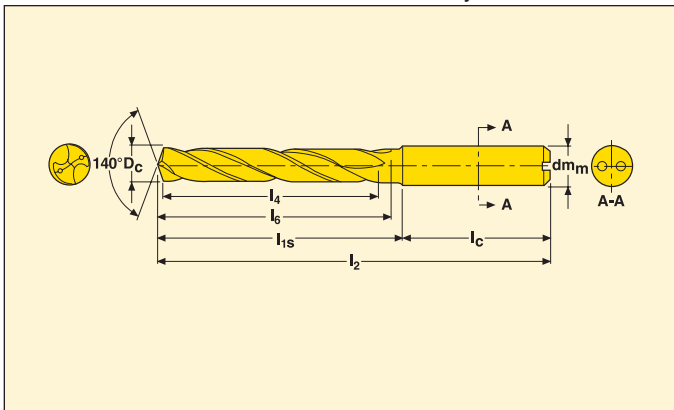
For intermediate diameters see the Custom Design software.

Custom intermediate diameters – drilling depth ~ 5 x D – Inch diameter

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 132-133
- Uncoated
- Hole tolerance: IT 8-9

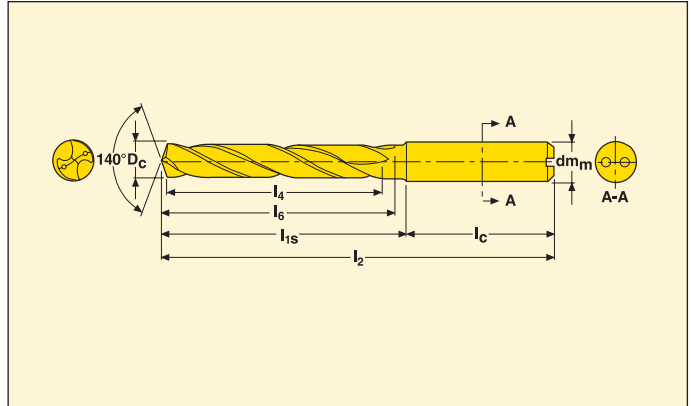


Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	Part No.	Dimensions in inch				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>g</sub>	dm <sub>m</sub> h6
0.1181-0.1476	0.827	SD205A-x.xxxx-083-0236R1-T	2.598	1.181	1.417	1.024	0.236
0.1480-0.1870	1.063	SD205A-x.xxxx-106-0236R1-T	2.913	1.496	1.417	1.339	0.236
0.1874-0.2402	1.260	SD205A-x.xxxx-126-0236R1-T	3.228	1.811	1.417	1.732	0.236
0.2406-0.2638	1.378	SD205A-x.xxxx-138-0315R1-T	3.583	2.165	1.417	2.087	0.315
0.2642-0.2953	1.575	SD205A-x.xxxx-157-0315R1-T	3.583	2.165	1.417	2.087	0.315
0.2957-0.3150	1.654	SD205A-x.xxxx-165-0315R1-T	3.583	2.165	1.417	2.087	0.315
0.3154-0.3346	1.654	SD205A-x.xxxx-165-0394R1-T	4.055	2.480	1.575	2.402	0.394
0.3350-0.3740	1.772	SD205A-x.xxxx-177-0394R1-T	4.055	2.480	1.575	2.402	0.394
0.3744-0.3937	1.890	SD205A-x.xxxx-189-0394R1-T	4.055	2.480	1.575	2.402	0.394
0.3941-0.4134	1.890	SD205A-x.xxxx-189-0472R1-T	4.646	2.874	1.772	2.795	0.472
0.4138-0.4724	2.205	SD205A-x.xxxx-221-0472R1-T	4.646	2.874	1.772	2.795	0.472
0.4728-0.5118	2.205	SD205A-x.xxxx-221-0551R1-T	4.882	3.110	1.772	3.031	0.551
0.5122-0.5512	2.323	SD205A-x.xxxx-232-0551R1-T	4.882	3.110	1.772	3.031	0.551
0.5516-0.5906	2.362	SD205A-x.xxxx-236-0630R1-T	5.236	3.346	1.890	3.268	0.630
0.5909-0.6299	2.441	SD205A-x.xxxx-244-0630R1-T	5.236	3.346	1.890	3.268	0.630
0.6303-0.6693	2.520	SD205A-x.xxxx-252-0709R1-T	5.630	3.740	1.890	3.661	0.709
0.6697-0.7087	2.598	SD205A-x.xxxx-260-0709R1-T	5.630	3.740	1.890	3.661	0.709
0.7091-0.7874	2.795	SD205A-x.xxxx-280-0787R1-T	6.024	4.055	1.969	3.976	0.787

The drills are available in Ø increments of 0.0004". Fill in required cutting Ø instead of -x.xxxx- according to the ordering example.  
 Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 1/4 inch (0.2500): SD205A-0.2500-138-0315R1-T.  
 Also available for intermediate diameters in the Custom Design software.

Custom intermediate diameters – drilling depth ~ 5 x D – Metric diameter

Cylindrical shank DIN 6537A



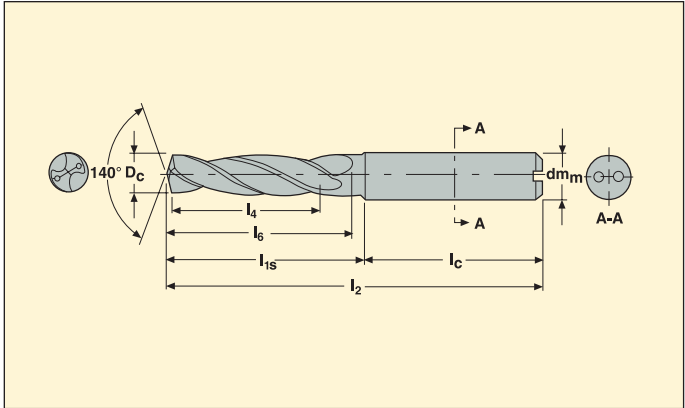
- A=Internal coolant
- For cutting data see page(s) 132-133
- Uncoated
- Hole tolerance: IT 8-9

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
3.00-3.75	21	SD205A-x.xx-21-6R1-T	66	30	36	26	6
3.76-4.75	27	SD205A-x.xx-27-6R1-T	74	38	36	34	6
4.76-6.00	32	SD205A-x.xx-32-6R1-T	82	46	36	44	6
6.01-6.70	35	SD205A-x.xx-35-8R1-T	91	55	36	53	8
6.71-7.50	40	SD205A-x.xx-40-8R1-T	91	55	36	53	8
7.51-8.00	42	SD205A-x.xx-42-8R1-T	91	55	36	53	8
8.01-8.50	42	SD205A-x.xx-42-10R1-T	103	63	40	61	10
8.51-9.50	45	SD205A-x.xx-45-10R1-T	103	63	40	61	10
9.51-10.00	48	SD205A-x.xx-48-10R1-T	103	63	40	61	10
10.01-10.50	48	SD205A-x.xx-48-12R1-T	118	73	45	71	12
10.51-12.00	56	SD205A-xx.xx-56-12R1-T	118	73	45	71	12
12.01-13.00	56	SD205A-xx.xx-56-14R1-T	124	79	45	77	14
13.01-14.00	59	SD205A-xx.xx-59-14R1-T	124	79	45	77	14
14.01-15.00	60	SD205A-xx.xx-60-16R1-T	133	85	48	83	16
15.01-16.00	62	SD205A-xx.xx-62-16R1-T	133	85	48	83	16
16.01-17.00	64	SD205A-xx.xx-64-18R1-T	143	95	48	93	18
17.01-18.00	66	SD205A-xx.xx-66-18R1-T	143	95	48	93	18
18.01-20.00	71	SD205A-xx.xx-71-20R1-T	153	103	50	101	20

The drills are available in Ø increments of 0.01 mm. Fill in required cutting Ø instead of -xx.xx- according to the ordering example. Cutting Ø tolerance is equal to m7 unless otherwise specified. Ordering example for Ø 11.3 mm: SD205A-11.3-56-12R1-T. Also available for intermediate diameters in the Custom Design software.

Drilling depth ~ 3 x D

Cylindrical shank DIN 6537A



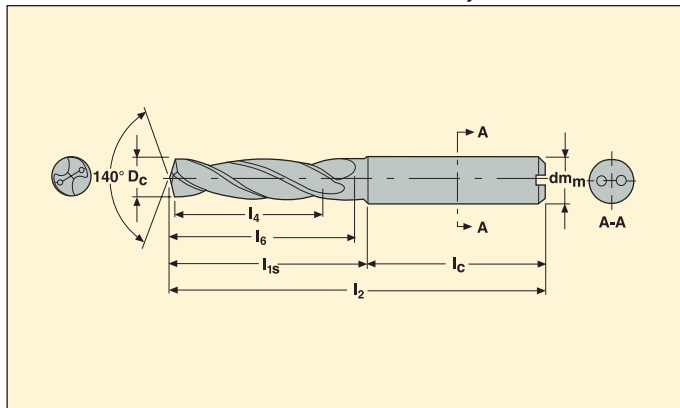
- A=Internal coolant
- For cutting data see page(s) 130-131
- DLC Coated
- Hole tolerance: IT 8-9

Drill diameter		Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
$D_c$ (inch)	$D_c$ (mm)				$l_2$	$l_{1s}$	$l_c$	$l_6$	$dm_m$ h6	
0.0984	–	2.5	0.315	<a href="#">53292</a>	SD203A-2.5-8-4R1-N	1.732	0.630	1.102	0.512	0.157
0.1181	–	3.0	0.551	<a href="#">53293</a>	SD203A-3.0-14-6R1-N	2.441	1.024	1.417	0.787	0.236
0.1299	–	3.3	0.551	<a href="#">53294</a>	SD203A-3.3-14-6R1-N	2.441	1.024	1.417	0.787	0.236
0.1378	–	3.5	0.591	<a href="#">53295</a>	SD203A-3.5-15-6R1-N	2.441	1.024	1.417	0.787	0.236
0.1575	–	4.0	0.669	<a href="#">53296</a>	SD203A-4.0-17-6R1-N	2.598	1.181	1.417	0.945	0.236
0.1614	–	4.1	0.669	<a href="#">53297</a>	SD203A-4.1-17-6R1-N	2.598	1.181	1.417	0.945	0.236
0.1772	–	4.5	0.709	<a href="#">53298</a>	SD203A-4.5-18-6R1-N	2.598	1.181	1.417	0.945	0.236
0.1969	–	5.0	0.787	<a href="#">53301</a>	SD203A-5.0-20-6R1-N	2.598	1.181	1.417	1.102	0.236
0.2047	–	5.2	0.787	<a href="#">53304</a>	SD203A-5.2-20-6R1-N	2.598	1.181	1.417	1.102	0.236
0.2165	–	5.5	0.787	<a href="#">53305</a>	SD203A-5.5-20-6R1-N	2.598	1.181	1.417	1.102	0.236
0.2362	–	6.0	0.827	<a href="#">53306</a>	SD203A-6.0-21-6R1-N	2.598	1.181	1.417	1.102	0.236
0.2500	1/4	6.35	0.906	<a href="#">53314</a>	SD203A-02500-091-0315R1-N	3.110	1.693	1.417	1.339	0.315
0.2559	–	6.5	0.906	<a href="#">53315</a>	SD203A-6.5-23-8R1-N	3.110	1.693	1.417	1.339	0.315
0.2656	17/64	6.746	0.984	<a href="#">53317</a>	SD203A-02656-098-0315R1-N	3.110	1.693	1.417	1.339	0.315
0.2677	–	6.8	0.984	<a href="#">53318</a>	SD203A-6.8-25-8R1-N	3.110	1.693	1.417	1.339	0.315
0.2756	–	7.0	0.984	<a href="#">53522</a>	SD203A-7.0-25-8R1-N	3.110	1.693	1.417	1.339	0.315
0.2795	–	7.1	0.984	<a href="#">53319</a>	SD203A-7.1-25-8R1-N	3.110	1.693	1.417	1.339	0.315
0.2813	9/32	7.145	0.984	<a href="#">53320</a>	SD203A-02813-098-0315R1-N	3.110	1.693	1.417	1.614	0.315
0.2953	–	7.5	0.984	<a href="#">53322</a>	SD203A-7.5-25-8R1-N	3.110	1.693	1.417	1.614	0.315
0.3125	5/16	7.938	1.063	<a href="#">53325</a>	SD203A-03125-106-0315R1-N	3.110	1.693	1.417	1.614	0.315
0.3150	–	8.0	1.063	<a href="#">53328</a>	SD203A-8.0-27-8R1-N	3.110	1.693	1.417	1.614	0.315
0.3346	–	8.5	1.063	<a href="#">53530</a>	SD203A-8.5-27-10R1-N	3.504	1.929	1.575	1.850	0.394
0.3543	–	9.0	1.142	<a href="#">53329</a>	SD203A-9.0-29-10R1-N	3.504	1.929	1.575	1.850	0.394
0.3740	–	9.5	1.142	<a href="#">53334</a>	SD203A-9.5-29-10R1-N	3.504	1.929	1.575	1.850	0.394
0.3750	3/8	9.525	1.220	<a href="#">53339</a>	SD203A-03750-122-0394R1-N	3.504	1.929	1.575	1.850	0.394
0.3937	–	10.0	1.220	<a href="#">53341</a>	SD203A-10.0-31-10R1-N	3.504	1.929	1.575	1.850	0.394
0.4016	–	10.2	1.220	<a href="#">53347</a>	SD203A-10.2-31-12R1-N	4.016	2.244	1.772	2.165	0.472
0.4063	13/32	10.32	1.220	<a href="#">53352</a>	SD203A-04063-122-0472R1-N	4.016	2.244	1.772	2.165	0.472
0.4134	–	10.5	1.220	<a href="#">53364</a>	SD203A-10.5-31-12R1-N	4.016	2.244	1.772	2.165	0.472
0.4331	–	11.0	1.299	<a href="#">53365</a>	SD203A-11.0-33-12R1-N	4.016	2.244	1.772	2.165	0.472
0.4375	7/16	11.113	1.299	<a href="#">53375</a>	SD203A-04375-130-0472R1-N	4.016	2.244	1.772	2.165	0.472
0.4528	–	11.5	1.299	<a href="#">53405</a>	SD203A-11.5-33-12R1-N	4.016	2.244	1.772	2.165	0.472
0.4724	–	12.0	1.417	<a href="#">53406</a>	SD203A-12.0-36-12R1-N	4.016	2.244	1.772	2.165	0.472
0.4921	–	12.5	1.417	<a href="#">53407</a>	SD203A-12.5-36-14R1-N	4.213	2.441	1.772	2.362	0.551
0.5000	1/2	12.7	1.417	<a href="#">53507</a>	SD203A-05000-142-0551R1-N	4.213	2.441	1.772	2.362	0.551
0.5118	–	13.0	1.417	<a href="#">53510</a>	SD203A-13.0-36-14R1-N	4.213	2.441	1.772	2.362	0.551
0.5312	17/32	13.492	1.457	<a href="#">53511</a>	SD203A-05312-146-0551R1-N	4.213	2.441	1.772	2.362	0.551
0.5315	–	13.5	1.457	<a href="#">53512</a>	SD203A-13.5-37-14R1-N	4.213	2.441	1.772	2.362	0.551
0.5512	–	14.0	1.457	<a href="#">53515</a>	SD203A-14.0-37-14R1-N	4.213	2.441	1.772	2.362	0.551

\* For intermediate diameters see the Custom Design software.

Custom intermediate diameters – drilling depth ~ 3 x D – Metric diameter

Cylindrical shank DIN 6537A

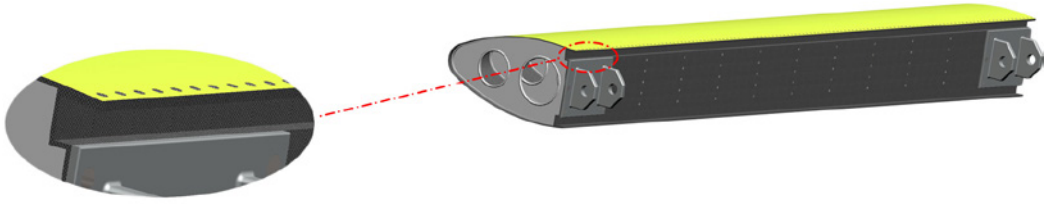


- A=Internal coolant
- For cutting data see page(s) 130-131
- DLC Coated
- Hole tolerance: IT 8-9

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	Part No.	Dimensions in mm				
			l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub> h6
2.00-2.20	7	SD203A-x.xx-7-4R1-N	41	13	28	11	4
2.21-2.60	8	SD203A-x.xx-8-4R1-N	44	16	28	13	4
2.61-2.99	9	SD203A-x.xx-9-4R1-N	44	16	28	15	4
3.00-3.40	14	SD203A-x.xx-14-6R1-N	62	26	36	20	6
3.41-3.75	15	SD203A-x.xx-15-6R1-N	62	26	36	20	6
3.76-4.20	17	SD203A-x.xx-17-6R1-N	66	30	36	24	6
4.21-4.50	18	SD203A-x.xx-18-6R1-N	66	30	36	24	6
4.51-4.75	18	SD203A-x.xx-18-6R1-N	66	30	36	26	6
4.76-5.20	20	SD203A-x.xx-20-6R1-N	66	30	36	28	6
5.21-6.00	21	SD203A-x.xx-21-6R1-N	66	30	36	28	6
6.01-6.60	23	SD203A-x.xx-23-8R1-N	79	43	36	34	8
6.61-7.00	25	SD203A-x.xx-25-8R1-N	79	43	36	34	8
7.01-7.50	25	SD203A-x.xx-25-8R1-N	79	43	36	41	8
7.51-8.00	27	SD203A-x.xx-27-8R1-N	79	43	36	41	8
8.01-8.60	27	SD203A-x.xx-27-10R1-N	89	49	40	47	10
8.61-9.50	29	SD203A-x.xx-29-10R1-N	89	49	40	47	10
9.51-10.00	31	SD203A-x.xx-31-10R1-N	89	49	40	47	10
10.01-10.50	31	SD203A-xx.xx-31-12R1-N	102	57	45	55	12
10.51-11.80	33	SD203A-xx.xx-33-12R1-N	102	57	45	55	12
11.81-12.00	36	SD203A-xx.xx-36-12R1-N	102	57	45	55	12
12.01-13.00	37	SD203A-xx.xx-36-14R1-N	107	62	45	60	14
13.01-14.00	37	SD203A-xx.xx-37-14R1-N	107	62	45	60	14
14.01-15.00	38	SD203A-xx.xx-38-16R1-N	115	67	48	65	16
15.01-16.00	39	SD203A-xx.xx-39-16R1-N	115	67	48	65	16
16.01-17.00	40	SD203A-xx.xx-40-18R1-N	123	75	48	73	18
17.01-18.00	41	SD203A-xx.xx-41-18R1-N	123	75	48	73	18
18.01-20.00	49	SD203A-xx.xx-49-20R1-N	131	81	50	79	20

The drills are available in ∅ increments of 0.01 mm. Fill in required cutting ∅ instead of -xx.xx- according to the ordering example. Cutting ∅ tolerance is equal to m7 unless otherwise specified. Ordering example for ∅ 11.3 mm: SD203-11.3-33-12R1-N. Also available for intermediate diameters in the Custom Design software.

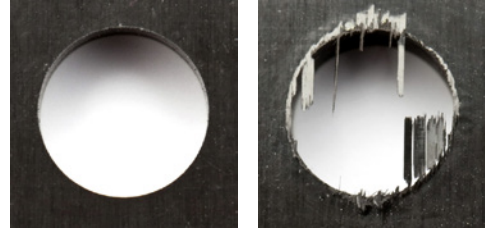
## Composite machining



### When hole quality is in focus

With issues like entrance and exit delamination and splintering, the focus has been clear; design tools specifically optimized for composite applications, and tools specifically optimised for sandwich materials. In both cases particular consideration was given to achieving excellent performance in both entering and exiting. (In sandwich material this usually involves exiting in either Al or Ti).

- No push-up delamination (entrance)
- No pull-down delamination (exit)



The Dura diamond coating secures good dimensional tolerance throughout the long tool life.

### Application example

Plain CFRP/GRP (exit in composite material)

CX1 geometry



Sandwich material (exit in Al/Ti)

CX2 geometry



**CX31 geometry PCD**  
**Universal geometry for both**  
**Plain CFRP/GRP and**  
**Sandwich materials**



CFRP = Carbon Fiber Reinforced Plastic  
 GRP = Glass Fiber Reinforced Plastic

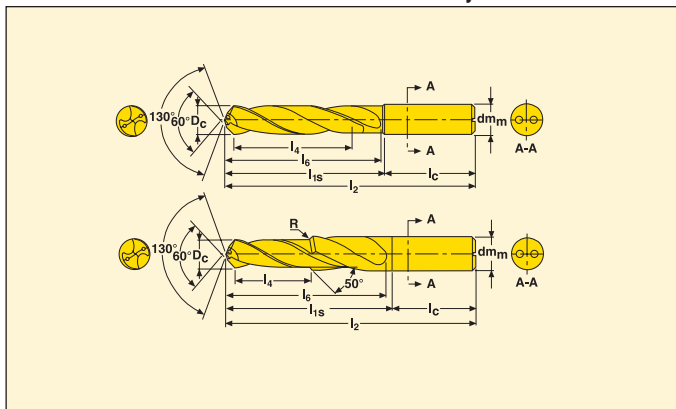


Drilling depth ~ 5 x D

Cylindrical shank DIN 6537A



- A=Internal coolant
- For cutting data see page(s) 138
- Manufacturing drill diameter tolerance m7
- Dura diamond coating



Drill diameter		Expected hole tolerance (mm)	Expected hole tolerance (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch				
D <sub>c</sub> (mm)	D <sub>c</sub> (inch)						l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>6</sub>	dm <sub>m</sub>
3.2	-	3.175/3.225	0.125/0.127	0.787	64610	SD205A-3.2-20-6R1-C1	2.598	1.181	1.417	1.024	0.236
4.1	-	4.075/4.125	0.160/0.162	1.024	64611	SD205A-4.1-26-6R1-C1	2.913	1.496	1.417	1.457	0.236
4.78	3/16	4.755/4.805	0.187/0.189	1.220	64612	SD205A-4.78-31-6R1-C1	3.228	1.811	1.417	1.732	0.236
6.0	-	5.975/6.025	0.235/0.237	1.220	64613	SD205A-6.0-31-6R1-C1	3.228	1.811	1.417	1.732	0.236
6.38	-	6.350/6.401	0.250/0.252	1.339	64614	SD205A-6.38-34-8R1-C1	3.583	2.165	1.417	2.087	0.315
7.963	5/16	7.938/7.988	0.313/0.314	1.575	64615	SD205A-7.963-40-8R1-C1	3.583	2.165	1.417	2.087	0.315
9.55	3/8	9.525/9.576	0.375/0.377	1.811	64616	SD205A-9.55-46-10R1-C1	4.055	2.480	1.575	2.402	0.394
11.138	7/16	11.112/11.163	0.437/0.439	2.087	64617	SD205A-11.138-53-12R1-C1	4.646	2.874	1.772	2.795	0.472
12.726	1/2	12.700/12.751	0.500/0.502	2.087	64618	SD205A-12.726-53-14R1-C1	4.882	3.110	1.772	3.031	0.551
4.78	3/16	4.755/4.805	0.187/0.189	1.220	64628	SD205A-C50-4.78-31-10R1-C1	3.504	1.929	1.575	1.850	0.394
6.0	-	5.975/6.025	0.235/0.237	1.220	64629	SD205A-C50-6.0-31-12R1-C1	3.701	1.929	1.772	1.850	0.472
6.376	1/4	6.350/6.401	0.250/0.252	1.339	64630	SD205A-C50-6.376-34-12R1-C1	4.055	2.283	1.772	2.205	0.472
7.963	5/16	7.938/7.988	0.313/0.314	1.575	64631	SD205A-C50-7.963-40-14R1-C1	4.055	2.283	1.772	2.205	0.551
9.551	3/8	9.525/9.576	0.375/0.377	1.811	64632	SD205A-C50-9.551-46-18R1-C1	4.528	2.638	1.890	2.559	0.709
11.138	7/16	11.112/11.163	0.437/0.439	2.087	64633	SD205A-C50-11.138-53-20R1-C1	5.000	3.031	1.969	2.953	0.787
12.726	1/2	12.700/12.751	0.500/0.502	2.087	64634	SD205A-C50-12.726-53-22R1-C1	5.236	3.268	1.969	3.189	0.866

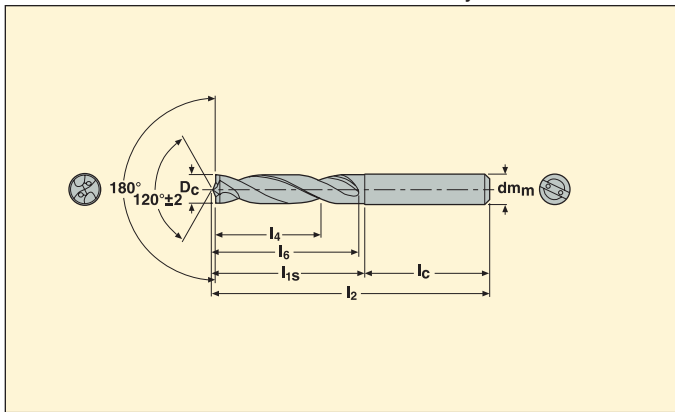
For intermediate diameters see the Custom Design software.





Drilling depth ~ 3 X D

Cylindrical shank DIN 6537A



- A=Internal through coolant
- PCD cutting edges
- For cutting data see page(s) 138
- Manufacturing drill diameter tolerance m7

Drill diameter		Expected hole tolerance (mm)	Expected hole tolerance (inch)	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch				
$D_c$ (mm)	$D_c$ (inch)						$l_2$	$l_{1s}$	$l_c$	$l_6$	$d_{mm}$
3.26	0.1283	3.235/3.285	0.127/0.129	0.551	<a href="#">14508</a>	SD203A-3.26-14-6R1-CX2	2.441	1.024	1.417	0.787	0.236
4.17	0.1642	4.142/4.192	0.163/0.165	0.669	<a href="#">14509</a>	SD203A-4.17-17-6R1-CX2	2.598	1.181	1.417	0.945	0.236
4.83	0.1902	4.805/4.855	0.189/0.191	0.787	<a href="#">14519</a>	SD203A-4.83-20-6R1-CX2	2.598	1.181	1.417	1.102	0.236
6.06	0.2386	6.035/6.085	0.238/0.240	0.827	<a href="#">14535</a>	SD203A-6.06-21-6R1-CX2	2.598	1.181	1.417	1.102	0.236
6.36	0.2504	6.33/6.38	0.249/0.251	0.906	<a href="#">14536</a>	SD203A-6.36-23-8R1-CX2	3.110	1.693	1.417	1.339	0.315
7.94	0.3126	7.913/7.963	0.312/0.314	1.063	<a href="#">14537</a>	SD203A-7.94-27-8R1-CX2	3.110	1.693	1.417	1.614	0.315
9.53	0.3752	9.504/9.554	0.374/0.376	1.220	<a href="#">14542</a>	SD203A-9.53-31-10R1-CX2	3.504	1.929	1.575	1.850	0.394

For intermediate diameters see the Custom Design software.



## Custom design – No waiting for quotations. Price and delivery time available instantly.

A well defined strategy has been created for the total process for custom-made drills from quotation to finished drill. You can now design your own customized Seco Feedmax™ drill using the Custom Design software.

The concept gives you a number of advantages:

- No waiting for quotations! price and delivery time available instantly
- Directly visualises your needs. No risk of misinterpretation
- Short delivery time

## CUSTOM DESIGN

Drilling >> Seco feedMAX® >> Single Diameter >> Chamfer >> Chamfer 4 Land margins
Feedback

Back
Start Page
English

Print this page

**Step 1: Tool Specification**  
Step 2: Request for Quotation

	Min	Max	
Dc (m7)	3	19.5	12.2
L4 (±0.2)	8	58	33.2
Hole tolerances			H7-H8
Vch	15	84	45
Type of shank			R1 <span style="font-size: x-small;">i</span>
Application			Universal <span style="font-size: x-small;">i</span>
Through coolant			Yes
Dmm (h6)			14
Lc			45
L1			62
V			140
Coating			TIAIN

Previous
Next

**Designation**  
SD243A-C45-12.2-33.2-14R1



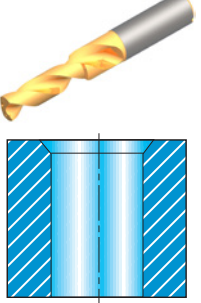
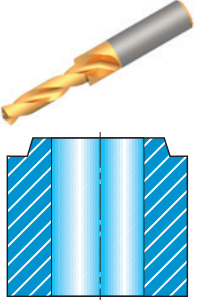
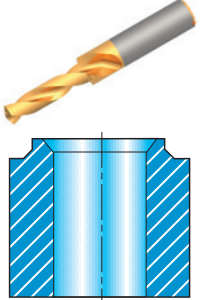
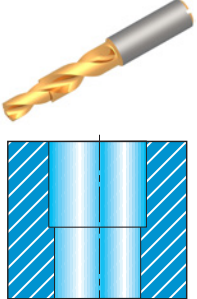
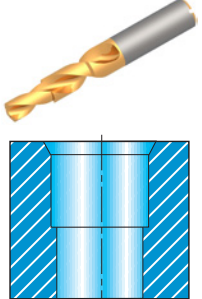
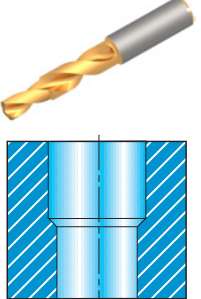
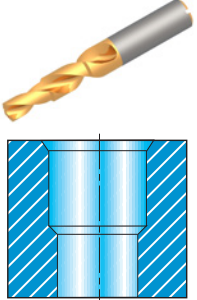
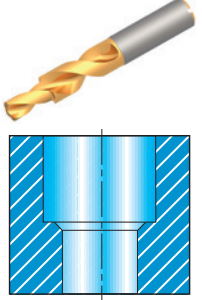
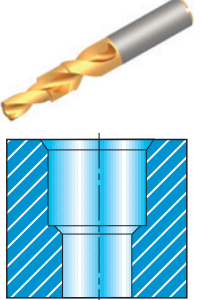
**Delivery Time**

Quantity:  Get data

Min Quantity: 2

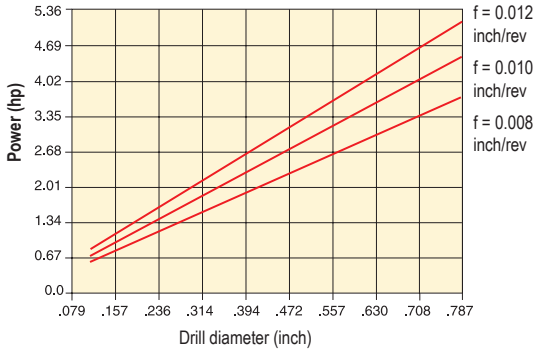
Please contact your local Seco representative for more information.

Different types of custom drills – Detailed information can be found in the Custom Design software

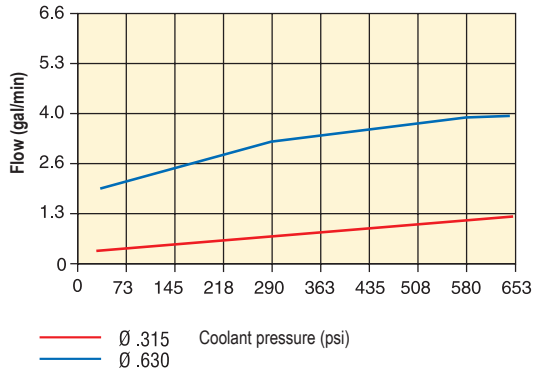
<p>A1. Single diameter</p> 	<p>A2. Reinforced</p> 	<p>A3. Chamfer</p> 
<p>A4. Face</p> 	<p>A5. Face with chamfer</p> 	
<p>B1. Counterbore</p> 	<p>B2. Counterbore and chamfer</p> 	<p>B3. Step</p> 
<p>B4. Step and chamfer</p> 	<p>B5. Counterbore with chamfer</p> 	<p>B6. Counterbore with chamfer</p> 

## Machining data

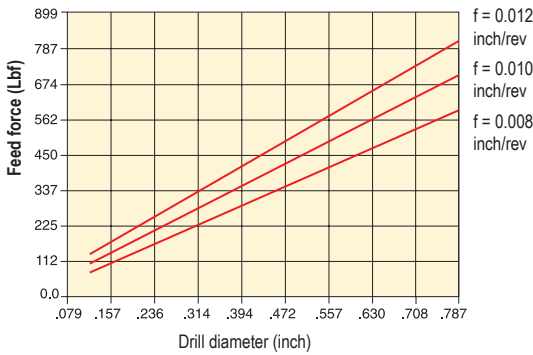
### Net power consumption



### Coolant flow at different pressures



### Feed force



The values showing feed force and net power consumption above are basic values and vary with type of cutting data, material and tool wear.

Minimum recommended coolant pressure 150 psi with < 3 x D.  
 Minimum recommended coolant pressure 300 psi with < 3 x D.  
 Minimum recommended coolant pressure 500 psi with < 5 x D.

Coolant supply through the drill will improve chip evacuation, lubrication of the carbide and cooling.

Recommended emulsion mix is 6-8%.

When drilling in high alloy- and stainless steel an emulsion mix of >10% is recommended.

When using an external coolant supply, direct the jet down the hole and not across it.

External coolant supply is only recommended when the drilling depth is maximum 3 x D. In more difficult stainless steels the recommendation is maximum 1 x D.

## Machining data

ND1103, ND1103A, ND1105A, SD203, SD203A, SD205A, SD206, SD206A, SD207A, SD216A, SD230A IT8-9/Ra 40-120*		
Drill Ø D <sub>c</sub> (inch)	IT9 tolerance (inch)	IT10 tolerance (inch)
<0.118	0.0006	0.0010
>0.118-0.236	0.0007	0.0012
>0.236-0.394	0.0009	0.0014
>0.394-0.709	0.0011	0.0017
>0.709	0.0013	0.0020

\*Deterioration of surface finish can occur when drilling in low carbon steel or stainless steel.


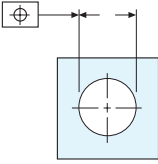
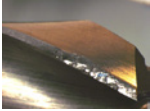
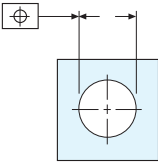

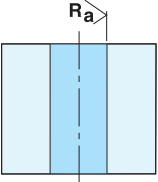

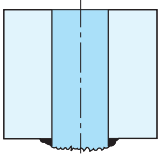
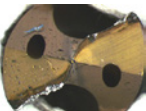
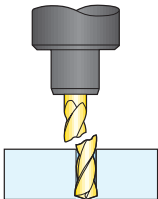
## Method

- Center drilling is not recommended.
- If the surface of the workpiece is angled, rough or center drilled decrease feed by 50% during entrance.
- Adjust feed up or down to obtain as good chip formation as possible. Increased feed/rev. gives shorter chips.



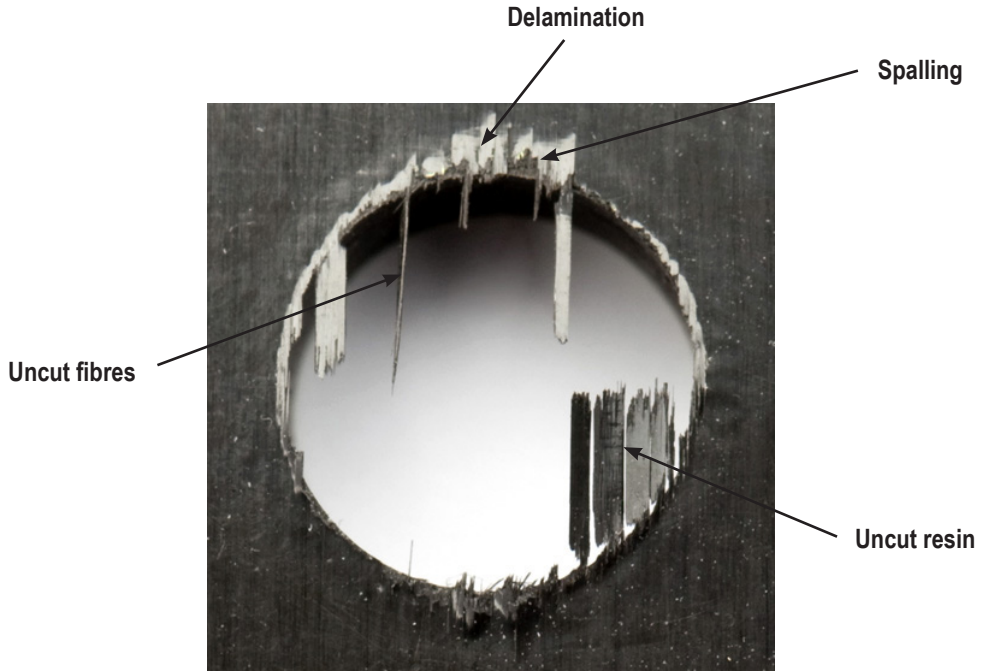
## Troubleshooting – Initial check points:

- Fixturing stability
- Machine spindle condition
- Tool holder condition
- Clamping of tool:
  - Run-out within 0.0008" (0.02 mm) TIR
  - If using pre drilling within 0.0008" (0.02 mm) TIR
- Chip evacuation:
  - Cutting data
- Coolant:
  - Pressure
  - Flow
  - Concentration

<p><b>Rapid flank wear</b></p> <ul style="list-style-type: none"> <li>• Reduce the cutting speed</li> <li>• Increase coolant concentration</li> </ul> 	<p><b>Unsatisfactory diameter tolerance</b></p> <ul style="list-style-type: none"> <li>• Increase the feed/rev</li> <li>• Use a remaining operation, see page(s) 302</li> <li>• Use a boring operation, see page(s) 464-465</li> </ul> 
<p><b>Wear / Periphery land</b></p> <ul style="list-style-type: none"> <li>• Reduce the cutting speed</li> <li>• Increase coolant concentration</li> </ul> 	<p><b>Unsatisfactory positioning of the hole</b></p> <ul style="list-style-type: none"> <li>• Reduce feed/rev on entrance</li> <li>• Reduce feed/rev</li> <li>• Use a boring operation, see page(s) 464-465</li> <li>• If drilling through rough, hard and angled surfaces - reduce the feed by 30%-50% during entrance and exit</li> <li>• Center drill with a 140° point angle</li> </ul> 
<p><b>Chipping / Center</b></p> <ul style="list-style-type: none"> <li>• Reduce feed during entrance</li> <li>• Increase coolant pressure and adjust the feed to optimize the chip formation</li> </ul> 	<p><b>Unsatisfactory surface finish-Feedmax</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev</li> <li>• Increase the cutting speed</li> <li>• Use a remaining operation, see page(s) 302</li> </ul> 
<p><b>Chipping / Outer corner, cutting edge</b></p> <ul style="list-style-type: none"> <li>• Reduce feed during entrance/exit</li> <li>• Reduce the cutting speed</li> <li>• Increase coolant concentration</li> <li>• Regrind the drill</li> </ul> 	<p><b>Burrs on exit</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev on exit</li> <li>• Reduce the width of edge preparation (b<sub>n</sub>)</li> </ul> 
<p><b>Built-up edge</b></p> <ul style="list-style-type: none"> <li>• If closer to the periphery increase the cutting speed</li> <li>• If closer to center increase feed/rev</li> <li>• If the drill is worn, regrind it</li> </ul> 	<p><b>Breakage on contact / at hole bottom</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev during entrance/exit</li> <li>• Adjust cutting data for improved chip evacuation</li> </ul> 

Troubleshooting

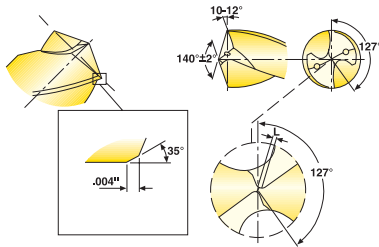
Hole exit



<b>Problem:</b>	<b>Delamination</b> (peel up / push down)	<b>Spalling</b>	<b>Uncut fibres</b>	<b>Uncut resin</b>
<b>Solution:</b>	<b>Peel up</b> <ul style="list-style-type: none"> <li>• Use tool with more negative geometry</li> <li>• Reduce feed/rev</li> </ul>	<ul style="list-style-type: none"> <li>• Use tool with more positive geometry</li> <li>• Reduce feed/rev</li> </ul>	<ul style="list-style-type: none"> <li>• Use tool with a sharper geometry</li> <li>• Reduce feed/rev</li> </ul>	<ul style="list-style-type: none"> <li>• Use tool with a sharper geometry</li> <li>• Reduce feed/rev</li> <li>• Reduce cutting speed</li> </ul>
	<b>Push down</b> <ul style="list-style-type: none"> <li>• Reduce feed/rev</li> </ul>			
<b>Problem:</b>	<b>Melted resin</b> <b>Too much heat</b>	<b>Poor tool life</b>		
<b>Solution:</b>	<ul style="list-style-type: none"> <li>• Reduce cutting speed</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce cutting speed</li> </ul>		

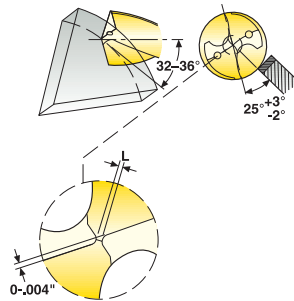
Regrinding instructions for ND1103, ND1103A and ND1105A

1. Four facet point



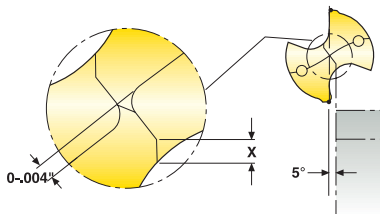
Lip height distance (axial run-out) to be within 0.0008" (0.02 mm)

2. Web thinning



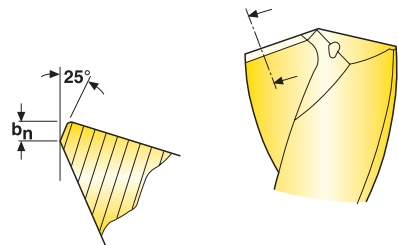
Drill $\varnothing$ D <sub>c</sub> (inch)	L (inch)
0.079-0.394	0.004-0.012
0.394-0.787	0.008-0.016

3. Grinding of flat X



$X = 0.003 \times \text{drill diameter } D_c$

4. Edge preparation



Workpiece material	b <sub>n</sub> (inch)	
	Drill $\varnothing \leq 0.394$	Drill $\varnothing > 0.394$
Steel	0.002	0.004
Stainless steel	0.002	0.002
Cast iron	0.002	0.004

Max. allowed flank wear before regrinding is 0.004-0.012" (0.1-0.3 mm) measured at the largest point.

Specifications

Proposed specification of diamond wheels:

Conical clearance: Wheel shape 12A2 Grit size D54 (picture 1).

Gashing: Wheel shape 1A1 or 1V1 Grit size D64-D46 (picture 2-3).

Corner chamfer: Wheel shape 1A1 or 12A2 (picture 1).

Edge treatment: grinding K-land or brushing (picture 4).

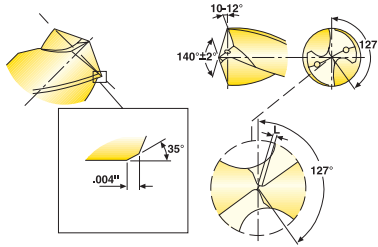
Important:

- The cutting edges must be uniform and have the same size of edge preparation.
- The edge preparation must be applied on the whole length of the cutting edges.
- Please review for current Material Data Safety Sheet which can be found at [www.secotools.com](http://www.secotools.com) under the Safety section.

For authorized Seco Feedmax regrind source information call 1-800-832-8326.

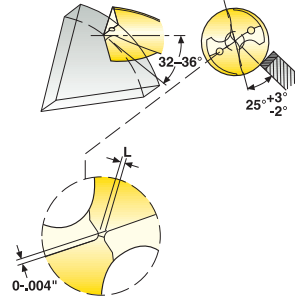
## Regrinding instructions for SD203, SD203A, SD205A and SD207A

### 1. Conical flank



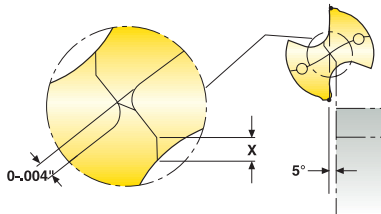
Lip height distance (axial run-out) to be within 0.0008" (0.02 mm)

### 2. Web thinning



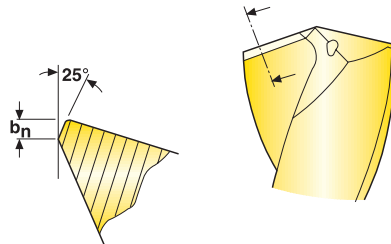
Drill $\varnothing$ $D_c$ (inch)	L (inch)
0.079-0.394	0.004-0.012
0.394-0.787	0.008-0.016

### 3. Grinding of flat X



$X = 0.08 \times \text{drill diameter } D_c$

### 4. Edge preparation



Workpiece material	$b_n$ (inch)	
	Drill $\varnothing \leq 0.394$	Drill $\varnothing > 0.394$
Steel	0.002	0.004
Stainless steel	0.002	0.002
Cast iron	0.002	0.004

Max. allowed flank wear before regrinding is 0.004-0.012" (0.1-0.3 mm) measured at the largest point.

### Specifications

Proposed specification of diamond wheels:

Conical clearance: Wheel shape 12A2 Grit size D54 (picture 1).

Gashing: Wheel shape 1A1 or 1V1 Grit size D64-D46 (picture 2-3).

Corner chamfer: Wheel shape 1A1 or 12A2 (picture 1).

Edge treatment: grinding K-land or brushing (picture 4).

### Important:

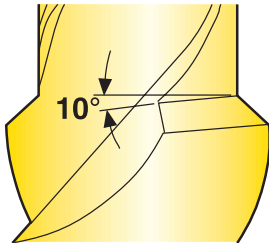
- The cutting edges must be uniform and have the same size of edge preparation.
- The edge preparation must be applied on the whole length of the cutting edges.
- Please review the current Material Data Safety Sheet which can be found at [www.seco.com](http://www.seco.com) under the Safety section.

For authorized Seco Feedmax regrind source information call 1-800-832-8326.

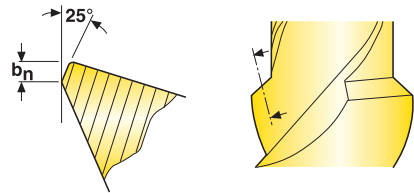
## Regrinding instructions for chamfer drills

The regrinding instructions are the same as for SD203, SD203A, SD205A and SD207A except for the chamfer.

### 1. Chamfer relief



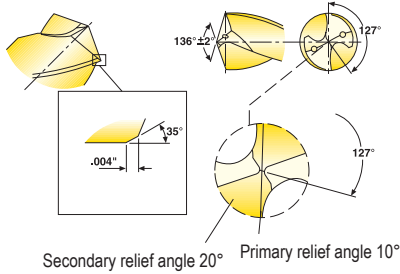
### 2. Edge preparation, chamfer



Workpiece material	$b_n$ (inch)	
	Drill $\varnothing \leq 0.394$	Drill $\varnothing > 0.394$
Steel	0.002	0.002
Stainless steel	0.002	0.002
Cast iron	0.002	0.002

## Regrinding instructions for SD212A, SD216A, SD220A, SD225A and SD230A geometry

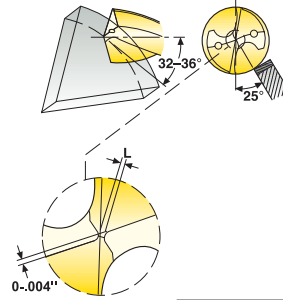
### 1. Conical flank



Secondary relief angle 20° Primary relief angle 10°

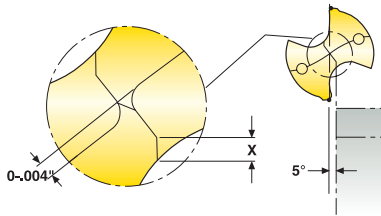
Lip height distance (axial run-out) to be within 0.0008" (0.02 mm)

### 2. Web thinning



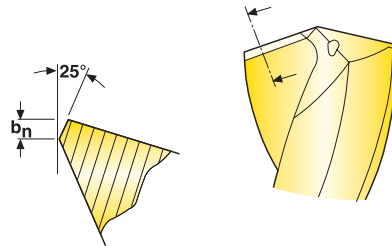
Drill $\varnothing$ D <sub>c</sub> (inch)	L (inch)
0.079-0.394	0.008
0.394-0.787	0.016

### 3. Grinding of flat X



$X = 0.08 \times \text{drill diameter } D_c$

### 4. Edge preparation



Workpiece material	b <sub>n</sub> (inch)	
	Drill $\varnothing \leq 0.394$	Drill $\varnothing > 0.394$
Steel	0.002	0.004
Stainless steel	0.002	0.002
Cast iron	0.002	0.004

Max. allowed flank wear before regrinding is 0.004-0.012" (0.1-0.3 mm) measured at the largest point.

### Specifications

Proposed specification of diamond wheels:

- Point relief: wheel shape 11V9 grit size D54 (picture 1).
- Gashing: Wheel shape 1A1 or 1V1 Grit size D64-D46 (picture 2-3).
- Corner chamfer: Wheel shape 1A1 or 12A2 (picture 1).
- Edge treatment: grinding K-land or brushing (picture 4).

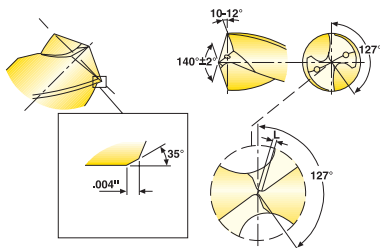
### Important:

- The cutting edges must be uniform and have the same size of edge preparation.
- The edge preparation must be applied on the whole length of the cutting edges.
- Please review the current Material Data Safety Sheet which can be found at [www.secotools.com](http://www.secotools.com) under the Safety section.

For authorized Seco Feedmax regrind source information call 1-800-832-8326.

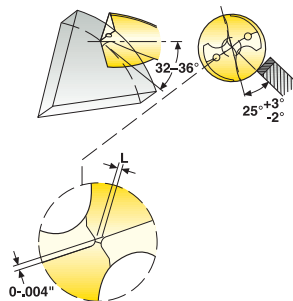
Regrinding instructions for SD265A

1. Conical flank



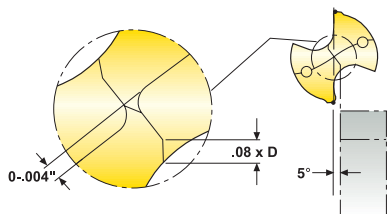
Lip height distance (axial run-out) to be within 0.0008" (0.02 mm)

2. Web thinning

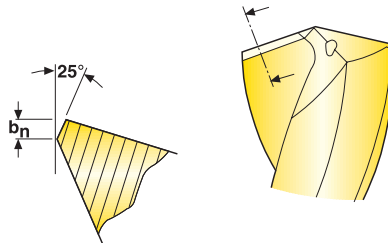


Drill Ø D <sub>c</sub> (inch)	L (inch)
0.079-0.394	0.004-0.012
0.394-0.787	0.008-0.016

3. Grinding of flat X



4. Edge preparation



Workpiece material	Drill Ø ≤0.394 (inch)	Drill Ø >0.394 (inch)
Steel	0.002	0.004
Stainless steel	0.002	0.002
Cast iron	0.002	0.004

Max. allowed flank wear before regrinding is 0.004-0.012" (0.1–0.3 mm) measured at the largest point.

Specifications

Proposed specification of diamond wheels:

- Conical clearance: Wheel shape 12A2 Grit size D54 (picture 1).
- Gashing: Wheel shape 1A1 or 1V1 Grit size D64-D46 (picture 2-3).
- Corner chamfer: Wheel shape 1A1 or 12A2 (picture 1).
- Edge treatment: grinding K-land or brushing (picture 4).

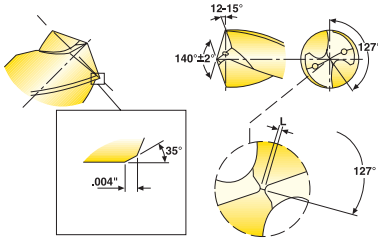
Important:

- The cutting edges must be uniform and have the same size of edge preparation.
- The edge preparation must be applied on the whole length of the cutting edges.
- Please review the current Material Data Safety Sheet which can be found at [www.secotools.com](http://www.secotools.com) under the Safety section.

For authorized Seco Feedmax regrind source information call 1-800-832-8326.

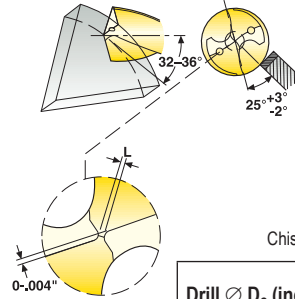
## Regrinding instructions for -M and -T geometry

### 1. Conical flank



Lip height distance (axial run-out) to be within 0.0004" (0.01 mm)

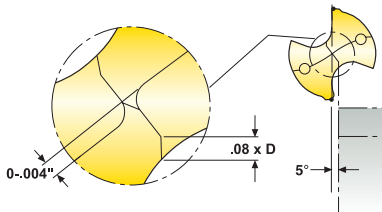
### 2. Web thinning



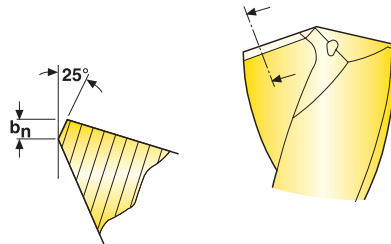
Chisel edge length L

Drill $\varnothing D_c$ (inch)	L (inch)
0.118-0.236	0.004-0.008
0.236-0.394	0.005-0.011
0.394-0.787	0.008-0.016

### 3. Grinding of flat X



### 4. Edge preparation



$b_n = 0.0008"$  (0.02 mm)

Max. allowed flank wear before regrinding is 0.004-0.012" (0.1-0.3 mm) measured at the largest point.

### Specifications

Proposed specification of diamond wheels:

Conical clearance: Wheel shape 12A2 Grit size D54 (picture 1).

Gashing: Wheel shape 1A1 or 1V1 Grit size D64-D46 (picture 2-3).

Corner chamfer: Wheel shape 1A1 or 12A2 (picture 1).

Edge treatment: grinding K-land or brushing (picture 4).

### Important:

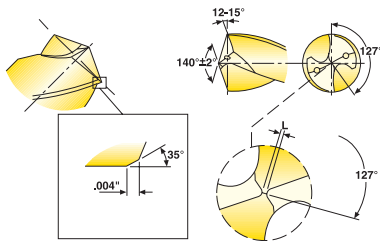
- The cutting edges must be uniform and have the same size of edge preparation.
- The edge preparation must be applied on the whole length of the cutting edges.
- Please review the current Material Data Safety Sheet which can be found at [www.secotools.com](http://www.secotools.com) under the Safety section.

For authorized Seco Feedmax regrind source information call 1-800-832-8326.



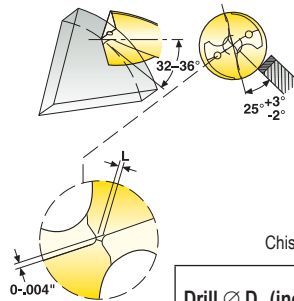
Regrinding instructions for -N geometry

1. Conical flank



Lip height distance (axial run-out) to be within 0.0004" (0.01 mm)

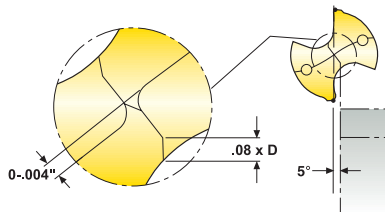
2. Web thinning



Chisel edge length L

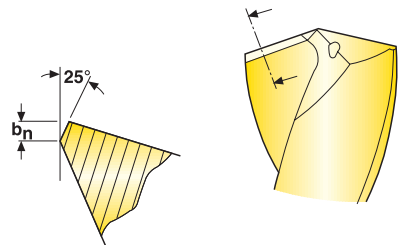
Drill $\varnothing$ D <sub>c</sub> (inch)	L (inch)
0.118-0.236	0.004-0.008
0.236-0.394	0.005-0.011
0.394-0.787	0.008-0.016

3. Grinding of flat X



X = 0.08 x drill diameter D<sub>c</sub>

4. Edge preparation



b<sub>n</sub> = 0.0004-0.0008" (0.01-0.02 mm)

Max. allowed flank wear before regrinding is 0.004-0.012" (0.1-0.3 mm) measured at the largest point.

Specifications

Proposed specification of diamond wheels:

- Conical clearance: Wheel shape 12A2 Grit size D54 (picture 1).
- Gashing: Wheel shape 1A1 or 1V1 Grit size D64-D46 (picture 2-3).
- Corner chamfer: Wheel shape 1A1 or 12A2 (picture 1).
- Edge treatment: grinding K-land or brushing (picture 4).

Important:

- The cutting edges must be uniform and have the same size of edge preparation.
- The edge preparation must be applied on the whole length of the cutting edges.
- Please review the current Material Data Safety Sheet which can be found at [www.secotools.com](http://www.secotools.com) under the Safety section.

For authorized Seco Feedmax regrind source information call 1-800-832-8326.

Cutting data – ND1103 – Ø 0.118-0.787, External coolant

SMG	f										v <sub>c</sub>
	Ø 0.118	Ø 0.157	Ø 0.236	Ø 0.315	Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	0.0048	0.0055	0.0070	0.0085	0.010	0.011	0.012	0.013	0.013	0.014	350
P2	0.0048	0.0055	0.0070	0.0085	0.010	0.011	0.012	0.013	0.013	0.014	340
P3	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.012	0.013	0.013	0.013	295
P4	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	260
P5	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	245
P6	0.0044	0.0050	0.0065	0.0080	0.0085	0.010	0.011	0.012	0.013	0.013	275
P7	0.0044	0.0050	0.0065	0.0080	0.0085	0.010	0.011	0.012	0.013	0.013	260
P8	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.012	0.013	0.013	0.013	245
P11	0.0044	0.0050	0.0065	0.0080	0.0085	0.010	0.011	0.012	0.013	0.013	255
M1	0.0048	0.0055	0.0070	0.0085	0.010	0.011	0.012	0.013	0.013	0.014	185
M2	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	150
K1	0.0048	0.0055	0.0070	0.0085	0.010	0.011	0.012	0.013	0.013	0.014	230
K2	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	200
K3	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	170
K4	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	160
K5	0.0040	0.0048	0.0060	0.0070	0.0080	0.0095	0.010	0.010	0.011	0.012	95
H3	0.0020	0.0024	0.0030	0.0036	0.0040	0.0048	0.0050	0.0050	0.0055	0.0060	80
H5	0.0030	0.0034	0.0044	0.0055	0.0065	0.0070	0.0075	0.0080	0.0085	0.0085	150
H7	0.0020	0.0024	0.0030	0.0036	0.0040	0.0048	0.0050	0.0050	0.0055	0.0060	80
H8	0.0022	0.0026	0.0034	0.0040	0.0048	0.0050	0.0060	0.0065	0.0065	0.0065	150
H11	0.0030	0.0034	0.0044	0.0055	0.0065	0.0070	0.0075	0.0080	0.0085	0.0085	190
H12	0.0030	0.0034	0.0044	0.0055	0.0065	0.0070	0.0075	0.0080	0.0085	0.0085	285

Cutting data – ND110XA – Ø 0.118-0.787, Internal coolant

SMG	f										v <sub>c</sub>
	Ø 0.118	Ø 0.157	Ø 0.236	Ø 0.315	Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	0.0048	0.0055	0.0070	0.0085	0.010	0.011	0.012	0.013	0.013	0.014	465
P2	0.0048	0.0055	0.0070	0.0085	0.010	0.011	0.012	0.013	0.013	0.014	455
P3	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.012	0.013	0.013	0.013	390
P4	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	345
P5	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	330
P6	0.0044	0.0050	0.0065	0.0080	0.0085	0.010	0.011	0.012	0.013	0.013	370
P7	0.0044	0.0050	0.0065	0.0080	0.0085	0.010	0.011	0.012	0.013	0.013	350
P8	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.012	0.013	0.013	0.013	330
P11	0.0044	0.0050	0.0065	0.0080	0.0085	0.010	0.011	0.012	0.013	0.013	340
M1	0.0048	0.0055	0.0070	0.0085	0.010	0.011	0.012	0.013	0.013	0.014	245
M2	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	195
K1	0.0048	0.0055	0.0070	0.0085	0.010	0.011	0.012	0.013	0.013	0.014	295
K2	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	255
K3	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	215
K4	0.0044	0.0050	0.0065	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	205
K5	0.0040	0.0048	0.0060	0.0070	0.0080	0.0095	0.010	0.010	0.011	0.012	125
H3	0.0020	0.0024	0.0030	0.0036	0.0040	0.0048	0.0050	0.0050	0.0055	0.0060	105
H5	0.0030	0.0034	0.0044	0.0055	0.0065	0.0070	0.0075	0.0080	0.0085	0.0085	200
H7	0.0020	0.0024	0.0030	0.0036	0.0040	0.0048	0.0050	0.0050	0.0055	0.0060	105
H8	0.0022	0.0026	0.0034	0.0040	0.0048	0.0050	0.0060	0.0065	0.0065	0.0065	200
H11	0.0030	0.0034	0.0044	0.0055	0.0065	0.0070	0.0075	0.0080	0.0085	0.0085	255
H12	0.0030	0.0034	0.0044	0.0055	0.0065	0.0070	0.0075	0.0080	0.0085	0.0085	380

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

Cutting data – SD203 – Ø 0.079-0.315, External coolant

SMG		f						v <sub>c</sub>
		Ø 0.079	Ø 0.118	Ø 0.157	Ø 0.197	Ø 0.236	Ø 0.315	
P1	P	0.0044	0.0050	0.0065	0.0070	0.0080	0.0095	465
P2	P	0.0044	0.0055	0.0065	0.0070	0.0080	0.010	455
P3	P	0.0044	0.0050	0.0060	0.0065	0.0075	0.0095	390
P4	P	0.0040	0.0050	0.0060	0.0065	0.0075	0.0095	345
P5	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	330
P6	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	370
P7	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	350
P8	P	0.0044	0.0050	0.0060	0.0065	0.0075	0.0095	330
P11	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	340
K1	P	0.0044	0.0055	0.0065	0.0070	0.0080	0.010	330
K2	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	285
K3	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	240
K4	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	230
K5	P	0.0036	0.0044	0.0050	0.0060	0.0065	0.0080	135

Cutting data – SD203 – Ø 0.394-0.787, External coolant

SMG		f						v <sub>c</sub>
		Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	P	0.011	0.013	0.014	0.015	0.016	0.017	465
P2	P	0.012	0.013	0.014	0.015	0.016	0.017	455
P3	P	0.011	0.013	0.013	0.014	0.015	0.016	390
P4	P	0.011	0.012	0.013	0.014	0.015	0.016	345
P5	P	0.010	0.012	0.013	0.013	0.014	0.015	330
P6	P	0.010	0.012	0.013	0.013	0.014	0.015	370
P7	P	0.010	0.012	0.013	0.013	0.014	0.015	350
P8	P	0.011	0.013	0.013	0.014	0.015	0.016	330
P11	P	0.010	0.012	0.013	0.013	0.014	0.015	340
K1	P	0.012	0.013	0.014	0.015	0.016	0.017	330
K2	P	0.010	0.012	0.013	0.013	0.014	0.015	285
K3	P	0.010	0.012	0.013	0.013	0.014	0.015	240
K4	P	0.010	0.012	0.013	0.013	0.014	0.015	230
K5	P	0.0095	0.010	0.012	0.013	0.013	0.013	135

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD203A – Ø 0.079-0.315, Internal coolant

SMG		f						v <sub>c</sub>
		Ø 0.079	Ø 0.118	Ø 0.157	Ø 0.197	Ø 0.236	Ø 0.315	
P1	P	0.0044	0.0050	0.0065	0.0070	0.0080	0.0095	680
P2	P	0.0044	0.0055	0.0065	0.0070	0.0080	0.010	660
P3	P	0.0044	0.0050	0.0060	0.0065	0.0075	0.0095	570
P4	P	0.0040	0.0050	0.0060	0.0065	0.0075	0.0095	500
P5	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	475
P6	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	530
P7	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	500
P8	P	0.0044	0.0050	0.0060	0.0065	0.0075	0.0095	475
P11	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	490
M1	M	0.0030	0.0038	0.0044	0.0050	0.0060	0.0075	360
M2	M	0.0026	0.0034	0.0040	0.0048	0.0055	0.0065	295
M3	M	0.0022	0.0026	0.0032	0.0038	0.0044	0.0055	225
M4	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	165
M5	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	140
K1	P	0.0044	0.0055	0.0065	0.0070	0.0080	0.010	330
K2	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	285
K3	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	240
K4	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	230
K5	P	0.0036	0.0044	0.0050	0.0060	0.0065	0.0080	135
N1	N	0.0050	0.0065	0.0075	0.0085	0.010	0.013	1150
N2	M	0.0038	0.0048	0.0055	0.0065	0.0075	0.0095	730
N3	M	0.0038	0.0048	0.0055	0.0065	0.0075	0.0095	490
N11	M	0.0038	0.0048	0.0055	0.0065	0.0075	0.0095	930
S1	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	130
S2	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	90
S3	M	0.0017	0.0022	0.0026	0.0030	0.0036	0.0044	90
S11	M	0.0022	0.0026	0.0032	0.0038	0.0044	0.0055	240
S12	M	0.0022	0.0026	0.0032	0.0038	0.0044	0.0055	185
S13	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	140
H3	P	0.0018	0.0022	0.0026	0.0030	0.0034	0.0040	120
H5	P	0.0028	0.0034	0.0040	0.0044	0.0050	0.0065	220
H7	P	0.0018	0.0022	0.0026	0.0030	0.0034	0.0040	120
H8	P	0.0022	0.0026	0.0030	0.0034	0.0038	0.0048	220
H11	P	0.0028	0.0034	0.0040	0.0044	0.0050	0.0065	280
H12	P	0.0028	0.0034	0.0040	0.0044	0.0050	0.0065	425
H21	P	0.0022	0.0026	0.0030	0.0034	0.0038	0.0048	220

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

Cutting data – SD203A – Ø 0.394-0.787, Internal coolant

SMG		f						v <sub>c</sub>
		Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	P	0.011	0.013	0.014	0.015	0.016	0.017	680
P2	P	0.012	0.013	0.014	0.015	0.016	0.017	660
P3	P	0.011	0.013	0.013	0.014	0.015	0.016	570
P4	P	0.011	0.012	0.013	0.014	0.015	0.016	500
P5	P	0.010	0.012	0.013	0.013	0.014	0.015	475
P6	P	0.010	0.012	0.013	0.013	0.014	0.015	530
P7	P	0.010	0.012	0.013	0.013	0.014	0.015	500
P8	P	0.011	0.013	0.013	0.014	0.015	0.016	475
P11	P	0.010	0.012	0.013	0.013	0.014	0.015	490
M1	M	0.0085	0.0095	0.011	0.012	0.012	0.013	360
M2	M	0.0080	0.0085	0.0095	0.010	0.011	0.012	295
M3	M	0.0065	0.0070	0.0080	0.0085	0.0085	0.0095	225
M4	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	165
M5	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	140
K1	P	0.012	0.013	0.014	0.015	0.016	0.017	330
K2	P	0.010	0.012	0.013	0.013	0.014	0.015	285
K3	P	0.010	0.012	0.013	0.013	0.014	0.015	240
K4	P	0.010	0.012	0.013	0.013	0.014	0.015	230
K5	P	0.0095	0.010	0.012	0.013	0.013	0.013	135
N1	N	0.015	0.017	0.018	0.020	0.022	0.022	1150
N2	M	0.011	0.013	0.013	0.015	0.016	0.017	730
N3	M	0.011	0.013	0.013	0.015	0.016	0.017	490
N11	M	0.011	0.013	0.013	0.015	0.016	0.017	930
S1	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	130
S2	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	90
S3	M	0.0050	0.0060	0.0065	0.0065	0.0070	0.0075	90
S11	M	0.0065	0.0070	0.0080	0.0085	0.0085	0.0095	240
S12	M	0.0065	0.0070	0.0080	0.0085	0.0085	0.0095	185
S13	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	140
H3	P	0.0048	0.0050	0.0060	0.0065	0.0065	0.0065	120
H5	P	0.0070	0.0080	0.0085	0.0095	0.010	0.010	220
H7	P	0.0048	0.0050	0.0060	0.0065	0.0065	0.0065	120
H8	P	0.0055	0.0065	0.0065	0.0070	0.0075	0.0080	220
H11	P	0.0070	0.0080	0.0085	0.0095	0.010	0.010	280
H12	P	0.0070	0.0080	0.0085	0.0095	0.010	0.010	425
H21	P	0.0055	0.0065	0.0065	0.0070	0.0075	0.0080	220

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD205A – Ø 0.079-0.315, Internal coolant

SMG		f						v <sub>c</sub>
		Ø 0.079	Ø 0.118	Ø 0.157	Ø 0.197	Ø 0.236	Ø 0.315	
P1	P	0.0044	0.0050	0.0065	0.0070	0.0080	0.0095	610
P2	P	0.0044	0.0055	0.0065	0.0070	0.0080	0.010	590
P3	P	0.0044	0.0050	0.0060	0.0065	0.0075	0.0095	510
P4	P	0.0040	0.0050	0.0060	0.0065	0.0075	0.0095	445
P5	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	425
P6	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	480
P7	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	450
P8	P	0.0044	0.0050	0.0060	0.0065	0.0075	0.0095	425
P11	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	440
M1	M	0.0030	0.0038	0.0044	0.0050	0.0060	0.0075	325
M2	M	0.0026	0.0034	0.0040	0.0048	0.0055	0.0065	260
M3	M	0.0022	0.0026	0.0032	0.0038	0.0044	0.0055	200
M4	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	150
M5	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	125
K1	P	0.0044	0.0055	0.0065	0.0070	0.0080	0.010	395
K2	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	340
K3	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	290
K4	P	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	275
K5	P	0.0036	0.0044	0.0050	0.0060	0.0065	0.0080	165
N1	N	0.0050	0.0065	0.0075	0.0085	0.010	0.013	1150
N2	M	0.0038	0.0048	0.0055	0.0065	0.0075	0.0095	660
N3	M	0.0038	0.0048	0.0055	0.0065	0.0075	0.0095	435
N11	M	0.0038	0.0048	0.0055	0.0065	0.0075	0.0095	840
S1	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	115
S2	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	80
S3	M	0.0017	0.0022	0.0026	0.0030	0.0036	0.0044	80
S11	M	0.0022	0.0026	0.0032	0.0038	0.0044	0.0055	215
S12	M	0.0022	0.0026	0.0032	0.0038	0.0044	0.0055	165
S13	M	0.0019	0.0024	0.0028	0.0034	0.0038	0.0048	125
H3	P	0.0018	0.0022	0.0026	0.0030	0.0034	0.0040	105
H5	P	0.0028	0.0034	0.0040	0.0044	0.0050	0.0065	200
H7	P	0.0018	0.0022	0.0026	0.0030	0.0034	0.0040	105
H8	P	0.0022	0.0026	0.0030	0.0034	0.0038	0.0048	200
H11	P	0.0028	0.0034	0.0040	0.0044	0.0050	0.0065	255
H12	P	0.0028	0.0034	0.0040	0.0044	0.0050	0.0065	380
H21	P	0.0022	0.0026	0.0030	0.0034	0.0038	0.0048	200

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

Cutting data – SD205A – Ø 0.394-0.787, Internal coolant

SMG		f						v <sub>c</sub>
		Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	P	0.011	0.013	0.014	0.015	0.016	0.017	610
P2	P	0.012	0.013	0.014	0.015	0.016	0.017	590
P3	P	0.011	0.013	0.013	0.014	0.015	0.016	510
P4	P	0.011	0.012	0.013	0.014	0.015	0.016	445
P5	P	0.010	0.012	0.013	0.013	0.014	0.015	425
P6	P	0.010	0.012	0.013	0.013	0.014	0.015	480
P7	P	0.010	0.012	0.013	0.013	0.014	0.015	450
P8	P	0.011	0.013	0.013	0.014	0.015	0.016	425
P11	P	0.010	0.012	0.013	0.013	0.014	0.015	440
M1	M	0.0085	0.0095	0.011	0.012	0.012	0.013	325
M2	M	0.0080	0.0085	0.0095	0.010	0.011	0.012	260
M3	M	0.0065	0.0070	0.0080	0.0085	0.0085	0.0095	200
M4	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	150
M5	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	125
K1	P	0.012	0.013	0.014	0.015	0.016	0.017	395
K2	P	0.010	0.012	0.013	0.013	0.014	0.015	340
K3	P	0.010	0.012	0.013	0.013	0.014	0.015	290
K4	P	0.010	0.012	0.013	0.013	0.014	0.015	275
K5	P	0.0095	0.010	0.012	0.013	0.013	0.013	165
N1	N	0.015	0.017	0.018	0.020	0.022	0.022	1150
N2	M	0.011	0.013	0.013	0.015	0.016	0.017	660
N3	M	0.011	0.013	0.013	0.015	0.016	0.017	435
N11	M	0.011	0.013	0.013	0.015	0.016	0.017	840
S1	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	115
S2	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	80
S3	M	0.0050	0.0060	0.0065	0.0065	0.0070	0.0075	80
S11	M	0.0065	0.0070	0.0080	0.0085	0.0085	0.0095	215
S12	M	0.0065	0.0070	0.0080	0.0085	0.0085	0.0095	165
S13	M	0.0055	0.0065	0.0065	0.0075	0.0080	0.0080	125
H3	P	0.0048	0.0050	0.0060	0.0065	0.0065	0.0065	105
H5	P	0.0070	0.0080	0.0085	0.0095	0.010	0.010	200
H7	P	0.0048	0.0050	0.0060	0.0065	0.0065	0.0065	105
H8	P	0.0055	0.0065	0.0065	0.0070	0.0075	0.0080	200
H11	P	0.0070	0.0080	0.0085	0.0095	0.010	0.010	255
H12	P	0.0070	0.0080	0.0085	0.0095	0.010	0.010	380
H21	P	0.0055	0.0065	0.0065	0.0070	0.0075	0.0080	200

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD206 – Ø 0.0276-0.0787, External coolant

SMG		f		v <sub>c</sub>
		Ø 0.0276	Ø 0.0787	
P1	P	0.0036	0.0044	465
P2	P	0.0036	0.0048	455
P3	P	0.0034	0.0044	390
P4	P	0.0034	0.0044	345
P5	P	0.0034	0.0044	330
P6	P	0.0032	0.0040	370
P7	P	0.0032	0.0040	350
P8	P	0.0034	0.0044	330
P11	P	0.0032	0.0040	340
K1	P	0.0036	0.0048	330
K2	P	0.0034	0.0044	285
K3	P	0.0034	0.0044	240
K4	P	0.0034	0.0044	230
K5	P	0.0030	0.0038	135

Cutting data – SD206A – Ø 0.0394-0.0787, Internal coolant

SMG		f		v <sub>c</sub>
		Ø 0.0394	Ø 0.0787	
P1	P	0.0036	0.0044	580
P2	P	0.0036	0.0048	560
P3	P	0.0034	0.0044	480
P4	P	0.0034	0.0044	425
P5	P	0.0034	0.0044	405
P6	P	0.0032	0.0040	455
P7	P	0.0032	0.0040	430
P8	P	0.0034	0.0044	405
P11	P	0.0032	0.0040	415
M1	P	0.0036	0.0048	310
M2	P	0.0034	0.0044	250
M3	P	0.0026	0.0034	190
M4	P	0.0024	0.0030	140
M5	P	0.0024	0.0030	120
K1	P	0.0036	0.0048	375
K2	P	0.0034	0.0044	325
K3	P	0.0034	0.0044	275
K4	P	0.0034	0.0044	260
K5	P	0.0030	0.0038	155
N2	P	0.0048	0.0060	620
N3	P	0.0048	0.0060	415

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values



Cutting data – SD207A – Ø 0.118-0.787, Internal coolant

SMG		f										v <sub>c</sub>
		Ø 0.118	Ø 0.197	Ø 0.236	Ø 0.315	Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	P	0.0050	0.0070	0.0080	0.0095	0.011	0.013	0.014	0.015	0.016	0.017	540
P2	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	0.014	0.015	0.016	0.017	530
P3	P	0.0050	0.0065	0.0075	0.0095	0.011	0.013	0.013	0.014	0.015	0.016	455
P4	P	0.0050	0.0065	0.0075	0.0095	0.011	0.012	0.013	0.014	0.015	0.016	400
P5	P	0.0048	0.0065	0.0075	0.0085	0.010	0.012	0.013	0.013	0.014	0.015	385
P6	P	0.0048	0.0065	0.0075	0.0085	0.010	0.012	0.013	0.013	0.014	0.015	430
P7	P	0.0048	0.0065	0.0075	0.0085	0.010	0.012	0.013	0.013	0.014	0.015	405
P8	P	0.0050	0.0065	0.0075	0.0095	0.011	0.013	0.013	0.014	0.015	0.016	385
P11	P	0.0048	0.0065	0.0075	0.0085	0.010	0.012	0.013	0.013	0.014	0.015	395
M1	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	0.014	0.015	0.016	0.017	290
M2	P	0.0048	0.0065	0.0075	0.0085	0.010	0.012	0.013	0.013	0.014	0.015	235
M3	P	0.0040	0.0050	0.0060	0.0070	0.0085	0.0095	0.010	0.011	0.012	0.012	180
M4	P	0.0034	0.0048	0.0050	0.0065	0.0075	0.0080	0.0085	0.0095	0.010	0.011	135
M5	P	0.0034	0.0048	0.0050	0.0065	0.0075	0.0080	0.0085	0.0095	0.010	0.011	110
K1	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	0.014	0.015	0.016	0.017	355
K2	P	0.0048	0.0065	0.0075	0.0085	0.010	0.012	0.013	0.013	0.014	0.015	305
K3	P	0.0048	0.0065	0.0075	0.0085	0.010	0.012	0.013	0.013	0.014	0.015	260
K4	P	0.0048	0.0065	0.0075	0.0085	0.010	0.012	0.013	0.013	0.014	0.015	250
K5	P	0.0044	0.0060	0.0065	0.0080	0.0095	0.010	0.012	0.013	0.013	0.013	145
H3	P	0.0022	0.0030	0.0034	0.0040	0.0048	0.0050	0.0060	0.0065	0.0065	0.0065	95
H5	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	0.0085	0.0095	0.010	0.010	180
H7	P	0.0022	0.0030	0.0034	0.0040	0.0048	0.0050	0.0060	0.0065	0.0065	0.0065	95
H8	P	0.0026	0.0034	0.0038	0.0048	0.0055	0.0065	0.0065	0.0070	0.0075	0.0080	180
H11	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	0.0085	0.0095	0.010	0.010	225
H12	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	0.0085	0.0095	0.010	0.010	345
H21	P	0.0026	0.0034	0.0038	0.0048	0.0055	0.0065	0.0065	0.0070	0.0075	0.0080	180

Cutting data – SD212A, SD216A – Ø 0.118-0.551, Internal coolant

SMG		f								v <sub>c</sub>
		Ø 0.118	Ø 0.197	Ø 0.236	Ø 0.315	Ø 0.394	Ø 0.472	Ø 0.551		
P1	P	0.0050	0.0070	0.0080	0.010	0.012	0.013	0.014	405	
P2	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	0.014	395	
P3	P	0.0050	0.0065	0.0080	0.0095	0.011	0.013	0.013	340	
P4	P	0.0050	0.0065	0.0075	0.0095	0.011	0.012	0.013	300	
P5	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	0.013	285	
P6	P	0.0048	0.0065	0.0075	0.0095	0.010	0.012	0.013	320	
P7	P	0.0048	0.0065	0.0075	0.0095	0.010	0.012	0.013	300	
P8	P	0.0050	0.0065	0.0080	0.0095	0.011	0.013	0.013	285	
P11	P	0.0048	0.0065	0.0075	0.0095	0.010	0.012	0.013	295	
M1	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	0.014	215	
M2	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	0.013	175	
M3	P	0.0040	0.0050	0.0060	0.0075	0.0085	0.0095	0.010	135	
M4	P	0.0034	0.0048	0.0050	0.0065	0.0075	0.0085	0.0095	100	
M5	P	0.0034	0.0048	0.0050	0.0065	0.0075	0.0085	0.0095	85	
K1	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	0.014	265	
K2	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	0.013	230	
K3	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	0.013	195	
K4	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	0.013	185	
K5	P	0.0044	0.0060	0.0065	0.0080	0.0095	0.011	0.012	110	
N2	P	0.0065	0.0095	0.010	0.013	0.015	0.017	0.018	440	
N3	P	0.0065	0.0095	0.010	0.013	0.015	0.017	0.018	290	
H3	P	0.0022	0.0030	0.0034	0.0040	0.0048	0.0055	0.0060	70	
H5	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	0.0085	135	
H7	P	0.0022	0.0030	0.0034	0.0040	0.0048	0.0055	0.0060	70	
H8	P	0.0026	0.0034	0.0040	0.0048	0.0055	0.0065	0.0065	135	
H11	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	0.0085	170	
H12	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	0.0085	255	
H21	P	0.0026	0.0034	0.0040	0.0048	0.0055	0.0065	0.0065	135	

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD220, SD225, SD230A – Ø 0.118-0.472, Internal coolant

SMG		f						v <sub>c</sub>
		Ø 0.118	Ø 0.197	Ø 0.236	Ø 0.315	Ø 0.394	Ø 0.472	
P1	P	0.0050	0.0070	0.0080	0.010	0.012	0.013	305
P2	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	295
P3	P	0.0050	0.0065	0.0080	0.0095	0.011	0.013	255
P4	P	0.0050	0.0065	0.0075	0.0095	0.011	0.012	225
P5	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	215
P6	P	0.0048	0.0065	0.0075	0.0095	0.010	0.012	240
P7	P	0.0048	0.0065	0.0075	0.0095	0.010	0.012	225
P8	P	0.0050	0.0065	0.0080	0.0095	0.011	0.013	215
P11	P	0.0048	0.0065	0.0075	0.0095	0.010	0.012	220
M1	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	160
M2	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	130
M3	P	0.0040	0.0050	0.0060	0.0075	0.0085	0.0095	100
M4	P	0.0034	0.0048	0.0050	0.0065	0.0075	0.0085	75
M5	P	0.0034	0.0048	0.0050	0.0065	0.0075	0.0085	60
K1	P	0.0055	0.0070	0.0080	0.010	0.012	0.013	195
K2	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	170
K3	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	145
K4	P	0.0048	0.0065	0.0075	0.0095	0.011	0.012	140
K5	P	0.0044	0.0060	0.0065	0.0080	0.0095	0.011	80
N2	P	0.0065	0.0095	0.010	0.013	0.015	0.017	330
N3	P	0.0065	0.0095	0.010	0.013	0.015	0.017	220
H3	P	0.0022	0.0030	0.0034	0.0040	0.0048	0.0055	55
H5	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	100
H7	P	0.0022	0.0030	0.0034	0.0040	0.0048	0.0055	55
H8	P	0.0026	0.0034	0.0040	0.0048	0.0055	0.0065	100
H11	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	125
H12	P	0.0034	0.0044	0.0050	0.0065	0.0070	0.0080	190
H21	P	0.0026	0.0034	0.0040	0.0048	0.0055	0.0065	100

Cutting data – SD245A – Ø 0.157-0.630, Internal coolant

SMG		f							v <sub>c</sub>
		Ø 0.157	Ø 0.236	Ø 0.315	Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	
P1	P	0.0044	0.0060	0.0075	0.0085	0.010	0.011	0.013	610
P2	P	0.0044	0.0060	0.0075	0.0085	0.010	0.012	0.013	590
P3	P	0.0044	0.0055	0.0070	0.0085	0.0095	0.011	0.012	510
P4	P	0.0044	0.0055	0.0070	0.0085	0.0095	0.010	0.012	445
P5	P	0.0040	0.0055	0.0065	0.0080	0.0095	0.010	0.011	425
P6	P	0.0040	0.0055	0.0065	0.0080	0.0095	0.010	0.011	480
P7	P	0.0040	0.0055	0.0065	0.0080	0.0095	0.010	0.011	450
P8	P	0.0044	0.0055	0.0070	0.0085	0.0095	0.011	0.012	425
P11	P	0.0040	0.0055	0.0065	0.0080	0.0095	0.010	0.011	440
M1	P	0.0044	0.0060	0.0075	0.0085	0.010	0.012	0.013	325
M2	P	0.0040	0.0055	0.0065	0.0080	0.0095	0.010	0.011	265
K1	P	0.0044	0.0060	0.0075	0.0085	0.010	0.012	0.013	395
K2	P	0.0040	0.0055	0.0065	0.0080	0.0095	0.010	0.011	340
K3	P	0.0040	0.0055	0.0065	0.0080	0.0095	0.010	0.011	290
K4	P	0.0040	0.0055	0.0065	0.0080	0.0095	0.010	0.011	275
K5	P	0.0038	0.0048	0.0065	0.0075	0.0085	0.0095	0.010	165
N2	P	0.0055	0.0075	0.0095	0.011	0.013	0.015	0.016	660
N3	P	0.0055	0.0075	0.0095	0.011	0.013	0.015	0.016	440
N11	P	0.0055	0.0075	0.0095	0.011	0.013	0.015	0.016	840

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

## Cutting data – SD265A – Ø 0.157-0.630, Internal coolant

SMG		f							v <sub>c</sub>
		Ø 0.157	Ø 0.236	Ø 0.315	Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	
P1	P	0.0048	0.0065	0.0080	0.0095	0.011	0.012	0.013	600
P2	P	0.0048	0.0065	0.0080	0.0095	0.011	0.012	0.013	580
P3	P	0.0044	0.0060	0.0075	0.0085	0.010	0.012	0.013	500
P4	P	0.0044	0.0060	0.0075	0.0085	0.010	0.011	0.013	440
P5	P	0.0044	0.0060	0.0070	0.0085	0.010	0.011	0.012	420
P6	P	0.0044	0.0060	0.0070	0.0085	0.010	0.011	0.012	470
P7	P	0.0044	0.0060	0.0070	0.0085	0.010	0.011	0.012	445
P8	P	0.0044	0.0060	0.0075	0.0085	0.010	0.012	0.013	420
P11	P	0.0044	0.0060	0.0070	0.0085	0.010	0.011	0.012	435
M1	P	0.0048	0.0065	0.0080	0.0095	0.011	0.012	0.013	320
M2	P	0.0044	0.0060	0.0070	0.0085	0.010	0.011	0.012	260
K1	P	0.0048	0.0065	0.0080	0.0095	0.011	0.012	0.013	390
K2	P	0.0044	0.0060	0.0070	0.0085	0.010	0.011	0.012	335
K3	P	0.0044	0.0060	0.0070	0.0085	0.010	0.011	0.012	285
K4	P	0.0044	0.0060	0.0070	0.0085	0.010	0.011	0.012	270
K5	P	0.0040	0.0050	0.0065	0.0080	0.0085	0.010	0.011	160
N2	P	0.0060	0.0080	0.010	0.012	0.014	0.016	0.017	650
N3	P	0.0060	0.0080	0.010	0.012	0.014	0.016	0.017	430
N11	P	0.0060	0.0080	0.010	0.012	0.014	0.016	0.017	820

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

**Cutting data – SD205A-C1 – Ø 0.118-0.512, Internal coolant**

SMG		f						v <sub>c</sub>
		Ø 0.118	Ø 0.197	Ø 0.276	Ø 0.354	Ø 0.433	Ø 0.512	
TS2	C1	0.0024	0.0024	0.0026	0.0028	0.0030	0.0032	215
TS3	C1	0.0024	0.0024	0.0026	0.0028	0.0030	0.0032	165
TP2	C1	0.0024	0.0024	0.0026	0.0028	0.0030	0.0032	215
TP3	C1	0.0024	0.0024	0.0026	0.0028	0.0030	0.0032	165

**Cutting data – SD205A-C2 – Ø 0.118-0.512, Internal coolant**

SMG		f						v <sub>c</sub>
		Ø 0.118	Ø 0.197	Ø 0.276	Ø 0.354	Ø 0.433	Ø 0.512	
N1	C2	0.0038	0.0040	0.0044	0.0048	0.0050	0.0055	255
N2	C2	0.0038	0.0040	0.0044	0.0048	0.0050	0.0055	165
N3	C2	0.0038	0.0040	0.0044	0.0048	0.0050	0.0055	110
S11	C2	0.0022	0.0026	0.0032	0.0036	0.0040	0.0044	170
S12	C2	0.0022	0.0026	0.0032	0.0036	0.0040	0.0044	130
S13	C2	0.0019	0.0024	0.0028	0.0032	0.0036	0.0040	100

**Cutting data – SD203-CX1 – Ø 0.118-0.354, External coolant**

SMG		f				v <sub>c</sub>
		Ø 0.118	Ø 0.197	Ø 0.276	Ø 0.354	
TS2	CX1	0.0030	0.0034	0.0036	0.0040	490
TS3	CX1	0.0030	0.0034	0.0036	0.0040	395
TP2	CX1	0.0030	0.0034	0.0036	0.0040	490
TP3	CX1	0.0030	0.0034	0.0036	0.0040	395

**Cutting data – SD203A-CX2 – Ø 0.118-0.354, Internal coolant**

SMG		f				v <sub>c</sub>
		Ø 0.118	Ø 0.197	Ø 0.276	Ø 0.354	
N1	CX2	0.0019	0.0020	0.0022	0.0024	610
N2	CX2	0.0019	0.0020	0.0022	0.0024	395
N3	CX2	0.0019	0.0020	0.0022	0.0024	260
S11	CX2	0.00075	0.00080	0.00095	0.00095	50
S12	CX2	0.00075	0.00080	0.00095	0.00095	39
S13	CX2	0.00065	0.00070	0.00080	0.00085	31

**Cutting data – SD205A-CX31 – Ø 0.157-0.315, Internal coolant**

SMG		f					v <sub>c</sub>
		Ø 0.157	Ø 0.197	Ø 0.236	Ø 0.276	Ø 0.315	
N1	CX31	0.0040	0.0040	0.0044	0.0044	0.0048	510
N2	CX31	0.0040	0.0040	0.0044	0.0044	0.0048	330
N3	CX31	0.0040	0.0040	0.0044	0.0044	0.0048	220
S11	CX31	0.0016	0.0019	0.0022	0.0026	0.0028	50
S12	CX31	0.0016	0.0019	0.0022	0.0026	0.0028	39
S13	CX31	0.0013	0.0017	0.0019	0.0022	0.0026	31
TS2	CX31	0.0032	0.0034	0.0036	0.0036	0.0038	410
TS3	CX31	0.0032	0.0034	0.0036	0.0036	0.0038	330
TP2	CX31	0.0032	0.0034	0.0036	0.0036	0.0038	410
TP3	CX31	0.0032	0.0034	0.0036	0.0036	0.0038	330

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

Cutting data depends on exiting material. N1-N3 and S11-S13 used for stack drilling application

N1-N3 = Alu

S11-S13 = Ti

TS/TP = Composite

All cutting data are start values

Cutting data – SD22 & SD26 – Ø 0.0039-0.0118, External coolant

SMG	f			v <sub>c</sub>
	Ø 0.0039	Ø 0.0079	Ø 0.0118	
P1	0.000044	0.000065	0.000095	37
P2	0.000044	0.000065	0.000095	36
P3	0.000040	0.000065	0.000085	31
P4	0.000040	0.000065	0.000085	27
P5	0.000040	0.000065	0.000085	26
P6	0.000040	0.000065	0.000085	29
P7	0.000040	0.000065	0.000085	28
P8	0.000040	0.000065	0.000085	26
P11	0.000040	0.000065	0.000085	27
M1	0.000044	0.000065	0.000095	8
M2	0.000040	0.000065	0.000085	7
K1	0.000044	0.000065	0.000095	20
K2	0.000040	0.000065	0.000085	17
K3	0.000040	0.000065	0.000085	14
K4	0.000040	0.000065	0.000085	14
K5	0.000036	0.000055	0.000075	8
N2	0.000055	0.000085	0.00012	49
N3	0.000055	0.000085	0.00012	33
S11	0.000032	0.000050	0.000065	13
S12	0.000032	0.000050	0.000065	10

Cutting data – SD22 & SD26 – Ø 0.0157-0.0197, External coolant

SMG	f		v <sub>c</sub>
	Ø 0.0157	Ø 0.0197	
P1	0.00012	0.00014	47
P2	0.00012	0.00014	45
P3	0.00011	0.00013	39
P4	0.00011	0.00013	34
P5	0.00011	0.00013	33
P6	0.00011	0.00013	37
P7	0.00011	0.00013	35
P8	0.00011	0.00013	33
P11	0.00011	0.00013	34
M1	0.00012	0.00014	16
M2	0.00011	0.00013	13
K1	0.00012	0.00014	33
K2	0.00011	0.00013	28
K3	0.00011	0.00013	24
K4	0.00011	0.00013	23
K5	0.000095	0.00012	14
N2	0.00015	0.00018	100
N3	0.00015	0.00018	65
S11	0.000085	0.00010	26
S12	0.000085	0.00010	20

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

## Cutting data – SD22 & SD26 – Ø 0.0236-0.0315, External coolant

SMG	f			v <sub>c</sub>
	Ø 0.0236	Ø 0.0276	Ø 0.0315	
P1	0.00017	0.00019	0.00022	95
P2	0.00017	0.00020	0.00022	90
P3	0.00016	0.00018	0.00022	80
P4	0.00016	0.00018	0.00020	70
P5	0.00015	0.00017	0.00020	65
P6	0.00015	0.00017	0.00020	75
P7	0.00015	0.00017	0.00020	70
P8	0.00016	0.00018	0.00022	65
P11	0.00015	0.00017	0.00020	70
M1	0.00017	0.00020	0.00022	28
M2	0.00015	0.00017	0.00020	23
K1	0.00017	0.00020	0.00022	49
K2	0.00015	0.00017	0.00020	43
K3	0.00015	0.00017	0.00020	36
K4	0.00015	0.00017	0.00020	34
K5	0.00014	0.00016	0.00018	21
N2	0.00022	0.00026	0.00028	195
N3	0.00022	0.00026	0.00028	130
S11	0.00013	0.00014	0.00016	43
S12	0.00013	0.00014	0.00016	33

## Cutting data – SD22 & SD26 – Ø 0.0354-0.0433, External coolant

SMG	f			v <sub>c</sub>
	Ø 0.0354	Ø 0.0394	Ø 0.0433	
P1	0.00024	0.00026	0.00030	165
P2	0.00024	0.00028	0.00030	160
P3	0.00024	0.00026	0.00028	135
P4	0.00022	0.00026	0.00028	120
P5	0.00022	0.00024	0.00028	115
P6	0.00022	0.00024	0.00026	130
P7	0.00022	0.00024	0.00026	120
P8	0.00024	0.00026	0.00028	115
P11	0.00022	0.00024	0.00026	120
M1	0.00024	0.00028	0.00030	41
M2	0.00022	0.00024	0.00028	33
K1	0.00024	0.00028	0.00030	65
K2	0.00022	0.00024	0.00028	55
K3	0.00022	0.00024	0.00028	48
K4	0.00022	0.00024	0.00028	46
K5	0.00020	0.00022	0.00024	27
N2	0.00032	0.00034	0.00038	260
N3	0.00032	0.00034	0.00038	175
S11	0.00018	0.00020	0.00022	65
S12	0.00018	0.00020	0.00022	49

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

## Cutting data – SD22 & SD26 – Ø 0.0472-0.0787, External coolant

SMG	f					v <sub>c</sub>
	Ø 0.0472	Ø 0.0551	Ø 0.0630	Ø 0.0709	Ø 0.0787	
P1	0.00032	0.00036	0.00040	0.00048	0.00050	235
P2	0.00032	0.00038	0.00044	0.00048	0.00050	225
P3	0.00030	0.00036	0.00040	0.00044	0.00048	195
P4	0.00030	0.00034	0.00040	0.00044	0.00048	170
P5	0.00030	0.00034	0.00038	0.00044	0.00048	165
P6	0.00030	0.00034	0.00038	0.00044	0.00048	185
P7	0.00030	0.00034	0.00038	0.00044	0.00048	175
P8	0.00030	0.00036	0.00040	0.00044	0.00048	165
P11	0.00030	0.00034	0.00038	0.00044	0.00048	170
M1	0.00032	0.00038	0.00044	0.00048	0.00050	49
M2	0.00030	0.00034	0.00038	0.00044	0.00048	39
K1	0.00032	0.00038	0.00044	0.00048	0.00050	115
K2	0.00030	0.00034	0.00038	0.00044	0.00048	100
K3	0.00030	0.00034	0.00038	0.00044	0.00048	85
K4	0.00030	0.00034	0.00038	0.00044	0.00048	80
K5	0.00026	0.00030	0.00034	0.00040	0.00044	48
N2	0.00040	0.00048	0.00055	0.00060	0.00065	330
N3	0.00040	0.00048	0.00055	0.00060	0.00065	220
S11	0.00024	0.00028	0.00030	0.00034	0.00038	85
S12	0.00024	0.00028	0.00030	0.00034	0.00038	65

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values





## Range overview

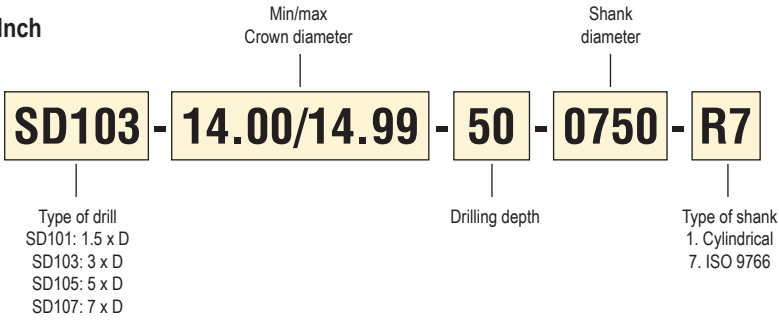
Crownloc®	∅ Range	Drill depth	Crown tolerance	Hole tolerance (1)	Surface finish (2)
 SD101  Page(s) 147-148	0.472-1.023" (12.00-25.99 mm)	~ 1.5 x D	k7	IT10	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm
 SD103  Page(s) 149-150	0.375-1.023" (9.52-25.99 mm)	~ 3 x D	k7	IT10	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm
 SD105  Page(s) 151-152	0.394-1.023" (10.00-25.99)	~ 5 x D	k7	IT10	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm
 SD107  Page(s) 153-154	0.472-1.023" (12.00-25.99)	~ 7 x D	k7	IT10	R <sub>a</sub> 39-157 μin R <sub>a</sub> 1-4 μm
 Chamfer module  Page(s) 158-159	0.472-0.787" (12.00-19.99)	-	-	-	-

1) Variations can occur depending on the material and the cutting data used.

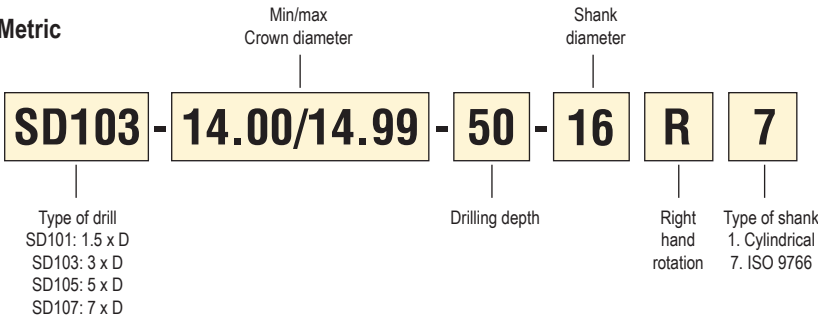
2) Drill depth, cutting data, coolant pressure and material can cause deterioration of the surface finish.

Code key Crownloc®

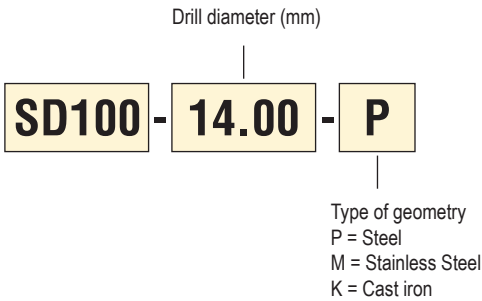
Inch






Metric



Code key Crowns



Geometries

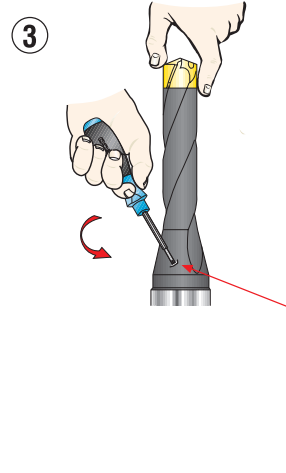
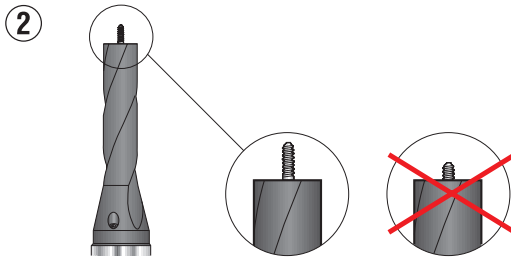
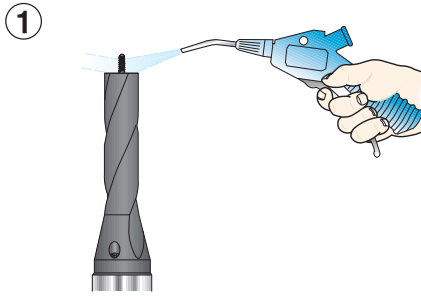
<p><b>P-geometry</b> - Universal geometry, first choice for drilling in steel</p> 	<p><b>M-geometry</b> - For stainless steels and high temp alloys</p> 	<p><b>K-geometry</b> - First choice for drilling in cast iron</p> 
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Spare part kits

Spare part kit designation					
Drill diameter (inch)	Drill diameter (mm)	SD101	SD103	SD105	SD107
0.375	9.525	-	SD103-SP-3.0	-	-
0.394-0.472	10.00-11.99	-	SD103-SP-4.0	SD105-SP-4.0	-
0.472-0.551	12.00-13.99	SD101-SP-5.0	SD103-SP-5.0	SD105-SP-5.0	SD107-SP-5.0
0.551-0.669	14.00-16.99	SD101-SP-6.0	SD103-SP-6.0	SD105-SP-6.0	SD107-SP-6.0
0.669-0.787	17.00-19.99	SD101-SP-7.0	SD103-SP-7.0	SD105-SP-7.0	SD107-SP-7.0
0.787-1.023	20.00-25.99	SD101-SP-8.0	SD103-SP-8.0	SD105-SP-8.0	SD107-SP-8.0



Mounting instructions



Drill $\varnothing$ D <sub>c</sub> (inch)	Drill $\varnothing$ D <sub>c</sub> (mm)	M <sub>c</sub> N <sub>m</sub>	M <sub>c</sub> in/lbs
0.394-0.551	10-13.99	0.8-1.0	7-9
0.551-0.669	14-16.99	1.8-2.2	16-19.5
0.669-1.023	17-25.99	2.5-3.0	22-26

1. Clean the locking interface of the drill body carefully to remove any chips or debris.
2. Make sure that the pull rod is fully extended.
3. Mount new crown onto the pull rod and turn it until it reaches the bottom of the thread. Turn the crown slightly counterclockwise (backwards) until the locking interfaces fit. Push the crown towards the body into the right position while turning the clamping screw. Make sure the interfaces fit. Tighten the clamping screw firmly using the torque key.

Stability

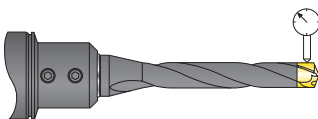
The stability of the application is important in obtaining the best tool life and hole accuracy. Check the condition of the machine spindle, fixture and fixturing of the component to secure maximum stability and rigidity. Unstable conditions can cause tool breakages.

Rotating

Total Indicated Run-out (TIR) should not exceed 0.002" (0.06 mm) in a rotating application. Measure the run-out when the drill is mounted in the spindle.

Stationary

The distance between the drill point and the rotating center of the workpiece should not exceed 0.001" (0.03 mm) radially in a stationary application.



Recommended tool holders

For best results, use holders type DIN 1835 B/DIN 6535 HB (Weldon). For further information see EPB (tooling) catalog.



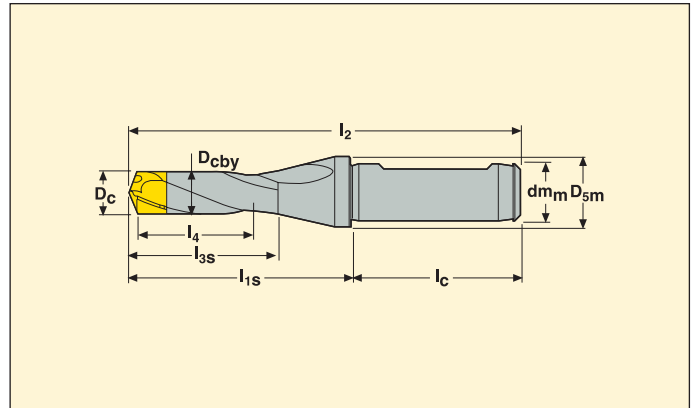
Weldon

Drilling depth ~ 1.5 x D - Inch shank

SD101 -R7 shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal coolant
- For cutting data see page(s) 162
- Crown range on page(s) 155-157



Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						
					l <sub>2</sub>	l <sub>1s</sub>	D <sub>cby</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.472-0.492	12.00-12.49	0.787	<a href="#">17570</a>	SD101-12.00/12.49-20-0625R7	3.780	1.890	0.453	1.890	1.260	0.625	0.787
0.492-0.511	12.50-12.99	0.787	<a href="#">17575</a>	SD101-12.50/12.99-20-0625R7	3.795	1.906	0.472	1.890	1.276	0.625	0.787
0.512-0.551	13.00-13.99	0.787	<a href="#">17576</a>	SD101-13.00/13.99-20-0625R7	3.811	1.921	0.492	1.890	1.291	0.625	0.787
0.551-0.590	14.00-14.99	0.984	<a href="#">17579</a>	SD101-14.00/14.99-25-0625R7	4.031	2.142	0.531	1.890	1.512	0.625	0.787
0.591-0.630	15.00-15.99	0.984	<a href="#">17615</a>	SD101-15.00/15.99-25-0625R7	4.067	2.177	0.571	1.890	1.547	0.625	0.787
0.630-0.669	16.00-16.99	0.984	<a href="#">17618</a>	SD101-16.00/16.99-25-0625R7	4.094	2.205	0.610	1.890	1.575	0.625	0.787
0.669-0.708	17.00-17.99	1.181	<a href="#">17619</a>	SD101-17.00/17.99-30-0750R7	4.358	2.390	0.650	1.969	1.760	0.750	0.984
0.709-0.748	18.00-18.99	1.181	<a href="#">17620</a>	SD101-18.00/18.99-30-0750R7	4.398	2.429	0.689	1.969	1.799	0.750	0.984
0.748-0.787	19.00-19.99	1.181	<a href="#">17628</a>	SD101-19.00/19.99-30-0750R7	4.429	2.461	0.728	1.969	1.831	0.750	0.984
0.787-0.866	20.00-21.99	1.575	<a href="#">21056</a>	SD101-20.00/21.99-40-1000R7	5.098	2.894	0.768	2.205	2.106	1.000	1.220
0.866-0.944	22.00-23.99	1.575	<a href="#">21057</a>	SD101-22.00/23.99-40-1000R7	5.098	2.894	0.846	2.205	2.106	1.000	1.220
0.945-1.023	24.00-25.99	1.575	<a href="#">21058</a>	SD101-24.00/25.99-40-1000R7	5.098	2.894	0.925	2.205	2.106	1.000	1.220

**Spare parts**

**Accessories\***

For drill dia. (inch)	For drill dia. (mm)	Locking screw	Locking key
<b>0.472-0.551</b>	<b>12.00-13.99</b>	MP6SS3X12	H1.5-2D
<b>0.551-0.669</b>	<b>14.00-16.99</b>	MP6SS4X12	H2.0-2D
<b>0.669-0.787</b>	<b>17.00-19.99</b>	MP6SS5X16	H2.5-2D
<b>0.787-1.023</b>	<b>20.00-25.99</b>	MP6SS5X16	H2.5-2D

Torque key	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
H00-1509	H00-1.5	0.9	8.0
H00-2020	H00-2.0	2.0	17.7
H00-2530	H00-2.5	3.0	26.6
H00-2535	H00-2.5	3.5	31.0

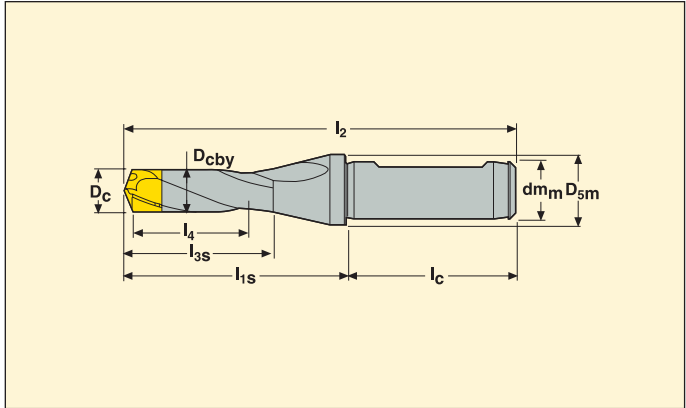
\* Accessories not included in delivery

Drilling depth ~ 1.5 x D – Metric shank

SD101 -R7 shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal coolant
- For cutting data see page(s) 162
- Crown range on page(s) 155-157



Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						
					l <sub>2</sub>	l <sub>1s</sub>	D <sub>cby</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.472-0.492	12.00-12.49	20	17524	SD101-12.00/12.49-20-16R7	96	48	11.5	48	32	16	20
0.492-0.511	12.50-12.99	20	17525	SD101-12.50/12.99-20-16R7	96.4	48.4	12.0	48	32.4	16	20
0.512-0.551	13.00-13.99	20	17527	SD101-13.00/13.99-20-16R7	96.8	48.8	12.5	48	32.8	16	20
0.551-0.590	14.00-14.99	25	17528	SD101-14.00/14.99-25-16R7	102.4	54.4	13.5	48	38.4	16	20
0.591-0.630	15.00-15.99	25	17529	SD101-15.00/15.99-25-16R7	103.3	55.3	14.5	48	39.3	16	20
0.630-0.669	16.00-16.99	25	17531	SD101-16.00/16.99-25-16R7	104	56	15.5	48	40	16	20
0.669-0.708	17.00-17.99	30	17532	SD101-17.00/17.99-30-20R7	110.7	60.7	16.5	50	44.7	20	25
0.709-0.748	18.00-18.99	30	17533	SD101-18.00/18.99-30-20R7	111.7	61.7	17.5	50	45.7	20	25
0.748-0.787	19.00-19.99	30	17534	SD101-19.00/19.99-30-20R7	112.5	62.5	18.5	50	46.5	20	25
0.787-0.866	20.00-21.99	40	20668	SD101-20.00/21.99-40-25R7	129.5	73.5	19.5	56	53.5	25	31
0.866-0.944	22.00-23.99	40	20669	SD101-22.00/23.99-40-25R7	129.5	73.5	21.5	56	53.5	25	31
0.945-1.023	24.00-25.99	40	20670	SD101-24.00/25.99-40-25R7	129.5	73.5	23.5	56	53.5	25	31

### Spare parts

For drill dia. (inch)	For drill dia. (mm)	Locking screw	Locking key
0.472-0.551	12.00-13.99	MP6SS3X12	H1.5-2D
0.551-0.669	14.00-16.99	MP6SS4X12	H2.0-2D
0.669-0.787	17.00-19.99	MP6SS5X16	H2.5-2D
0.787-1.023	20.00-25.99	MP6SS5X16	H2.5-2D

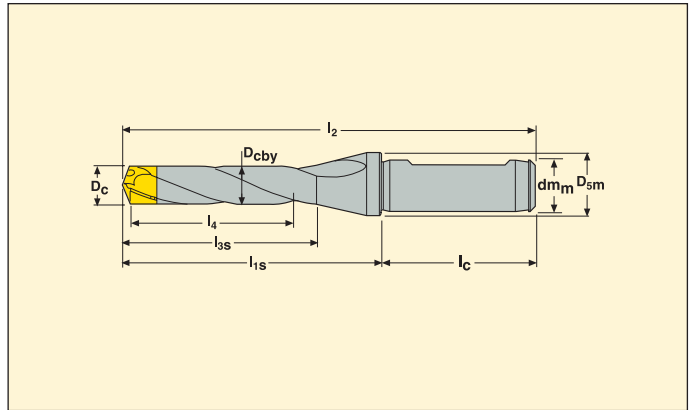
### Accessories\*

Torque key	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
H00-1509	H00-1.5	0.9	8.0
H00-2020	H00-2.0	2.0	17.7
H00-2530	H00-2.5	3.0	26.6
H00-2535	H00-2.5	3.5	31.0

\* Accessories not included in delivery

Drilling depth ~ 3 x D – Inch shank

SD103-R7 shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal coolant
- For cutting data see page(s) 163
- Crown range on page(s) 155-157

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						
					l <sub>2</sub>	l <sub>1s</sub>	D <sub>cby</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.374-0.393	9.50-9.99	1.181	<a href="#">50765</a>	SD103-09.50/09.99-30-0625R7	4.252	2.323	0.354	1.969	1.835	0.625	0.787
0.394-0.413	10.00-10.49	1.181	<a href="#">21046</a>	SD103-10.00/10.49-30-0625R7	3.976	2.087	0.374	1.890	1.496	0.625	0.787
0.413-0.433	10.50-10.99	1.181	<a href="#">21047</a>	SD103-10.50/10.99-30-0625R7	3.976	2.087	0.394	1.890	1.496	0.625	0.787
0.433-0.452	11.00-11.49	1.181	<a href="#">21048</a>	SD103-11.00/11.49-30-0625R7	3.976	2.087	0.413	1.890	1.496	0.625	0.787
0.453-0.472	11.50-11.99	1.181	<a href="#">21049</a>	SD103-11.50/11.99-30-0625R7	3.976	2.087	0.433	1.890	1.496	0.625	0.787
0.472-0.492	12.00-12.49	1.575	<a href="#">17629</a>	SD103-12.00/12.49-40-0625R7	4.567	2.677	0.453	1.890	1.890	0.625	0.787
0.492-0.511	12.50-12.99	1.575	<a href="#">17630</a>	SD103-12.50/12.99-40-0625R7	4.583	2.693	0.472	1.890	1.906	0.625	0.787
0.512-0.551	13.00-13.99	1.575	<a href="#">17634</a>	SD103-13.00/13.99-40-0625R7	4.598	2.709	0.492	1.890	1.921	0.625	0.787
0.551-0.590	14.00-14.99	1.969	<a href="#">17636</a>	SD103-14.00/14.99-50-0625R7	5.016	3.126	0.531	1.890	2.339	0.625	0.787
0.591-0.630	15.00-15.99	1.969	<a href="#">17637</a>	SD103-15.00/15.99-50-0625R7	5.051	3.161	0.571	1.890	2.374	0.625	0.787
0.630-0.669	16.00-16.99	1.969	<a href="#">17639</a>	SD103-16.00/16.99-50-0625R7	5.079	3.189	0.610	1.890	2.402	0.625	0.787
0.669-0.708	17.00-17.99	2.362	<a href="#">17642</a>	SD103-17.00/17.99-60-0750R7	5.539	3.571	0.650	1.969	2.665	0.750	0.984
0.709-0.748	18.00-18.99	2.362	<a href="#">17646</a>	SD103-18.00/18.99-60-0750R7	5.579	3.610	0.689	1.969	2.705	0.750	0.984
0.748-0.787	19.00-19.99	2.362	<a href="#">17647</a>	SD103-19.00/19.99-60-0750R7	5.610	3.650	0.728	1.969	2.736	0.750	0.984
0.787-0.866	20.00-21.99	2.953	<a href="#">21059</a>	SD103-20.00/21.99-75-1000R7	6.476	4.272	0.768	2.205	3.484	1.000	1.220
0.866-0.944	22.00-23.99	2.953	<a href="#">21060</a>	SD103-22.00/23.99-75-1000R7	6.476	4.272	0.846	2.205	3.484	1.000	1.220
0.945-1.023	24.00-25.99	2.953	<a href="#">21061</a>	SD103-24.00/25.99-75-1000R7	6.476	4.272	0.925	2.205	3.484	1.000	1.220

### Spare parts

For drill dia. (inch)	For drill dia. (mm)	Locking screw	Locking key
		MP6SS3X12	H1.5-2D
<b>0.394-0.551</b>	<b>10.00-13.99</b>	MP6SS3X12	H1.5-2D
<b>0.551-0.669</b>	<b>14.00-16.99</b>	MP6SS4X12	H2.0-2D
<b>0.669-0.787</b>	<b>17.00-19.99</b>	MP6SS5X16	H2.5-2D
<b>0.787-1.023</b>	<b>20.00-25.99</b>	MP6SS5X16	H2.5-2D

### Accessories\*

Torque key	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
H00-1509	H00-1.5		
H00-1509	H00-1.5	0.9	8.0
H00-2020	H00-2.0	2.0	17.7
H00-2530	H00-2.5	3.0	26.6
H00-2535	H00-2.5	3.5	31.0

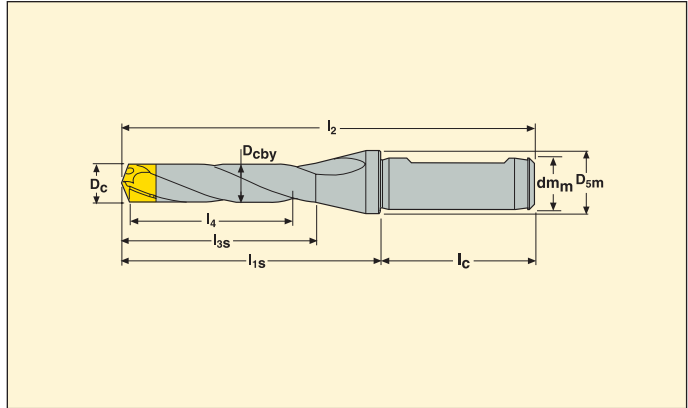
\* Accessories not included in delivery

Drilling depth ~ 3 x D – Metric shank

SD103-R7 shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal coolant
- For cutting data see page(s) 163
- Crown range on page(s) 155-157



Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						
					l <sub>2</sub>	l <sub>1s</sub>	D <sub>cby</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.394-0.413	10.00-10.49	30	20652	SD103-10.00/10.49-30-16R7	101	53	9.5	48	38	16	20
0.413-0.433	10.50-10.99	30	20654	SD103-10.50/10.99-30-16R7	101	53	10.0	48	38	16	20
0.433-0.452	11.00-11.49	30	20655	SD103-11.00/11.49-30-16R7	101	53	10.5	48	38	16	20
0.453-0.472	11.50-11.99	30	20656	SD103-11.50/11.99-30-16R7	101	53	11.0	48	38	16	20
0.472-0.492	12.00-12.49	40	17535	SD103-12.00/12.49-40-16R7	116	68	11.5	48	48	16	20
0.492-0.511	12.50-12.99	40	17536	SD103-12.50/12.99-40-16R7	116.4	68.4	12.0	48	48.4	16	20
0.512-0.551	13.00-13.99	40	17537	SD103-13.00/13.99-40-16R7	116.8	68.8	12.5	48	48.8	16	20
0.551-0.590	14.00-14.99	50	17538	SD103-14.00/14.99-50-16R7	127.4	79.4	13.5	48	59.4	16	20
0.591-0.630	15.00-15.99	50	17539	SD103-15.00/15.99-50-16R7	128.3	80.3	14.5	48	60.3	16	20
0.630-0.669	16.00-16.99	50	17540	SD103-16.00/16.99-50-16R7	129	81	15.5	48	61	16	20
0.669-0.708	17.00-17.99	60	17542	SD103-17.00/17.99-60-20R7	140.7	90.7	16.5	50	67.7	20	25
0.709-0.748	18.00-18.99	60	17544	SD103-18.00/18.99-60-20R7	141.7	91.7	17.5	50	68.7	20	25
0.748-0.787	19.00-19.99	60	17546	SD103-19.00/19.99-60-20R7	142.5	92.7	18.5	50	69.5	20	25
0.787-0.866	20.00-21.99	75	20672	SD103-20.00/21.99-75-25R7	164.5	108.5	19.5	56	88.5	25	31
0.866-0.944	22.00-23.99	75	20674	SD103-22.00/23.99-75-25R7	164.5	108.5	21.5	56	88.5	25	31
0.945-1.023	24.00-25.99	75	20677	SD103-24.00/25.99-75-25R7	164.5	108.5	23.5	56	88.5	25	31

## Spare parts

For drill dia. (inch)	For drill dia. (mm)	Locking screw	Locking key
0.394-0.551	10.00-13.99	MP6SS3X12	H1.5-2D
0.551-0.669	14.00-16.99	MP6SS4X12	H2.0-2D
0.669-0.787	17.00-19.99	MP6SS5X16	H2.5-2D
0.787-1.023	20.00-25.99	MP6SS5X16	H2.5-2D

## Accessories\*

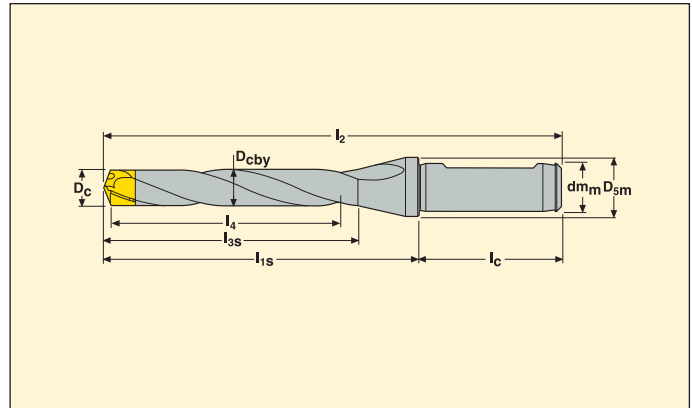
Torque key	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
H00-1509	H00-1.5	0.9	8.0
H00-2020	H00-2.0	2.0	17.7
H00-2530	H00-2.5	3.0	26.6
H00-2535	H00-2.5	3.5	31.0

\* Accessories not included in delivery



Drilling depth ~ 5 x D – Inch shank

SD105-R7 shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal coolant
- For cutting data see page(s) 164
- Crown range on page(s) 155-157

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						
					l <sub>2</sub>	l <sub>1s</sub>	D <sub>cby</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm	D <sub>5m</sub>
0.394-0.413	10.00-10.49	1.969	<a href="#">21052</a>	SD105-10.00/10.49-50-0625R7	4.728	2.839	0.374	1.890	2.256	0.625	0.787
0.413-0.433	10.50-10.99	1.969	<a href="#">21053</a>	SD105-10.50/10.99-50-0625R7	4.748	2.858	0.394	1.890	2.256	0.625	0.787
0.433-0.452	11.00-11.49	1.969	<a href="#">21054</a>	SD105-11.00/11.49-50-0625R7	4.760	2.870	0.413	1.890	2.256	0.625	0.787
0.453-0.472	11.50-11.99	1.969	<a href="#">21055</a>	SD105-11.50/11.99-50-0625R7	4.776	2.886	0.433	1.890	2.295	0.625	0.787
0.472-0.492	12.00-12.49	2.559	<a href="#">17648</a>	SD105-12.00/12.49-65-0625R7	5.551	3.661	0.453	1.890	2.874	0.625	0.787
0.492-0.511	12.50-12.99	2.559	<a href="#">17649</a>	SD105-12.50/12.99-65-0625R7	5.567	3.677	0.472	1.890	2.890	0.625	0.787
0.512-0.551	13.00-13.99	2.559	<a href="#">17650</a>	SD105-13.00/13.99-65-0625R7	5.583	3.693	0.492	1.890	2.906	0.625	0.787
0.551-0.590	14.00-14.99	3.150	<a href="#">17652</a>	SD105-14.00/14.99-80-0625R7	6.197	4.307	0.531	1.890	3.520	0.625	0.787
0.591-0.630	15.00-15.99	3.150	<a href="#">17654</a>	SD105-15.00/15.99-80-0625R7	6.232	4.343	0.571	1.890	3.555	0.625	0.787
0.630-0.669	16.00-16.99	3.150	<a href="#">17655</a>	SD105-16.00/16.99-80-0625R7	6.260	4.370	0.610	1.890	3.583	0.625	0.787
0.669-0.708	17.00-17.99	3.740	<a href="#">17656</a>	SD105-17.00/17.99-95-0750R7	6.957	4.988	0.650	1.969	4.240	1.000	0.984
0.709-0.748	18.00-18.99	3.740	<a href="#">17657</a>	SD105-18.00/18.99-95-0750R7	6.996	5.028	0.689	1.969	4.280	1.000	0.984
0.748-0.787	19.00-19.99	3.740	<a href="#">17658</a>	SD105-19.00/19.99-95-0750R7	7.028	5.059	0.728	1.969	4.311	1.000	0.984
0.787-0.866	20.00-21.99	4.921	<a href="#">21062</a>	SD105-20.00/21.99-125-1000R7	8.445	6.240	0.768	2.205	5.453	1.000	1.220
0.866-0.944	22.00-23.99	4.921	<a href="#">21063</a>	SD105-22.00/23.99-125-1000R7	8.445	6.240	0.846	2.205	5.453	1.000	1.220
0.945-1.023	24.00-25.99	4.921	<a href="#">21064</a>	SD105-24.00/25.99-125-1000R7	8.445	6.240	0.925	2.205	5.453	1.000	1.220

### Spare parts

For drill dia. (inch)	For drill dia. (mm)	Locking screw	Locking key
0.394-0.551	10.00-13.99	MP6SS3X12	H1.5-2D
0.551-0.669	14.00-16.99	MP6SS4X12	H2.0-2D
0.669-0.787	17.00-19.99	MP6SS5X16	H2.5-2D
0.787-1.023	20.00-25.99	MP6SS5X16	H2.5-2D

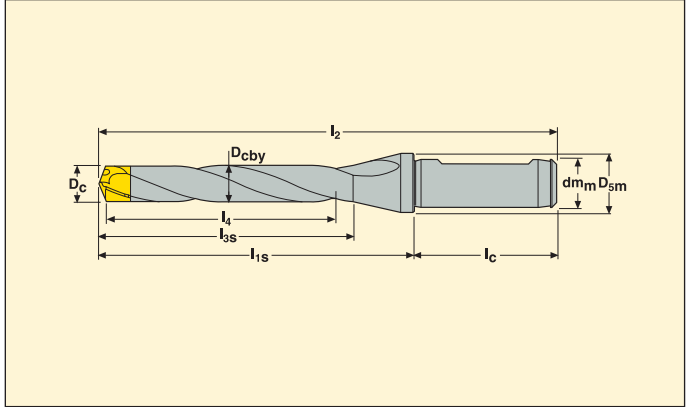
### Accessories\*

Torque key	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
H00-1509	H00-1.5	0.9	8.0
H00-2020	H00-2.0	2.0	17.7
H00-2530	H00-2.5	3.0	26.6
H00-2535	H00-2.5	3.5	31.0

\* Accessories not included in delivery

Drilling depth ~ 5 x D – Metric shank

SDI05-R7 shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal coolant
- For cutting data see page(s) 164
- Crown range on page(s) 155-157

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						
					l <sub>2</sub>	l <sub>1s</sub>	D <sub>cby</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.394-0.413	10.00-10.49	50	20658	SD105-10.00/10.49-50-16R7	120.1	72.1	9.5	48	57.3	16	20
0.413-0.433	10.50-10.99	50	20660	SD105-10.50/10.99-50-16R7	120.6	72.6	10.0	48	57.3	16	20
0.433-0.452	11.00-11.49	50	20664	SD105-11.00/11.49-50-16R7	120.9	72.9	10.5	48	57.3	16	20
0.453-0.472	11.50-11.99	50	20666	SD105-11.50/11.99-50-16R7	121.3	73.3	11.0	48	58.3	16	20
0.472-0.492	12.00-12.49	65	17551	SD105-12.00/12.49-65-16R7	141	93	11.5	48	73	16	20
0.492-0.511	12.50-12.99	65	17553	SD105-12.50/12.99-65-16R7	141.4	93.4	12.0	48	73.4	16	20
0.512-0.551	13.00-13.99	65	17554	SD105-13.00/13.99-65-16R7	141.8	93.8	12.5	48	73.8	16	20
0.551-0.590	14.00-14.99	80	17557	SD105-14.00/14.99-80-16R7	157.4	109.4	13.5	48	89.4	16	20
0.591-0.630	15.00-15.99	80	17558	SD105-15.00/15.99-80-16R7	158.3	110.3	14.5	48	90.3	16	20
0.630-0.669	16.00-16.99	80	17560	SD105-16.00/16.99-80-16R7	159	111	15.5	48	91	16	20
0.669-0.708	17.00-17.99	95	17563	SD105-17.00/17.99-95-20R7	176.7	126.7	16.5	50	107.7	20	25
0.709-0.748	18.00-18.99	95	17567	SD105-18.00/18.99-95-20R7	177.7	127.7	17.5	50	108.7	20	25
0.748-0.787	19.00-19.99	95	17568	SD105-19.00/19.99-95-20R7	178.5	128.5	18.5	50	109.5	20	25
0.787-0.866	20.00-21.99	125	20679	SD105-20.00/21.99-125-25R7	214.5	158.5	19.5	56	138.5	25	31
0.866-0.944	22.00-23.99	125	20683	SD105-22.00/23.99-125-25R7	214.5	158.5	21.5	56	138.5	25	31
0.945-1.023	24.00-25.99	125	20685	SD105-24.00/25.99-125-25R7	214.5	158.5	23.5	56	138.5	25	31

## Spare parts

For drill dia. (inch)	For drill dia. (mm)	Locking screw	Locking key
0.394-0.551	10.00-13.99	MP6SS3X12	H1.5-2D
0.551-0.669	14.00-16.99	MP6SS4X12	H2.0-2D
0.669-0.787	17.00-19.99	MP6SS5X16	H2.5-2D
0.787-1.023	20.00-25.99	MP6SS5X16	H2.5-2D

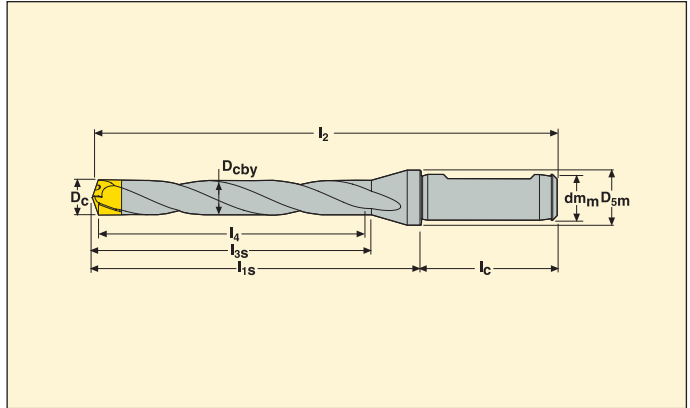
## Accessories\*

Torque key	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
H00-1509	H00-1.5	0.9	8.0
H00-2020	H00-2.0	2.0	17.7
H00-2530	H00-2.5	3.0	26.6
H00-2535	H00-2.5	3.5	31.0

\* Accessories not included in delivery

Drilling depth ~ 7 x D – Inch shank

SDI07-R7 shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal coolant
- For cutting data see page(s) 165
- Crown range on page(s) 155-157

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						
					l <sub>2</sub>	l <sub>1s</sub>	D <sub>cby</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.472-0.492	12.00-12.49	3.543	<a href="#">40003</a>	SD107-12.00/12.49-90-0625R7	6.555	4.665	0.453	1.890	3.957	0.625	0.787
0.492-0.511	12.50-12.99	3.543	<a href="#">40004</a>	SD107-12.50/12.99-90-0625R7	6.575	4.685	0.472	1.890	3.976	0.625	0.787
0.512-0.551	13.00-13.99	3.543	<a href="#">40005</a>	SD107-13.00/13.99-90-0625R7	6.594	4.705	0.492	1.890	3.996	0.625	0.787
0.551-0.590	14.00-14.99	4.331	<a href="#">40006</a>	SD107-14.00/14.99-110-0625R7	7.402	5.512	0.531	1.890	4.803	0.625	0.787
0.591-0.630	15.00-15.99	4.331	<a href="#">40007</a>	SD107-15.00/15.99-110-0625R7	7.441	5.551	0.571	1.890	4.843	0.625	0.787
0.630-0.669	16.00-16.99	4.331	<a href="#">40008</a>	SD107-16.00/16.99-110-0625R7	7.461	5.571	0.610	1.890	4.862	0.625	0.787
0.669-0.708	17.00-17.99	5.118	<a href="#">40009</a>	SD107-17.00/17.99-130-0750R7	8.366	6.398	0.650	1.969	5.689	0.750	0.984
0.709-0.748	18.00-18.99	5.118	<a href="#">40010</a>	SD107-18.00/18.99-130-0750R7	8.406	6.437	0.689	1.969	5.728	0.750	0.984
0.748-0.787	19.00-19.99	5.118	<a href="#">40011</a>	SD107-19.00/19.99-130-0750R7	8.445	6.476	0.728	1.969	5.768	0.750	0.984
0.787-0.866	20.00-21.99	6.890	<a href="#">28964</a>	SD107-20.00/21.99-175-1000R7	10.413	8.209	0.768	2.205	7.421	1.000	1.220
0.866-0.944	22.00-23.99	6.890	<a href="#">17272</a>	SD107-22.00/23.99-175-1000R7	10.413	8.209	0.846	2.205	7.421	1.000	1.220
0.945-1.023	24.00-25.99	6.890	<a href="#">17281</a>	SD107-24.00/25.99-175-1000R7	10.413	8.209	0.925	2.205	7.421	1.000	1.220

### Spare parts

For drill dia. (inch)	For drill dia. (mm)	Locking screw	Locking key
0.472-0.551	12.00-13.99	MP6SS3X12	H1.5-2D
0.551-0.669	14.00-16.99	MP6SS4X12	H2.0-2D
0.669-0.787	17.00-19.99	MP6SS5X16	H2.5-2D
0.787-1.023	20.00-25.99	MP6SS5X16	H2.5-2D

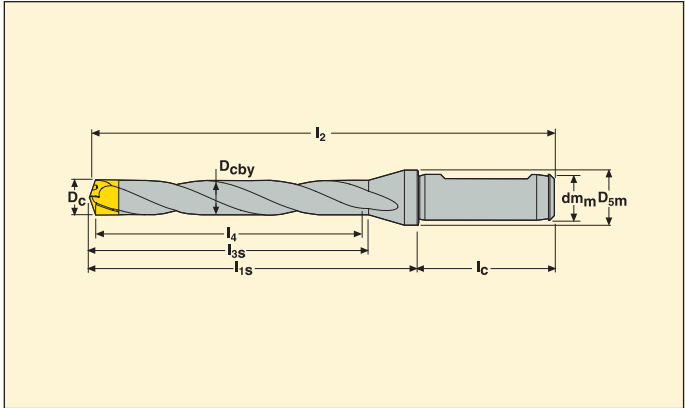
### Accessories\*

Torque key	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
H00-1509	H00-1.5	0.9	8.0
H00-2020	H00-2.0	2.0	17.7
H00-2530	H00-2.5	3.0	26.6
H00-2535	H00-2.5	3.5	31.0

\* Accessories not included in delivery

## Drilling depth ~ 7 x D – Metric shank

## SD107 -R7 shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal coolant
- For cutting data see page(s) 165
- Crown range on page(s) 155-157

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in mm						
					l <sub>2</sub>	l <sub>1s</sub>	D <sub>cby</sub>	l <sub>c</sub>	l <sub>3s</sub>	d <sub>m</sub>	D <sub>5m</sub>
0.472-0.492	12.00-12.49	90	<a href="#">05088</a>	SD107-12.00/12.49-90-16R7	166.5	118.5	11.5	48	100.5	16.0	20
0.492-0.511	12.50-12.99	90	<a href="#">05089</a>	SD107-12.50/12.99-90-16R7	167	119.0	12.0	48	101.0	16.0	20
0.512-0.551	13.00-13.99	90	<a href="#">05090</a>	SD107-13.00/13.99-90-16R7	167.5	119.5	12.5	48	101.5	16.0	20
0.551-0.590	14.00-14.99	110	<a href="#">05091</a>	SD107-14.00/14.99-110-16R7	188	140.0	13.5	48	122.0	16.0	20
0.591-0.630	15.00-15.99	110	<a href="#">05092</a>	SD107-15.00/15.99-110-16R7	189	141.0	14.5	48	123.0	16.0	20
0.630-0.669	16.00-16.99	110	<a href="#">07424</a>	SD107-16.00/16.99-110-16R7	189.5	141.5	15.5	48	123.5	16.0	20
0.669-0.708	17.00-17.99	130	<a href="#">05093</a>	SD107-17.00/17.99-130-20R7	212.5	162.5	16.5	50	144.5	20.0	25
0.709-0.748	18.00-18.99	130	<a href="#">05094</a>	SD107-18.00/18.99-130-20R7	213.5	163.5	17.5	50	145.5	20.0	25
0.748-0.787	19.00-19.99	130	<a href="#">05095</a>	SD107-19.00/19.99-130-20R7	214.5	164.5	18.5	50	146.5	20.0	25
0.787-0.866	20.00-21.99	175	<a href="#">16983</a>	SD107-20.00/21.99-175-25R7	264.5	208.5	19.5	56	188.5	25.0	31
0.866-0.944	22.00-23.99	175	<a href="#">16995</a>	SD107-22.00/23.99-175-25R7	264.5	208.5	21.5	56	188.5	25.0	31
0.945-1.023	24.00-25.99	175	<a href="#">28965</a>	SD107-24.00/25.99-175-25R7	264.5	208.5	23.5	56	188.5	25.0	31

## Spare parts

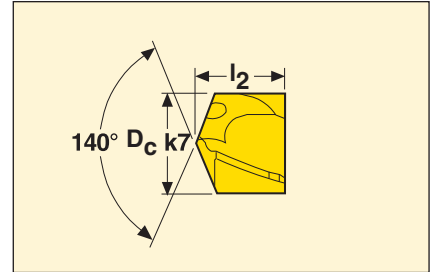
For drill dia. (inch)	For drill dia. (mm)	Locking screw	Locking key
0.472-0.551	12.00-13.99	MP6SS3X12	H1.5-2D
0.551-0.669	14.00-16.99	MP6SS4X12	H2.0-2D
0.669-0.787	17.00-19.99	MP6SS5X16	H2.5-2D
0.787-1.023	20.00-25.99	MP6SS5X16	H2.5-2D

## Accessories\*

Torque key	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
H00-1509	H00-1.5	0.9	8.0
H00-2020	H00-2.0	2.0	17.7
H00-2530	H00-2.5	3.0	26.6
H00-2535	H00-2.5	3.5	31.0

\* Accessories not included in delivery

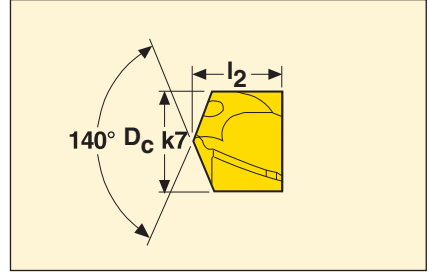
Crowns – Geometry -P, -M and -K



EDP No.	P-geometry for steel	EDP No.	M-geometry for stainless steels and high temp alloys	EDP No.	K-geometry for cast iron	D <sub>c</sub> (inch)	D <sub>c</sub> (mm)	l <sub>2</sub> (inch)	Reamer size*
50766	SD100-9.52-P	55993	SD100-9.52-M	-	-	0.375	9.52	0.318	-
21270	SD100-10.00-P	21291	SD100-10.00-M	-	-	0.394	10.00	0.319	-
21271	SD100-10.10-P	-	-	-	-	0.398	10.10	0.319	-
21272	SD100-10.20-P	21292	SD100-10.20-M	33505	SD100-10.20-K	0.402	10.20	0.319	-
21273	SD100-10.30-P	-	-	-	-	0.406	10.30	0.319	-
21274	SD100-10.319-P	21293	SD100-10.319-M	-	-	0.406	10.319	0.319	-
35014	SD100-10.40-P	-	-	-	-	0.409	10.40	0.319	-
21275	SD100-10.50-P	21294	SD100-10.50-M	33506	SD100-10.50-K	0.413	10.50	0.335	-
21276	SD100-10.70-P	-	-	-	-	0.421	10.70	0.335	-
21277	SD100-10.716-P	-	-	-	-	0.422	10.716	0.335	-
21278	SD100-10.80-P	21296	SD100-10.80-M	-	-	0.425	10.80	0.335	11 H6/11 H7
21279	SD100-10.90-P	-	-	-	-	0.429	10.90	0.335	-
21281	SD100-11.00-P	21297	SD100-11.00-M	-	-	0.433	11.00	0.346	-
21282	SD100-11.113-P	21298	SD100-11.113-M	-	-	0.438	11.113	0.346	-
21283	SD100-11.20-P	21299	SD100-11.20-M	-	-	0.441	11.20	0.346	-
21284	SD100-11.30-P	-	-	-	-	0.445	11.30	0.346	-
21285	SD100-11.50-P	-	-	-	-	0.453	11.50	0.370	-
21286	SD100-11.509-P	21300	SD100-11.509-M	-	-	0.453	11.509	0.370	-
21287	SD100-11.70-P	-	-	-	-	0.461	11.70	0.370	-
21288	SD100-11.80-P	21301	SD100-11.80-M	37687	SD100-11.80-K	0.465	11.80	0.370	12 H6/12 H7
21289	SD100-11.907-P	35025	SD100-11.907-M	-	-	0.469	11.907	0.370	-
90314	SD100-12.00-P	90315	SD100-12.00-M	90316	SD100-12.00-K	0.472	12.00	0.378	-
39002	SD100-12.10-P	-	-	-	-	0.476	12.10	0.378	-
96850	SD100-12.20-P	-	-	-	-	0.480	12.20	0.378	-
71546	SD100-12.30-P	71559	SD100-12.30-M	-	-	0.484	12.30	0.378	-
59767	SD100-12.41-P	59768	SD100-12.41-M	-	-	0.489	12.41	0.378	-
90317	SD100-12.50-P	90318	SD100-12.50-M	90319	SD100-12.50-K	0.492	12.50	0.394	-
43754	SD100-12.60-P	-	-	-	-	0.496	12.60	0.394	-
59631	SD100-12.70-P	59632	SD100-12.70-M	59633	SD100-12.70-K	0.500	12.70	0.394	13 H6
59634	SD100-12.80-P	59635	SD100-12.80-M	59636	SD100-12.80-K	0.504	12.80	0.394	13 H6/13 H7
07458	SD100-12.90-P	37688	SD100-12.90-M	-	-	0.508	12.90	0.394	-
98527	SD100-13.00-P	98528	SD100-13.00-M	98529	SD100-13.00-K	0.512	13.00	0.409	-
59637	SD100-13.10-P	59638	SD100-13.10-M	59639	SD100-13.10-K	0.516	13.10	0.409	-
30894	SD100-13.20-P	-	-	-	-	0.520	13.20	0.409	-
59640	SD100-13.30-P	59641	SD100-13.30-M	-	-	0.524	13.30	0.409	-
98530	SD100-13.50-P	98531	SD100-13.50-M	98532	SD100-13.50-K	0.531	13.50	0.409	-
59643	SD100-13.70-P	59644	SD100-13.70-M	-	-	0.539	13.70	0.409	14 H6
59646	SD100-13.80-P	59647	SD100-13.80-M	59648	SD100-13.80-K	0.543	13.80	0.409	14 H6/14 H7
59770	SD100-13.89-P	59771	SD100-13.89-M	-	-	0.547	13.89	0.409	-
90320	SD100-14.00-P	90321	SD100-14.00-M	90322	SD100-14.00-K	0.551	14.00	0.433	-
96860	SD100-14.10-P	-	-	-	-	0.555	14.10	0.433	-
71548	SD100-14.20-P	71561	SD100-14.20-M	71549	SD100-14.20-K	0.559	14.20	0.433	-
59673	SD100-14.29-P	59674	SD100-14.29-M	59675	SD100-14.29-K	0.563	14.29	0.433	-
24181	SD100-14.40-P	-	-	-	-	0.567	14.40	0.433	-
90323	SD100-14.50-P	90324	SD100-14.50-M	90325	SD100-14.50-K	0.571	14.50	0.433	-
59773	SD100-14.68-P	59774	SD100-14.68-M	59775	SD100-14.68-K	0.578	14.68	0.433	-
59649	SD100-14.70-P	59650	SD100-14.70-M	-	-	0.579	14.70	0.433	15 H6
59652	SD100-14.80-P	59653	SD100-14.80-M	-	-	0.583	14.80	0.433	15 H6/15 H7

\* For further information on what reamer to use and how to use it see page(s) 302.

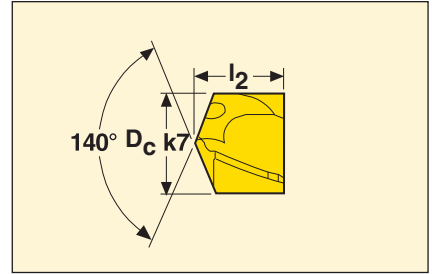
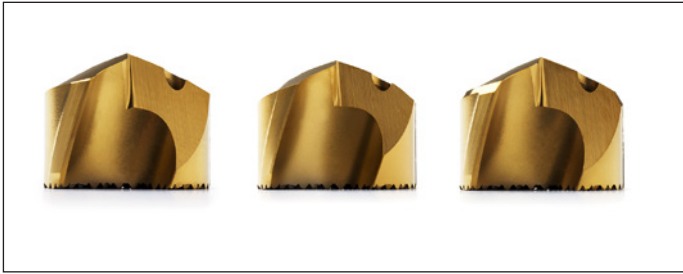
Crowns – Geometry -P, -M and -K



EDP No.	P-geometry for steel	EDP No.	M-geometry for stainless steels and high temp alloys	EDP No.	K-geometry for cast iron	D <sub>c</sub> (inch)	D <sub>c</sub> (mm)	l <sub>2</sub> (inch)	Reamer size*
30895	SD100-14.90-P	35026	SD100-14.90-M	-	-	0.587	14.90	0.433	-
90326	SD100-15.00-P	90327	SD100-15.00-M	90328	SD100-15.00-K	0.591	15.00	0.469	-
59776	SD100-15.08-P	59777	SD100-15.08-M	-	-	0.594	15.08	0.469	-
79342	SD100-15.10-P	-	-	-	-	0.594	15.10	0.469	-
30896	SD100-15.20-P	-	-	-	-	0.598	15.20	0.469	-
71550	SD100-15.25-P	71562	SD100-15.25-M	71551	SD100-15.25-K	0.600	15.25	0.469	-
22926	SD100-15.48-P	59780	SD100-15.48-M	22926	SD100-15.48-K	0.609	15.48	0.469	-
98533	SD100-15.50-P	98534	SD100-15.50-M	98535	SD100-15.50-K	0.610	15.50	0.469	-
59655	SD100-15.70-P	59656	SD100-15.70-M	-	-	0.618	15.70	0.469	16 H6
59658	SD100-15.80-P	59659	SD100-15.80-M	59660	SD100-15.80-K	0.622	15.80	0.469	16 H6/16 H7
59676	SD100-15.88-P	59677	SD100-15.88-M	59678	SD100-15.88-K	0.625	15.88	0.469	16 H6/16 H7
98536	SD100-16.00-P	98537	SD100-16.00-M	98538	SD100-16.00-K	0.630	16.00	0.496	-
77964	SD100-16.10-P	-	-	-	-	0.634	16.10	0.496	-
47365	SD100-16.20-P	-	-	-	-	0.638	16.20	0.496	-
34081	SD100-16.25-P	-	-	-	-	0.640	16.25	0.496	-
22927	SD100-16.27-P	22928	SD100-16.27-M	22929	SD100-16.27-K	0.641	16.27	0.496	-
24179	SD100-16.40-P	-	-	-	-	0.646	16.40	0.496	-
98539	SD100-16.50-P	98540	SD100-16.50-M	98541	SD100-16.50-K	0.650	16.50	0.496	-
59679	SD100-16.67-P	59680	SD100-16.67-M	59681	SD100-16.67-K	0.656	16.67	0.496	-
59661	SD100-16.70-P	59662	SD100-16.70-M	59663	SD100-16.70-K	0.657	16.70	0.496	17 H6
59664	SD100-16.80-P	59665	SD100-16.80-M	59666	SD100-16.80-K	0.661	16.80	0.496	17 H6/17 H7
30898	SD100-16.90-P	37976	SD100-16.90-M	-	-	0.665	16.90	0.496	-
90329	SD100-17.00-P	90330	SD100-17.00-M	90331	SD100-17.00-K	0.669	17.00	0.524	-
22931	SD100-17.07-P	22932	SD100-17.07-M	22933	SD100-17.07-K	0.672	17.07	0.524	-
34083	SD100-17.10-P	-	-	-	-	0.673	17.10	0.524	-
96870	SD100-17.20-P	-	-	33508	SD100-17.20-K	0.677	17.20	0.524	-
-	-	-	-	33509	SD100-17.30-K	0.681	17.30	0.524	-
59682	SD100-17.46-P	59683	SD100-17.46-M	-	-	0.687	17.46	0.524	-
90332	SD100-17.50-P	90333	SD100-17.50-M	90334	SD100-17.50-K	0.689	17.50	0.524	-
59667	SD100-17.70-P	59668	SD100-17.70-M	59669	SD100-17.70-K	0.697	17.70	0.524	18 H6
59670	SD100-17.80-P	59671	SD100-17.80-M	59672	SD100-17.80-K	0.701	17.80	0.524	18 H6/18 H7
22934	SD100-17.86-P	22935	SD100-17.86-M	22936	SD100-17.86-K	0.703	17.86	0.524	18 H6/18 H7
47693	SD100-17.90-P	37689	SD100-17.90-M	-	-	0.705	17.90	0.524	-
90335	SD100-18.00-P	90336	SD100-18.00-M	90337	SD100-18.00-K	0.709	18.00	0.567	-
30900	SD100-18.10-P	-	-	-	-	0.713	18.10	0.567	-
38469	SD100-18.20-P	-	-	-	-	0.717	18.20	0.567	-
22937	SD100-18.26-P	22938	SD100-18.26-M	35196	SD100-18.26-K	0.719	18.26	0.567	-
59685	SD100-18.50-P	59686	SD100-18.50-M	59687	SD100-18.50-K	0.728	18.50	0.567	-
35197	SD100-18.65-P	35198	SD100-18.65-M	-	-	0.734	18.65	0.567	-
59688	SD100-18.70-P	59689	SD100-18.70-M	-	-	0.736	18.70	0.567	19 H6/19 H7
59691	SD100-18.80-P	59692	SD100-18.80-M	59693	SD100-18.80-K	0.740	18.80	0.567	19 H6/19 H7
30901	SD100-18.90-P	35027	SD100-18.90-M	-	-	0.744	18.90	0.567	-
59694	SD100-19.00-P	59695	SD100-19.00-M	59696	SD100-19.00-K	0.748	19.00	0.598	-
59697	SD100-19.05-P	59698	SD100-19.05-M	59699	SD100-19.05-K	0.750	19.05	0.598	-
30902	SD100-19.10-P	-	-	-	-	0.752	19.10	0.598	-
71563	SD100-19.20-P	71564	SD100-19.20-M	71566	SD100-19.20-K	0.756	19.20	0.598	-
96880	SD100-19.25-P	-	-	-	-	0.758	19.25	0.598	-
35200	SD100-19.45-P	35201	SD100-19.45-M	35202	SD100-19.45-K	0.766	19.45	0.598	-

\* For further information on what reamer to use and how to use it see page(s) 302.

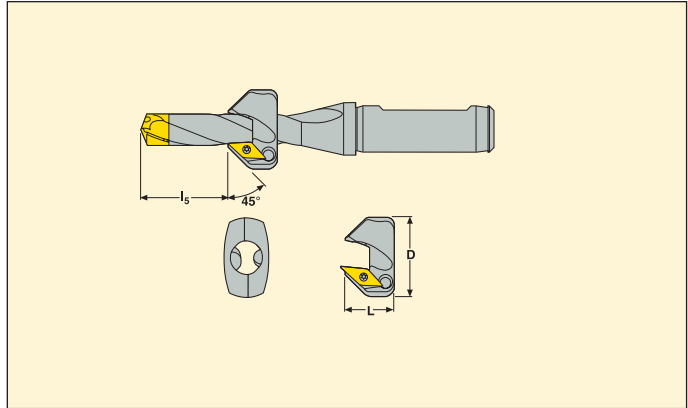
Crowns – Geometry -P, -M and -K



EDP No.	P-geometry for steel	EDP No.	M-geometry for stainless steels and high temp alloys	EDP No.	K-geometry for cast iron	D <sub>c</sub> (inch)	D <sub>c</sub> (mm)	l <sub>2</sub> (inch)	Reamer size*
<a href="#">59700</a>	SD100-19.50-P	<a href="#">59701</a>	SD100-19.50-M	<a href="#">59702</a>	SD100-19.50-K	0.768	19.50	0.598	–
<a href="#">59703</a>	SD100-19.70-P	<a href="#">59704</a>	SD100-19.70-M	<a href="#">59705</a>	SD100-19.70-K	0.776	19.70	0.598	20 H6
<a href="#">59706</a>	SD100-19.80-P	<a href="#">59707</a>	SD100-19.80-M	<a href="#">59708</a>	SD100-19.80-K	0.780	19.80	0.598	20 H6/20 H7
<a href="#">35203</a>	SD100-19.84-P	<a href="#">35204</a>	SD100-19.84-M	–	–	0.781	19.84	0.598	20 H6/20 H7
<a href="#">10065</a>	SD100-19.90-P	<a href="#">35028</a>	SD100-19.90-M	–	–	0.783	19.90	0.598	–
<a href="#">81744</a>	SD100-19.99-P	–	–	–	–	0.787	19.99	0.598	–
<a href="#">30624</a>	SD100-20.00-P	<a href="#">21327</a>	SD100-20.00-M	<a href="#">30624</a>	SD100-20.00-K	0.787	20.00	0.598	–
<a href="#">21303</a>	SD100-20.241-P	–	–	–	–	0.797	20.241	0.598	–
<a href="#">21304</a>	SD100-20.50-P	<a href="#">21328</a>	SD100-20.50-M	<a href="#">32298</a>	SD100-20.50-K	0.807	20.50	0.598	–
<a href="#">21305</a>	SD100-20.638-P	<a href="#">21329</a>	SD100-20.638-M	–	–	0.813	20.638	0.598	–
<a href="#">37691</a>	SD100-20.80-P	–	–	–	–	0.819	20.80	0.598	21 H6/21 H7
<a href="#">33630</a>	SD100-20.90-P	–	–	–	–	0.823	20.90	0.598	–
<a href="#">21306</a>	SD100-21.00-P	<a href="#">21331</a>	SD100-21.00-M	<a href="#">33510</a>	SD100-21.00-K	0.827	21.00	0.598	–
<a href="#">21307</a>	SD100-21.034-P	–	–	–	–	0.828	21.034	0.598	–
<a href="#">21308</a>	SD100-21.20-P	–	–	–	–	0.835	21.20	0.598	–
<a href="#">37692</a>	SD100-21.30-P	–	–	–	–	0.839	21.30	0.598	–
<a href="#">21309</a>	SD100-21.430-P	<a href="#">21332</a>	SD100-21.430-M	–	–	0.844	21.430	0.598	–
<a href="#">21310</a>	SD100-21.50-P	<a href="#">21333</a>	SD100-21.50-M	<a href="#">33512</a>	SD100-21.50-K	0.846	21.50	0.598	–
<a href="#">37693</a>	SD100-21.80-P	<a href="#">37693</a>	SD100-21.80-M	<a href="#">35044</a>	SD100-21.80-K	0.858	21.80	0.598	22 H6/22 H7
<a href="#">21311</a>	SD100-21.829-P	–	–	–	–	0.859	21.829	0.598	–
<a href="#">35017</a>	SD100-21.90-P	<a href="#">35033</a>	SD100-21.90-M	–	–	0.862	21.90	0.598	–
<a href="#">21312</a>	SD100-22.00-P	<a href="#">21334</a>	SD100-22.00-M	<a href="#">33513</a>	SD100-22.00-K	0.866	22.00	0.598	–
<a href="#">21313</a>	SD100-22.225-P	<a href="#">21335</a>	SD100-22.225-M	–	–	0.875	22.225	0.598	–
<a href="#">21316</a>	SD100-22.621-P	–	–	–	–	0.891	22.621	0.598	–
<a href="#">21314</a>	SD100-22.50-P	<a href="#">21336</a>	SD100-22.50-M	<a href="#">32299</a>	SD100-22.50-K	0.886	22.50	0.598	–
<a href="#">37694</a>	SD100-22.80-P	<a href="#">35035</a>	SD100-22.80-M	–	–	0.898	22.80	0.598	23 H6/23 H7
<a href="#">35019</a>	SD100-22.90-P	–	–	–	–	0.902	22.90	0.598	–
<a href="#">21317</a>	SD100-23.00-P	<a href="#">21337</a>	SD100-23.00-M	<a href="#">33514</a>	SD100-23.00-K	0.906	23.00	0.598	–
<a href="#">21318</a>	SD100-23.416-P	–	–	–	–	0.922	23.416	0.598	–
<a href="#">21319</a>	SD100-23.50-P	<a href="#">21338</a>	SD100-23.50-M	<a href="#">33515</a>	SD100-23.50-K	0.925	23.50	0.598	–
<a href="#">21320</a>	SD100-23.813-P	<a href="#">37695</a>	SD100-23.813-M	<a href="#">35047</a>	SD100-23.813-K	0.938	23.813	0.598	24 H6/24 H7
<a href="#">35020</a>	SD100-23.90-P	<a href="#">35037</a>	SD100-23.90-M	–	–	0.941	23.90	0.598	–
<a href="#">21321</a>	SD100-24.00-P	<a href="#">21339</a>	SD100-24.00-M	<a href="#">32300</a>	SD100-24.00-K	0.945	24.00	0.598	–
<a href="#">21322</a>	SD100-24.209-P	–	–	–	–	0.953	24.209	0.598	–
<a href="#">21323</a>	SD100-24.50-P	<a href="#">21340</a>	SD100-24.50-M	<a href="#">32301</a>	SD100-24.50-K	0.965	24.50	0.598	–
<a href="#">21324</a>	SD100-24.605-P	–	–	–	–	0.969	24.605	0.598	–
<a href="#">37696</a>	SD100-24.80-P	<a href="#">37696</a>	SD100-24.80-M	<a href="#">35048</a>	SD100-24.80-K	0.976	24.80	0.598	25 H6/25 H7
<a href="#">35021</a>	SD100-24.90-P	<a href="#">35038</a>	SD100-24.90-M	–	–	0.980	24.90	0.598	–
<a href="#">21325</a>	SD100-25.00-P	<a href="#">21341</a>	SD100-25.00-M	<a href="#">33516</a>	SD100-25.00-K	0.984	25.00	0.598	–
–	–	–	–	<a href="#">32302</a>	SD100-25.40-K	1.000	25.40	0.598	–
<a href="#">32519</a>	SD100-25.50-P	–	–	–	–	1.004	25.50	0.598	–
<a href="#">36765</a>	SD100-25.60-P	–	–	–	–	1.008	25.60	0.598	–
<a href="#">37698</a>	SD100-25.80-P	<a href="#">35039</a>	SD100-25.80-M	–	–	1.016	25.80	0.598	25 H6/25 H7
<a href="#">35022</a>	SD100-25.90-P	<a href="#">35040</a>	SD100-25.90-M	–	–	1.020	25.90	0.598	–
<a href="#">32520</a>	SD100-25.99-P	–	–	<a href="#">33517</a>	SD100-25.99-K	1.023	25.99	0.598	–
<a href="#">21326</a>	SD100-25.400-P	<a href="#">21342</a>	SD100-25.400-M	–	–	1.000	25.400	0.598	–

\* For further information on what reamer to use and how to use it see page(s) 302.

Chamfer module Inch

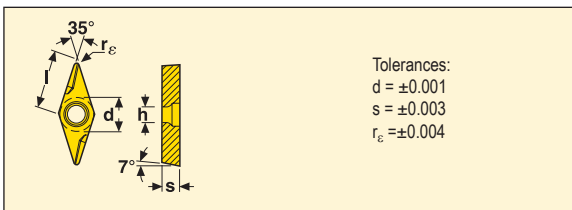


EDP No.	Part No.	For drill body	Drilling depth in inch					Dimensions in inch	
			SD101 l <sub>5</sub> (min-max)	SD103 l <sub>5</sub> (min-max)	SD105 l <sub>5</sub> (min-max)	SD107 l <sub>5</sub> (min-max)	Max chamfer depth (inch)	L	D
14922	SD100-C45-12.00/12.49	SD10x-12.00/12.49	0.472-0.512	0.472-1.102	1.102-2.087	2.087-3.071	0.059	0.748	1.102
14923	SD100-C45-12.50/12.99	SD10x-12.50/12.99	0.472-0.551	0.472-1.142	1.142-2.126	2.126-3.110	0.059	0.748	1.102
14924	SD100-C45-13.00/13.99	SD10x-13.00/13.99	0.512-0.551	0.512-1.142	1.142-2.126	2.126-3.110	0.059	0.748	1.102
14928	SD100-C45-14.00/14.99	SD10x-14.00/14.99	0.551-0.787	0.551-1.575	1.575-2.756	2.756-3.937	0.079	0.748	1.220
14931	SD100-C45-15.00/15.99	SD10x-15.00/15.99	0.551-0.827	0.551-1.614	1.614-2.795	2.795-3.976	0.079	0.748	1.220
14932	SD100-C45-16.00/16.99	SD10x-16.00/16.99	0.591-0.866	0.591-1.654	1.654-2.835	2.835-4.016	0.079	0.748	1.220
14933	SD100-C45-17.00/17.99	SD10x-17.00/17.99	0.630-0.984	0.630-2.008	2.008-3.425	3.425-4.843	0.079	0.748	1.417
14935	SD100-C45-18.00/18.99	SD10x-18.00/18.99	0.669-1.024	0.669-2.047	2.047-3.465	3.465-4.882	0.079	0.748	1.417
14936	SD100-C45-19.00/19.99	SD10x-19.00/19.99	0.709-1.063	0.709-2.087	2.087-3.504	3.504-4.921	0.079	0.748	1.417

Spare Parts ( included in delivery)

For drill dia (mm)	Insert screw	Key (Flag)	Locking key
	 Insert                      Module	 Insert                      Module	 Module
SD100-12.00-16.99	CO2505-T08P	CO4011-T15P	T07P-2
SD100-17.00-19.99	CO2505-T08P	CO5012-T15P	T07P-2

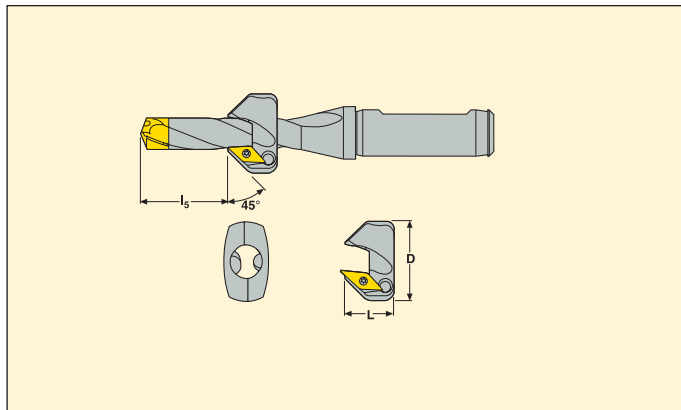
Insert



Size	Dimensions in inch				
	d (I.C.)	l	s	h	r <sub>ε</sub>
09	0.219	0.354	0.098	0.114	0.008
Part No.	T400D				
VCGX090202-D1	■				



Chamfer module Metric

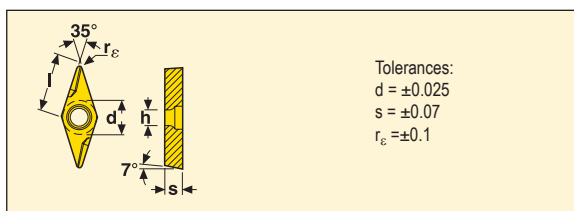


EDP No.	Part No.	For drill body	Drilling depth in mm					Dimensions in mm	
			SD101 l <sub>5</sub> (min-max)	SD103 l <sub>5</sub> (min-max)	SD105 l <sub>5</sub> (min-max)	SD107 l <sub>5</sub> (min-max)	Max chamfer depth (mm)	L	D
<a href="#">14922</a>	<a href="#">SD100-C45-12.00/12.49</a>	SD10x-12.00/12.49	12-13	12-28	28-53	53-78	1.5	19	28
<a href="#">14923</a>	<a href="#">SD100-C45-12.50/12.99</a>	SD10x-12.50/12.99	12-14	12-29	29-54	54-79	1.5	19	28
<a href="#">14924</a>	<a href="#">SD100-C45-13.00/13.99</a>	SD10x-13.00/13.99	13-14	13-29	29-54	54-79	1.5	19	28
<a href="#">14928</a>	<a href="#">SD100-C45-14.00/14.99</a>	SD10x-14.00/14.99	14-20	14-40	40-70	70-100	2.0	19	31
<a href="#">14931</a>	<a href="#">SD100-C45-15.00/15.99</a>	SD10x-15.00/15.99	14-21	14-41	41-71	71-101	2.0	19	31
<a href="#">14932</a>	<a href="#">SD100-C45-16.00/16.99</a>	SD10x-16.00/16.99	15-22	15-42	42-72	72-102	2.0	19	31
<a href="#">14933</a>	<a href="#">SD100-C45-17.00/17.99</a>	SD10x-17.00/17.99	16-25	16-51	51-87	87-123	2.0	19	36
<a href="#">14935</a>	<a href="#">SD100-C45-18.00/18.99</a>	SD10x-18.00/18.99	17-26	17-52	52-88	88-124	2.0	19	36
<a href="#">14936</a>	<a href="#">SD100-C45-19.00/19.99</a>	SD10x-19.00/19.99	18-27	18-53	53-89	89-125	2.0	19	36

Spare Parts ( included in delivery)

For drill dia (mm)	Insert screw	Key (Flag)	Locking key
	 Insert                      Module	 Insert                      Module	 Module
<a href="#">SD100-12.00-16.99</a>	CO2505-T08P	CO4011-T15P	T07P-2
<a href="#">SD100-17.00-19.99</a>	CO2505-T08P	CO5012-T15P	T07P-2

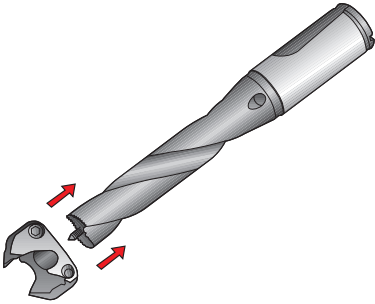
Insert



Size	Dimensions in mm				
	d (I.C.)	l	s	h	r <sub>e</sub>
09	5.556	9.000	2.500	2.900	0.2
Part No.	T400D				
VCGX090202-D1	■				

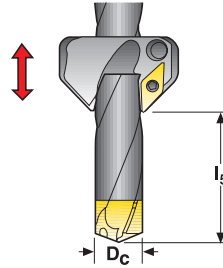
Chamfer module – Mounting instruction/placement of module

1



Fit the module on the drill without chamfer insert or crown mounted.

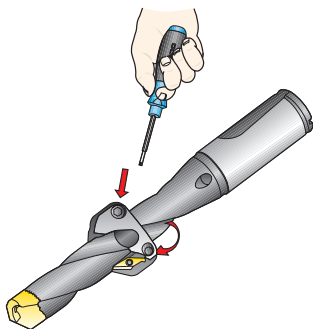
2



If possible, place the module as close to the shank as possible.

D <sub>c</sub>		I <sub>5</sub> drilling depth			
		SD101 (min-max)		SD103 (min-max)	
(mm)	(inch)	(mm)	(inch)	(mm)	(inch)
12	0.472	12-13	0.472-0.512	12-28	0.472-1.102
12.5	0.492	12-14	0.472-0.551	12-29	0.472-1.142
13	0.512	13-14	0.512-0.551	13-29	0.512-1.142
14	0.551	14-20	0.551-0.787	14-40	0.551-1.575
15	0.591	14-21	0.551-0.827	14-41	0.551-1.614
16	0.630	15-22	0.591-0.866	15-42	0.591-1.654
17	0.669	16-25	0.630-0.984	16-51	0.630-2.008
18	0.709	17-26	0.669-1.024	17-52	0.669-2.047
19	0.748	18-27	0.709-1.063	18-53	0.709-2.087

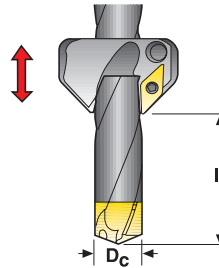
3



D <sub>c</sub>		M	
(mm)	(inch)	(Nm)	(in-lbs)
12-19	0.472-0.748	3-4	26-35

Tighten both screws according to the table above.

2



If possible, place the module as close to the shank as possible.

D <sub>c</sub>		I <sub>5</sub> drilling depth			
		SD105 (min-max)		SD107 (min-max)	
(mm)	(inch)	(mm)	(inch)	(mm)	(inch)
12	0.472	28-53	1.102-2.087	53-78	2.087-3.071
12.5	0.492	29-54	1.142-2.126	54-79	2.126-3.110
13	0.512	29-54	1.142-2.126	54-79	2.126-3.110
14	0.551	40-70	1.575-2.756	70-100	2.756-3.937
15	0.591	41-71	1.614-2.785	71-101	2.795-3.976
16	0.630	42-72	1.654-2.835	72-102	2.835-4.016
17	0.669	51-87	2.008-3.425	87-123	3.425-4.843
18	0.709	52-88	2.047-3.465	88-124	3.465-4.882
19	0.748	53-89	2.087-3.504	89-125	3.504-4.921

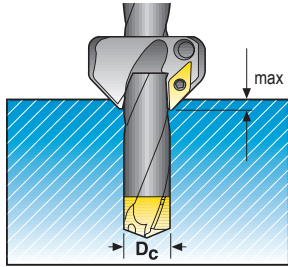
### Chamfer module – Cutting data

The recommended cutting speeds and feeds for Crownloc® on page 162-165 should also be used during the chamfering operation.

### Troubleshooting

<p><b>Vibrations during chamfering</b></p>	<ul style="list-style-type: none"> <li>• Reduce cutting speed</li> <li>• If possible, move the module closer to the shank of the drill.</li> <li>• If possible, use a shorter drill</li> </ul>
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### Maximum chamfer depth



D <sub>c</sub>		Max	
(mm)	(inch)	(mm)	(inch)
12-13	0.472-0.512	1.5	0.059
14-19	0.551-0.748	2	0.079

Cutting data – SD101 – Ø 0.394-1.024

SMG		f									v <sub>c</sub>
		Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	Ø 0.866	Ø 0.945	Ø 1.024	
P1	P	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.014	415
P2	P	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	0.014	0.014	400
P3	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	345
P4	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	305
P5	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.012	0.013	0.013	290
P6	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	325
P7	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	310
P8	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	290
P11	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	300
M1	M	0.0055	0.0060	0.0060	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	280
M2	M	0.0050	0.0050	0.0055	0.0055	0.0060	0.0060	0.0060	0.0065	0.0065	225
M3	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	170
M4	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	130
M5	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	105
K1	K	0.011	0.013	0.013	0.014	0.015	0.016	0.017	0.017	0.017	325
K2	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	280
K3	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	235
K4	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	225
K5	K	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.014	0.014	135
N1	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	1100
N2	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	710
N3	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	475
N11	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	560
S1	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	115
S2	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	80
S3	M	0.0034	0.0034	0.0036	0.0038	0.0038	0.0038	0.0040	0.0040	0.0040	80
S11	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	210
S12	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	160
S13	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	125
H3	P	0.0034	0.0038	0.0044	0.0048	0.0048	0.0050	0.0055	0.0055	0.0060	90
H5	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	165
H7	P	0.0034	0.0038	0.0044	0.0048	0.0048	0.0050	0.0055	0.0055	0.0060	90
H8	P	0.0038	0.0044	0.0048	0.0050	0.0055	0.0060	0.0065	0.0065	0.0065	165
H11	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	205
H12	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	315
H21	P	0.0038	0.0044	0.0048	0.0050	0.0055	0.0060	0.0065	0.0065	0.0065	165

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Note!		
For safety reasons, maximum allowed rpm for Seco Crownloc®		
Drill diameter	Drill diameter	Max rpm
0.375 - 0.668	9.52 - 16.99	15.000
0.669 - 0.787	17.00 - 19.99	12.000
0.788 - 1.023	20.00 - 25.99	10.000

Cutting data – SD103 – Ø 0.394-1.024


SMG		f									V <sub>c</sub>	
		Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	Ø 0.866	Ø 0.945	Ø 1.024		
P1	P	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.014	0.014	385
P2	P	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.014	0.014	375
P3	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.013	325
P4	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.013	285
P5	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.012	0.013	0.013	0.013	270
P6	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	0.013	305
P7	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	0.013	290
P8	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.013	270
P11	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	0.013	280
M1	M	0.0055	0.0060	0.0060	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	260
M2	M	0.0050	0.0050	0.0055	0.0055	0.0060	0.0060	0.0060	0.0065	0.0065	0.0065	210
M3	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	0.0050	160
M4	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	0.0044	120
M5	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	0.0044	100
K1	K	0.011	0.013	0.013	0.014	0.015	0.016	0.017	0.017	0.017	0.017	300
K2	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	0.016	260
K3	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	0.016	220
K4	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	0.016	210
K5	K	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.014	0.014	0.014	125
N1	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	0.0085	1025
N2	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	0.0085	660
N3	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	0.0085	440
N11	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	0.0085	530
S1	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	0.0044	105
S2	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	0.0044	75
S3	M	0.0034	0.0034	0.0036	0.0038	0.0038	0.0038	0.0040	0.0040	0.0040	0.0040	75
S11	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	0.0050	195
S12	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	0.0050	150
S13	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	0.0044	115
H3	P	0.0034	0.0038	0.0044	0.0048	0.0048	0.0050	0.0055	0.0055	0.0060	0.0060	80
H5	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	0.0085	155
H7	P	0.0034	0.0038	0.0044	0.0048	0.0048	0.0050	0.0055	0.0055	0.0060	0.0060	80
H8	P	0.0038	0.0044	0.0048	0.0050	0.0055	0.0060	0.0065	0.0065	0.0065	0.0065	155
H11	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	0.0085	195
H12	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	0.0085	295
H21	P	0.0038	0.0044	0.0048	0.0050	0.0055	0.0060	0.0065	0.0065	0.0065	0.0065	155

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

**Note!**  
 For safety reasons, maximum allowed rpm for Seco Crownloc®

Drill diameter	Drill diameter	Max rpm
0.375 - 0.668	9.52 - 16.99	15.000
0.669 - 0.787	17.00 - 19.99	12.000
0.788 - 1.023	20.00 - 25.99	10.000

## Cutting data – SD105 – Ø 0.394-1.024

SMG		f									v <sub>c</sub>
		Ø 0.394	Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	Ø 0.866	Ø 0.945	Ø 1.024	
P1	P	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.014	370
P2	P	0.0080	0.0095	0.010	0.011	0.012	0.013	0.013	0.014	0.014	360
P3	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	310
P4	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	270
P5	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.012	0.013	0.013	260
P6	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	290
P7	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	275
P8	P	0.0075	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	260
P11	P	0.0070	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	270
M1	M	0.0055	0.0060	0.0060	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	250
M2	M	0.0050	0.0050	0.0055	0.0055	0.0060	0.0060	0.0060	0.0065	0.0065	200
M3	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	150
M4	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	115
M5	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	95
K1	K	0.011	0.013	0.013	0.014	0.015	0.016	0.017	0.017	0.017	285
K2	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	250
K3	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	210
K4	K	0.010	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	200
K5	K	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.014	0.014	120
N1	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	980
N2	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	630
N3	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	420
N11	M	0.0070	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	500
S1	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	100
S2	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	70
S3	M	0.0034	0.0034	0.0036	0.0038	0.0038	0.0038	0.0040	0.0040	0.0040	70
S11	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	185
S12	M	0.0040	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	145
S13	M	0.0036	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	110
H3	P	0.0034	0.0038	0.0044	0.0048	0.0048	0.0050	0.0055	0.0055	0.0060	80
H5	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	145
H7	P	0.0034	0.0038	0.0044	0.0048	0.0048	0.0050	0.0055	0.0055	0.0060	80
H8	P	0.0038	0.0044	0.0048	0.0050	0.0055	0.0060	0.0065	0.0065	0.0065	145
H11	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	185
H12	P	0.0050	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	280
H21	P	0.0038	0.0044	0.0048	0.0050	0.0055	0.0060	0.0065	0.0065	0.0065	145

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min


All cutting data are start values

**Note!**

For safety reasons, maximum allowed rpm for Seco Crownloc®

Drill diameter	Drill diameter	Max rpm
0.375 - 0.668	9.52 - 16.99	15.000
0.669 - 0.787	17.00 - 19.99	12.000
0.788 - 1.023	20.00 - 25.99	10.000

Cutting data – SD107 – Ø 0.472-1.024

SMG		f								v <sub>c</sub>
		Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	Ø 0.866	Ø 0.945	Ø 1.024	
P1	P	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	0.014	355
P2	P	0.0095	0.010	0.011	0.012	0.013	0.013	0.014	0.014	350
P3	P	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	300
P4	P	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	265
P5	P	0.0085	0.0095	0.010	0.011	0.012	0.012	0.013	0.013	250
P6	P	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	280
P7	P	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	265
P8	P	0.0085	0.0095	0.010	0.011	0.012	0.013	0.013	0.013	250
P11	P	0.0085	0.0095	0.010	0.011	0.011	0.012	0.013	0.013	260
M1	M	0.0060	0.0060	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	240
M2	M	0.0050	0.0055	0.0055	0.0060	0.0060	0.0060	0.0065	0.0065	195
M3	M	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	145
M4	M	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	110
M5	M	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	90
K1	K	0.013	0.013	0.014	0.015	0.016	0.017	0.017	0.017	275
K2	K	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	240
K3	K	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	205
K4	K	0.011	0.012	0.013	0.013	0.014	0.015	0.015	0.016	195
K5	K	0.010	0.011	0.012	0.013	0.013	0.013	0.014	0.014	115
N1	M	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	940
N2	M	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	610
N3	M	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	405
N11	M	0.0075	0.0075	0.0080	0.0080	0.0080	0.0085	0.0085	0.0085	485
S1	M	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	95
S2	M	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	70
S3	M	0.0034	0.0036	0.0038	0.0038	0.0038	0.0040	0.0040	0.0040	70
S11	M	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	180
S12	M	0.0044	0.0044	0.0044	0.0048	0.0048	0.0048	0.0048	0.0050	140
S13	M	0.0038	0.0038	0.0040	0.0040	0.0040	0.0044	0.0044	0.0044	105
H3	P	0.0038	0.0044	0.0048	0.0048	0.0050	0.0055	0.0055	0.0060	75
H5	P	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	140
H7	P	0.0038	0.0044	0.0048	0.0048	0.0050	0.0055	0.0055	0.0060	75
H8	P	0.0044	0.0048	0.0050	0.0055	0.0060	0.0065	0.0065	0.0065	140
H11	P	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	180
H12	P	0.0060	0.0065	0.0070	0.0075	0.0080	0.0080	0.0085	0.0085	270
H21	P	0.0044	0.0048	0.0050	0.0055	0.0060	0.0065	0.0065	0.0065	140

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

**Note!**

For safety reasons, maximum allowed rpm for Seco Crownloc®


Drill diameter	Drill diameter	Max rpm
0.472 - 0.668	9.52 - 16.99	15.000
0.669 - 0.787	17.00 - 19.99	12.000
0.788 - 1.023	20.00 - 25.99	10.000

**Custom design – No waiting for quotations – Short delivery time**

A well defined strategy has been created for the total process for custom-made drills from quotation to finished drill. You can now design your own customized Crownloc® drill using the Custom Design software.

The concept gives you a number of advantages:


- No waiting for quotations! Price and delivery time available instantly
- Directly visualizes your needs. No risk of misinterpretation
- Short delivery time

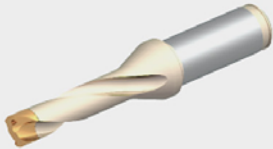
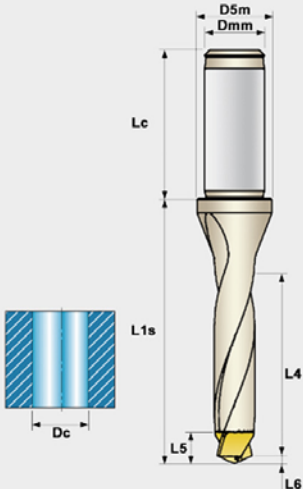


## CUSTOM DESIGN

Drilling >> CrownLoc® >> Single Diameter >> Single Diameter >> Single Diameter
Feedback

Back
Start Page
English

 [Print this page](#)

### Step 1: Tool Specification

Step 2: Request for Quotation

	Min	Max	
Dc	10	25.99	20.3
L4	20	175	106
With flange			<input checked="" type="checkbox"/>
Type of shank			ISO 9766 (R7) <span style="font-size: small;">i</span>
Shank size			25
L1s (±0.5)			139
Lc			56
L5			15.2
L6			3.7
Dmm (h6)			25
D5m			32

Previous
Next

Spare Parts / Inserts

**Note** Inserts have to be ordered separately

Designation  
SD109-20.00/21.99-106-25R7

Delivery Time

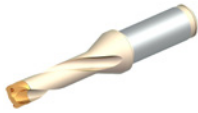
Quantity:  Get data

Please contact your local Seco representative for more information.



Different types of custom drills – Detailed information can be found in the Custom Design software

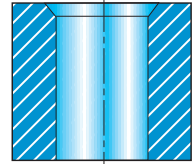
A1. Single diameter



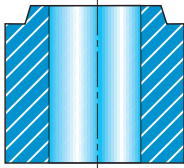
A2. Reinforced



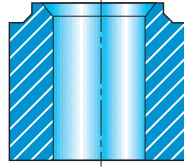
A3. Chamfer



A4. Face



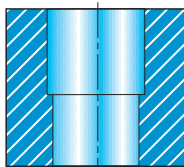
A5. Face with chamfer



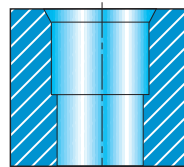
A6. Straight chip flutes



B1. Counterbore



B2. Counterbore and chamfer




### Custom design – No waiting for quotations – Short delivery time

A well defined strategy has been created for the total process for custom-made drills from quotation to finished drill. You can now design your own customized Crownloc® crowns using the Custom Design software.

The concept gives you a number of advantages:


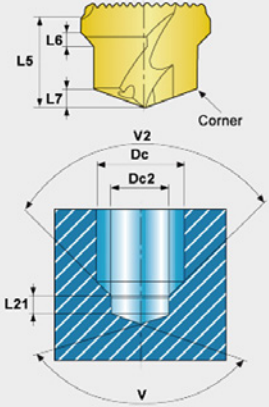
- No waiting for quotations! Price and delivery time available instantly
- Directly visualises your needs. No risk of misinterpretation
- Short delivery time



## CUSTOM DESIGN

Drilling >> CrownLoc® Inserts >> Bottom profile >> Step
Feedback

Back
Start Page
English

**Step 1: Tool Specification**  
Step 2: Request for Quotation

	Min	Max	
Dc (k7)	10	25.99	19.7
Hole tolerances			H9-H11
V (±2°)	100	140	140
Dc2 (k7)	14	19.7	16.4
V2 (±2°)	60	180	132
L21 (±0.1)	0	8.8	5.8
Application			P <span style="font-size: x-small;">i</span>
Corner			Standard <span style="font-size: x-small;">i</span>
L5			13.44
L6			0.73
L7			2.98
Coating			TiAIN
Edge preparation			Medium

Previous
Next

**Designation**  
SD100-B3-19.70-3570480-P

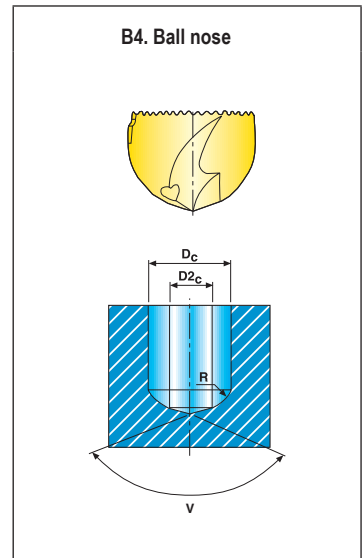
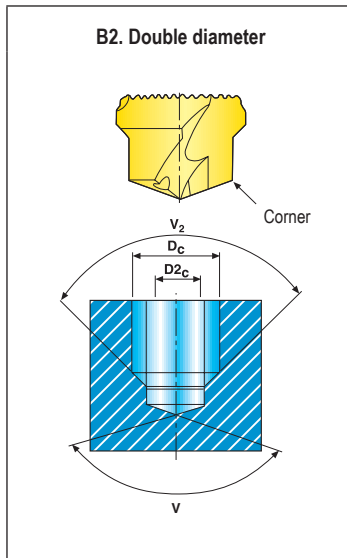
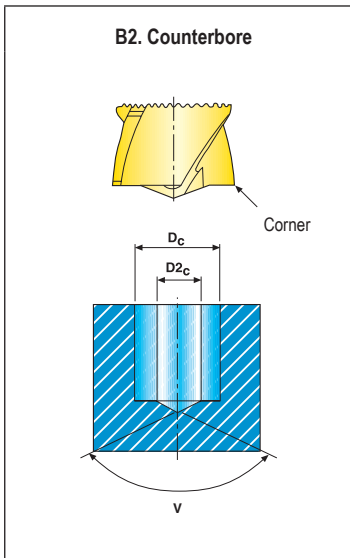
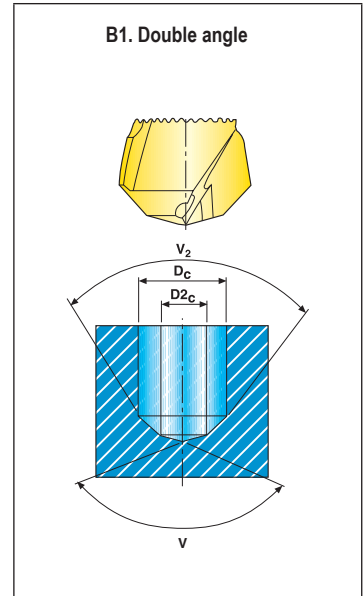
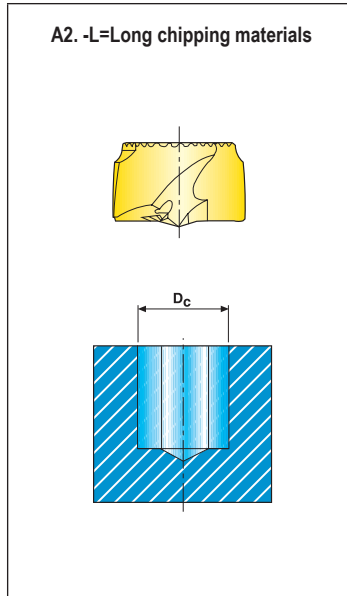
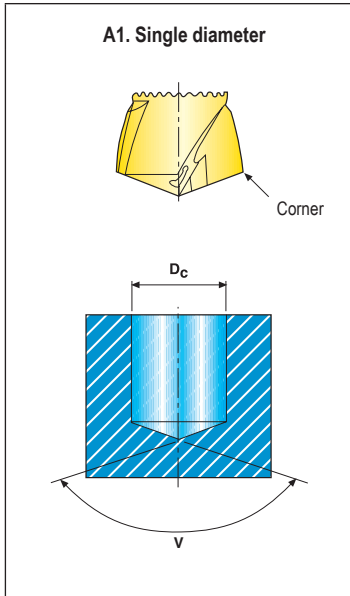
**Delivery Time**

Quantity:  Get data

Min Quantity: 2

Please contact your local Seco representative for more information.

Different types of custom drills – Detailed information can be found in the Custom Design software



Drilling diameter,  
 $D_c = 0.3937 - 1.0232"$   
 (10.00 - 25.99 mm)

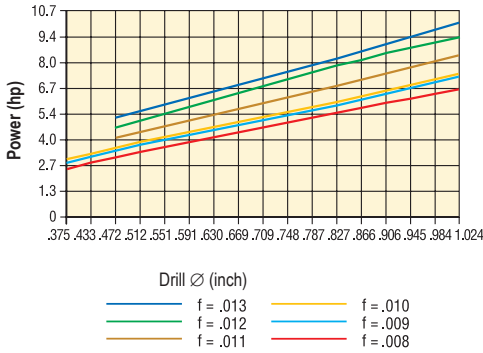
Geometry: P = Steel  
 M = Stainless Steel  
 K = Cast iron  
 L = Long chipping materials  
 N = Non ferritic materials  
 H = Hardened steels  
 Corner: Standard, chamfer, radius  
 V: 100–150° (standard = 140°)

Available with 10 and 13 percent cobalt  
 for more wear resistance.  
 Ex: SD100-15.00-K10.

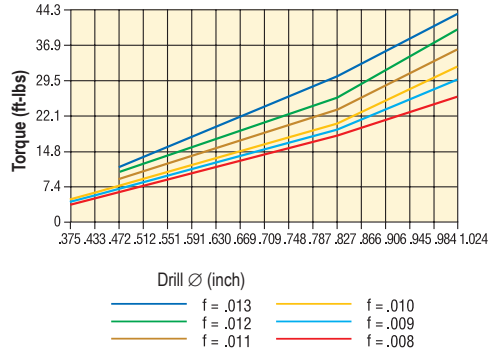
**Machining data**

The values in the graphs vary with e.g. cutting data, material, efficiency of the machine and tool wear. The graphs below are valid for Seco Material Group (SMG) P5-P6 and cutting speed 295 sf/min (90 m/min).

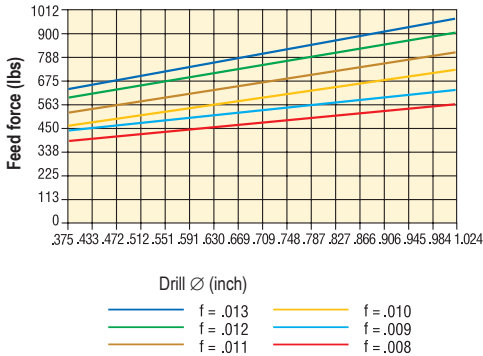
**Net power consumption**



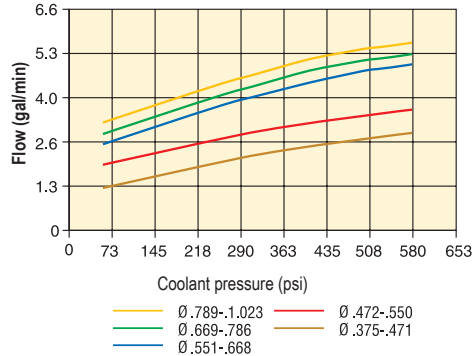
**Drilling torque**



**Feed force**



**Coolant flow at different pressures**



**Hole tolerances/Surface finish**

SD101, SD103, SD105 and SD107 IT9-10 / R <sub>a</sub> 1-4* (40-160 µin)*		
Drill Ø D <sub>c</sub> (inch/mm)	IT9 tolerance (µin/µm)	IT10 tolerance (µin/µm)
0.394-0.709	0.0017	0.0028
0.709-1.181	0.0020	0.0033
10-18	43	70
18-30	52	84

\*Deterioration of surface finish and hole tolerance can occur when drilling in low carbon steel or stainless steel. Use the shortest drill possible for best hole quality.

Recommended coolant flow D x 1 gal/min.

Minimum coolant flow D/2 gal/min.

D = Drill diameter

Minimum recommended coolant pressure 150 psi with < 3 x D

Minimum recommended coolant pressure 300 psi with > 3 x D

Minimum recommended coolant pressure 600 psi with > 5 x D

**Coolant mix**

Recommended emulsion mix is 6-8%.

When drilling in stainless steels, superalloys and high strength steels a mix of 10% is recommended.

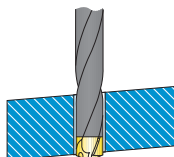
**Machining recommendations**

**Angled entrance**

Max. recommended entrance angle for good positioning is 8 degrees. Always reduce the feed by 30%-50% during an angled entrance.

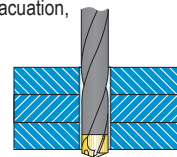
**Angled exit**

Max. angled exit is 30 degrees. Reduce the feed by 30%-50% during exit if the angle is wider than 8 degrees.




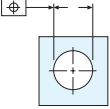

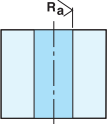

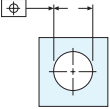

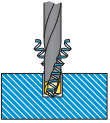

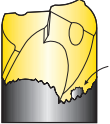
**Stacked material**

It is possible to drill stacked material as long as the pieces are securely clamped together, so that there are no air gaps between the parts. Air gaps can affect chip evacuation, and thereby damage the drill.






**Troubleshooting – Initial check points:**

- Fixturing stability
- Machine spindle condition
- Tool holder condition
- Clamping of tool:
  - Run-out within 0.002" TIR (0.06 mm) TIR
- Chip evacuation:
  - Cutting data
- Coolant:
  - Pressure
  - Flow
  - Concentration

<p><b>Cutting edges get chipped</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev</li> <li>• If the drill vibrates, reduce the cutting speed and increase the feed rate</li> <li>• When drilling through rough, hard or angled surfaces, reduce the feed rate by 30%-50% during entrance and exit</li> </ul> 	<p><b>Unsatisfactory diameter tolerance</b></p> <ul style="list-style-type: none"> <li>• Increase the feed/rev</li> <li>• Use a Seco Feedmax solid carbide drill, see page(s) 18-21</li> <li>• Use a reaming operation, see page(s) 302</li> <li>• Use a boring operation, see page(s) 464-465</li> </ul> 
<p><b>Too fast flank wear</b></p> <ul style="list-style-type: none"> <li>• Check that correct geometry is used</li> <li>• Reduce the cutting speed</li> </ul> 	<p><b>Unsatisfactory surface finish</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev</li> <li>• Increase the cutting speed</li> <li>• Check that the correct geometry is used</li> <li>• Use a Seco Feedmax solid carbide drill, see page(s) 18-21</li> <li>• Use a reaming operation, see page(s) 302</li> </ul> 
<p><b>Groove wear</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed /rev</li> <li>• Reduce the cutting speed</li> <li>• Increase the coolant concentration</li> </ul> 	<p><b>Unsatisfactory positioning of the hole</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev</li> <li>• If drilling through rough, hard and angled surface - reduce the feed by 30%-50% during entrance and exit</li> <li>• Pre drill with a 140° point angle</li> <li>• Use a Seco Feedmax solid carbide drill, see page(s) 18-21</li> <li>• Use a boring operation, see page(s) 464-465</li> </ul> 
<p><b>Wear of peripheral land margins</b></p> <ul style="list-style-type: none"> <li>• Check that the correct geometry is used</li> <li>• Reduce the cutting speed</li> <li>• Increase the coolant concentration</li> <li>• When drilling through rough, hard or angled surfaces, reduce the feed rate by 30%-50% during entrance and exit</li> </ul> 	<p><b>Chip jamming due to long chips</b></p> <ul style="list-style-type: none"> <li>• Increase the feed</li> <li>• In long chipping materials SMG P1-P4, SMG M1-M2:</li> <li>• Increase cutting speed and reduce feed/rev</li> <li>• Use the L geometry (Custom Design)</li> </ul> 
<p><b>Breakage at hole exit</b></p> <ul style="list-style-type: none"> <li>• If the crown connection breaks when the crown is just about to break through the material. The failure is caused by:</li> <li>• The interface has not been cleaned thoroughly and there is still dirt or chips left between crown and drill body</li> <li>• The crown has not been clamped securely. Use the torque key</li> <li>• Too few threads are holding the crown</li> </ul> 	<p><b>Chipping of the locking interface</b></p> <ul style="list-style-type: none"> <li>• Minor chipping is not hazardous to the locking system. It will not affect the drilling result</li> <li>• If major chipping occurs when using a high feed rate or when drilling through angled surfaces - reduce the feed rate</li> </ul> 



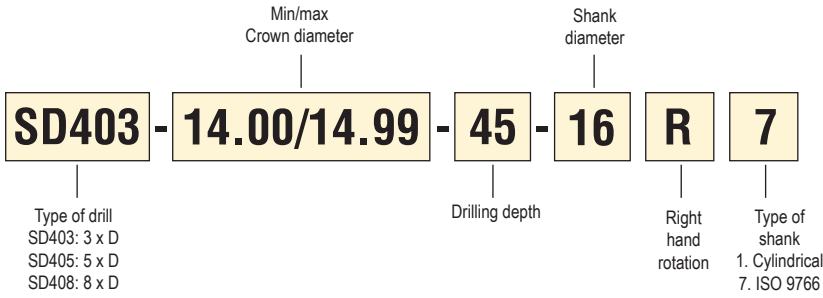
## Range overview

Crownloc® Plus	∅ Range	Drill depth	Crown tolerance	Hole tolerance (1)	Surface finish (2)
  Page(s) 176-179	0.472-0.787" (12.00-19.99)	~ 3 x D	k7	IT9-10	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm
  Page(s) 180-183	0.472-0.787" (12.00-19.99)	~ 5 x D	k7	IT10	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm
  Page(s) 184-187	0.472-0.787" (12.00-19.99)	~ 8 x D	k7	IT10	R <sub>a</sub> 39-118 μin R <sub>a</sub> 1-3 μm

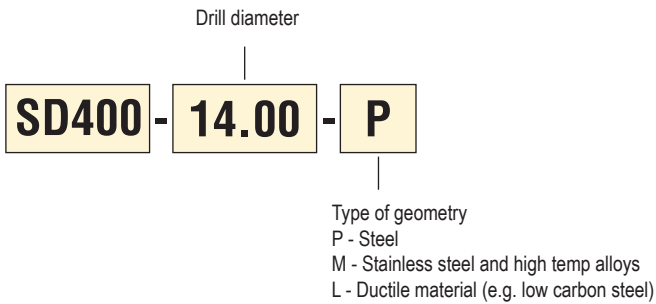
1) Variations can occur depending on the material and the cutting data used.

2) Drill depth, cutting data, coolant pressure and material can cause deterioration of the surface finish.

## Code key Crownloc®Plus



## Code key Crowns


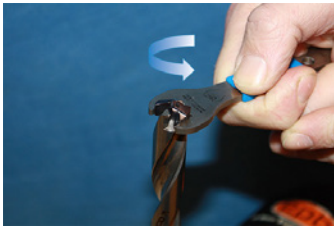
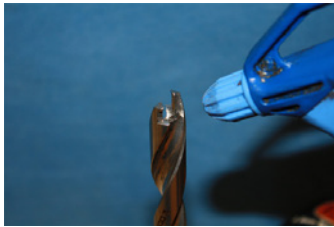

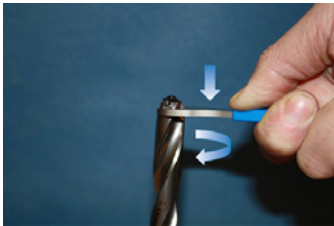
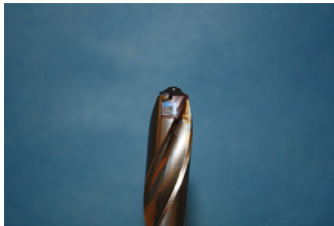


## Geometries

<p><b>P-geometry</b> - Universal geometry</p> 	<p><b>M-geometry</b> - For stainless steels and high temp alloys</p> 	<p><b>L-geometry</b> - For ductile long chipping materials</p> 
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Mounting instructions

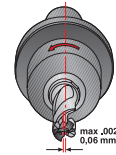
<p>1.</p>  <p>To unclamp the crown, find the two flats on the Crown for the key.</p>	<p>2.</p>  <p>Turn the key counterclockwise to unclamp it with a quarter of a turn.</p>	<p>3.</p>  <p>Clean the connection, before mounting the crown.</p>
<p>4.</p>  <p>Pre-clamp the crown with your fingers for easier clamping, before using the key.</p>	<p>5.</p>  <p>Simultaneously press down the crown when clamping on a quarter of a turn clockwise using the key and keep it perpendicular to the drill body.</p>	<p>6.</p>  <p>When the crown is mounted in the drill body, full contact should be achieved in the connection between the supporting surfaces of the drill body and the Crown, see picture.</p>

**1. Stability**

The stability of the application is important to obtain the best tool life and hole accuracy. Check the condition of the machine spindle, fixture and fixturing of the component to secure maximum stability and rigidity. Unstable conditions can cause tool breakages.

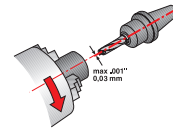
**2. Rotating**

Totally Indicated Run-out (TIR) should not exceed 0.002" (0.06 mm) in a rotating application. Measure the run-out when turning the drill 360° in the spindle.



**3. Stationary**

The distance between the drill point and the rotating center of the workpiece should not exceed 0.001 (0.03 mm) radially in a stationary application.



**4. Recommended tool holders**

For best results, use holders type BT JIS B 6339-ADB, Type 5672, High precision chuck. For further information see EPB (tooling) catalog.



Weldon



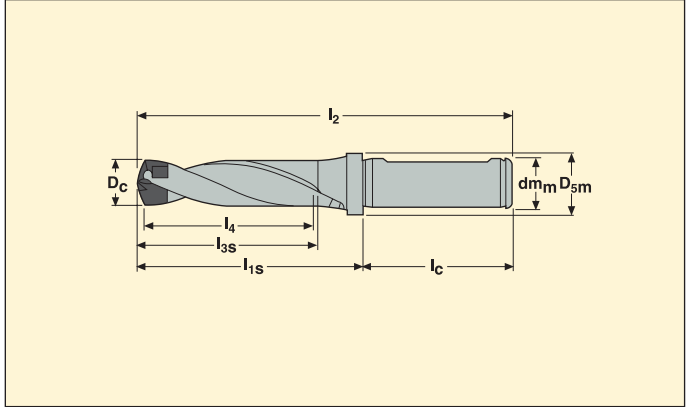
Hydraulic chuck  
(For cylindrical, -R1 shanks only)



High precision collet chuck  
(For cylindrical, -R1 shanks only)

Drilling depth ~ 3 x D

SD403 -R7 – Inch shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal - through coolant
- For cutting data see page(s) 190
- For crowns see page(s) 188-189

Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.472-0.492	1.496	<a href="#">39888</a>	SD403-12.00/12.49-38-0625R7	4.181	2.291	1.890	1.819	0.625	0.787
0.492-0.511	1.535	<a href="#">39889</a>	SD403-12.50/12.99-39-0625R7	4.252	2.362	1.890	1.870	0.625	0.787
0.512-0.551	1.654	<a href="#">39890</a>	SD403-13.00/13.99-42-0625R7	4.406	2.516	1.890	2.004	0.625	0.787
0.551-0.590	1.772	<a href="#">39891</a>	SD403-14.00/14.99-45-0625R7	4.587	2.697	1.890	2.146	0.625	0.787
0.591-0.630	1.890	<a href="#">39892</a>	SD403-15.00/15.99-48-0625R7	4.772	2.882	1.890	2.291	0.625	0.787
0.630-0.669	2.008	<a href="#">39893</a>	SD403-16.00/16.99-51-0750R7	5.035	3.067	1.969	2.437	0.750	0.945
0.669-0.708	2.126	<a href="#">39894</a>	SD403-17.00/17.99-54-0750R7	5.220	3.252	1.969	2.583	0.750	0.945
0.709-0.748	2.244	<a href="#">39895</a>	SD403-18.00/18.99-57-0750R7	5.406	3.437	1.969	2.728	0.750	0.945
0.748-0.787	2.362	<a href="#">39896</a>	SD403-19.00/19.99-60-0750R7	5.591	3.622	1.969	2.874	0.750	0.945

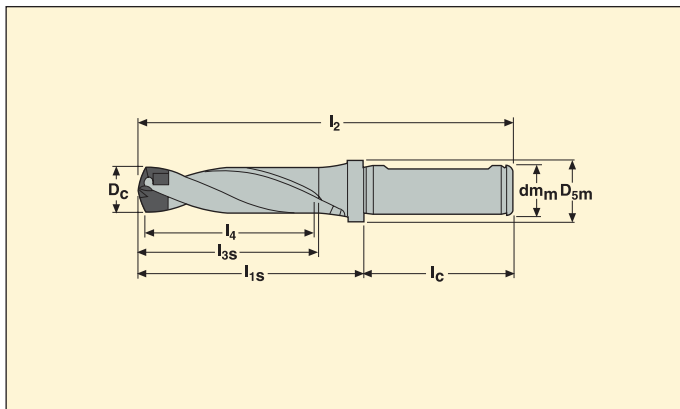
### Accessories\*

For drill dia. (inch)	Key	
0.472-0.511	SD400-K05	
0.472-0.511	SD400-K05	
0.512-0.590	SD400-K06	
0.512-0.590	SD400-K06	
0.591-0.669	SD400-K07	
0.591-0.669	SD400-K07	
0.669-0.748	SD400-K08	
0.669-0.748	SD400-K08	
0.748-0.787	SD400-K09	

\* Accessories not included in delivery

Drilling depth ~ 3 x D

SD403-R7 – Metric shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal - through coolant
- For cutting data see page(s) 190
- For crowns see page(s) 188-189

Drill dia. $D_c$ (mm)	Max Drilling depth $l_4$ (mm)	EDP No.	Part No.	Dimensions in mm					
				$l_2$	$l_{1s}$	$l_c$	$l_{3s}$	$dm_m$	$D_{5m}$
12.00-12.49	38	<a href="#">39837</a>	SD403-12.00/12.49-38-16R7	106.2	58.2	48	46.2	16	20
12.50-12.99	39	<a href="#">39838</a>	SD403-12.50/12.99-39-16R7	108	60	48	47.5	16	20
13.00-13.99	42	<a href="#">39839</a>	SD403-13.00/13.99-42-16R7	111.9	63.9	48	50.9	16	20
14.00-14.99	45	<a href="#">39840</a>	SD403-14.00/14.99-45-16R7	116.5	68.5	48	54.5	16	20
15.00-15.99	48	<a href="#">39841</a>	SD403-15.00/15.99-48-16R7	121.2	73.2	48	58.2	16	20
16.00-16.99	51	<a href="#">39842</a>	SD403-16.00/16.99-51-20R7	127.9	77.9	50	61.9	20	24
17.00-17.99	54	<a href="#">39843</a>	SD403-17.00/17.99-54-20R7	132.6	82.6	50	65.6	20	24
18.00-18.99	57	<a href="#">39844</a>	SD403-18.00/18.99-57-20R7	137.3	87.3	50	69.3	20	24
19.00-19.99	60	<a href="#">39845</a>	SD403-19.00/19.99-60-20R7	142	92	50	73	20	24

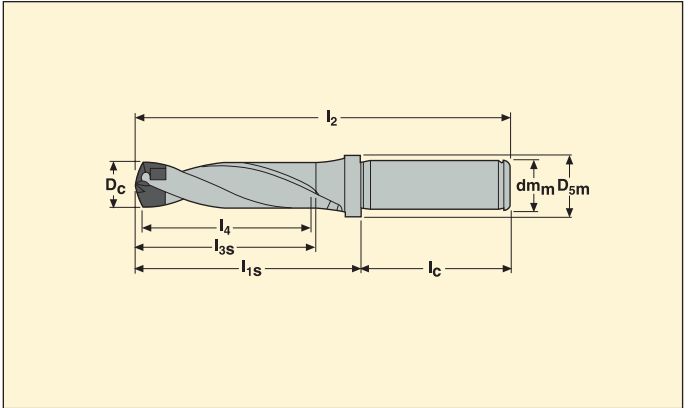
### Accessories\*

For drill dia. (mm)	Key	
12.00-12.99	SD400-K05	
13.00-14.99	SD400-K06	
15.00-16.99	SD400-K07	
17.00-18.99	SD400-K08	
19.00-19.99	SD400-K09	

\* Accessories not included in delivery

Drilling depth ~ 3 x D


SD403 -R1 – Inch shank



- Cylindrical shank (R1) fits holders: 5834 and 5672
- Internal - through coolant
- For cutting data see page(s) 190
- For crowns see page(s) 188-189

Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.472-0.492	1.496	<a href="#">40078</a>	SD403-12.00/12.49-38-0625R1	4.181	2.291	1.890	1.819	0.625	0.787
0.492-0.511	1.535	<a href="#">40079</a>	SD403-12.50/12.99-39-0625R1	4.252	2.362	1.890	1.870	0.625	0.787
0.512-0.551	1.654	<a href="#">40080</a>	SD403-13.00/13.99-42-0625R1	4.406	2.516	1.890	2.004	0.625	0.787
0.551-0.590	1.772	<a href="#">40081</a>	SD403-14.00/14.99-45-0625R1	4.587	2.697	1.890	2.146	0.625	0.787
0.591-0.630	1.890	<a href="#">40082</a>	SD403-15.00/15.99-48-0625R1	4.772	2.882	1.890	2.291	0.625	0.787
0.630-0.669	2.008	<a href="#">40083</a>	SD403-16.00/16.99-51-0750R1	5.035	3.067	1.969	2.437	0.750	0.945
0.669-0.708	2.126	<a href="#">40084</a>	SD403-17.00/17.99-54-0750R1	5.220	3.252	1.969	2.583	0.750	0.945
0.709-0.748	2.244	<a href="#">40085</a>	SD403-18.00/18.99-57-0750R1	5.406	3.437	1.969	2.728	0.750	0.945
0.748-0.787	2.362	<a href="#">40086</a>	SD403-19.00/19.99-60-0750R1	5.591	3.622	1.969	2.874	0.750	0.945

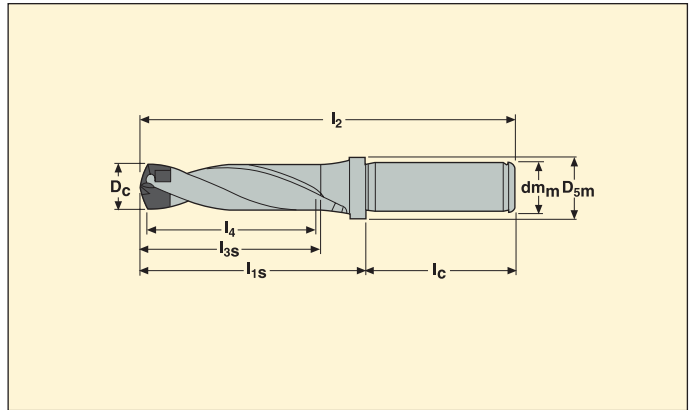
Accessories\*

For drill dia. (inch)	Key	
		
0.472-0.511	SD400-K05	
0.512-0.590	SD400-K06	
0.591-0.669	SD400-K07	
0.669-0.748	SD400-K08	
0.748-0.787	SD400-K09	

\* Accessories not included in delivery

Drilling depth ~ 3 x D

SD403-R1 – Metric shank



- Cylindrical shank (R1) fits holders: 5834 and 5672
- Internal - through coolant
- For cutting data see page(s) 190
- For crowns see page(s) 188-189

Drill dia. $D_c$ (mm)	Max Drilling depth $l_4$ (mm)	EDP No.	Part No.	Dimensions in mm					
				$l_2$	$l_{1s}$	$l_c$	$l_{3s}$	$dm_m$	$D_{5m}$
12.00-12.49	38	<a href="#">39857</a>	SD403-12.00/12.49-38-16R1	106.2	58.2	48	46.2	16	20
12.50-12.99	39	<a href="#">39859</a>	SD403-12.50/12.99-39-16R1	108	60	48	47.5	16	20
13.00-13.99	42	<a href="#">39861</a>	SD403-13.00/13.99-42-16R1	111.9	63.9	48	50.9	16	20
14.00-14.99	45	<a href="#">39862</a>	SD403-14.00/14.99-45-16R1	116.5	68.5	48	54.5	16	20
15.00-15.99	48	<a href="#">41448</a>	SD403-15.00/15.99-48-16R1	121.2	73.2	48	58.2	16	20
16.00-16.99	51	<a href="#">39873</a>	SD403-16.00/16.99-51-20R1	127.9	77.9	50	61.9	20	24
17.00-17.99	54	<a href="#">39874</a>	SD403-17.00/17.99-54-20R1	132.6	82.6	50	65.6	20	24
18.00-18.99	57	<a href="#">39875</a>	SD403-18.00/18.99-57-20R1	137.3	87.3	50	69.3	20	24
19.00-19.99	60	<a href="#">39876</a>	SD403-19.00/19.99-60-20R1	142	92	50	73	20	24

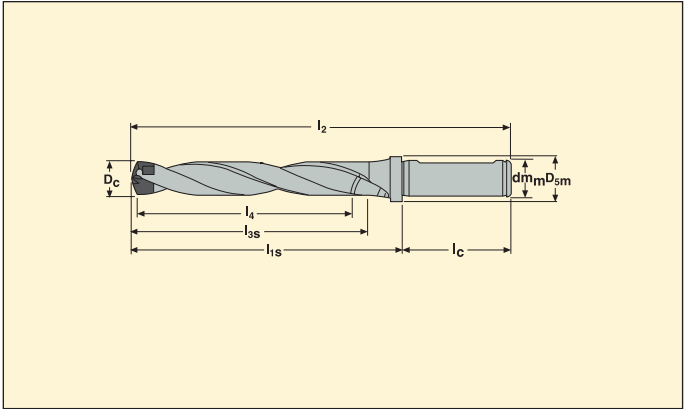
### Accessories\*

For drill dia. (mm)	Key	
12.00-12.99	SD400-K05	
13.00-14.99	SD400-K06	
15.00-16.99	SD400-K07	
17.00-18.99	SD400-K08	
19.00-19.99	SD400-K09	

\*Accessories not included in delivery

## Drilling depth ~ 5 x D

SD405-R7 – Inch shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal - through coolant
- For cutting data see page(s) 191
- For crowns see page(s) 188-189

Drill dia. $D_c$ (inch)	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
				$l_2$	$l_{1s}$	$l_c$	$l_{3s}$	$d_m$	$D_{5m}$
0.472-0.492	2.480	<a href="#">40128</a>	SD405-12.00/12.49-63-0625R7	5.165	3.276	1.890	2.803	0.625	0.787
0.492-0.511	2.559	<a href="#">40129</a>	SD405-12.50/12.99-65-0625R7	5.276	3.386	1.890	2.894	0.625	0.787
0.512-0.551	2.756	<a href="#">40130</a>	SD405-13.00/13.99-70-0625R7	5.508	3.618	1.890	3.106	0.625	0.787
0.551-0.590	2.953	<a href="#">40131</a>	SD405-14.00/14.99-75-0625R7	5.768	3.878	1.890	3.327	0.625	0.787
0.591-0.630	3.150	<a href="#">40132</a>	SD405-15.00/15.99-80-0625R7	6.031	4.142	1.890	3.551	0.625	0.787
0.630-0.669	3.346	<a href="#">40133</a>	SD405-16.00/16.99-85-0750R7	6.374	4.406	1.969	3.776	0.750	0.945
0.669-0.708	3.543	<a href="#">40134</a>	SD405-17.00/17.99-90-0750R7	6.638	4.669	1.969	4.000	0.750	0.945
0.709-0.748	3.740	<a href="#">40135</a>	SD405-18.00/18.99-95-0750R7	6.902	4.933	1.969	4.224	0.750	0.945
0.748-0.787	3.937	<a href="#">40136</a>	SD405-19.00/19.99-100-0750R7	7.165	5.197	1.969	4.449	0.750	0.945

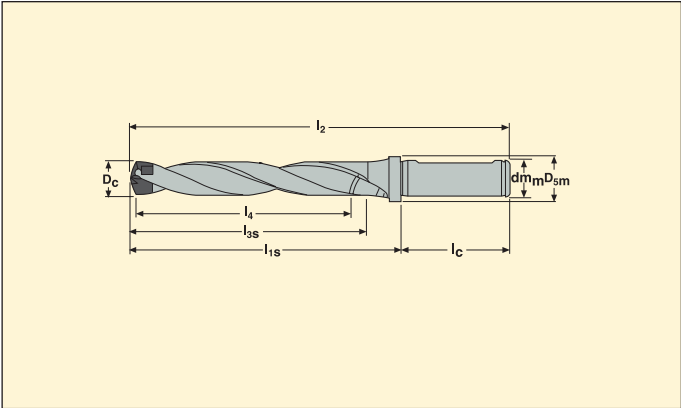
## Accessories\*

For drill dia. (inch)	Key	
0.472-0.511		SD400-K05
0.512-0.590		SD400-K06
0.591-0.669		SD400-K07
0.669-0.748		SD400-K08
0.748-0.787		SD400-K09

\*Accessories not included in delivery

Drilling depth ~ 5 x D

SD405 -R7 – Metric shank



- ISO9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal - through coolant
- For cutting data see page(s) 191
- For crowns see page(s) 188-189

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm					
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
12.00-12.49	63	<a href="#">40094</a>	SD405-12.00/12.49-63-16R7	131.2	83.2	48	71.2	16	20
12.50-12.99	65	<a href="#">40095</a>	SD405-12.50/12.99-65-16R7	134	86	48	73.5	16	20
13.00-13.99	70	<a href="#">40096</a>	SD405-13.00/13.99-70-16R7	139.9	91.9	48	78.9	16	20
14.00-14.99	75	<a href="#">40097</a>	SD405-14.00/14.99-75-16R7	146.5	98.5	48	84.5	16	20
15.00-15.99	80	<a href="#">40098</a>	SD405-15.00/15.99-80-16R7	153.2	105.2	48	90.2	16	20
16.00-16.99	85	<a href="#">40099</a>	SD405-16.00/16.99-85-20R7	161.9	111.9	50	95.9	20	24
17.00-17.99	90	<a href="#">40100</a>	SD405-17.00/17.99-90-20R7	168.6	118.6	50	101.6	20	24
18.00-18.99	95	<a href="#">40101</a>	SD405-18.00/18.99-95-20R7	175.3	125.3	50	107.3	20	24
19.00-19.99	100	<a href="#">40102</a>	SD405-19.00/19.99-100-20R7	182	132	50	113	20	24

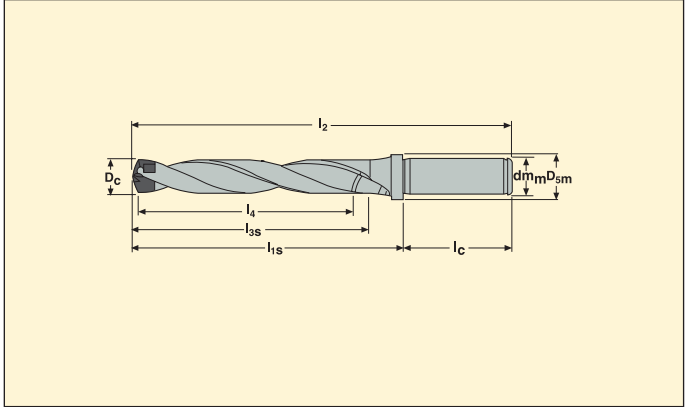
Accessories\*

For drill dia. (mm)	Key	
12.00-12.99	SD400-K05	
13.00-14.99	SD400-K06	
15.00-16.99	SD400-K07	
17.00-18.99	SD400-K08	
19.00-19.99	SD400-K09	

\*Accessories not included in delivery

Drilling depth ~ 5 x D

SD405-R1 – Inch shank



- Cylindrical shank (R1) fits holders: 5834 and 5672
- Internal - through coolant
- For cutting data see page(s) 191
- For crowns see page(s) 188-189

Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm	D <sub>5m</sub>
0.472-0.492	2.480	<a href="#">40144</a>	SD405-12.00/12.49-63-0625R1	5.165	3.276	1.890	2.803	0.625	0.787
0.492-0.511	2.559	<a href="#">40146</a>	SD405-12.50/12.99-65-0625R1	5.276	3.386	1.890	2.894	0.625	0.787
0.512-0.551	2.756	<a href="#">40150</a>	SD405-13.00/13.99-70-0625R1	5.508	3.618	1.890	3.106	0.625	0.787
0.551-0.590	2.953	<a href="#">40151</a>	SD405-14.00/14.99-75-0625R1	5.768	3.878	1.890	3.327	0.625	0.787
0.591-0.630	3.150	<a href="#">40158</a>	SD405-15.00/15.99-80-0625R1	6.031	4.142	1.890	3.551	0.625	0.787
0.630-0.669	3.346	<a href="#">40166</a>	SD405-16.00/16.99-85-0750R1	6.374	4.406	1.969	3.776	0.750	0.945
0.669-0.708	3.543	<a href="#">40168</a>	SD405-17.00/17.99-90-0750R1	6.638	4.669	1.969	4.000	0.750	0.945
0.709-0.748	3.740	<a href="#">40172</a>	SD405-18.00/18.99-95-0750R1	6.902	4.933	1.969	4.224	0.750	0.945
0.748-0.787	3.937	<a href="#">40174</a>	SD405-19.00/19.99-100-0750R1	7.165	5.197	1.969	4.449	0.750	0.945

## Accessories\*

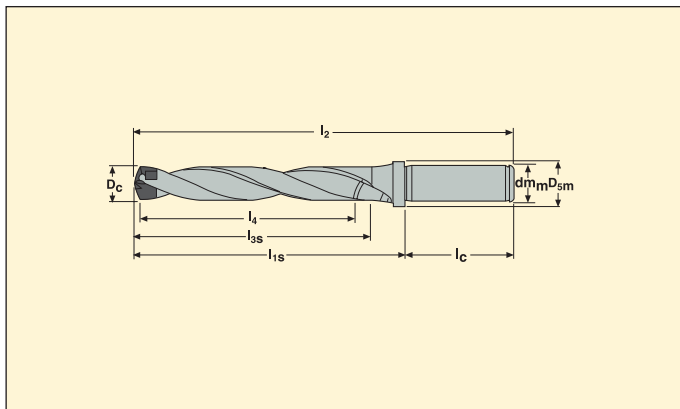
For drill dia. (inch)	Key	
0.472-0.511	SD400-K05	
0.512-0.590	SD400-K06	
0.591-0.669	SD400-K07	
0.669-0.748	SD400-K08	
0.748-0.787	SD400-K09	

\*Accessories not included in delivery



Drilling depth ~ 5 x D

SD405-R1 – Metric shank



- Cylindrical shank (R1) fits holders: 5834 and 5672
- Internal - through coolant
- For cutting data see page(s) 191
- For crowns see page(s) 188-189

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth I <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm					
				I <sub>2</sub>	I <sub>1s</sub>	I <sub>c</sub>	I <sub>3s</sub>	d <sub>m</sub>	D <sub>5m</sub>
12.00-12.49	63	<a href="#">40110</a>	SD405-12.00/12.49-63-16R1	131.2	83.2	48	71.2	16	20
12.50-12.99	65	<a href="#">40111</a>	SD405-12.50/12.99-65-16R1	134	86	48	73.5	16	20
13.00-13.99	70	<a href="#">40112</a>	SD405-13.00/13.99-70-16R1	139.9	91.9	48	78.9	16	20
14.00-14.99	75	<a href="#">40113</a>	SD405-14.00/14.99-75-16R1	146.5	98.5	48	84.5	16	20
15.00-15.99	80	<a href="#">40115</a>	SD405-15.00/15.99-80-16R1	153.2	105.2	48	90.2	16	20
16.00-16.99	85	<a href="#">40116</a>	SD405-16.00/16.99-85-20R1	161.9	111.9	50	95.9	20	24
17.00-17.99	90	<a href="#">40117</a>	SD405-17.00/17.99-90-20R1	168.6	118.6	50	101.6	20	24
18.00-18.99	95	<a href="#">40119</a>	SD405-18.00/18.99-95-20R1	175.3	125.3	50	107.3	20	24
19.00-19.99	100	<a href="#">40120</a>	SD405-19.00/19.99-100-20R1	182	132	50	113	20	24

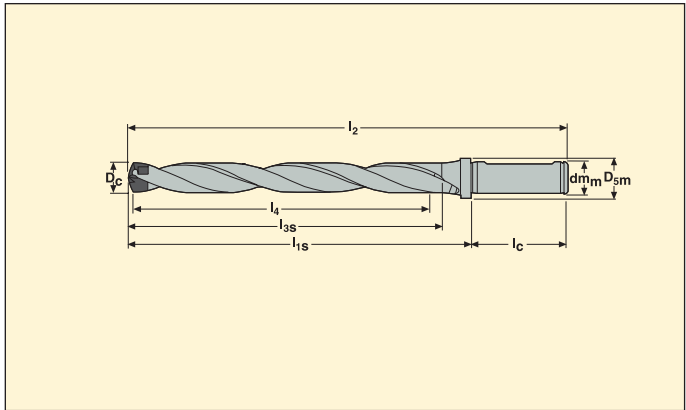
## Accessories\*

For drill dia. (mm)	Key	
12.00-12.99	SD400-K05	
13.00-14.99	SD400-K06	
15.00-16.99	SD400-K07	
17.00-18.99	SD400-K08	
19.00-19.99	SD400-K09	

\*Accessories not included in delivery

Drilling depth ~ 8 x D


SD408 -R7 – Inch shank



- ISO 9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal - through coolant
- For cutting data see page(s) 192
- For crowns see page(s) 188-189

Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
0.472-0.492	3.937	<a href="#">40310</a>	SD408-12.00/12.49-100-0625R7	6.622	4.732	1.890	4.260	0.625	0.787
0.492-0.511	4.094	<a href="#">40311</a>	SD408-12.50/12.99-104-0625R7	6.811	4.921	1.890	4.429	0.625	0.787
0.512-0.551	4.409	<a href="#">40312</a>	SD408-13.00/13.99-112-0625R7	7.161	5.272	1.890	4.760	0.625	0.787
0.551-0.590	4.724	<a href="#">40314</a>	SD408-14.00/14.99-120-0625R7	7.539	5.650	1.890	5.098	0.625	0.787
0.591-0.630	5.039	<a href="#">40316</a>	SD408-15.00/15.99-128-0625R7	7.921	6.031	1.890	5.441	0.625	0.787
0.630-0.669	5.354	<a href="#">40317</a>	SD408-16.00/16.99-136-0750R7	8.382	6.413	1.969	5.783	0.750	0.945
0.669-0.708	5.669	<a href="#">40319</a>	SD408-17.00/17.99-144-0750R7	8.764	6.795	1.969	6.126	0.750	0.945
0.709-0.748	5.984	<a href="#">40320</a>	SD408-18.00/18.99-152-0750R7	9.146	7.177	1.969	6.469	0.750	0.945
0.748-0.787	6.299	<a href="#">40321</a>	SD408-19.00/19.99-160-0750R7	9.528	7.559	1.969	6.811	0.750	0.945

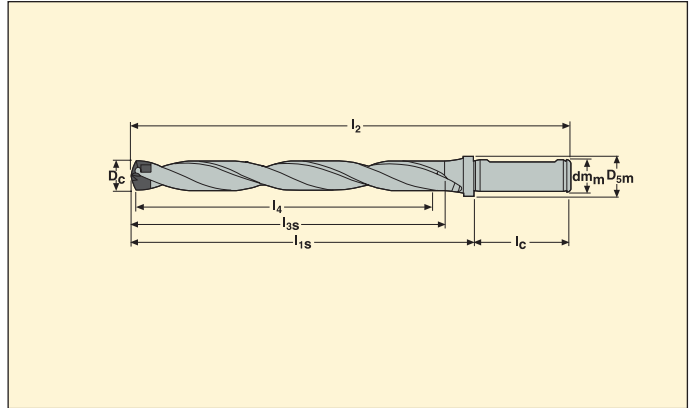
### Accessories\*

For drill dia. (inch)	Key	
		
0.472-0.511	SD400-K05	
0.512-0.590	SD400-K06	
0.591-0.669	SD400-K07	
0.669-0.748	SD400-K08	
0.748-0.787	SD400-K09	

\*Accessories not included in delivery

Drilling depth ~ 8 x D

SD408 -R7 – Metric shank



- ISO 9766 fits holders: Weldon 1835B, ISO 5414, DIN 60880
- Internal - through coolant
- For cutting data see page(s) 192
- For crowns see page(s) 188-189

Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm					
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>
12.00-12.49	100	<a href="#">40200</a>	SD408-12.00/12.49-100-16R7	168.2	120.2	48	108.2	16	20
12.50-12.99	104	<a href="#">40201</a>	SD408-12.50/12.99-104-16R7	173	125	48	112.5	16	20
13.00-13.99	112	<a href="#">40202</a>	SD408-13.00/13.99-112-16R7	181.9	133.9	48	120.9	16	20
14.00-14.99	120	<a href="#">40204</a>	SD408-14.00/14.99-120-16R7	191.5	143.5	48	129.5	16	20
15.00-15.99	128	<a href="#">40205</a>	SD408-15.00/15.99-128-16R7	201.2	153.2	48	138.2	16	20
16.00-16.99	136	<a href="#">40206</a>	SD408-16.00/16.99-136-20R7	212.9	162.9	50	146.9	20	24
17.00-17.99	144	<a href="#">40248</a>	SD408-17.00/17.99-144-20R7	222.6	172.6	50	155.6	20	24
18.00-18.99	152	<a href="#">40279</a>	SD408-18.00/18.99-152-20R7	232.3	182.3	50	164.3	20	24
19.00-19.99	160	<a href="#">40283</a>	SD408-19.00/19.99-160-20R7	242	192	50	173	20	24

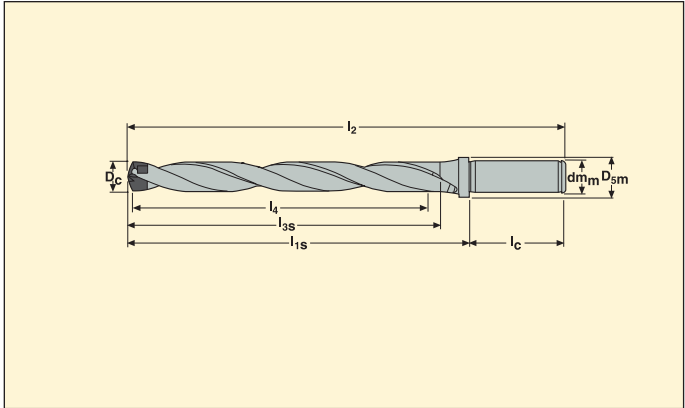
Accessories\*

For drill dia. (mm)	Key	
12.00-12.99	SD400-K05	
13.00-14.99	SD400-K06	
15.00-16.99	SD400-K07	
17.00-18.99	SD400-K08	
19.00-19.99	SD400-K09	

\*Accessories not included in delivery

## Drilling depth ~ 8 x D

## SD408-R1 – Inch shank



- Cylindrical shank (R1) fits holders: 5834 and 5672
- Internal - through coolant
- For cutting data see page(s) 192
- For crowns see page(s) 188-189

Drill dia. $D_c$ (inch)	Max drilling depth $l_4$ (inch)	EDP No.	Part No.	Dimensions in inch					
				$l_2$	$l_{1s}$	$l_c$	$l_{3s}$	$dm_m$	$D_{5m}$
0.472-0.492	3.937	<a href="#">40326</a>	SD408-12.00/12.49-100-0625R1	6.622	4.732	1.890	4.260	0.625	0.787
0.492-0.511	4.094	<a href="#">40327</a>	SD408-12.50/12.99-104-0625R1	6.811	4.921	1.890	4.429	0.625	0.787
0.512-0.551	4.409	<a href="#">40328</a>	SD408-13.00/13.99-112-0625R1	7.161	5.272	1.890	4.760	0.625	0.787
0.551-0.590	4.724	<a href="#">40329</a>	SD408-14.00/14.99-120-0625R1	7.539	5.650	1.890	5.098	0.625	0.787
0.591-0.630	5.039	<a href="#">40330</a>	SD408-15.00/15.99-128-0625R1	7.921	6.031	1.890	5.441	0.625	0.787
0.630-0.669	5.354	<a href="#">40331</a>	SD408-16.00/16.99-136-0750R1	8.382	6.413	1.969	5.783	0.750	0.945
0.669-0.708	5.669	<a href="#">40332</a>	SD408-17.00/17.99-144-0750R1	8.764	6.795	1.969	6.126	0.750	0.945
0.709-0.748	5.984	<a href="#">40333</a>	SD408-18.00/18.99-152-0750R1	9.146	7.177	1.969	6.469	0.750	0.945
0.748-0.787	6.299	<a href="#">40334</a>	SD408-19.00/19.99-160-0750R1	9.528	7.559	1.969	6.811	0.750	0.945

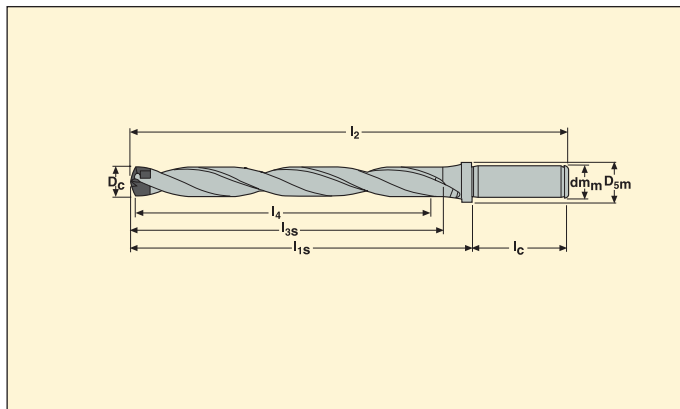
## Accessories\*

For drill dia. (inch)	Key
0.472-0.511	SD400-K05
0.512-0.590	SD400-K06
0.591-0.669	SD400-K07
0.669-0.748	SD400-K08
0.748-0.787	SD400-K09

\*Accessories not included in delivery

Drilling depth ~ 8 x D

SD408 -R1 – Metric shank



- Cylindrical shank (R1) fits holders: 5834 and 5672
- Internal - through coolant
- For cutting data see page(s) 192
- For crowns see page(s) 188-189

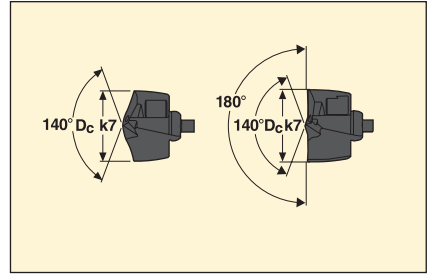
Drill dia. $D_c$ (mm)	Max Drilling depth $l_4$ (mm)	EDP No.	Part No.	Dimensions in mm					
				$l_2$	$l_{1s}$	$l_c$	$l_{3s}$	$d_{m_m}$	$D_{5m}$
12.00-12.49	100	<a href="#">40289</a>	SD408-12.00/12.49-100-16R1	168.2	120.2	48	108.2	16	20
12.50-12.99	104	<a href="#">40290</a>	SD408-12.50/12.99-104-16R1	173	125	48	112.5	16	20
13.00-13.99	112	<a href="#">40291</a>	SD408-13.00/13.99-112-16R1	181.9	133.9	48	120.9	16	20
14.00-14.99	120	<a href="#">40293</a>	SD408-14.00/14.99-120-16R1	191.5	143.5	48	129.5	16	20
15.00-15.99	128	<a href="#">40296</a>	SD408-15.00/15.99-128-16R1	201.2	153.2	48	138.2	16	20
16.00-16.99	136	<a href="#">40297</a>	SD408-16.00/16.99-136-20R1	212.9	162.9	50	146.9	20	24
17.00-17.99	144	<a href="#">40298</a>	SD408-17.00/17.99-144-20R1	222.6	172.6	50	155.6	20	24
18.00-18.99	152	<a href="#">40300</a>	SD408-18.00/18.99-152-20R1	232.3	182.3	50	164.3	20	24
19.00-19.99	160	<a href="#">40302</a>	SD408-19.00/19.99-160-20R1	242	192	50	173	20	24

### Accessories\*

For drill dia. (mm)	Key	
12.00-12.99		SD400-K05
13.00-14.99		SD400-K06
15.00-16.99		SD400-K07
17.00-18.99		SD400-K08
19.00-19.99		SD400-K09

\*Accessories not included in delivery

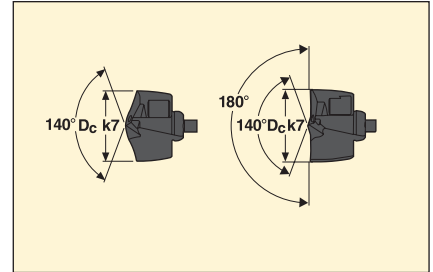
## Crowns – Geometry -P, -M and -L



EDP No.	P-geometry for steel	EDP No.	M-geometry for stainless steels and high temp alloys	EDP No.	L-geometry for ductile long chipping materials	D <sub>c</sub> (inch)	D <sub>c</sub> (mm)	Reamer size*	Tap thread type	Forming tap
<a href="#">00716</a>	SD400-12.00-P	<a href="#">83186</a>	SD400-12.00-M	83259	SD400-12.00-L	0.472	12.00	–	M14	–
<a href="#">41455</a>	SD400-12.10-P	–	–	–	–	0.476	12.10	–	–	–
<a href="#">41456</a>	SD400-12.20-P	–	–	–	–	0.480	12.20	–	–	–
<a href="#">41457</a>	SD400-12.30-P	<a href="#">83188</a>	SD400-12.30-M	83260	SD400-12.30-L	0.484	12.30	–	–	–
<a href="#">41459</a>	SD400-12.41-P	<a href="#">83189</a>	SD400-12.41-M	83261	SD400-12.41-L	0.489	12.41	–	–	–
<a href="#">41460</a>	SD400-12.50-P	<a href="#">83190</a>	SD400-12.50-M	83262	SD400-12.50-L	0.492	12.50	–	MF14X1.5	–
<a href="#">41465</a>	SD400-12.60-P	–	–	–	–	0.496	12.60	–	–	–
<a href="#">41466</a>	SD400-12.70-P	<a href="#">83192</a>	SD400-12.70-M	83263	SD400-12.70-L	0.500	12.70	–	–	–
<a href="#">41467</a>	SD400-12.80-P	<a href="#">83193</a>	SD400-12.80-M	83264	SD400-12.80-L	0.504	12.80	13H6/13H7	MF14X1.25	–
<a href="#">41469</a>	SD400-12.90-P	<a href="#">83194</a>	SD400-12.90-M	83265	SD400-12.90-L	0.508	12.90	13H6/13H7	–	–
<a href="#">41993</a>	SD400-13.00-P	<a href="#">83196</a>	SD400-13.00-M	83266	SD400-13.00-L	0.512	13.00	–	MF14X1	–
<a href="#">41994</a>	SD400-13.10-P	<a href="#">83197</a>	SD400-13.10-M	83267	SD400-13.10-L	0.516	13.10	–	–	M14
<a href="#">41995</a>	SD400-13.20-P	–	–	–	–	0.520	13.20	–	–	–
<a href="#">41996</a>	SD400-13.30-P	<a href="#">83198</a>	SD400-13.30-M	83268	SD400-13.30-L	0.524	13.30	–	–	MF14X1.5
<a href="#">41997</a>	SD400-13.50-P	<a href="#">83200</a>	SD400-13.50-M	83269	SD400-13.50-L	0.531	13.50	–	UNC5/8-11	–
<a href="#">41998</a>	SD400-13.70-P	<a href="#">83201</a>	SD400-13.70-M	83270	SD400-13.70-L	0.539	13.70	–	–	–
<a href="#">41999</a>	SD400-13.80-P	<a href="#">83202</a>	SD400-13.80-M	83271	SD400-13.80-L	0.543	13.80	14H6/14H7	–	–
<a href="#">42002</a>	SD400-13.89-P	<a href="#">83203</a>	SD400-13.89-M	83272	SD400-13.89-L	0.547	13.89	14H6/14H7	–	–
<a href="#">42003</a>	SD400-14.00-P	<a href="#">83204</a>	SD400-14.00-M	83274	SD400-14.00-L	0.551	14.00	–	M16	–
<a href="#">42004</a>	SD400-14.10-P	–	–	–	–	0.555	14.10	–	–	–
<a href="#">42005</a>	SD400-14.20-P	<a href="#">83205</a>	SD400-14.20-M	83275	SD400-14.20-L	0.559	14.20	–	–	–
<a href="#">42006</a>	SD400-14.288-P	<a href="#">83206</a>	SD400-14.288-M	83277	SD400-14.288-L	0.563	14.288	–	NPT3/8/NPTF3/8	–
<a href="#">42007</a>	SD400-14.40-P	–	–	–	–	0.567	14.40	–	–	–
<a href="#">42008</a>	SD400-14.50-P	<a href="#">83207</a>	SD400-14.50-M	83278	SD400-14.50-L	0.571	14.50	–	MF16X1.5/UNF5/8-18	–
<a href="#">42009</a>	SD400-14.68-P	<a href="#">83208</a>	SD400-14.68-M	83279	SD400-14.68-L	0.578	14.68	–	–	–
<a href="#">42011</a>	SD400-14.70-P	<a href="#">83209</a>	SD400-14.70-M	83280	SD400-14.70-L	0.579	14.70	–	–	–
<a href="#">42012</a>	SD400-14.80-P	<a href="#">83210</a>	SD400-14.80-M	83281	SD400-14.80-L	0.583	14.80	15H6/15H7	–	–
<a href="#">42013</a>	SD400-14.90-P	<a href="#">83211</a>	SD400-14.90-M	83282	SD400-14.90-L	0.587	14.90	15H6/15H7	–	–
<a href="#">42014</a>	SD400-15.00-P	<a href="#">83212</a>	SD400-15.00-M	83283	SD400-15.00-L	0.591	15.00	–	MF16X1.0	–
<a href="#">42016</a>	SD400-15.08-P	<a href="#">83213</a>	SD400-15.08-M	83284	SD400-15.08-L	0.594	15.08	–	–	–
<a href="#">42017</a>	SD400-15.10-P	–	–	–	–	0.594	15.10	–	–	M16
<a href="#">42018</a>	SD400-15.20-P	–	–	–	–	0.598	15.20	–	–	–
<a href="#">42020</a>	SD400-15.25-P	<a href="#">83214</a>	SD400-15.25-M	83286	SD400-15.25-L	0.600	15.25	–	G3/8	–
<a href="#">42023</a>	SD400-15.478-P	<a href="#">83215</a>	SD400-15.478-M	83287	SD400-15.478-L	0.609	15.478	–	–	–
<a href="#">42024</a>	SD400-15.50-P	<a href="#">83216</a>	SD400-15.50-M	83289	SD400-15.50-L	0.610	15.50	–	M18	–
<a href="#">42026</a>	SD400-15.70-P	<a href="#">83217</a>	SD400-15.70-M	83290	SD400-15.70-L	0.618	15.70	–	–	–
<a href="#">42028</a>	SD400-15.80-P	<a href="#">83218</a>	SD400-15.80-M	83292	SD400-15.80-L	0.622	15.80	16H6/16H7	–	–
<a href="#">42029</a>	SD400-15.875-P	<a href="#">83219</a>	SD400-15.875-M	83293	SD400-15.875-L	0.625	15.875	16H6/16H7	–	–
<a href="#">42238</a>	SD400-16.00-P	<a href="#">83220</a>	SD400-16.00-M	83294	SD400-16.00-L	0.630	16.00	–	–	–
<a href="#">42239</a>	SD400-16.10-P	–	–	–	–	0.634	16.10	–	–	–
<a href="#">42240</a>	SD400-16.20-P	–	–	–	–	0.638	16.20	–	–	–
<a href="#">42241</a>	SD400-16.25-P	–	–	–	–	0.640	16.25	–	–	–
<a href="#">42242</a>	SD400-16.27-P	<a href="#">83221</a>	SD400-16.27-M	83296	SD400-16.27-L	0.641	16.27	–	–	–
<a href="#">42243</a>	SD400-16.40-P	–	–	–	–	0.646	16.40	–	–	–
<a href="#">42244</a>	SD400-16.50-P	<a href="#">83222</a>	SD400-16.50-M	83298	SD400-16.50-L	0.650	16.50	–	MF18X1.5	–

\* For further information on what reamer to use and how to use it see page 302.

Crowns – Geometry -P, -M and -L



EDP No.	P-geometry for steel	EDP No.	M-geometry for stainless steels and high temp alloys	EDP No.	L-geometry for ductile long chipping materials	D <sub>c</sub> (inch)	D <sub>c</sub> (mm)	Reamer size*	Tap thread type	Forming tap
42245	SD400-16.669-P	83224	SD400-16.669-M	83299	SD400-16.669-L	0.656	16.669	-	-	-
42247	SD400-16.70-P	83225	SD400-16.70-M	83300	SD400-16.70-L	0.657	16.70	-	-	-
42248	SD400-16.80-P	83226	SD400-16.80-M	83302	SD400-16.80-L	0.661	16.80	17H6/17H7	-	-
42250	SD400-16.90-P	-	-	-	-	0.665	16.90	17H6/17H7	-	-
42253	SD400-17.00-P	83228	SD400-17.00-M	83303	SD400-17.00-L	0.669	17.00	-	MF18X1	-
42254	SD400-17.065-P	83229	SD400-17.065-M	83304	SD400-17.065-L	0.672	17.065	-	-	-
42255	SD400-17.10-P	-	-	-	-	0.673	17.10	-	-	-
42256	SD400-17.20-P	-	-	-	-	0.677	17.20	-	-	-
85712	SD400-17.35-P	-	-	-	-	0.683	17.35	-	-	MF18X1.5
42257	SD400-17.463-P	83230	SD400-17.463-M	83305	SD400-17.463-L	0.688	17.463	-	-	-
42258	SD400-17.50-P	83232	SD400-17.50-M	83306	SD400-17.50-L	0.689	17.50	-	M20	-
42259	SD400-17.70-P	83233	SD400-17.70-M	83307	SD400-17.70-L	0.697	17.70	-	-	-
42264	SD400-17.80-P	83234	SD400-17.80-M	83309	SD400-17.80-L	0.701	17.80	18H6/18H7	-	-
42271	SD400-17.859-P	83236	SD400-17.859-M	83310	SD400-17.859-L	0.703	17.859	18H6/18H7	-	-
42273	SD400-17.90-P	83237	SD400-17.90-M	83311	SD400-17.90-L	0.705	17.90	18H6/18H7	NPT1/2	-
42274	SD400-18.00-P	83238	SD400-18.00-M	83313	SD400-18.00-L	0.709	18.00	-	-	-
42275	SD400-18.10-P	-	-	-	-	0.713	18.10	-	-	-
42276	SD400-18.20-P	-	-	-	-	0.717	18.20	-	-	-
42278	SD400-18.256-P	83240	SD400-18.256-M	83315	SD400-18.256-L	0.719	18.256	-	-	-
42280	SD400-18.50-P	83241	SD400-18.50-M	83316	SD400-18.50-L	0.728	18.50	-	MF20X1.5	-
42281	SD400-18.653-P	83242	SD400-18.653-M	83318	SD400-18.653-L	0.734	18.653	-	-	-
42282	SD400-18.70-P	83244	SD400-18.70-M	83319	SD400-18.70-L	0.736	18.70	-	-	-
42283	SD400-18.80-P	83245	SD400-18.80-M	83320	SD400-18.80-L	0.740	18.80	19H6/19H7	-	-
42284	SD400-18.90-P	83246	SD400-18.90-M	83321	SD400-18.90-L	0.744	18.90	19H6/19H7	-	M20
42285	SD400-19.00-P	83248	SD400-19.00-M	83322	SD400-19.00-L	0.748	19.00	-	G1/2/M20X1	-
42286	SD400-19.05-P	83249	SD400-19.05-M	83323	SD400-19.05-L	0.750	19.05	-	-	-
42287	SD400-19.10-P	-	-	-	-	0.752	19.10	-	-	-
42288	SD400-19.20-P	83250	SD400-19.20-M	83324	SD400-19.20-L	0.756	19.20	-	-	-
42289	SD400-19.25-P	11906	SD400-19.25-M	11958	SD400-19.25-L	0.758	19.25	-	BSW7/8-9 Tr24X5	-
42290	SD400-19.447-P	83252	SD400-19.447-M	83325	SD400-19.447-L	0.766	19.447	-	-	-
42291	SD400-19.50-P	83253	SD400-19.50-M	83326	SD400-19.50-L	0.768	19.50	-	M22	-
42292	SD400-19.70-P	83254	SD400-19.70-M	83327	SD400-19.70-L	0.776	19.70	-	-	-
42294	SD400-19.80-P	83256	SD400-19.80-M	83328	SD400-19.80-L	0.780	19.80	20H6/20H7	-	-
42295	SD400-19.844-P	83257	SD400-19.844-M	83329	SD400-19.844-L	0.781	19.844	20H6/20H7	-	-
42296	SD400-19.90-P	83258	SD400-19.90-M	83340	SD400-19.90-L	0.783	19.90	20H6/20H7	-	-

\* For further information on what reamer to use and how to use it see page 302.

Cutting data – SD403 – Ø 0.472-0.787

SMG		f					v <sub>c</sub>
		Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	L	0.010	0.011	0.012	0.012	0.013	510
P2	L	0.010	0.011	0.012	0.013	0.013	490
P3	L	0.0095	0.010	0.011	0.012	0.012	425
P4	P	0.011	0.012	0.013	0.013	0.013	370
P5	P	0.011	0.012	0.013	0.013	0.013	355
P6	P	0.011	0.012	0.012	0.013	0.013	395
P7	P	0.011	0.012	0.012	0.013	0.013	375
P8	P	0.011	0.012	0.013	0.013	0.014	355
P11	P	0.011	0.012	0.012	0.013	0.013	365
M1	M	0.0065	0.0075	0.0080	0.0085	0.0085	320
M2	M	0.0065	0.0065	0.0070	0.0075	0.0080	255
M3	M	0.0050	0.0055	0.0055	0.0060	0.0065	195
M4	M	0.0044	0.0048	0.0050	0.0050	0.0055	145
M5	M	0.0044	0.0048	0.0050	0.0050	0.0055	120
K1	P	0.012	0.013	0.013	0.014	0.015	355
K2	P	0.011	0.012	0.013	0.013	0.013	305
K3	P	0.011	0.012	0.013	0.013	0.013	260
K4	P	0.011	0.012	0.013	0.013	0.013	245
K5	P	0.0095	0.010	0.011	0.012	0.012	145
N2	M	0.0085	0.0095	0.010	0.010	0.011	710
N3	M	0.0085	0.0095	0.010	0.010	0.011	470
N11	M	0.0085	0.0095	0.010	0.010	0.011	560
S1	M	0.0044	0.0048	0.0050	0.0050	0.0055	110
S2	M	0.0044	0.0048	0.0050	0.0050	0.0055	80
S3	M	0.0040	0.0044	0.0048	0.0048	0.0050	80
S11	M	0.0050	0.0055	0.0055	0.0060	0.0065	210
S12	M	0.0050	0.0055	0.0055	0.0060	0.0065	160
S13	M	0.0044	0.0048	0.0050	0.0050	0.0055	125
H3	P	0.0048	0.0050	0.0055	0.0060	0.0060	105
H5	P	0.0075	0.0080	0.0085	0.0085	0.0095	195
H7	P	0.0048	0.0050	0.0055	0.0060	0.0060	105
H8	P	0.0055	0.0060	0.0065	0.0065	0.0070	195
H11	P	0.0075	0.0080	0.0085	0.0085	0.0095	245
H12	P	0.0075	0.0080	0.0085	0.0085	0.0095	375
H21	P	0.0055	0.0060	0.0065	0.0065	0.0070	195

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values



Cutting data – SD405 – Ø 0.472-0.787

SMG		f					v <sub>c</sub>
		Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	L	0.010	0.011	0.012	0.012	0.013	450
P2	L	0.010	0.011	0.012	0.013	0.013	440
P3	L	0.0095	0.010	0.011	0.012	0.012	375
P4	P	0.011	0.012	0.013	0.013	0.013	305
P5	P	0.011	0.012	0.013	0.013	0.013	290
P6	P	0.011	0.012	0.012	0.013	0.013	325
P7	P	0.011	0.012	0.012	0.013	0.013	305
P8	P	0.011	0.012	0.013	0.013	0.014	290
P11	P	0.011	0.012	0.012	0.013	0.013	300
M1	M	0.0065	0.0075	0.0080	0.0085	0.0085	260
M2	M	0.0065	0.0065	0.0070	0.0075	0.0080	210
M3	M	0.0050	0.0055	0.0055	0.0060	0.0065	160
M4	M	0.0044	0.0048	0.0050	0.0050	0.0055	120
M5	M	0.0044	0.0048	0.0050	0.0050	0.0055	100
K1	P	0.012	0.013	0.013	0.014	0.015	290
K2	P	0.011	0.012	0.013	0.013	0.013	250
K3	P	0.011	0.012	0.013	0.013	0.013	215
K4	P	0.011	0.012	0.013	0.013	0.013	205
K5	P	0.0095	0.010	0.011	0.012	0.012	120
N2	M	0.0085	0.0095	0.010	0.010	0.011	580
N3	M	0.0085	0.0095	0.010	0.010	0.011	385
N11	M	0.0085	0.0095	0.010	0.010	0.011	460
S1	M	0.0044	0.0048	0.0050	0.0050	0.0055	90
S2	M	0.0044	0.0048	0.0050	0.0050	0.0055	65
S3	M	0.0040	0.0044	0.0048	0.0048	0.0050	65
S11	M	0.0050	0.0055	0.0055	0.0060	0.0065	170
S12	M	0.0050	0.0055	0.0055	0.0060	0.0065	130
S13	M	0.0044	0.0048	0.0050	0.0050	0.0055	100
H3	P	0.0048	0.0050	0.0055	0.0060	0.0060	85
H5	P	0.0075	0.0080	0.0085	0.0085	0.0095	160
H7	P	0.0048	0.0050	0.0055	0.0060	0.0060	85
H8	P	0.0055	0.0060	0.0065	0.0065	0.0070	160
H11	P	0.0075	0.0080	0.0085	0.0085	0.0095	205
H12	P	0.0075	0.0080	0.0085	0.0085	0.0095	305
H21	P	0.0055	0.0060	0.0065	0.0065	0.0070	160

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD408 – Ø 0.472-0.787

SMG		f					v <sub>c</sub>
		Ø 0.472	Ø 0.551	Ø 0.630	Ø 0.709	Ø 0.787	
P1	L	0.010	0.011	0.012	0.012	0.013	400
P2	L	0.010	0.011	0.012	0.013	0.013	390
P3	L	0.0095	0.010	0.011	0.012	0.012	335
P4	P	0.011	0.012	0.013	0.013	0.013	245
P5	P	0.011	0.012	0.013	0.013	0.013	230
P6	P	0.011	0.012	0.012	0.013	0.013	260
P7	P	0.011	0.012	0.012	0.013	0.013	245
P8	P	0.011	0.012	0.013	0.013	0.014	230
P11	P	0.011	0.012	0.012	0.013	0.013	240
M1	M	0.0065	0.0075	0.0080	0.0085	0.0085	210
M2	M	0.0065	0.0065	0.0070	0.0075	0.0080	170
M3	M	0.0050	0.0055	0.0055	0.0060	0.0065	130
M4	M	0.0044	0.0048	0.0050	0.0050	0.0055	95
M5	M	0.0044	0.0048	0.0050	0.0050	0.0055	80
K1	P	0.012	0.013	0.013	0.014	0.015	230
K2	P	0.011	0.012	0.013	0.013	0.013	200
K3	P	0.011	0.012	0.013	0.013	0.013	170
K4	P	0.011	0.012	0.013	0.013	0.013	160
K5	P	0.0095	0.010	0.011	0.012	0.012	95
N2	M	0.0085	0.0095	0.010	0.010	0.011	465
N3	M	0.0085	0.0095	0.010	0.010	0.011	310
N11	M	0.0085	0.0095	0.010	0.010	0.011	370
S1	M	0.0044	0.0048	0.0050	0.0050	0.0055	75
S2	M	0.0044	0.0048	0.0050	0.0050	0.0055	55
S3	M	0.0040	0.0044	0.0048	0.0048	0.0050	55
S11	M	0.0050	0.0055	0.0055	0.0060	0.0065	135
S12	M	0.0050	0.0055	0.0055	0.0060	0.0065	105
S13	M	0.0044	0.0048	0.0050	0.0050	0.0055	80
H3	P	0.0048	0.0050	0.0055	0.0060	0.0060	70
H5	P	0.0075	0.0080	0.0085	0.0085	0.0095	125
H7	P	0.0048	0.0050	0.0055	0.0060	0.0060	70
H8	P	0.0055	0.0060	0.0065	0.0065	0.0070	125
H11	P	0.0075	0.0080	0.0085	0.0085	0.0095	160
H12	P	0.0075	0.0080	0.0085	0.0085	0.0095	245
H21	P	0.0055	0.0060	0.0065	0.0065	0.0070	125

SMG = Seco Material Group

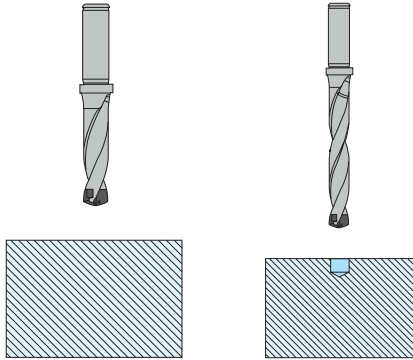
f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

Application information

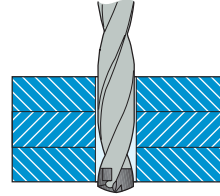
Machined surface



No pre-drilling or entrance feed needed when using SD403 and SD405. When using a SD408 drill body pre-drilling is always recommended. (When using SD405 in stainless steel a pre-drilling operation might be needed).

Stacked material

It is possible to drill stacked material as long as the pieces are securely clamped together, so that there are no air gaps between the parts. Air gaps can affect chip evacuation, and thereby damage the drill.



Irregular/Angled hole entrance

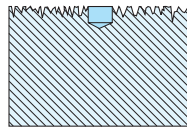
Pre-drilling operation alternatives

If irregular or angle entrance use pre operations accordingly.

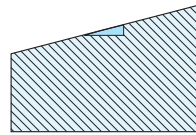
When using drills >3 x D pre-drilling with a standard tool e.g. SD403 is recommended



Machine a flat using an end mill from the Seco range.



Irregular hole entrance



Angled hole entrance

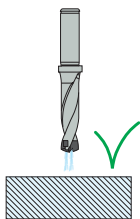
Coolant recommendations

Coolant pressure

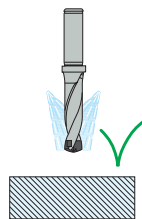
Minimum recommended coolant pressure 145 psi (10 bar) with  $\leq 3 \times D$   
 Minimum recommended coolant pressure 435 psi (30 bar) with  $> 3 \times D$

Coolant mix

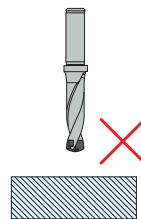
Recommended emulsion mix 6-8%. When drilling in stainless steels, superalloys and high strength steels a mix of 10% is recommended



First choice



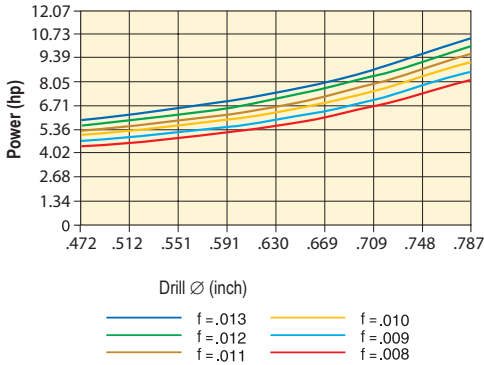
< 3 x D



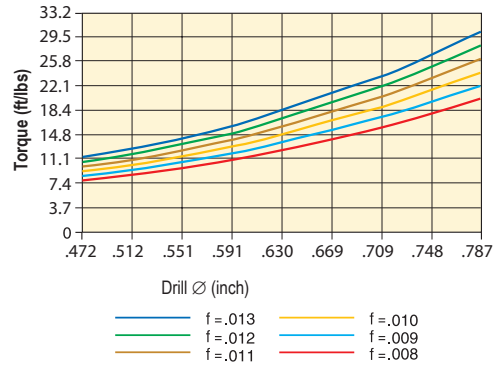
## Machining data

The values in the graphs vary with e.g. cutting data, material, efficiency of the machine and tool wear.  
The graphs below are valid for Seco Material Group (SMG) P5-P6 and cutting speed 300 sf/min.

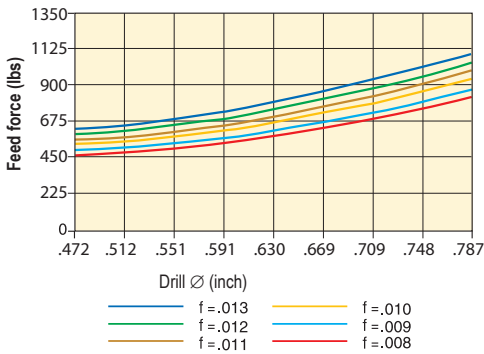
### Net power consumption



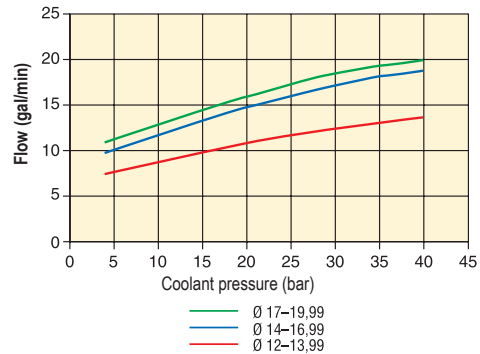
### Drilling torque



### Feed force



### Coolant flow at different pressures



### Hole tolerances/Surface finish

SD403, SD405 and SD408 IT9-10 / R <sub>a</sub> 1-4*		
Drill Ø D <sub>c</sub> (inch)	IT9 tolerance (µin)	IT10 tolerance (µin)
0.394-0.709	0.0017	0.0028
0.709-1.181	0.0020	0.0033

Recommended coolant flow Dx1 gal/min

Minimum coolant flow D/2 gal/min

D = Drill diameter

Minimum recommended coolant pressure 150 psi with ≤ 3 x D

Minimum recommended coolant pressure 300 psi with ≤ 5 x D

Minimum recommended coolant pressure 600 psi with > 5 x D

### Coolant mix

Recommended emulsion mix is 6–8%.

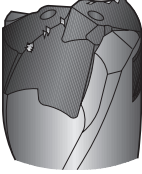
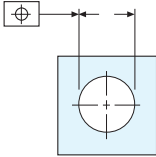
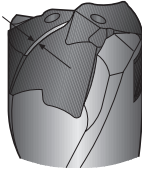
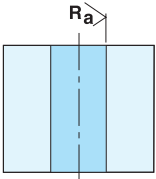
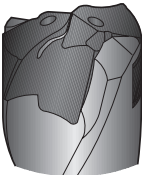
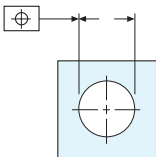
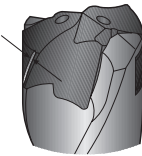
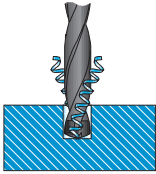
When drilling in stainless steels, superalloys and high strength steels a mix of 10% is recommended.

\*Deterioration of surface finish and hole tolerance can occur when drilling in low carbon steel or stainless steel.

Use the shortest drill possible for best hole quality.

- Fixturing stability
- Machine spindle condition
- Tool holder condition
- Clamping of tool:
  - Run-out within 0.002 inch TIR

- Chip evacuation:
  - Cutting data
- Coolant:
  - Pressure
  - Flow
  - Concentration

<p><b>Cutting edges get chipped</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev</li> <li>• If the drill vibrates, reduce the cutting speed and increase the feed rate</li> <li>• When drilling through rough or hard surfaces, reduce the feed rate by 30%-50% during entrance and exit</li> </ul> 	<p><b>Unsatisfactory diameter tolerance</b></p> <ul style="list-style-type: none"> <li>• Increase the feed/rev</li> <li>• Use a Seco Feedmax solid carbide drill, see page(s) 18-21</li> <li>• Use a reaming operation, see page(s) 302</li> <li>• Use a boring operation, see page(s) 464-465</li> </ul> 
<p><b>Too fast flank wear</b></p> <ul style="list-style-type: none"> <li>• Check that the correct geometry is used</li> <li>• Reduce the cutting speed</li> </ul> 	<p><b>Unsatisfactory surface finish</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev</li> <li>• Increase the cutting speed</li> <li>• Check that the correct geometry is used</li> <li>• Use a Seco Feedmax solid carbide drill, see page(s) 18-21</li> <li>• Use a reaming operation, see page(s) 302</li> </ul> 
<p><b>Groove wear</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev</li> <li>• Reduce the cutting speed</li> <li>• Increase the coolant concentration</li> </ul> 	<p><b>Unsatisfactory positioning of the hole</b></p> <ul style="list-style-type: none"> <li>• Reduce the feed/rev</li> <li>• If drilling through rough, hard and angled surfaces - reduce the feed by 30%-50% during entrance and exit</li> <li>• Pre drill with a 140° point angle</li> <li>• Use a Seco Feedmax solid carbide drill, see page(s) 18-21</li> <li>• Use a boring operation, see page(s) 464-465</li> </ul> 
<p><b>Wear of peripheral land margins</b></p> <ul style="list-style-type: none"> <li>• Check that the correct geometry is used</li> <li>• Reduce the cutting speed</li> <li>• Increase the coolant concentration</li> <li>• When drilling through rough or hard surfaces, reduce the feed rate by 30%-50% during entrance and exit</li> </ul> 	<p><b>Chip jamming due to long chips</b></p> <ul style="list-style-type: none"> <li>• Increase the feed</li> <li>• In long chipping materials SMG P1-P4, SMG M1-M2:                     <ul style="list-style-type: none"> <li>- Increase cutting speed and reduce feed/rev</li> <li>- Use the -L geometry</li> </ul> </li> </ul> 



## Indexable insert drill



Range overview

Perfomax®	∅ Range	Drilling depth maximum	Drill tolerance (inch)	Hole tolerance (inch)
<p>SD502</p>  <p>Page(s) 203-207</p>	<p>0.591-2.323" (15-59 mm)</p>	<p>~ 2 x D</p>	<p>+/- 0.004"</p>	<p>+0/+0.008"</p>
<p>SD503</p>  <p>Page(s) 208-215</p>	<p>0.562-2.375" (14.3-59 mm)</p>	<p>~ 3 x D</p>	<p>+/- 0.004"</p>	<p>+0/+0.012"</p>
<p>SD504</p>  <p>Page(s) 216-223</p>	<p>0.669-2.323" (17-59 mm)</p>	<p>~ 4 x D</p>	<p>+/- 0.004"</p>	<p>+0/+0.016"</p>
<p>SD505</p>  <p>Page(s) 224-226</p>	<p>0.748-1.772" (19-45 mm)</p>	<p>~ 5 x D</p>	<p>+/- 0.004"</p>	<p>+0/+0.020"</p>
<p>SD542</p>  <p>Page(s) 227-228</p>	<p>2.362-3.346" (60-85 mm)</p>	<p>~ 2.5 x D</p>	<p>+/- 0.004"</p>	<p>+0/+0.012"</p>

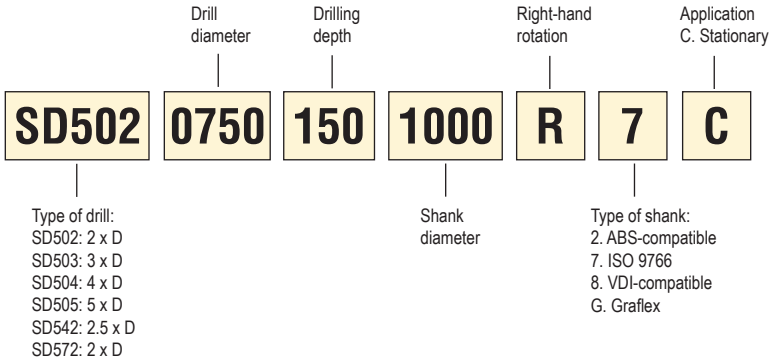
Range overview

Perfomax®	∅ Range	Drilling depth maximum	Drill tolerance (inch)	Hole tolerance (inch)
<p>SD572</p>  <p>Page(s) 229-231</p>	<p>0.591-1.850" (15-47 mm)</p>	<p>2 x D</p>	<p>+/- 0.004"</p>	<p>+0/+0.008"</p>
<p>SD602</p>  <p>Page(s) 238-241</p>	<p>2.362-6.299" (60-160 mm)</p>	<p>6 x D</p>	<p>+/- 0.008"</p>	<p>–</p>

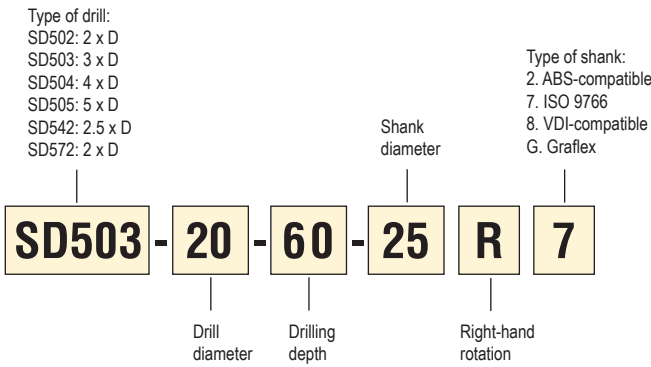


Code key - Indexable insert drill

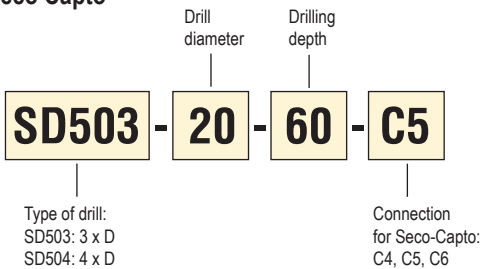
Inch



Metric



Seco Capto™



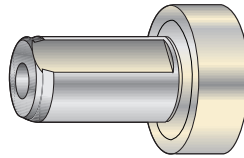
Shanks

**ISO 9766**

Universal choice fits into most holders on the market such as:

- Weldon 1835B
- ISO 5414
- DIN 69880

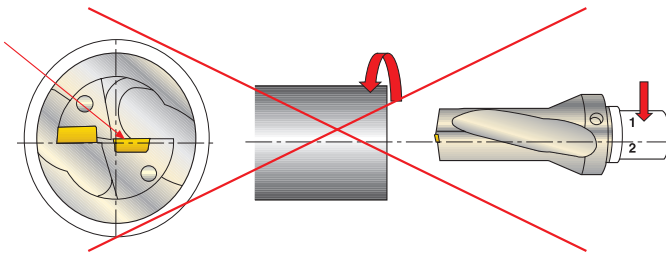
Coolant inlet at the back end of the drill.



**-7 (For rotating applications)**

**Shank with four flats**

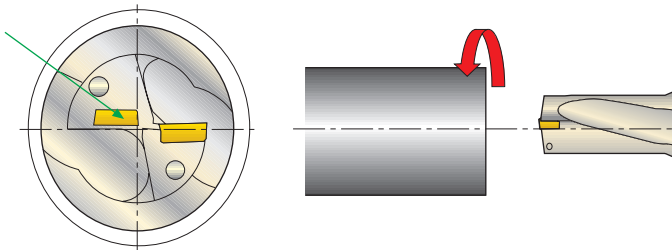
Center insert  
cutting edge  
above workpiece  
center line



**-7-C (For non rotating applications)**

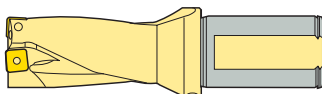
An additional flat is added to the shank for increased flexibility in lathe applications. In such applications the workpiece center line and the drill center line must align. If they don't the center insert could be located above the workpiece center line resulting in poor performance of the drill.

Center insert  
cutting edge  
below workpiece  
center line



By turning the drill 180 degrees the second flat gives the possibility to compensate for this misalignment in a fast and simple way.

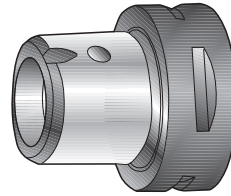
**NOTE!** If a drill with -7 or -7-C shank is used in a rotating application together with our adjustable holder, the flat located on the same side as the center insert must be used. Otherwise the drill diameter will be positioned in the wrong way.



Shanks

**Seco-Capto**

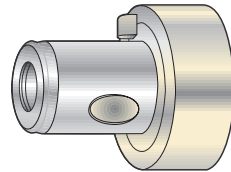
- Flexible - Same tool holder can easily be used in different machines
- Modular - Possibility to build tools with extension adapters
- High torque transmission - Torque load is spread symmetrically
- High rigidity - Tight press fit guarantees that there is no play in the coupling
- Accurate - Tapered polygon coupling produces a strong, self centering joint repeatability within 0.00008°



**-C**  
**(4, 5, 6)**

**Graflex**

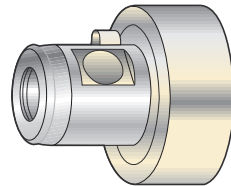
- Fits directly into Graflex holders and locked with two ball headed locking screws positioned 120° apart.
- Short overhang - rigidity and productivity
- Cylinder/face connection - great accuracy
- Coolant inlet at the back end of the drill



**-G**

**ABS 50**

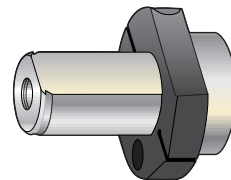
- An ABS 50 Compatible shank
- Fits directly into ABS 50 holder with one locking screw
- Coolant inlet at the back end of the drill



**-2**

**VDI30 and VDI 40**

- VDI compatible shank
- Fits directly into holders for
  - VDI 3425 bl.2
  - DIN 69880



**-8**

**NOTE!** The coolant ring must ordered separately

Shanks

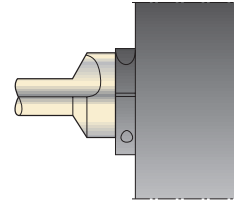
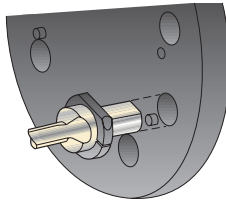
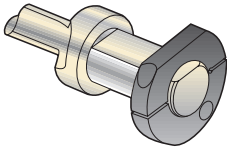
Available in:

VDI 30				VDI 40					
Drill depth	Drill diameter (inch)	Drill diameter (mm)	Accessories Coolant ring	Drill depth	Drill diameter (inch)	Drill diameter (mm)	Blanking screw	Accessories Coolant ring	Plug
2 x D	0.591-1.220	15-31	SDA5-30R8	2 x D	0.591-1.575	15-40			
3 x D	0.591-1.220	15-31	SDA5-30R8	3 x D	0.591-1.575	15-40		SDA5-40R8	
4 x D	0.669-1.220	17-31	SDA5-30R8	4 x D	0.669-1.220	17-31		SDA5-40R8	
5 x D	0.748-1.220	19-31	SDA5-30R8	5 x D	0.748-1.220	19-31		SDA5-40R8	
				2 x D	1.614-2.323	41-59	R1/4"	SDA5-40R8	P6SS8x8
				3 x D	1.614-2.323	41-59	R1/4"	SDA5-40R8	P6SS8x8

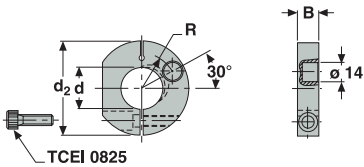
1. Fit the ring around the drill but do not tighten the locking screw

2. Lock the drill in the collet

3. Tighten the locking screw in the coolant ring



Coolant ring

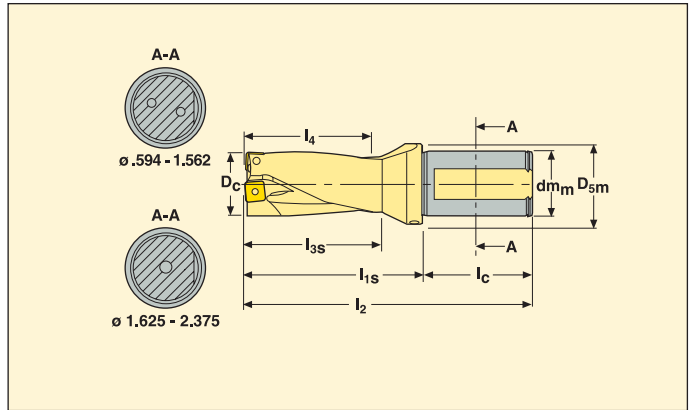


Drilling depth 2 x D – Inch shank

ISO 9766 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 250-251
- Internal coolant
- Spare parts and accessories see page(s) 232



Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					Insert		Radial adjustment		
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.594	1.19	06476	SD502-0594-119-1000R7	4.619	2.369	2.250	1.385	1.00	1.394	SPGX0502-C1	SCGX050204..	0.012	0.012
0.625	1.25	06477	SD502-0625-125-1000R7	4.681	2.431	2.250	1.447	1.00	1.394	SPGX0502-C1	SCGX050204..	0.006	0.016
0.656	1.31	06482	SD502-0656-131-1000R7	4.743	2.493	2.250	1.508	1.00	1.394	SPGX0502-C1	SCGX050204..	0.006	0.016
0.687	1.37	52935	SD502-0687-137-1000R7-SP06	4.805	2.555	2.250	1.571	1.00	1.394	SPGX0602-C1	SCGX050204..	0.020	0.020
0.709	1.42	06484	SD502-0709-142-1000R7	4.848	2.598	2.250	1.614	1.00	1.394	SPGX0602-C1	SCGX050204..	0.014	0.008
0.750	1.50	36775	SD502-0750-150-1000R7-SC05	4.931	2.713	2.250	1.697	1.00	1.394	SPGX0602-C1	SCGX050204..	0.012	0.014
0.766	1.53	06486	SD502-0766-153-1000R7	4.963	2.713	2.250	1.729	1.00	1.394	SPGX0602-C1	SCGX060204..	0.008	0.020
0.787	1.57	06487	SD502-0787-157-1000R7	5.006	2.756	2.250	1.772	1.00	1.394	SPGX0602-C1	SCGX060204..	0.008	0.020
0.812	1.62	06488	SD502-0812-162-1000R7	5.055	2.805	2.250	1.821	1.00	1.394	SPGX0602-C1	SCGX060204..	0.004	0.020
0.827	1.65	06489	SD502-0827-165-1000R7	5.085	2.835	2.250	1.851	1.00	1.394	SPGX0602-C1	SCGX060204..	0.004	0.020
0.875	1.75	06490	SD502-0875-175-1000R7	5.181	2.931	2.250	1.947	1.00	1.394	SPGX0703-C1	SCGX060204..	0.012	0.020
0.906	1.81	06492	SD502-0906-181-1000R7	5.243	2.993	2.250	2.009	1.00	1.394	SPGX0703-C1	SCGX070308..	0.008	0.020
0.922	1.84	06493	SD502-0922-184-1000R7	5.275	3.025	2.250	2.071	1.00	1.394	SPGX0703-C1	SCGX070308..	0.008	0.020
0.937	1.87	06494	SD502-0937-187-1000R7	5.305	3.055	2.250	2.071	1.00	1.394	SPGX0703-C1	SCGX070308..	0.004	0.020
0.984	1.97	06495	SD502-0984-197-1250R7	5.524	3.150	2.375	2.166	1.25	1.643	SPGX0703-C1	SCGX070308..	0.004	0.020
1.000	2.00	06496	SD502-1000-200-1250R7	5.556	3.181	2.375	2.197	1.25	1.643	SPGX0703-C1	SCGX070308..	0.004	0.020
1.032	2.06	36781	SD502-1032-206-1250R7-SP09	5.620	3.245	2.375	2.261	1.25	1.643	SPGX0903-C1	SCGX070308..	0.004	0.020
1.062	2.12	06499	SD502-1062-212-1250R7	5.680	3.305	2.375	2.321	1.25	1.643	SPGX0903-C1	SCGX070308..	0.020	0.008
1.125	2.25	06501	SD502-1125-225-1250R7	5.806	3.431	2.375	2.447	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.020	0.014
1.187	2.37	06503	SD502-1187-237-1250R7	5.930	3.555	2.375	2.571	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.014	0.020
1.250	2.50	36795	SD502-1250-250-1500R7-SP11	6.424	3.681	2.625	2.697	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.006	0.020
1.312	2.62	06505	SD502-1312-262-1500R7	6.430	3.805	2.625	2.821	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.020	0.020
1.375	2.75	06507	SD502-1375-275-1500R7	6.556	3.931	2.625	2.947	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.008	0.020
1.437	2.87	06509	SD502-1437-287-1500R7	6.680	4.055	2.625	3.071	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.004	0.020
1.500	3.00	36802	SD502-1500-300-1500R7-SP12	6.806	4.181	2.625	3.197	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.006	0.020
1.625	3.25	06512	SD502-1625-325-1500R7	7.378	4.628	2.625	3.447	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.008	0.020
1.750	3.50	06514	SD502-1750-350-1500R7	7.628	4.878	2.625	3.697	1.50	1.894	SPGX1504-C1	SCGX120408..	0.020	0.020
1.875	3.75	06516	SD502-1875-375-1500R7	7.556	4.931	2.625	3.947	1.50	2.323	SPGX1504-C1	SCGX150512..	0.020	0.020
2.000	4.00	06518	SD502-2000-400-1500R7	7.806	5.181	2.625	4.197	1.50	2.323	SPGX1504-C1	SCGX150512..	0.006	0.020
2.125	4.25	06520	SD502-2125-425-1500R7	8.056	5.431	2.625	4.447	1.50	2.323	SPGX1904-C1	SCGX150512..	0.020	0.020
2.250	4.50	06523	SD502-2250-450-1500R7	8.306	5.681	2.625	4.697	1.50	2.323	SPGX1904-C1	SCGX150512..	0.014	0.020
2.375	4.75	06527	SD502-2375-475-1500R7	8.556	5.931	2.625	4.947	1.50	2.323	SPGX1904-C1	SCGX150512..	0.006	0.020

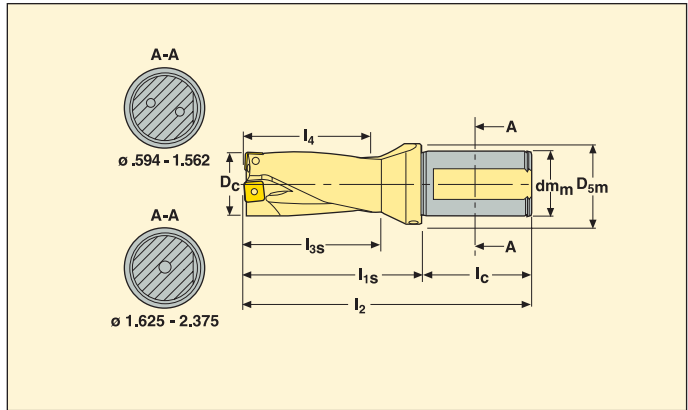
Please check availability in current price and stock-list.

Drilling depth 2 x D – Inch shank

ISO 9766 shank, -R7-C



- Straight shank (four flats) side and end coolant ports
- First choice stationary applications
- For insert information see page(s) 247-249
- For cutting data see page(s) 250-251
- Spare parts and accessories see page(s) 232



Drill dia. D <sub>c</sub> (inch)	Max drilling depth I <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						Insert		Radial adjustment	
				I <sub>2</sub>	I <sub>1s</sub>	I <sub>c</sub>	I <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.594	1.19	06672	SD502-0594-119-1000R7-C	5.316	2.566	2.250	1.385	1.00	1.394	SPGX0502-C1	SCGX050204..	0.012	0.012
0.625	1.25	06673	SD502-0625-125-1000R7-C	5.378	2.628	2.250	1.447	1.00	1.394	SPGX0502-C1	SCGX050204..	0.006	0.016
0.688	1.37	52936	SD502-0687-137-1000R7-C-SP06	5.502	2.752	2.250	1.571	1.00	1.394	SPGX0602-C1	SCGX050204..	0.020	0.020
0.750	1.50	36774	SD502-0750-150-1000R7-C-SC05	5.628	2.878	2.250	1.614	1.00	1.394	SPGX0602-C1	SCGX050204..	0.014	0.008
0.787	1.57	06679	SD502-0787-157-1000R7-C	5.702	2.952	2.250	1.772	1.00	1.394	SPGX0602-C1	SCGX060204..	0.008	0.020
0.812	1.62	06680	SD502-0812-162-1000R7-C	5.752	3.002	2.250	1.821	1.00	1.394	SPGX0602-C1	SCGX060204..	0.004	0.020
0.827	1.65	06681	SD502-0827-165-1000R7-C	5.782	3.032	2.250	1.851	1.00	1.394	SPGX0602-C1	SCGX060204..	0.004	0.020
0.875	1.75	06682	SD502-0875-175-1000R7-C	5.878	3.128	2.250	1.947	1.00	1.394	SPGX0703-C1	SCGX060204..	0.012	0.020
0.906	1.81	06683	SD502-0906-181-1000R7-C	5.940	3.190	2.250	2.009	1.00	1.394	SPGX0703-C1	SCGX070308..	0.008	0.020
0.922	1.84	06684	SD502-0922-184-1000R7-C	5.972	3.222	2.250	2.071	1.00	1.394	SPGX0703-C1	SCGX070308..	0.008	0.020
0.937	1.87	06686	SD502-0937-187-1000R7-C	6.002	3.252	2.250	2.071	1.00	1.394	SPGX0703-C1	SCGX070308..	0.004	0.020
0.984	1.97	06687	SD502-0984-197-1250R7-C	6.096	3.346	2.375	2.166	1.25	1.643	SPGX0703-C1	SCGX070308..	0.004	0.020
1.000	2.00	06690	SD502-1000-200-1250R7-C	6.128	3.181	2.375	2.197	1.25	1.643	SPGX0703-C1	SCGX070308..	0.004	0.020
1.062	2.12	06692	SD502-1062-212-1250R7-C	6.252	3.502	2.375	2.321	1.25	1.643	SPGX0903-C1	SCGX070308..	0.020	0.008
1.125	2.25	06694	SD502-1125-225-1250R7-C	6.378	3.628	2.375	2.447	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.020	0.014
1.125	2.50	36794	SD502-1250-250-1500R7-C-SP11	6.647	3.878	2.625	2.697	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.006	0.020
1.188	2.37	06696	SD502-1187-237-1250R7-C	6.502	3.752	2.375	2.571	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.014	0.020
1.375	2.75	06700	SD502-1375-275-1500R7-C	6.878	4.128	2.625	2.947	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.008	0.020
1.500	3.00	36801	SD502-1500-300-1500R7-C-SP12	7.128	4.378	2.625	3.197	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.006	0.020
1.750	3.50	06707	SD502-1750-350-1500R7-C	7.628	4.878	2.625	3.697	1.50	1.894	SPGX1504-C1	SCGX120408..	0.020	0.020
2.000	4.00	06711	SD502-2000-400-1500R7-C	8.128	5.378	2.625	4.197	1.50	2.323	SPGX1504-C1	SCGX150512..	0.006	0.020
2.125	4.25	06712	SD502-2125-425-1500R7-C	8.378	5.628	2.625	4.447	1.50	2.323	SPGX1904-C1	SCGX150512..	0.020	0.020
2.250	4.50	06713	SD502-2250-450-1500R7-C	8.628	5.878	2.625	4.697	1.50	2.323	SPGX1904-C1	SCGX150512..	0.014	0.020
2.375	4.75	06715	SD502-2375-475-1500R7-C	8.878	6.128	2.625	4.947	1.50	2.323	SPGX1904-C1	SCGX150512..	0.006	0.020

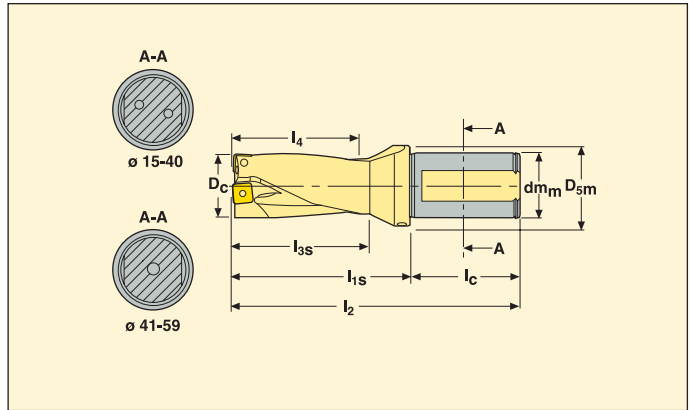
Please check availability in current price and stock-list.

Drilling depth 2 x D – Metric shank

ISO 9766 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 250-251
- Internal coolant
- Spare parts and accessories see page(s) 232



Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth I <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						Insert		Radial adjustment	
					I <sub>2</sub>	I <sub>1s</sub>	I <sub>c</sub>	I <sub>3s</sub>	dm	D <sub>sm</sub>	Center insert	Peripheral insert	-	+
0.591	15	30	09152	SD502-15-30-20R7	110	60	50	35	20	30	SPGX0502-C1	SCGX050204..	0.25	0.35
0.591	15	30	06124	SD502-15-30-25R7	116	60	56	35	25	35	SPGX0502-C1	SCGX050204..	0.25	0.35
0.610	15.5	31	09151	SD502-15.5-31-20R7	111	61	50	36	20	30	SPGX0502-C1	SCGX050204..	0.3	0.35
0.610	15.5	31	06125	SD502-15.5-31-25R7	117	61	56	36	25	35	SPGX0502-C1	SCGX050204..	0.3	0.35
0.630	16	32	09149	SD502-16-32-20R7	112	62	50	37	20	30	SPGX0502-C1	SCGX050204..	0.15	0.45
0.630	16	32	06126	SD502-16-32-25R7	118	62	56	37	25	35	SPGX0502-C1	SCGX050204..	0.15	0.45
0.650	16.5	33	09148	SD502-16.5-33-20R7	113	63	50	38	20	30	SPGX0502-C1	SCGX050204..	0.15	0.4
0.650	16.5	33	06128	SD502-16.5-33-25R7	119	63	56	38	25	35	SPGX0502-C1	SCGX050204..	0.15	0.4
0.669	17	34	09147	SD502-17-34-20R7	114	64	50	39	20	30	SPGX0502-C1	SCGX050204..	0.1	0.5
0.669	17	34	06129	SD502-17-34-25R7	120	64	56	39	25	35	SPGX0502-C1	SCGX050204..	0.1	0.5
0.689	17.5	35	09145	SD502-17.5-35-20R7	115	65	50	40	20	30	SPGX0602-C1	SCGX050204..	0.5	0.5
0.689	17.5	35	06130	SD502-17.5-35-25R7	121	65	56	40	25	35	SPGX0602-C1	SCGX050204..	0.5	0.5
0.709	18	36	09144	SD502-18-36-20R7	116	66	50	41	20	30	SPGX0602-C1	SCGX050204..	0.35	0.25
0.709	18	36	06131	SD502-18-36-25R7	122	66	56	41	25	35	SPGX0602-C1	SCGX050204..	0.35	0.25
0.728	18.5	37	09142	SD502-18.5-37-20R7	117	67	50	42	20	30	SPGX0602-C1	SCGX050204..	0.35	0.25
0.728	18.5	37	06132	SD502-18.5-37-25R7	123	67	56	42	25	35	SPGX0602-C1	SCGX050204..	0.35	0.25
0.748	19	38	09140	SD502-19-38-20R7	118	68	50	43	20	30	SPGX0602-C1	SCGX050204..	0.15	0.45
0.748	19	38	36651	SD502-19-38-25R7-SC05	124	68	56	43	25	35	SPGX0602-C1	SCGX050204..	0.15	0.45
0.768	19.5	39	71367	SD502-19.5-39-20R7	119	69	50	44	20	30	SPGX0602-C1	SCGX060204..	0.25	0.40
0.787	20	40	06136	SD502-20-40-25R7	126	70	56	45	25	35	SPGX0602-C1	SCGX060204..	0.1	0.45
0.827	21	42	06137	SD502-21-42-25R7	128	72	56	47	25	35	SPGX0602-C1	SCGX060204..	0.1	0.5
0.866	22	44	06138	SD502-22-44-25R7	130	74	56	49	25	35	SPGX0703-C1	SCGX060204..	0.45	0.5
0.906	23	46	06139	SD502-23-46-25R7	132	76	56	51	25	35	SPGX0703-C1	SCGX070308..	0.35	0.5
0.945	24	48	06140	SD502-24-48-25R7	134	78	56	53	25	35	SPGX0703-C1	SCGX070308..	0.15	0.5
0.984	25	50	06141	SD502-25-50-32R7	140	80	60	55	32	42	SPGX0703-C1	SCGX070308..	0.15	0.5
1.024	26	52	36652	SD502-26-52-32R7-SP09	142	82	60	57	32	42	SPGX0903-C1	SCGX070308..	0.5	0.15
1.063	27	54	06770	SD502-27-54-32R7	144	84	60	59	32	42	SPGX0903-C1	SCGX070308..	0.5	0.3
1.102	28	56	36653	SD502-28-56-32R7-SC07	146	86	60	61	32	42	SPGX0903-C1	SCGX070308..	0.3	0.5
1.142	29	58	06145	SD502-29-58-32R7	148	88	60	63	32	42	SPGX0903-C1	SCGX09T308..	0.2	0.5
1.181	30	60	06146	SD502-30-60-32R7	150	90	60	65	32	42	SPGX0903-C1	SCGX09T308..	0.15	0.5
1.220	31	62	06147	SD502-31-62-32R7	152	92	60	67	32	42	SPGX0903-C1	SCGX09T308..	0.15	0.5
1.260	32	64	62524	SD502-32-64-32R7-SP11	154	94	60	69	32	50	SPGX11T3-C1	SCGX09T308..	0.5	0.35
1.260	32	64	36654	SD502-32-64-40R7-SP11	162	94	68	69	40	50	SPGX11T3-C1	SCGX09T308..	0.5	0.35
1.299	33	66	64292	SD502-33-66-32R7	156	96	60	71	32	50	SPGX11T3-C1	SCGX09T308..	0.5	0.5
1.299	33	66	06149	SD502-33-66-40R7	164	96	68	71	40	50	SPGX11T3-C1	SCGX09T308..	0.5	0.5
1.339	34	68	62542	SD502-34-68-32R7	158	98	60	73	32	50	SPGX11T3-C1	SCGX09T308..	0.25	0.5
1.339	34	68	06150	SD502-34-68-40R7	166	98	68	73	40	50	SPGX11T3-C1	SCGX09T308..	0.25	0.5
1.378	35	70	64291	SD502-35-70-32R7	160	100	60	75	32	50	SPGX11T3-C1	SCGX120408..	0.25	0.25
1.378	35	70	06151	SD502-35-70-40R7	168	100	68	75	40	50	SPGX11T3-C1	SCGX120408..	0.25	0.5
1.417	36	72	62543	SD502-36-72-32R7	162	102	60	77	32	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.417	36	72	06152	SD502-36-72-40R7	170	102	68	77	40	50	SPGX11T3-C1	SCGX120408..	0.1	0.5

Please check availability in current price and stock-list.

Drilling depth 2 x D – Metric shank

ISO 9766 shank, -R7

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth I <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						Insert		Radial adjustment	
					I <sub>2</sub>	I <sub>1s</sub>	I <sub>c</sub>	I <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
1.457	37	74	62525	SD502-37-74-32R7	164	104	60	79	32	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.457	37	74	06153	SD502-37-74-40R7	172	104	68	79	40	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.496	38	76	62526	SD502-38-76-32R7-SP12	166	106	60	81	32	50	SPGX12T3-C1	SCGX120408..	0.5	0.5
1.496	38	76	36655	SD502-38-76-40R7-SP12	174	106	68	81	40	50	SPGX12T3-C1	SCGX120408..	0.5	0.5
1.535	39	78	62527	SD502-39-78-32R7	168	108	60	83	32	50	SPGX12T3-C1	SCGX120408..	0.4	0.5
1.535	39	78	06155	SD502-39-78-40R7	176	108	68	83	40	50	SPGX12T3-C1	SCGX120408..	0.4	0.5
1.575	40	80	64290	SD502-40-80-32R7	170	110	60	84	32	50	SPGX12T3-C1	SCGX120408..	0.2	0.5
1.614	41	82	06157	SD502-41-82-40R7	180	112	68	87	40	50	SPGX12T3-C1	SCGX120408..	0.2	0.5
1.654	42	84	06158	SD502-42-84-40R7	182	114	68	89	40	50	SPGX12T3-C1	SCGX120408..	0.15	0.5
1.693	43	86	06159	SD502-43-86-40R7	184	116	68	91	40	50	SPGX12T3-C1	SCGX120408..	0.1	0.5
1.732	44	88	06160	SD502-44-88-40R7	186	118	68	93	40	50	SPGX1504-C1	SCGX120408..	0.5	0.5
1.772	45	90	06161	SD502-45-90-40R7	188	120	68	95	40	59	SPGX1504-C1	SCGX150512..	0.5	0.5
1.811	46	92	06162	SD502-46-92-40R7	190	122	68	97	40	59	SPGX1504-C1	SCGX150512..	0.5	0.5
1.850	47	94	06163	SD502-47-94-40R7	192	124	68	99	40	59	SPGX1504-C1	SCGX150512..	0.5	0.5
1.890	48	96	06164	SD502-48-96-40R7	194	126	68	101	40	59	SPGX1504-C1	SCGX150512..	0.5	0.5
1.929	49	98	06165	SD502-49-98-40R7	196	128	68	103	40	59	SPGX1504-C1	SCGX150512..	0.3	0.5
1.969	50	100	06166	SD502-50-100-40R7	198	130	68	105	40	59	SPGX1504-C1	SCGX150512..	0.15	0.5
2.008	51	102	06167	SD502-51-102-40R7	200	132	68	107	40	59	SPGX1504-C1	SCGX150512..	0.15	0.5
2.047	52	104	06168	SD502-52-104-40R7	202	134	68	109	40	59	SPGX1904-C1	SCGX150512..	0.5	0.5
2.087	53	106	06169	SD502-53-106-40R7	204	136	68	111	40	59	SPGX1904-C1	SCGX150512..	0.5	0.5
2.126	54	108	06170	SD502-54-108-40R7	206	138	68	113	40	59	SPGX1904-C1	SCGX150512..	0.5	0.5
2.165	55	110	06171	SD502-55-110-40R7	208	140	68	115	40	59	SPGX1904-C1	SCGX150512..	0.5	0.5
2.205	56	112	06172	SD502-56-112-40R7	210	142	68	117	40	59	SPGX1904-C1	SCGX150512..	0.5	0.5
2.244	57	114	06173	SD502-57-114-40R7	212	144	68	119	40	59	SPGX1904-C1	SCGX150512..	0.35	0.5
2.283	58	116	06174	SD502-58-116-40R7	214	146	68	121	40	59	SPGX1904-C1	SCGX150512..	0.15	0.5
2.323	59	118	06175	SD502-59-118-40R7	216	148	68	123	40	59	SPGX1904-C1	SCGX150512..	0.15	0.5

Please check availability in current price and stock-list.

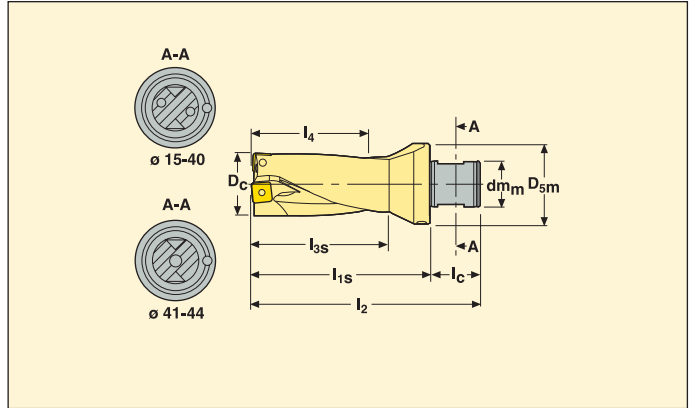


Drilling depth 2 x D

ABS 50 compatible shank, -R2



- For insert information see page(s) 247-249
- For cutting data see page(s) 250-251
- Internal coolant
- Spare parts and accessories see page(s) 232

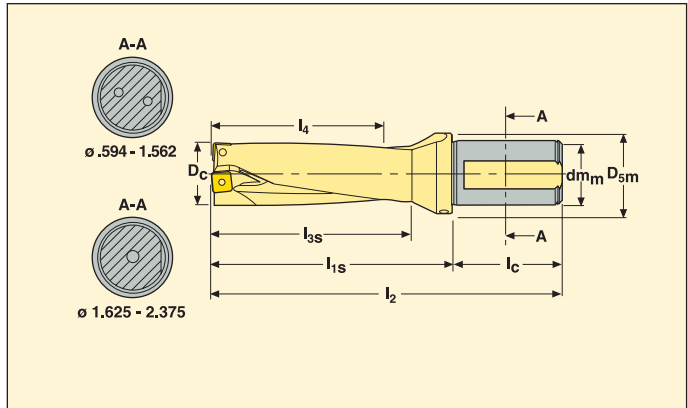


Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						Insert		Radial adjustment	
					l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm	D <sub>sm</sub>	Center insert	Peripheral insert	-	+
0.591	15	30	06214	SD502-15-30-50R2	91	60	31	35	28	50	SPGX0502-C1	SCGX050204..	0.25	0.35
0.610	15.5	31	06215	SD502-15.5-31-50R2	92	61	31	36	28	50	SPGX0502-C1	SCGX050204..	0.3	0.35
0.630	16	32	06216	SD502-16-32-50R2	93	62	31	37	28	50	SPGX0502-C1	SCGX050204..	0.15	0.45
0.650	16.5	33	06217	SD502-16.5-33-50R2	94	63	31	38	28	50	SPGX0502-C1	SCGX050204..	0.15	0.4
0.669	17	34	06218	SD502-17-34-50R2	95	64	31	39	28	50	SPGX0502-C1	SCGX050204..	0.1	0.5
0.689	17.5	35	06219	SD502-17.5-35-50R2	96	65	31	40	28	50	SPGX0602-C1	SCGX050204..	0.5	0.5
0.709	18	36	06220	SD502-18-36-50R2	97	66	31	41	28	50	SPGX0602-C1	SCGX050204..	0.35	0.25
0.728	18.5	37	06221	SD502-18.5-37-50R2	98	67	31	42	28	50	SPGX0602-C1	SCGX050204..	0.35	0.25
0.748	19	38	36687	SD502-19-38-50R2-SC05	99	68	31	43	28	50	SPGX0602-C1	SCGX050204..	0.15	0.45
0.787	20	40	06223	SD502-20-40-50R2	101	70	31	45	28	50	SPGX0602-C1	SCGX060204..	0.1	0.45
0.812	20.62	42	06613	SD502-20.62-42-50R2	103	72	31	47	28	50	SPGX0602-C1	SCGX060204..	0.1	0.5
0.827	21	42	06224	SD502-21-42-50R2	103	72	31	47	28	50	SPGX0602-C1	SCGX060204..	0.1	0.5
0.866	22	44	06225	SD502-22-44-50R2	105	74	31	49	28	50	SPGX0703-C1	SCGX060204..	0.45	0.5
0.875	22.23	45	06615	SD502-22.23-45-50R2	106	75	31	50	28	50	SPGX0703-C1	SCGX060204..	0.45	0.5
0.906	23	46	06227	SD502-23-46-50R2	107	76	31	51	28	50	SPGX0703-C1	SCGX070308..	0.35	0.5
0.945	24	48	06228	SD502-24-48-50R2	109	78	31	53	28	50	SPGX0703-C1	SCGX070308..	0.15	0.5
0.984	25	50	06229	SD502-25-50-50R2	111	80	31	55	28	50	SPGX0703-C1	SCGX070308..	0.15	0.5
1.000	25.40	51	06617	SD502-25.40-51-50R2	112	81	31	56	28	50	SPGX0703-C1	SCGX070308..	0.15	0.5
1.024	26	52	36688	SD502-26-52-50R2-SP09	113	82	31	57	28	50	SPGX0903-C1	SCGX070308..	0.5	0.15
1.063	27	54	06231	SD502-27-54-50R2	115	84	31	59	28	50	SPGX0903-C1	SCGX070308..	0.5	0.3
1.102	28	56	36689	SD502-28-56-50R2-SC07	117	86	31	61	28	50	SPGX0903-C1	SCGX070308..	0.3	0.5
1.126	28.59	58	06620	SD502-28.59-58-50R2	119	88	31	63	28	50	SPGX0903-C1	SCGX09T308..	0.2	0.5
1.142	29	58	06233	SD502-29-58-50R2	119	88	31	63	28	50	SPGX0903-C1	SCGX09T308..	0.2	0.5
1.181	30	60	06234	SD502-30-60-50R2	121	90	31	65	28	50	SPGX0903-C1	SCGX09T308..	0.15	0.5
1.220	31	62	06235	SD502-31-62-50R2	123	92	31	67	28	50	SPGX0903-C1	SCGX09T308..	0.15	0.5
1.250	31.75	64	36817	SD502-31.75-64-50R2-SP11	125	94	31	69	28	50	SPGX11T3-C1	SCGX09T308..	0.5	0.35
1.260	32	64	36690	SD502-32-64-50R2-SP11	125	94	31	69	28	50	SPGX11T3-C1	SCGX09T308..	0.5	0.35
1.299	33	66	06237	SD502-33-66-50R2	127	96	31	71	28	50	SPGX11T3-C1	SCGX09T308..	0.5	0.5
1.339	34	68	06238	SD502-34-68-50R2	129	98	31	73	28	50	SPGX11T3-C1	SCGX09T308..	0.25	0.5
1.378	35	70	06239	SD502-35-70-50R2	131	100	31	75	28	50	SPGX11T3-C1	SCGX120408..	0.25	0.5
1.417	36	72	06241	SD502-36-72-50R2	133	102	31	77	28	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.457	37	74	06242	SD502-37-74-50R2	135	104	31	79	28	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.496	38	76	36691	SD502-38-76-50R2-SP12	137	106	31	81	28	50	SPGX12T3-C1	SCGX120408..	0.5	0.5
1.535	39	78	06244	SD502-39-78-50R2	139	108	31	83	28	50	SPGX12T3-C1	SCGX120408..	0.4	0.5
1.575	40	80	06245	SD502-40-80-50R2	141	110	31	85	28	50	SPGX12T3-C1	SCGX120408..	0.2	0.5
1.614	41	82	06246	SD502-41-82-50R2	143	112	31	87	28	50	SPGX12T3-C1	SCGX120408..	0.2	0.5
1.654	42	84	06247	SD502-42-84-50R2	145	114	31	89	28	50	SPGX12T3-C1	SCGX120408..	0.15	0.5
1.693	43	86	06248	SD502-43-86-50R2	147	116	31	91	28	50	SPGX12T3-C1	SCGX120408..	0.1	0.5
1.732	44	88	06249	SD502-44-88-50R2	149	118	31	93	28	50	SPGX1504-C1	SCGX120408..	0.5	0.5
1.750	44.45	88	06622	SD502-44.45-89-50R2	150	119	31	94	28	50	SPGX1504-C1	SCGX120408..	0.5	0.5

Please check availability in current price and stock-list.

## Drilling depth 3 x D – Inch shank

ISO 9766 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 252-253
- Internal coolant
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						Insert		Radial adjustment	
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.562	1.69	59136	SD503-0562-169-1000R7	5.118	2.868	2.250	1.850	1.00	1.394	SPGX0502-C1	SCGX050204..	0.010	0.014
0.594	1.78	06528	SD503-0594-178-1000R7	5.213	2.963	2.250	1.979	1.00	1.394	SPGX0502-C1	SCGX050204..	0.012	0.012
0.625	1.88	06529	SD503-0625-188-1000R7	5.306	3.056	2.250	2.072	1.00	1.394	SPGX0502-C1	SCGX050204..	0.006	0.016
0.656	1.97	06530	SD503-0656-197-1000R7	5.399	3.144	2.250	2.165	1.00	1.394	SPGX0502-C1	SCGX050204..	0.006	0.016
0.688	2.06	52937	SD503-0687-206-1000R7-SP06	5.492	3.242	2.250	2.258	1.00	1.394	SPGX0602-C1	SCGX050204..	0.020	0.020
0.709	2.13	06532	SD503-0709-213-1000R7	5.558	3.308	2.250	2.324	1.00	1.394	SPGX0602-C1	SCGX050204..	0.014	0.014
0.750	2.25	36777	SD503-0750-225-1000R7-SC05	5.681	3.431	2.250	2.447	1.00	1.394	SPGX0602-C1	SCGX050204..	0.012	0.014
0.766	2.30	06536	SD503-0766-230-1000R7	5.729	3.479	2.250	2.495	1.00	1.394	SPGX0602-C1	SCGX060204..	0.008	0.020
0.787	2.36	06539	SD503-0787-236-1000R7	5.792	3.542	2.250	2.558	1.00	1.394	SPGX0602-C1	SCGX060204..	0.008	0.020
0.812	2.44	06540	SD503-0812-244-1000R7	5.867	3.617	2.250	2.633	1.00	1.394	SPGX0602-C1	SCGX060204..	0.004	0.019
0.827	2.48	06541	SD503-0827-248-1000R7	5.912	3.662	2.250	2.678	1.00	1.394	SPGX0602-C1	SCGX060204..	0.004	0.019
0.875	2.63	06542	SD503-0875-263-1000R7	6.056	3.806	2.250	2.822	1.00	1.394	SPGX0703-C1	SCGX060204..	0.012	0.019
0.906	2.72	06543	SD503-0906-272-1000R7	6.149	3.899	2.250	2.915	1.00	1.394	SPGX0703-C1	SCGX070308..	0.008	0.019
0.922	2.76	06544	SD503-0922-276-1000R7	6.197	3.947	2.250	2.963	1.00	1.394	SPGX0703-C1	SCGX070308..	0.008	0.019
0.937	2.81	06545	SD503-0937-281-1000R7	6.242	3.992	2.250	3.008	1.00	1.394	SPGX0703-C1	SCGX070308..	0.004	0.019
0.984	2.95	06547	SD503-0984-295-1250R7	6.508	4.133	2.375	3.149	1.25	1.643	SPGX0703-C1	SCGX070308..	0.004	0.019
1.000	3.00	06548	SD503-1000-300-1250R7	6.556	4.181	2.375	3.197	1.25	1.643	SPGX0703-C1	SCGX070308..	0.004	0.019
1.032	3.07	36783	SD503-1032-310-1250R7-SP09	6.652	4.198	2.375	3.293	1.25	1.643	SPGX0903-C1	SCGX070308..	0.004	0.019
1.062	3.19	06550	SD503-1062-319-1250R7	6.742	4.367	2.375	3.383	1.25	1.643	SPGX0903-C1	SCGX070308..	0.020	0.008
1.109	3.33	36790	SD503-1109-332-1250R7-SC07	6.883	4.508	2.375	3.524	1.25	1.643	SPGX0903-C1	SCGX070308..	0.020	0.014
1.125	3.38	06552	SD503-1125-338-1250R7	6.931	4.556	2.375	3.572	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.020	0.014
1.172	3.51	06555	SD503-1172-351-1250R7	7.072	4.697	2.375	3.713	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.014	0.020
1.187	3.56	06556	SD503-1187-356-1250R7	7.114	4.742	2.375	3.758	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.014	0.020
1.250	3.75	36797	SD503-1250-375-1500R7-SP11	7.556	4.931	2.625	3.947	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.006	0.020
1.312	3.94	06560	SD503-1312-394-1500R7	7.742	5.117	2.625	4.133	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.020	0.020
1.344	4.03	06561	SD503-1344-403-1500R7	7.838	5.213	2.625	4.229	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.020	0.020
1.375	4.13	06562	SD503-1375-413-1500R7	7.931	5.306	2.625	4.322	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.008	0.020
1.422	4.26	06563	SD503-1422-426-1500R7	8.072	5.447	2.625	4.463	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.004	0.020
1.437	4.31	06564	SD503-1437-431-1500R7	8.117	5.492	2.625	4.508	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.004	0.020
1.500	4.50	36804	SD503-1500-450-1500R7-SP12	8.306	5.681	2.625	4.697	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.006	0.020
1.562	4.69	06567	SD503-1562-469-1500R7	8.492	5.867	2.625	4.883	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.014	0.020
1.625	4.88	06568	SD503-1625-488-1500R7	8.681	6.056	2.625	5.072	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.008	0.020
1.687	5.06	06569	SD503-1687-506-1500R7	8.867	6.242	2.625	5.258	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.004	0.020
1.750	5.25	06570	SD503-1750-525-1500R7	9.056	6.431	2.625	5.447	1.50	1.894	SPGX1504-C1	SCGX120408..	0.020	0.020
1.812	5.44	06571	SD503-1812-544-1500R7	9.242	6.617	2.625	5.633	1.50	2.323	SPGX1504-C1	SCGX150512..	0.020	0.020
1.875	5.63	06572	SD503-1875-563-1500R7	9.431	6.806	2.625	5.822	1.50	2.323	SPGX1504-C1	SCGX150512..	0.020	0.020
1.937	5.81	06573	SD503-1937-581-1500R7	9.617	6.992	2.625	6.008	1.50	2.323	SPGX1504-C1	SCGX150512..	0.006	0.020
2.000	6.00	06574	SD503-2000-600-1500R7	9.806	7.181	2.625	6.197	1.50	2.323	SPGX1504-C1	SCGX150512..	0.006	0.020
2.062	6.19	06575	SD503-2062-619-1500R7	9.992	7.367	2.625	6.383	1.50	2.323	SPGX1904-C1	SCGX150512..	0.020	0.020
2.125	6.38	06576	SD503-2125-638-1500R7	10.181	7.556	2.625	6.572	1.50	2.323	SPGX1904-C1	SCGX150512..	0.020	0.020
2.250	6.75	06577	SD503-2250-675-1500R7	10.556	7.931	2.625	6.947	1.50	2.323	SPGX1904-C1	SCGX150512..	0.014	0.020
2.375	7.13	06578	SD503-2375-713-1500R7	10.931	8.306	2.625	7.322	1.50	2.323	SPGX1904-C1	SCGX150512..	0.006	0.020

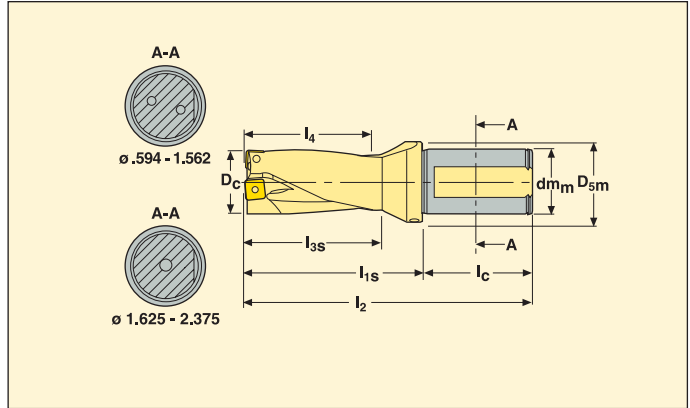
Please check availability in current price and stock-list.

Drilling depth 3 x D – Inch shank

ISO 9766 shank, -R7-C



- Straight shank (four flats) side and end coolant ports
- First choice stationary applications
- For insert information see page(s) 247-249
- For cutting data see page(s) 252-253
- Spare parts and accessories see page(s) 232

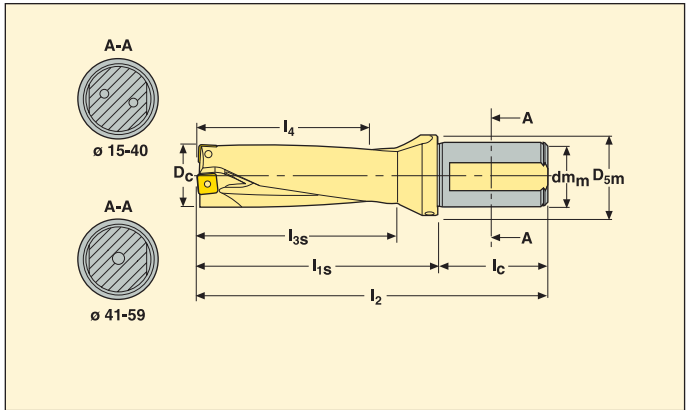


Drill dia. D <sub>c</sub> (inch)	Max drilling depth I <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					Insert		Radial adjustment		
				I <sub>2</sub>	I <sub>1s</sub>	I <sub>c</sub>	I <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.594	1.78	06716	SD503-0594-178-1000R7-C	5.910	3.160	2.750	1.979	1.00	1.394	SPGX0502-C1	SCGX050204..	0.012	0.012
0.625	1.88	06717	SD503-0625-188-1000R7-C	6.003	3.253	2.750	2.072	1.00	1.394	SPGX0502-C1	SCGX050204..	0.006	0.016
0.656	1.97	06718	SD503-0656-197-1000R7-C	6.096	3.346	2.750	2.165	1.00	1.394	SPGX0502-C1	SCGX050204..	0.006	0.016
0.687	2.06	52938	SD503-0687-206-1000R7-C-SP06	6.189	3.439	2.750	2.258	1.00	1.394	SPGX0602-C1	SCGX050204..	0.020	0.020
0.709	2.13	06720	SD503-0709-213-1000R7-C	6.255	3.505	2.750	2.324	1.00	1.394	SPGX0602-C1	SCGX050204..	0.014	0.008
0.750	2.25	36776	SD503-0750-225-1000R7-C-SC05	6.181	3.431	2.750	2.447	1.00	1.394	SPGX0602-C1	SCGX050204..	0.012	0.014
0.766	2.30	06722	SD503-0766-230-1000R7-C	6.426	3.676	2.750	2.495	1.00	1.394	SPGX0602-C1	SCGX060204..	0.008	0.020
0.787	2.36	06723	SD503-0787-236-1000R7-C	6.489	3.739	2.750	2.558	1.00	1.394	SPGX0602-C1	SCGX060204..	0.008	0.020
0.812	2.44	06724	SD503-0812-244-1000R7-C	6.564	3.814	2.750	2.633	1.00	1.394	SPGX0602-C1	SCGX060204..	0.004	0.018
0.827	2.48	06725	SD503-0827-248-1000R7-C	6.609	3.859	2.750	2.678	1.00	1.394	SPGX0602-C1	SCGX060204..	0.004	0.018
0.875	2.63	06726	SD503-0875-263-1000R7-C	6.753	4.003	2.750	2.822	1.00	1.394	SPGX0703-C1	SCGX060204..	0.012	0.018
0.906	2.72	06727	SD503-0906-272-1000R7-C	6.846	4.096	2.750	2.915	1.00	1.394	SPGX0703-C1	SCGX070308..	0.008	0.018
0.922	2.77	06728	SD503-0922-276-1000R7-C	6.894	4.144	2.750	2.963	1.00	1.643	SPGX0703-C1	SCGX070308..	0.008	0.018
0.937	2.81	06729	SD503-0937-281-1000R7-C	6.939	4.189	2.750	3.008	1.00	1.394	SPGX0703-C1	SCGX070308..	0.004	0.018
0.984	2.95	06730	SD503-0984-295-1250R7-C	7.080	4.330	2.750	3.149	1.25	1.643	SPGX0703-C1	SCGX070308..	0.004	0.018
1.000	3.00	06731	SD503-1000-300-1250R7-C	7.128	4.378	2.750	3.197	1.25	1.643	SPGX0703-C1	SCGX070308..	0.004	0.018
1.032	3.10	36784	SD503-1032-310-1250R7-C-SP09	7.224	4.474	2.750	3.293	1.25	1.894	SPGX0903-C1	SCGX070308..	0.004	0.018
1.062	3.19	06733	SD503-1062-319-1250R7-C	7.314	4.564	2.750	3.383	1.25	1.643	SPGX0903-C1	SCGX070308..	0.020	0.008
1.109	3.32	36791	SD503-1109-332-1250R7-C-SC07	7.455	4.705	2.750	3.524	1.25	1.894	SPGX0903-C1	SCGX070308..	0.020	0.014
1.125	3.38	06735	SD503-1125-338-1250R7-C	7.503	4.753	2.750	3.572	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.020	0.014
1.172	3.51	06736	SD503-1172-351-1250R7-C	7.644	4.894	2.750	3.713	1.25	1.894	SPGX0903-C1	SCGX09T308..	0.014	0.020
1.187	3.56	06737	SD503-1187-356-1250R7-C	7.689	4.939	2.750	3.758	1.25	1.643	SPGX0903-C1	SCGX09T308..	0.014	0.020
1.250	3.75	36796	SD503-1250-375-1500R7-C-SP11	7.878	5.128	2.750	3.947	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.006	0.020
1.312	3.94	06739	SD503-1312-394-1500R7-C	8.064	5.314	2.750	4.133	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.020	0.020
1.344	4.03	06740	SD503-1344-403-1500R7-C	8.160	5.410	2.750	4.229	1.50	1.894	SPGX11T3-C1	SCGX09T308..	0.020	0.020
1.375	4.13	06741	SD503-1375-413-1500R7-C	8.253	5.503	2.750	4.322	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.008	0.020
1.422	4.27	06742	SD503-1422-426-1500R7-C	8.394	5.644	2.750	4.463	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.004	0.020
1.437	4.31	06743	SD503-1437-431-1500R7-C	8.439	5.689	2.750	4.508	1.50	1.894	SPGX11T3-C1	SCGX120408..	0.004	0.020
1.500	4.50	36803	SD503-1500-450-1500R7-C-SP12	8.431	5.681	2.750	4.697	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.006	0.020
1.562	4.69	06745	SD503-1562-469-1500R7-C	8.814	6.064	2.750	4.883	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.014	0.020
1.625	4.88	06746	SD503-1625-488-1500R7-C	9.003	6.253	2.750	5.072	1.50	1.894	SPGX12T3-C1	SCGX120408..	0.008	0.020
1.687	5.06	06747	SD503-1687-506-1500R7-C	9.189	6.439	2.750	5.258	1.50	2.323	SPGX12T3-C1	SCGX120408..	0.004	0.020
1.750	5.25	06748	SD503-1750-525-1500R7-C	9.378	6.628	2.750	5.447	1.50	1.894	SPGX1504-C1	SCGX120408..	0.020	0.020
1.812	5.44	06749	SD503-1812-544-1500R7-C	9.564	6.814	2.750	5.633	1.50	2.323	SPGX1504-C1	SCGX150512..	0.020	0.020
1.875	5.63	06750	SD503-1875-563-1500R7-C	9.753	7.003	2.750	5.822	1.50	2.323	SPGX1504-C1	SCGX150512..	0.020	0.020
1.937	5.81	06751	SD503-1937-581-1500R7-C	9.939	7.189	2.750	6.008	1.50	2.323	SPGX1504-C1	SCGX150512..	0.006	0.020
2.000	6.00	06752	SD503-2000-600-1500R7-C	10.128	7.378	2.750	6.197	1.50	2.323	SPGX1504-C1	SCGX150512..	0.006	0.020
2.125	6.38	06753	SD503-2125-638-1500R7-C	10.503	7.753	2.750	6.572	1.50	2.323	SPGX1904-C1	SCGX150512..	0.020	0.020
2.250	6.75	06754	SD503-2250-675-1500R7-C	10.878	7.931	2.750	6.947	1.50	2.323	SPGX1904-C1	SCGX150512..	0.020	0.020
2.375	7.13	06755	SD503-2375-713-1500R7-C	11.253	8.306	2.750	7.322	1.50	2.323	SPGX1904-C1	SCGX150512..	0.006	0.020

Please check availability in current price and stock-list.

## Drilling depth 3 x D – Metric shank

ISO 9786 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 252-253
- Internal coolant
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth I <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						Insert		Radial adjustment	
					I <sub>2</sub>	I <sub>1s</sub>	I <sub>c</sub>	I <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.591	15	45	09137	SD503-15-45-20R7	125	75	50	50	20	30	SPGX 0502-C1	SCGX 050204..	0.25	0.35
0.591	15	45	05856	SD503-15-45-25R7	131	75	56	50	25	35	SPGX 0502-C1	SCGX 050204..	0.25	0.35
0.610	15.5	47	09136	SD503-15.5-47-20R7	127	77	50	52	20	30	SPGX 0502-C1	SCGX 050204..	0.3	0.35
0.610	15.5	47	05857	SD503-15.5-47-25R7	133	77	56	52	25	35	SPGX 0502-C1	SCGX 050204..	0.3	0.35
0.630	16	48	09134	SD503-16-48-20R7	128	78	50	53	20	30	SPGX 0502-C1	SCGX 050204..	0.15	0.45
0.630	16	48	05858	SD503-16-48-25R7	134	78	56	53	25	35	SPGX 0502-C1	SCGX 050204..	0.15	0.45
0.650	16.5	50	09133	SD503-16.5-50-20R7	130	80	50	55	20	30	SPGX 0502-C1	SCGX 050204..	0.15	0.4
0.650	16.5	50	05859	SD503-16.5-50-25R7	136	80	56	55	25	35	SPGX 0502-C1	SCGX 050204..	0.15	0.4
0.669	17	51	09132	SD503-17-51-20R7	131	81	50	56	20	30	SPGX 0502-C1	SCGX 050204..	0.1	0.5
0.669	17	51	05861	SD503-17-51-25R7	137	81	56	56	25	35	SPGX 0502-C1	SCGX 050204..	0.1	0.5
0.689	17.5	53	09130	SD503-17.5-53-20R7	133	83	50	58	20	30	SPGX 0602-C1	SCGX 050204..	0.5	0.5
0.689	17.5	53	05862	SD503-17.5-53-25R7	139	83	56	58	25	35	SPGX 0602-C1	SCGX 050204..	0.5	0.5
0.709	18	54	09238	SD503-18-54-20R7	134	84	50	59	20	30	SPGX 0602-C1	SCGX 050204..	0.35	0.25
0.709	18	54	05863	SD503-18-54-25R7	140	84	56	59	25	35	SPGX 0602-C1	SCGX 050204..	0.35	0.25
0.728	18.5	56	09118	SD503-18.5-56-20R7	136	86	50	61	20	30	SPGX 0602-C1	SCGX 050204..	0.35	0.25
0.728	18.5	56	05864	SD503-18.5-56-25R7	142	86	56	61	25	35	SPGX 0602-C1	SCGX 050204..	0.35	0.25
0.748	19	57	09117	SD503-19-57-20R7	137	87	50	62	20	30	SPGX 0602-C1	SCGX 050204..	0.15	0.45
0.748	19	57	36657	SD503-19-57-25R7-SC05	143	87	56	62	25	35	SPGX 0602-C1	SCGX 050204..	0.15	0.45
0.768	19.5	59	09116	SD503-19.5-59-20R7	139	89	50	64	20	30	SPGX 0602-C1	SCGX 060204..	0.25	0.4
0.768	19.5	59	24487	SD503-19.5-59-25R7	145	89	56	64	25	35	SPGX 0602-C1	SCGX 060204..	0.25	0.4
0.787	20	60	05866	SD503-20-60-25R7	146	90	56	65	25	35	SPGX 0602-C1	SCGX 060204..	0.1	0.45
0.807	20.5	62	24488	SD503-20.5-62-25R7	148	92	56	67	25	35	SPGX 0602-C1	SCGX 060204..	0.1	0.5
0.827	21	63	05874	SD503-21-63-25R7	149	93	56	68	25	35	SPGX 0602-C1	SCGX 060204..	0.1	0.5
0.846	21.5	65	24489	SD503-21.5-65-25R7	151	95	56	70	25	35	SPGX 0703-C1	SCGX 060204..	0.35	0.5
0.866	22	66	05875	SD503-22-66-25R7	152	96	56	71	25	35	SPGX 0703-C1	SCGX 060204..	0.45	0.5
0.886	22.5	68	24490	SD503-22.5-68-25R7	154	98	56	73	25	35	SPGX 0703-C1	SCGX 070308..	0.35	0.5
0.906	23	69	05876	SD503-23-69-25R7	155	99	56	74	25	35	SPGX 0703-C1	SCGX 070308..	0.35	0.5
0.925	23.5	71	24492	SD503-23.5-71-25R7	157	101	56	76	25	35	SPGX 0703-C1	SCGX 070308..	0.1	0.5
0.945	24	72	05878	SD503-24-72-25R7	158	102	56	77	25	35	SPGX 0703-C1	SCGX 070308..	0.15	0.5
0.965	24.5	74	24493	SD503-24.5-74-25R7	160	104	56	79	25	35	SPGX 0703-C1	SCGX 070308..	0.1	0.5
0.984	25	75	05879	SD503-25-75-32R7	165	105	60	80	32	42	SPGX 0703-C1	SCGX 070308..	0.15	0.5
1.004	25.5	77	37941	SD503-25.5-77-32R7-SP09	167	107	60	82	32	42	SPGX 0903-C1	SCGX 070308..	0.5	0.1
1.024	26	78	36658	SD503-26-78-32R7-SP09	168	108	60	83	32	42	SPGX 0903-C1	SCGX 070308..	0.5	0.15
1.043	26.5	80	24495	SD503-26.5-80-32R7	170	110	60	85	32	42	SPGX 0903-C1	SCGX 070308..	0.5	0.1
1.063	27	81	05882	SD503-27-81-32R7	171	111	60	86	32	42	SPGX 0903-C1	SCGX 070308..	0.5	0.3
1.083	27.5	83	37942	SD503-27.5-83-32R7-SC07	173	113	60	88	32	42	SPGX 0903-C1	SCGX 070308..	0.4	0.4
1.102	28	84	36659	SD503-28-84-32R7-SC07	174	114	60	89	32	42	SPGX 0903-C1	SCGX 070308..	0.3	0.5
1.122	28.5	86	24497	SD503-28.5-86-32R7	176	116	60	91	32	42	SPGX 0903-C1	SCGX 09T308..	0.5	0.4
1.142	29	87	05884	SD503-29-87-32R7	177	117	60	92	32	42	SPGX 0903-C1	SCGX 09T308..	0.2	0.5
1.161	29.5	89	24498	SD503-29.5-89-32R7	179	119	60	94	32	42	SPGX 0903-C1	SCGX 09T308..	0.45	0.5
1.181	30	90	05885	SD503-30-90-32R7	180	120	60	95	32	42	SPGX 0903-C1	SCGX 09T308..	0.15	0.5

Please check availability in current price and stock-list.

Drilling depth 3 x D – Metric shank

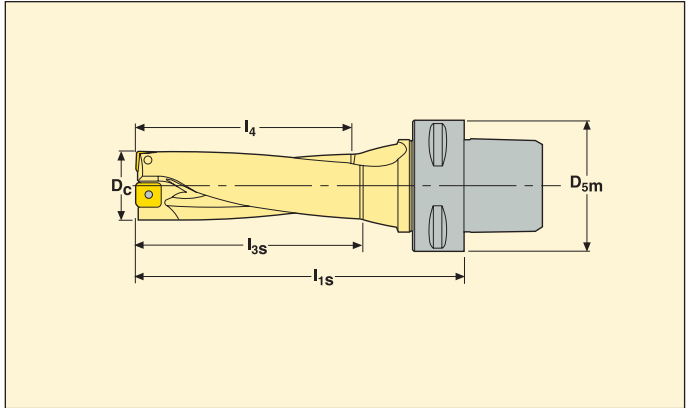
ISO 9766 shank, -R7

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm							Insert		Radial adjustment	
					l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>sm</sub>	Center insert	Peripheral insert	-	+	
1.201	30.5	92	24499	SD503-30.5-92-32R7	182	122	60	97	32	42	SPGX 0903-C1	SCGX 09T308..	0.25	0.5	
1.220	31	93	05886	SD503-31-93-32R7	183	123	60	98	32	42	SPGX 0903-C1	SCGX 09T308..	0.15	0.5	
1.240	31.5	95	37943	SD503-31.5-95-32R7-SP11	185	125	60	100	32	42	SPGX 11T3-C1	SCGX 09T308..	0.5	0.2	
1.260	32	96	62528	SD503-32-96-32R7-SP11	186	126	60	101	32	50	SPGX 11T3-C1	SCGX 09T308..	0.5	0.3	
1.260	32	96	36660	SD503-32-96-40R7-SP11	194	126	68	101	40	50	SPGX 11T3-C1	SCGX 09T308..	0.5	0.3	
1.299	33	99	62529	SD503-33-99-32R7	189	129	60	104	32	50	SPGX 11T3-C1	SCGX 09T308..	0.5	0.5	
1.299	33	99	05888	SD503-33-99-40R7	197	129	68	104	40	50	SPGX 11T3-C1	SCGX 09T308..	0.5	0.5	
1.339	34	102	62530	SD503-34-102-32R7	192	132	60	107	32	50	SPGX 11T3-C1	SCGX 09T308..	0.25	0.5	
1.339	34	102	05889	SD503-34-102-40R7	200	132	68	107	40	50	SPGX 11T3-C1	SCGX 09T308..	0.25	0.5	
1.378	35	105	64294	SD503-35-105-32R7	195	135	60	110	32	50	SPGX 11T3-C1	SCGX 120408..	0.25	0.5	
1.378	35	105	05891	SD503-35-105-40R7	203	135	68	110	40	50	SPGX 11T3-C1	SCGX 120408..	0.25	0.5	
1.398	35.5	107	50591	SD503-35.5-107-40R7	205	137	68	112	40	50	SPGX 11T3-C1	SCGX 120408..	0.2	0.5	
1.417	36	108	62531	SD503-36-108-32R7	198	138	60	113	32	50	SPGX 11T3-C1	SCGX 120408..	0.15	0.5	
1.417	36	108	05892	SD503-36-108-40R7	206	138	68	113	40	50	SPGX 11T3-C1	SCGX 120408..	0.1	0.5	
1.457	37	111	64293	SD503-37-111-32R7	201	141	60	116	32	50	SPGX 11T3-C1	SCGX 120408..	0.1	0.5	
1.457	37	111	06768	SD503-37-111-40R7	209	141	68	116	40	50	SPGX 11T3-C1	SCGX 120408..	0.1	0.5	
1.496	38	114	62532	SD503-38-114-32R7-SP12	204	144	60	119	32	50	SPGX12T3-C1	SCGX 120408..	0.1	0.5	
1.496	38	114	36661	SD503-38-114-40R7-SP12	212	144	68	119	40	50	SPGX12T3-C1	SCGX 120408..	0.5	0.5	
1.535	39	117	62544	SD503-39-117-32R7	207	147	60	122	32	50	SPGX12T3-C1	SCGX 120408..	0.5	0.5	
1.535	39	117	05895	SD503-39-117-40R7	215	147	68	122	40	50	SPGX12T3-C1	SCGX 120408..	0.4	0.5	
1.575	40	120	62533	SD503-40-120-32R7	210	150	60	125	32	50	SPGX12T3-C1	SCGX 120408..	0.4	0.5	
1.575	40	120	05896	SD503-40-120-40R7	218	150	68	125	40	50	SPGX12T3-C1	SCGX 120408..	0.2	0.5	
1.614	41	123	05846	SD503-41-123-40R7	221	153	68	128	40	50	SPGX12T3-C1	SCGX 120408..	0.2	0.5	
1.634	41.5	125	50592	SD503-41.5-125-40R7	223	155	68	130	40	50	SPGX12T3-C1	SCGX 120408..	0.2	0.5	
1.654	42	126	05898	SD503-42-126-40R7	224	156	68	131	40	50	SPGX12T3-C1	SCGX 120408..	0.15	0.5	
1.693	43	129	05900	SD503-43-129-40R7	227	159	68	134	40	50	SPGX12T3-C1	SCGX 120408..	0.1	0.5	
1.732	44	132	05901	SD503-44-132-40R7	230	162	68	137	40	50	SPGX1504-C1	SCGX 120408..	0.5	0.5	
1.752	44.5	134	57386	SD503-44.5-134-40R7	232	164	68	139	40	50	SPGX1504-C1	SCGX 150512..	0.5	0.5	
1.772	45	135	05903	SD503-45-135-40R7	233	165	68	140	40	59	SPGX1504-C1	SCGX 150512..	0.5	0.5	
1.811	46	138	05904	SD503-46-138-40R7	236	168	68	143	40	59	SPGX1504-C1	SCGX 150512..	0.5	0.5	
1.850	47	141	05907	SD503-47-141-40R7	239	171	68	146	40	59	SPGX1504-C1	SCGX 150512..	0.5	0.5	
1.870	47.5	143	35013	SD503-47.5-143-40R7	241	173	68	148	40	59	SPGX 1504-C1	SCGX 150512..	0.5	0.5	
1.890	48	144	05908	SD503-48-144-40R7	242	174	68	149	40	59	SPGX 1504-C1	SCGX 150512..	0.5	0.5	
1.929	49	147	05912	SD503-49-147-40R7	245	177	68	152	40	59	SPGX 1504-C1	SCGX 150512..	0.3	0.5	
1.969	50	150	05917	SD503-50-150-40R7	248	180	68	155	40	59	SPGX 1504-C1	SCGX 150512..	0.15	0.5	
2.008	51	153	05918	SD503-51-153-40R7	251	183	68	158	40	59	SPGX 1504-C1	SCGX 150512..	0.15	0.5	
2.047	52	156	05919	SD503-52-156-40R7	254	186	68	161	40	59	SPGX 1904-C1	SCGX 150512..	0.5	0.5	
2.087	53	159	05920	SD503-53-159-40R7	257	189	68	164	40	59	SPGX 1904-C1	SCGX 150512..	0.5	0.5	
2.126	54	162	05922	SD503-54-162-40R7	260	192	68	167	40	59	SPGX 1904-C1	SCGX 150512..	0.5	0.5	
2.165	55	165	05923	SD503-55-165-40R7	263	195	68	170	40	59	SPGX 1904-C1	SCGX 150512..	0.5	0.5	
2.205	56	168	05924	SD503-56-168-40R7	266	198	68	173	40	59	SPGX 1904-C1	SCGX 150512..	0.5	0.5	
2.244	57	171	05925	SD503-57-171-40R7	269	201	68	176	40	59	SPGX 1904-C1	SCGX 150512..	0.35	0.5	
2.283	58	174	05926	SD503-58-174-40R7	272	204	68	179	40	59	SPGX 1904-C1	SCGX 150512..	0.15	0.5	
2.323	59	177	05929	SD503-59-177-40R7	275	207	68	182	40	59	SPGX 1904-C1	SCGX 150512..	0.15	0.5	

Please check availability in current price and stock-list.

## Drilling depth 3 x D

## Seco-Capto™ C4 shank



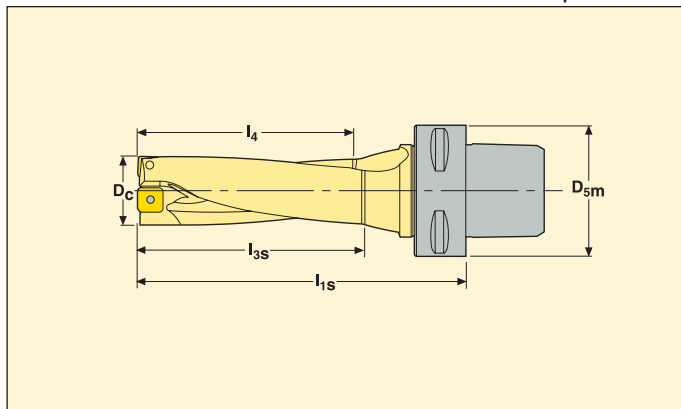
- For insert information see page(s) 247-249
- For cutting data see page(s) 252-253
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth L <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm			Insert		Radial adjustment	
					L <sub>1s</sub>	L <sub>3s</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.591	15	45	19596	SD503-15-45-C4	82	50	40	SPGX0502-C1	SCGX050204..	0.25	0.35
0.610	15.5	47	19597	SD503-15.5-47-C4	84	52	40	SPGX0502-C1	SCGX050204..	0.3	0.35
0.630	16	48	19598	SD503-16-48-C4	86	53	40	SPGX0502-C1	SCGX050204..	0.15	0.45
0.650	16.5	50	22243	SD503-16.5-50-C4	88	55	40	SPGX0502-C1	SCGX050204..	0.15	0.4
0.669	17	51	22254	SD503-17-51-C4	89	56	40	SPGX0502-C1	SCGX050204..	0.1	0.5
0.689	17.5	53	24256	SD503-17.5-53-C4	92	58	40	SPGX0602-C1	SCGX050204..	0.5	0.5
0.709	18	54	24738	SD503-18-54-C4	93	59	40	SPGX0602-C1	SCGX050204..	0.35	0.25
0.728	18.5	56	25135	SD503-18.5-56-C4	95	61	40	SPGX0602-C1	SCGX050204..	0.35	0.25
0.748	19	57	25137	SD503-19-57-C4	96	62	40	SPGX0602-C1	SCGX050204..	0.15	0.45
0.787	20	60	25633	SD503-20-60-C4	101	65	40	SPGX0602-C1	SCGX060204..	0.1	0.45
0.812	20.62	62	30731	SD503-20.62-62-C4	103	67	40	SPGX0602-C1	SCGX060204..	0.1	0.5
0.827	21	63	25639	SD503-21-63-C4	104	68	40	SPGX0602-C1	SCGX060204..	0.1	0.5
0.866	22	66	25922	SD503-22-66-C4	107	71	40	SPGX0703-C1	SCGX060204..	0.45	0.5
0.875	22.23	67	30732	SD503-22.23-67-C4	108	72	40	SPGX0703-C1	SCGX060204..	0.45	0.5
0.906	23	69	26188	SD503-23-69-C4	111	74	40	SPGX0703-C1	SCGX070308..	0.35	0.5
0.945	24	72	26190	SD503-24-72-C4	115	77	40	SPGX0703-C1	SCGX070308..	0.15	0.5
0.984	25	75	26191	SD503-25-75-C4	119	80	40	SPGX0703-C1	SCGX070308..	0.15	0.5
1.000	25.4	77	30733	SD503-25.4-77-C4	121	82	40	SPGX0703-C1	SCGX070308..	0.15	0.5
1.024	26	78	26211	SD503-26-78-C4	122	83	40	SPGX0903-C1	SCGX070308..	0.5	0.15
1.063	27	81	26212	SD503-27-81-C4	125	86	40	SPGX0903-C1	SCGX070308..	0.5	0.3
1.102	28	84	26213	SD503-28-84-C4	129	89	40	SPGX0903-C1	SCGX070308..	0.3	0.5
1.126	28.59	86	30734	SD503-28.59-86-C4	131	91	40	SPGX0903-C1	SCGX09T308..	0.2	0.5
1.142	29	87	26217	SD503-29-87-C4	132	92	40	SPGX0903-C1	SCGX09T308..	0.2	0.5
1.181	30	90	26229	SD503-30-90-C4	135	95	40	SPGX0903-C1	SCGX09T308..	0.15	0.5

Please check availability in current price and stock-list.

Drilling depth 3 x D

Seco-Capto™ C5 shank



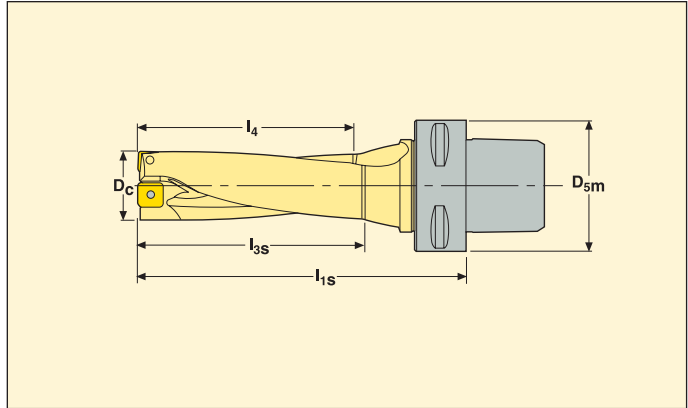
- For insert information see page(s) 247-249
- For cutting data see page(s) 252-253
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm			Insert		Radial adjustment	
					l <sub>1s</sub>	l <sub>3s</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.591	15	45	26489	SD503-15-45-C5	82	50	50	SPGX0502-C1	SCGX050204..	0.25	0.35
0.610	15.5	47	26490	SD503-15.5-47-C5	84	52	50	SPGX0502-C1	SCGX050204..	0.3	0.35
0.630	16	48	26491	SD503-16-48-C5	86	53	50	SPGX0502-C1	SCGX050204..	0.15	0.45
0.650	16.5	50	26492	SD503-16.5-50-C5	88	55	50	SPGX0502-C1	SCGX050204..	0.15	0.4
0.669	17	51	26493	SD503-17-51-C5	89	56	50	SPGX0502-C1	SCGX050204..	0.1	0.5
0.689	17.5	53	26498	SD503-17.5-53-C5	92	58	50	SPGX0602-C1	SCGX050204..	0.5	0.5
0.709	18	54	26499	SD503-18-54-C5	93	59	50	SPGX0602-C1	SCGX050204..	0.35	0.25
0.728	18.5	56	26500	SD503-18.5-56-C5	95	61	50	SPGX0602-C1	SCGX050204..	0.35	0.25
0.748	19	57	26501	SD503-19-57-C5	96	62	50	SPGX0602-C1	SCGX050204..	0.15	0.45
0.787	20	60	26502	SD503-20-60-C5	101	65	50	SPGX0602-C1	SCGX060204..	0.1	0.45
0.812	20.62	62	30721	SD503-20.62-62-C5	103	67	50	SPGX0602-C1	SCGX060204..	0.1	0.5
0.827	21	63	26503	SD503-21-63-C5	104	68	50	SPGX0602-C1	SCGX060204..	0.1	0.5
0.866	22	66	26506	SD503-22-66-C5	107	71	50	SPGX0703-C1	SCGX060204..	0.45	0.5
0.875	22.23	67	30722	SD503-22.23-67-C5	108	72	50	SPGX0703-C1	SCGX060204..	0.45	0.5
0.906	23	69	26507	SD503-23-69-C5	111	74	50	SPGX0703-C1	SCGX070308..	0.35	0.5
0.945	24	72	26508	SD503-24-72-C5	115	77	50	SPGX0703-C1	SCGX070308..	0.15	0.5
0.984	25	75	26509	SD503-25-75-C5	119	80	50	SPGX0903-C1	SCGX070308..	0.15	0.5
1.000	25.4	77	30723	SD503-25.4-77-C5	121	82	50	SPGX0903-C1	SCGX070308..	0.15	0.5
1.024	26	78	26510	SD503-26-78-C5	122	83	50	SPGX0903-C1	SCGX070308..	0.5	0.15
1.063	27	81	26512	SD503-27-81-C5	125	86	50	SPGX0903-C1	SCGX070308..	0.5	0.3
1.102	28	84	26513	SD503-28-84-C5	129	89	50	SPGX0903-C1	SCGX070308..	0.3	0.5
1.126	28.59	86	30724	SD503-28.59-86-C5	131	91	50	SPGX0903-C1	SCGX090T308..	0.2	0.5
1.142	29	87	26514	SD503-29-87-C5	132	92	50	SPGX0903-C1	SCGX090T308..	0.2	0.5
1.181	30	90	26515	SD503-30-90-C5	135	95	50	SPGX0903-C1	SCGX090T308..	0.15	0.5
1.220	31	93	26523	SD503-31-93-C5	138	98	50	SPGX0903-C1	SCGX090T308..	0.15	0.5
1.250	31.75	96	30725	SD503-31.75-96-C5	142	101	50	SPGX11T3-C1	SCGX090T308..	0.5	0.35
1.260	32	96	26524	SD503-32-96-C5	142	101	50	SPGX11T3-C1	SCGX090T308..	0.5	0.35
1.299	33	99	26528	SD503-33-99-C5	145	104	50	SPGX11T3-C1	SCGX090T308..	0.5	0.5
1.339	34	102	26529	SD503-34-102-C5	148	107	50	SPGX11T3-C1	SCGX090T308..	0.25	0.5
1.378	35	105	26530	SD503-35-105-C5	151	110	50	SPGX11T3-C1	SCGX120408..	0.25	0.5
1.417	36	108	26531	SD503-36-108-C5	154	113	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.457	37	111	26532	SD503-37-111-C5	157	116	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.496	38	114	26533	SD503-38-114-C5	160	119	50	SPGX12T3-C1	SCGX120408..	0.5	0.5
1.535	39	117	26536	SD503-39-117-C5	163	122	50	SPGX12T3-C1	SCGX120408..	0.4	0.5
1.575	40	120	26537	SD503-40-120-C5	166	125	50	SPGX12T3-C1	SCGX120408..	0.2	0.5

Please check availability in current price and stock-list.

## Drilling depth 3 x D

## Seco-Capto™ C6 shank



- For insert information see page(s) 247-249
- For cutting data see page(s) 252-253
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm			Insert		Radial adjustment	
					l <sub>1s</sub>	l <sub>3s</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.591	15	45	26568	SD503-15-45-C6	84	50	63	SPGX0502-C1	SCGX050204..	0.25	0.35
0.610	15.5	47	26569	SD503-15.5-47-C6	86	52	63	SPGX0502-C1	SCGX050204..	0.3	0.35
0.630	16	48	26570	SD503-16-48-C6	88	53	63	SPGX0502-C1	SCGX050204..	0.15	0.45
0.650	16.5	50	26571	SD503-16.5-50-C6	90	55	63	SPGX0502-C1	SCGX050204..	0.15	0.4
0.669	17	51	26572	SD503-17-51-C6	91	56	63	SPGX0502-C1	SCGX050204..	0.1	0.5
0.689	17.5	53	26573	SD503-17.5-53-C6	94	58	63	SPGX0602-C1	SCGX050204..	0.5	0.5
0.709	18	54	26574	SD503-18-54-C6	95	59	63	SPGX0602-C1	SCGX050204..	0.35	0.25
0.728	18.5	56	26575	SD503-18.5-56-C6	97	61	63	SPGX0602-C1	SCGX050204..	0.35	0.25
0.748	19	57	26576	SD503-19-57-C6	98	62	63	SPGX0602-C1	SCGX050204..	0.15	0.45
0.787	20	60	26577	SD503-20-60-C6	103	65	63	SPGX0602-C1	SCGX060204..	0.1	0.45
0.812	20.62	62	30748	SD503-20.62-62-C6	105	67	63	SPGX0602-C1	SCGX060204..	0.1	0.5
0.827	21	63	26578	SD503-21-63-C6	106	68	63	SPGX0602-C1	SCGX060204..	0.1	0.5
0.866	22	66	26579	SD503-22-66-C6	109	71	63	SPGX0703-C1	SCGX060204..	0.45	0.5
0.875	22.23	67	30749	SD503-22.23-67-C6	110	72	63	SPGX0703-C1	SCGX060204..	0.45	0.5
0.906	23	69	26580	SD503-23-69-C6	113	74	63	SPGX0703-C1	SCGX070308..	0.35	0.5
0.945	24	72	26581	SD503-24-72-C6	117	77	63	SPGX0703-C1	SCGX070308..	0.15	0.5
0.984	25	75	26582	SD503-25-75-C6	121	80	63	SPGX0703-C1	SCGX070308..	0.15	0.5
1.000	25.4	77	30751	SD503-25.4-77-C6	123	82	63	SPGX0703-C1	SCGX070308..	0.15	0.5
1.024	26	78	26583	SD503-26-78-C6	124	83	63	SPGX0903-C1	SCGX070308..	0.5	0.15
1.063	27	81	26584	SD503-27-81-C6	127	86	63	SPGX0903-C1	SCGX070308..	0.5	0.3
1.102	28	84	26585	SD503-28-84-C6	131	89	63	SPGX0903-C1	SCGX070308..	0.3	0.5
1.126	28.59	86	30752	SD503-28.59-86-C6	133	91	63	SPGX0903-C1	SCGX09T308..	0.2	0.5
1.142	29	87	26591	SD503-29-87-C6	134	92	63	SPGX0903-C1	SCGX09T308..	0.2	0.5
1.181	30	90	26592	SD503-30-90-C6	137	95	63	SPGX0903-C1	SCGX09T308..	0.15	0.5
1.220	31	93	26594	SD503-31-93-C6	140	98	63	SPGX0903-C1	SCGX09T308..	0.15	0.5
1.250	31.75	96	30753	SD503-31.75-96-C6	144	101	63	SPGX11T3-C1	SCGX09T308..	0.5	0.35
1.260	32	96	26595	SD503-32-96-C6	144	101	63	SPGX11T3-C1	SCGX09T308..	0.5	0.35
1.299	33	99	26596	SD503-33-99-C6	147	104	63	SPGX11T3-C1	SCGX09T308..	0.5	0.5
1.339	34	102	26600	SD503-34-102-C6	150	107	63	SPGX11T3-C1	SCGX09T308..	0.25	0.5
1.378	35	105	26610	SD503-35-105-C6	153	110	63	SPGX11T3-C1	SCGX120408..	0.25	0.5
1.417	36	108	26625	SD503-36-108-C6	156	113	63	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.457	37	111	26626	SD503-37-111-C6	159	116	63	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.496	38	114	26650	SD503-38-114-C6	162	119	63	SPGX12T3-C1	SCGX120408..	0.5	0.5
1.535	39	117	26651	SD503-39-117-C6	165	122	63	SPGX12T3-C1	SCGX120408..	0.4	0.5
1.575	40	120	26653	SD503-40-120-C6	168	125	63	SPGX12T3-C1	SCGX120408..	0.2	0.5

Please check availability in current price and stock-list.

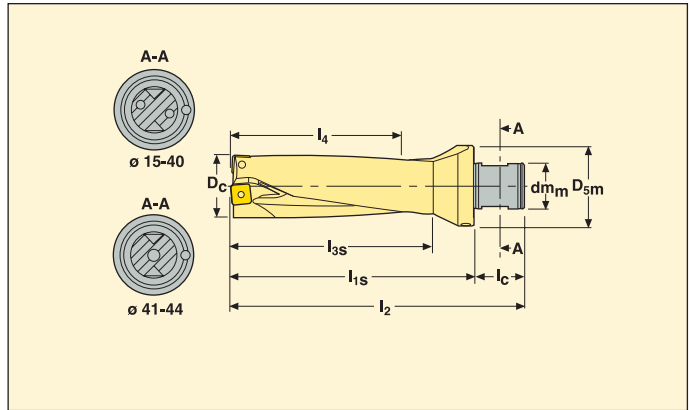


Drilling depth 3 x D

ABS 50 compatible shank, -R2



- For insert information see page(s) 247-249
- For cutting data see page(s) 252-253
- Internal coolant
- Spare parts and accessories see page(s) 232

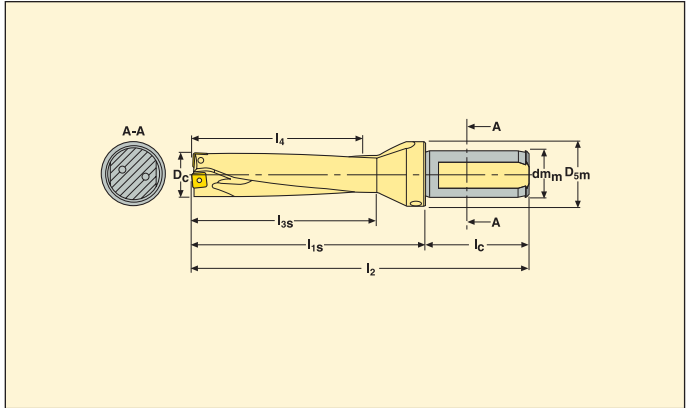


Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm					Insert		Radial adjustment		
					l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert	-	+
0.591	15	45	05931	SD503-15-45-50R2	106	75	31	50	28	50	SPGX0502-C1	SCGX050204..	0.25	0.35
0.610	15.5	47	05932	SD503-15.5-47-50R2	108	77	31	52	28	50	SPGX0502-C1	SCGX050204..	0.3	0.35
0.630	16	48	05933	SD503-16-48-50R2	109	78	31	53	28	50	SPGX0502-C1	SCGX050204..	0.15	0.45
0.650	16.5	50	05937	SD503-16.5-50-50R2	111	80	31	55	28	50	SPGX0502-C1	SCGX050204..	0.15	0.4
0.669	17	51	05941	SD503-17-51-50R2	112	81	31	56	28	50	SPGX0502-C1	SCGX050204..	0.1	0.5
0.689	17.5	53	05942	SD503-17.5-53-50R2	114	83	31	58	28	50	SPGX0602-C1	SCGX050204..	0.5	0.5
0.709	18	54	05943	SD503-18-54-50R2	115	86	31	61	28	50	SPGX0602-C1	SCGX050204..	0.35	0.25
0.728	18.5	56	05947	SD503-18.5-56-50R2	116	86	31	61	28	50	SPGX0602-C1	SCGX050204..	0.35	0.25
0.748	19	57	36692	SD503-19-57-50R2-SC05	118	87	31	62	28	50	SPGX0602-C1	SCGX050204..	0.15	0.45
0.787	20	60	05951	SD503-20-60-50R2	121	90	31	65	28	50	SPGX0602-C1	SCGX060204..	0.1	0.45
0.812	20.62	62	06623	SD503-20.62-62-50R2	123	92	31	67	28	50	SPGX0602-C1	SCGX060204..	0.1	0.5
0.827	21	63	05952	SD503-21-63-50R2	124	93	31	68	28	50	SPGX0602-C1	SCGX060204..	0.1	0.5
0.866	22	66	05953	SD503-22-66-50R2	127	96	31	71	28	50	SPGX0703-C1	SCGX060204..	0.45	0.5
0.875	22.23	67	06624	SD503-22.23-67-50R2	128	97	31	72	28	50	SPGX0703-C1	SCGX060204..	0.2	0.5
0.906	23	69	05954	SD503-23-69-50R2	130	99	31	74	28	50	SPGX0703-C1	SCGX070308..	0.35	0.5
0.945	24	72	05957	SD503-24-72-50R2	133	102	31	77	28	50	SPGX0703-C1	SCGX070308..	0.15	0.5
0.984	25	75	05958	SD503-25-75-50R2	136	105	31	80	28	50	SPGX0703-C1	SCGX070308..	0.15	0.5
1.000	25.4	77	06625	SD503-25.40-77-50R2	138	107	31	82	28	50	SPGX0703-C1	SCGX070308..	0.1	0.5
1.024	26	78	36693	SD503-26-78-50R2-SP09	139	108	31	83	28	50	SPGX0903-C1	SCGX070308..	0.5	0.15
1.063	27	81	05968	SD503-27-81-50R2	142	111	31	86	28	50	SPGX0903-C1	SCGX070308..	0.5	0.3
1.102	28	84	36697	SD503-28-84-50R2-SC07	145	114	31	89	28	50	SPGX0903-C1	SCGX070308..	0.3	0.5
1.126	28.59	86	06626	SD503-28.59-86-50R2	147	116	31	91	28	50	SPGX0903-C1	SCGX09T308..	0.5	0.5
1.142	29	87	05971	SD503-29-87-50R2	148	117	31	92	28	50	SPGX0903-C1	SCGX09T308..	0.2	0.5
1.181	30	90	05976	SD503-30-90-50R2	151	120	31	95	28	50	SPGX0903-C1	SCGX09T308..	0.15	0.5
1.220	31	93	06769	SD503-31-93-50R2	154	123	31	98	28	50	SPGX0903-C1	SCGX09T308..	0.15	0.5
1.250	31.75	96	36818	SD503-31.75-96-50R2-SP11	157	126	31	101	28	50	SPGX11T3-C1	SCGX09T308..	0.15	0.5
1.260	32	96	36698	SD503-32-96-50R2-SP11	157	126	31	101	28	50	SPGX11T3-C1	SCGX09T308..	0.5	0.35
1.299	33	99	05986	SD503-33-99-50R2	160	129	31	104	28	50	SPGX11T3-C1	SCGX09T308..	0.5	0.5
1.339	34	102	05989	SD503-34-102-50R2	163	132	31	107	28	50	SPGX11T3-C1	SCGX09T308..	0.25	0.5
1.378	35	105	05996	SD503-35-105-50R2	166	135	31	110	28	50	SPGX11T3-C1	SCGX120408..	0.25	0.5
1.417	36	108	05997	SD503-36-108-50R2	169	138	31	113	28	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.457	37	111	06004	SD503-37-111-50R2	172	141	31	116	28	50	SPGX11T3-C1	SCGX120408..	0.1	0.5
1.496	38	114	36699	SD503-38-114-50R2-SP12	175	144	31	119	28	50	SPGX12T3-C1	SCGX120408..	0.5	0.5
1.535	39	117	06008	SD503-39-117-50R2	178	147	31	122	28	50	SPGX12T3-C1	SCGX120408..	0.4	0.5
1.575	40	120	06010	SD503-40-120-50R2	181	150	31	125	28	50	SPGX12T3-C1	SCGX120408..	0.2	0.5
1.614	41	123	06019	SD503-41-123-50R2	184	153	31	128	28	50	SPGX12T3-C1	SCGX120408..	0.2	0.5
1.654	42	126	06020	SD503-42-126-50R2	187	156	31	131	28	50	SPGX12T3-C1	SCGX120408..	0.15	0.5
1.693	43	129	06021	SD503-43-129-50R2	190	159	31	134	28	50	SPGX12T3-C1	SCGX120408..	0.1	0.5
1.732	44	132	06022	SD503-44-132-50R2	193	162	31	137	28	50	SPGX1504-C1	SCGX120408..	0.5	0.5
1.750	44.45	134	06628	SD503-44.45-134-50R2	195	164	31	139	28	50	SPGX1504-C1	SCGX120408..	0.5	0.5

Please check availability in current price and stock-list.

## Drilling depth 4 x D – Inch shank

ISO 9766 shank, -R7



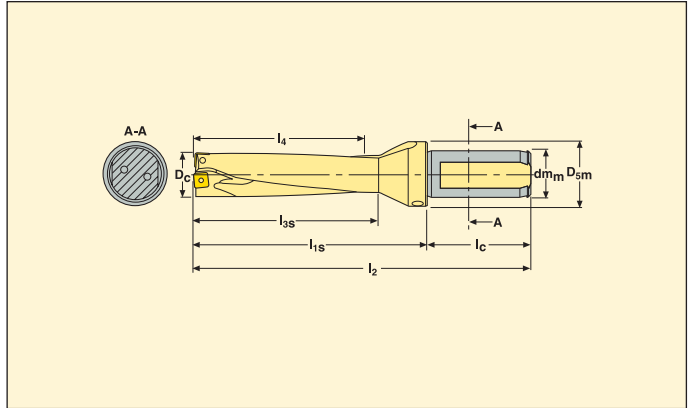
- For insert information see page(s) 247-249
- For cutting data see page(s) 254-255
- Internal coolant
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						Insert	
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	d <sub>m</sub>	D <sub>sm</sub>	Center insert	Peripheral insert
0.594	2.38	05539	SD504-0594-238-1000R7	5.807	3.557	2.250	2.537	1.00	1.394	SPGX0502-C1	SCGX050204..
0.625	2.50	05540	SD504-0625-250-1000R7	5.931	3.681	2.250	2.697	1.00	1.394	SPGX0502-C1	SCGX050204..
0.656	2.62	05541	SD504-0656-262-1000R7	6.055	3.805	2.250	2.821	1.00	1.394	SPGX0502-C1	SCGX050204..
0.687	2.75	52958	SD504-0687-275-1000R7-SP06	6.179	3.929	2.250	2.945	1.00	1.394	SPGX0602-C1	SCGX050204..
0.709	2.84	05544	SD504-0709-284-1000R7	6.267	4.017	2.250	3.033	1.00	1.394	SPGX0602-C1	SCGX050204..
0.750	3.00	36779	SD504-0750-300-1000R7-SC05	6.431	4.181	2.250	3.197	1.00	1.394	SPGX0602-C1	SCGX050204..
0.766	3.06	05565	SD504-0766-306-1000R7	6.495	4.245	2.250	3.261	1.00	1.394	SPGX0602-C1	SCGX060204..
0.787	3.15	05566	SD504-0787-315-1000R7	6.579	4.329	2.250	3.345	1.00	1.394	SPGX0602-C1	SCGX060204..
0.813	3.25	05568	SD504-0812-325-1000R7	6.679	4.429	2.250	3.445	1.00	1.394	SPGX0602-C1	SCGX060204..
0.827	3.31	05569	SD504-0827-331-1000R7	6.739	4.489	2.250	3.505	1.00	1.394	SPGX0602-C1	SCGX060204..
0.875	3.50	05572	SD504-0875-350-1000R7	6.931	4.681	2.250	3.697	1.00	1.394	SPGX0703-C1	SCGX060204..
0.906	3.62	05574	SD504-0906-362-1000R7	7.055	4.805	2.250	3.821	1.00	1.394	SPGX0703-C1	SCGX070308..
0.922	3.69	05575	SD504-0922-369-1000R7	7.119	4.869	2.250	3.885	1.00	1.394	SPGX0703-C1	SCGX070308..
0.937	3.75	05576	SD504-0937-375-1000R7	7.179	4.929	2.250	3.945	1.00	1.394	SPGX0703-C1	SCGX070308..
0.984	3.94	05577	SD504-0984-394-1250R7	7.492	5.118	2.375	4.133	1.25	1.643	SPGX0703-C1	SCGX070308..
1.000	4.00	05578	SD504-1000-400-1250R7	7.556	5.181	2.375	4.197	1.25	1.643	SPGX0703-C1	SCGX070308..
1.032	4.13	36786	SD504-1032-413-1250R7-SP09	7.684	5.309	2.375	4.325	1.25	1.643	SPGX0903-C1	SCGX060204..
1.062	4.25	05581	SD504-1062-425-1250R7	7.804	5.429	2.375	4.445	1.25	1.643	SPGX0903-C1	SCGX070308..
1.109	4.43	36792	SD504-1109-443-1250R7-SC07	7.992	5.617	2.375	4.633	1.25	1.643	SPGX0903-C1	SCGX070308..
1.125	4.50	05583	SD504-1125-450-1250R7	8.056	5.681	2.375	4.697	1.25	1.643	SPGX0903-C1	SCGX09T308..
1.172	4.69	05585	SD504-1172-469-1250R7	8.244	5.869	2.375	4.885	1.25	1.643	SPGX0903-C1	SCGX09T308..
1.187	4.75	05586	SD504-1187-475-1250R7	8.304	5.929	2.375	4.945	1.25	1.643	SPGX0903-C1	SCGX09T308..
1.250	5.00	36799	SD504-1250-500-1500R7-SP11	8.806	6.181	2.625	5.197	1.50	1.894	SPGX11T3-C1	SCGX09T308..
1.312	5.25	05588	SD504-1312-525-1500R7	9.054	6.429	2.625	5.051	1.50	1.894	SPGX11T3-C1	SCGX09T308..
1.344	5.38	05595	SD504-1344-538-1500R7	9.182	6.557	2.625	5.573	1.50	1.894	SPGX11T3-C1	SCGX09T308..
1.375	5.50	05596	SD504-1375-550-1500R7	9.306	6.681	2.625	5.697	1.50	1.894	SPGX11T3-C1	SCGX120408..
1.437	5.75	05600	SD504-1437-575-1500R7	9.554	6.929	2.625	5.945	1.50	1.894	SPGX11T3-C1	SCGX120408..
1.500	6.00	36806	SD504-1500-600-1500R7-SP12	9.806	7.181	2.625	6.197	1.50	1.894	SPGX12T3-C1	SCGX120408..
1.562	6.25	05611	SD504-1562-625-1500R7	10.054	7.429	2.625	6.445	1.50	1.894	SPGX12T3-C1	SCGX120408..
1.625	6.50	05612	SD504-1625-650-1500R7	10.306	7.681	2.625	6.697	1.50	1.894	SPGX12T3-C1	SCGX120408..
1.688	6.75	05613	SD504-1687-675-1500R7	10.554	7.929	2.625	6.945	1.50	1.894	SPGX12T3-C1	SCGX120408..
1.750	7.00	05614	SD504-1750-700-1500R7	10.806	8.181	2.625	7.197	1.50	1.894	SPGX1504-C1	SCGX120408..
1.812	7.25	05615	SD504-1812-725-1500R7	11.054	8.429	2.625	7.445	1.50	2.323	SPGX1504-C1	SCGX150512..
1.937	7.75	05530	SD504-1937-775-1500R7	11.554	8.929	2.625	7.945	1.50	2.323	SPGX1504-C1	SCGX150512..
2.000	8.00	05531	SD504-2000-800-1500R7	11.806	9.181	2.625	8.197	1.50	2.323	SPGX1504-C1	SCGX150512..
2.062	8.25	05532	SD504-2062-825-1500R7	12.054	9.433	2.625	8.449	1.50	2.323	SPGX1904-C1	SCGX150512..
2.125	8.50	05534	SD504-2125-850-1500R7	12.306	9.681	2.625	8.697	1.50	2.323	SPGX1904-C1	SCGX150512..
2.250	9.00	05536	SD504-2250-900-1500R7	12.806	10.181	2.625	9.197	1.50	2.323	SPGX1904-C1	SCGX150512..
2.375	9.50	05537	SD504-2375-950-1500R7	13.306	10.681	2.625	9.697	1.50	2.323	SPGX1904-C1	SCGX150512..

Please check availability in current price and stock-list.

Drilling depth  $4 \times D_c$  – Inch shank

ISO 9766 shank, -R7-C



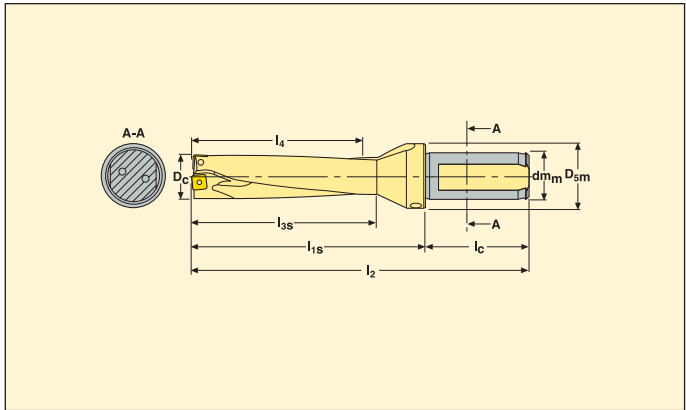
- Straight shank (four flats) side and end coolant ports
- First choice stationary applications
- For insert information see page(s) 247-249
- For cutting and data see page(s) 254-255
- Spare parts and accessories see page(s) 232

Drill dia. $D_c$ (inch)	Max drilling depth $I_4$ (inch)	EDP No.	Part No.	Dimensions in inch						Insert	
				$l_2$	$l_{1s}$	$l_c$	$l_{3s}$	$d_m$	$D_{5m}$	Center insert	Peripheral insert
0.625	2.50	22274	SD504-0625-250-1000R7-C	6.628	3.878	2.750	2.697	1.00	1.394	SPGX0502-C1	SCGX050204..
0.687	2.75	52982	SD504-0687-275-1000R7-C-SP06	6.876	4.126	2.750	2.945	1.00	1.394	SPGX0602-C1	SCGX050204..
0.750	3.00	36778	SD504-0750-300-1000R7-C-SC05	7.128	4.378	2.750	3.197	1.00	1.394	SPGX0602-C1	SCGX050204..
0.812	3.25	22454	SD504-0812-325-1000R7-C	7.376	4.626	2.750	3.445	1.00	1.394	SPGX0602-C1	SCGX060204..
0.875	3.50	22456	SD504-0875-350-1000R7-C	7.628	4.878	2.750	3.697	1.00	1.394	SPGX0703-C1	SCGX060204..
0.937	3.75	22459	SD504-0937-375-1000R7-C	7.876	5.126	2.750	3.945	1.00	1.394	SPGX0703-C1	SCGX070308..
1.000	4.00	22462	SD504-1000-400-1250R7-C	8.128	5.378	2.750	4.197	1.25	1.394	SPGX0703-C1	SCGX070308..
1.062	4.25	22464	SD504-1062-425-1250R7-C	8.376	5.626	2.750	4.445	1.25	1.643	SPGX0903-C1	SCGX070308..
1.125	4.50	22466	SD504-1125-450-1250R7-C	8.628	5.878	2.750	4.697	1.25	1.643	SPGX0903-C1	SCGX09T308..
1.187	4.75	22468	SD504-1187-475-1250R7-C	8.876	6.126	2.750	4.945	1.25	1.643	SPGX0903-C1	SCGX09T308..
1.250	5.00	36798	SD504-1250-500-1500R7-C-SP11	9.128	6.378	2.750	5.197	1.50	1.894	SPGX11T3-C1	SCGX09T308..
1.312	5.25	22470	SD504-1312-525-1500R7-C	9.376	6.620	2.750	5.445	1.50	1.894	SPGX11T3-C1	SCGX09T308..
1.375	5.50	22472	SD504-1375-550-1500R7-C	9.628	6.878	2.750	5.697	1.50	1.894	SPGX11T3-C1	SCGX120408..
1.500	6.00	36805	SD504-1500-600-1500R7-C-SP12	9.931	7.181	2.750	6.197	1.50	1.894	SPGX12T3-C1	SCGX120408..
1.750	7.00	22480	SD504-1750-700-1500R7-C	11.128	8.378	2.750	7.197	1.50	1.894	SPGX1504-C1	SCGX120408..
2.000	8.00	22484	SD504-2000-800-1500R7-C	12.128	9.378	2.750	8.197	1.50	1.894	SPGX1504-C1	SCGX150512..
2.125	8.50	22486	SD504-2125-850-1500R7-C	12.628	9.878	2.750	8.697	1.50	1.894	SPGX1904-C1	SCGX150512..
2.250	9.00	22487	SD504-2250-900-1500R7-C	12.931	10.181	2.750	9.197	1.50	1.894	SPGX1904-C1	SCGX150512..
2.375	9.50	22488	SD504-2375-950-1500R7-C	13.628	10.878	2.750	9.697	1.50	1.894	SPGX1904-C1	SCGX150512..

Please check availability in current price and stock-list.

## Drilling depth 4 x D – Metric shank

ISO 9766 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 254-255
- Internal coolant
- Spare parts and accessories see page(s) 232

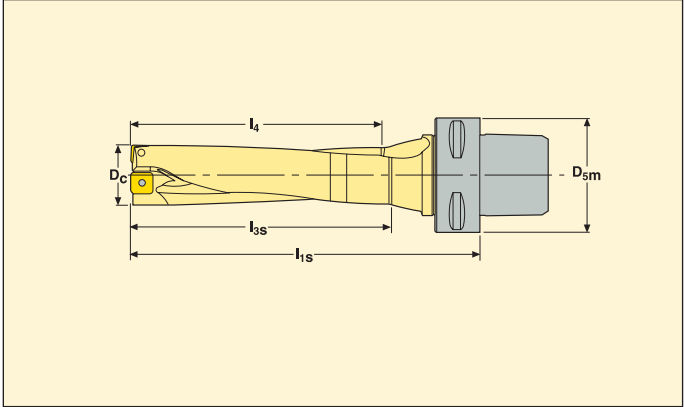
Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						Insert	
					l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>sm</sub>	Center insert	Peripheral insert
0.669	17	68	05836	SD504-17-68-25R7	154	98	56	73	25	35	SPGX0502-C1	SCGX050204..
0.689	17.5	70	05837	SD504-17.5-70-25R7	156	100	56	75	25	35	SPGX0602-C1	SCGX050204..
0.709	18	72	05838	SD504-18-72-25R7	158	102	56	77	25	35	SPGX0602-C1	SCGX050204..
0.728	18.5	74	05839	SD504-18.5-74-25R7	160	104	56	79	25	35	SPGX0602-C1	SCGX050204..
0.748	19	76	36667	SD504-19-76-25R7-SC05	162	106	56	81	25	35	SPGX0602-C1	SCGX050204..
0.787	20	80	05170	SD504-20-80-25R7	166	110	56	85	25	35	SPGX0602-C1	SCGX060204..
0.827	21	84	05171	SD504-21-84-25R7	170	114	56	89	25	35	SPGX0602-C1	SCGX060204..
0.866	22	88	05172	SD504-22-88-25R7	174	118	56	93	25	35	SPGX0703-C1	SCGX060204..
0.906	23	92	05173	SD504-23-92-25R7	178	122	56	97	25	35	SPGX0703-C1	SCGX070308..
0.945	24	96	05174	SD504-24-96-25R7	182	126	56	101	25	35	SPGX0703-C1	SCGX070308..
0.984	25	100	05175	SD504-25-100-32R7	190	130	60	105	32	42	SPGX0703-C1	SCGX070308..
1.024	26	104	36676	SD504-26-104-32R7-SP09	194	134	60	109	32	42	SPGX0903-C1	SCGX070308..
1.063	27	108	05177	SD504-27-108-32R7	198	138	60	113	32	42	SPGX0903-C1	SCGX070308..
1.102	28	112	36677	SD504-28-112-32R7-SC07	202	142	30	117	32	42	SPGX0903-C1	SCGX070308..
1.142	29	116	05179	SD504-29-116-32R7	206	146	60	121	32	42	SPGX0903-C1	SCGX09T308..
1.181	30	120	05180	SD504-30-120-32R7	210	150	60	125	32	42	SPGX0903-C1	SCGX09T308..
1.220	31	124	05181	SD504-31-124-32R7	214	154	60	129	32	42	SPGX0903-C1	SCGX09T308..
1.260	32	128	36678	SD504-32-128-40R7-SP11	226	158	68	133	40	50	SPGX11T3-C1	SCGX09T308..
1.299	33	132	05186	SD504-33-132-40R7	230	162	68	137	40	50	SPGX11T3-C1	SCGX09T308..
1.339	34	136	05187	SD504-34-136-40R7	234	166	68	141	40	50	SPGX11T3-C1	SCGX09T308..
1.378	35	140	05188	SD504-35-140-40R7	238	170	68	145	40	50	SPGX11T3-C1	SCGX120408..
1.417	36	144	05189	SD504-36-144-40R7	242	174	68	149	40	50	SPGX11T3-C1	SCGX120408..
1.457	37	148	05190	SD504-37-148-40R7	246	178	68	153	40	50	SPGX11T3-C1	SCGX120408..
1.496	38	152	36680	SD504-38-152-40R7-SP12	250	182	68	157	40	50	SPGX12T3-C1	SCGX120408..
1.535	39	156	05193	SD504-39-156-40R7	254	186	68	161	40	50	SPGX12T3-C1	SCGX120408..
1.575	40	160	05194	SD504-40-160-40R7	258	190	68	165	40	50	SPGX12T3-C1	SCGX120408..
1.614	41	164	45748	SD504-41-164-40R7	262	194	68	169	40	50	SPGX12T3-C1	SCGX120408..
1.654	42	168	45749	SD504-42-168-40R7	266	198	68	173	40	50	SPGX12T3-C1	SCGX120408..
1.693	43	172	45750	SD504-43-172-40R7	270	202	68	177	40	50	SPGX12T3-C1	SCGX120408..
1.732	44	176	50593	SD504-44-176-40R7	274	206	68	181	40	50	SPGX1504-C1	SCGX120408..
1.772	45	180	50594	SD504-45-180-40R7	278	210	68	185	40	59	SPGX1504-C1	SCGX150512..
1.811	46	184	50595	SD504-46-184-40R7	282	214	68	189	40	59	SPGX1504-C1	SCGX150512..
1.850	47	188	50596	SD504-47-188-40R7	286	218	68	193	40	59	SPGX1504-C1	SCGX150512..
1.890	48	192	50597	SD504-48-192-40R7	290	222	68	197	40	59	SPGX1504-C1	SCGX150512..
1.929	49	196	50609	SD504-49-196-40R7	294	226	68	201	40	59	SPGX1504-C1	SCGX150512..
1.969	50	200	50608	SD504-50-200-40R7	298	230	68	205	40	59	SPGX1504-C1	SCGX150512..
2.008	51	204	50607	SD504-51-204-40R7	302	234	68	209	40	59	SPGX1504-C1	SCGX150512..
2.047	52	208	50606	SD504-52-208-40R7	306	238	68	213	40	59	SPGX1904-C1	SCGX150512..
2.087	53	212	45813	SD504-53-212-40R7	310	242	68	217	40	59	SPGX1904-C1	SCGX150512..
2.126	54	216	50605	SD504-54-216-40R7	314	246	68	221	40	59	SPGX1904-C1	SCGX150512..
2.165	55	220	50604	SD504-55-220-40R7	318	250	68	225	40	59	SPGX1904-C1	SCGX150512..

Please check availability in current price and stock-list.



Drilling depth 4 x D

Seco-Capto™ C4 shank



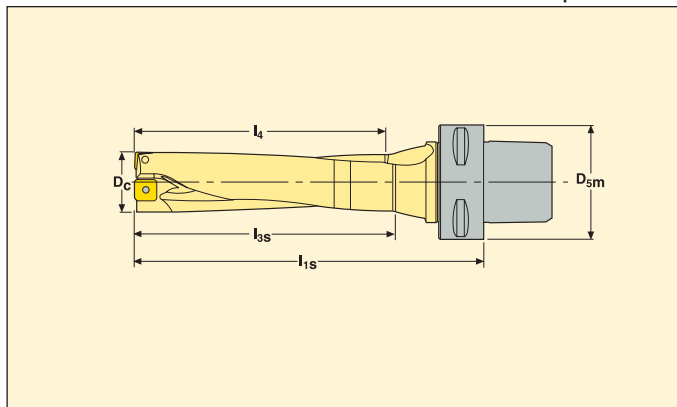
- For insert information see page(s) 247-249
- For cutting data see page(s) 254-255
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm			Insert	
					l <sub>1s</sub>	l <sub>3s</sub>	D <sub>5m</sub>	Center insert	Peripheral insert
0.669	17	68	26230	SD504-17-68-C4	106	73	40	SPGX0502-C1	SCGX050204..
0.689	17.5	70	26232	SD504-17.5-70-C4	109	75	40	SPGX0602-C1	SCGX050204..
0.709	18	72	26233	SD504-18-72-C4	111	77	40	SPGX0602-C1	SCGX050204..
0.728	18.5	74	26236	SD504-18.5-74-C4	113	79	40	SPGX0602-C1	SCGX050204..
0.748	19	76	26474	SD504-19-76-C4	115	81	40	SPGX0602-C1	SCGX050204..
0.787	20	80	26476	SD504-20-80-C4	121	85	40	SPGX0602-C1	SCGX060204..
0.812	20.62	83	30738	SD504-20.62-83-C4	124	88	40	SPGX0602-C1	SCGX060204..
0.827	21	84	26477	SD504-21-84-C4	125	89	40	SPGX0602-C1	SCGX060204..
0.866	22	88	26480	SD504-22-88-C4	129	93	40	SPGX0703-C1	SCGX060204..
0.875	22.23	89	30740	SD504-22.23-89-C4	130	94	40	SPGX0703-C1	SCGX060204..
0.906	23	92	26481	SD504-23-92-C4	134	97	40	SPGX0703-C1	SCGX070308..
0.945	24	96	26482	SD504-24-96-C4	139	101	40	SPGX0703-C1	SCGX070308..
0.984	25	100	26483	SD504-25-100-C4	144	105	40	SPGX0703-C1	SCGX070308..
1.000	25.4	102	30741	SD504-25.4-102-C4	146	107	40	SPGX0703-C1	SCGX070308..
1.024	26	104	26484	SD504-26-104-C4	148	109	40	SPGX0903-C1	SCGX070308..
1.063	27	108	26485	SD504-27-108-C4	152	113	40	SPGX0903-C1	SCGX070308..
1.102	28	112	26486	SD504-28-112-C4	157	117	40	SPGX0903-C1	SCGX070308..
1.126	28.59	115	30745	SD504-28.59-115-C4	160	120	40	SPGX0903-C1	SCGX09T308..
1.142	29	116	26487	SD504-29-116-C4	161	121	40	SPGX0903-C1	SCGX09T308..
1.181	30	120	26488	SD504-30-120-C4	165	125	40	SPGX0903-C1	SCGX09T308..

Please check availability in current price and stock-list.

## Drilling depth 4 x D

## Seco-Capto™ C5 shank



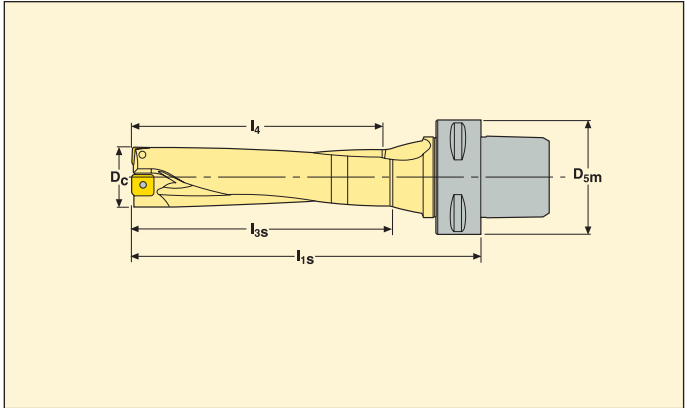
- For insert information see page(s) 247-249
- For cutting and data see page(s) 254-255
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm			Insert	
					l <sub>1s</sub>	l <sub>3s</sub>	D <sub>5m</sub>	Center insert	Peripheral insert
0.669	17	68	26538	SD504-17-68-C5	106	73	50	SPGX0502-C1	SCGX050204..
0.689	17.5	70	26539	SD504-17.5-70-C5	109	75	50	SPGX0602-C1	SCGX050204..
0.709	18	72	26540	SD504-18-72-C5	111	77	50	SPGX0602-C1	SCGX050204..
0.728	18.5	74	26541	SD504-18.5-74-C5	113	79	50	SPGX0602-C1	SCGX050204..
0.748	19	76	26542	SD504-19-76-C5	115	81	50	SPGX0602-C1	SCGX050204..
0.787	20	80	26543	SD504-20-80-C5	121	85	50	SPGX0602-C1	SCGX060204..
0.812	20.62	83	30726	SD504-20.62-83-C5	124	88	50	SPGX0602-C1	SCGX060204..
0.827	21	84	26544	SD504-21-84-C5	125	89	50	SPGX0602-C1	SCGX060204..
0.866	22	88	26548	SD504-22-88-C5	129	93	50	SPGX0703-C1	SCGX060204..
0.875	22.23	89	30727	SD504-22.23-89-C5	130	94	50	SPGX0703-C1	SCGX060204..
0.906	23	92	26549	SD504-23-92-C5	134	97	50	SPGX0703-C1	SCGX070308..
0.945	24	96	26550	SD504-24-96-C5	139	101	50	SPGX0703-C1	SCGX070308..
0.984	25	100	26551	SD504-25-100-C5	144	105	50	SPGX0703-C1	SCGX070308..
1.000	25.4	102	30728	SD504-25.4-102-C5	146	107	50	SPGX0703-C1	SCGX070308..
1.024	26	104	26552	SD504-26-104-C5	148	109	50	SPGX0903-C1	SCGX070308..
1.063	27	108	26553	SD504-27-108-C5	152	113	50	SPGX0903-C1	SCGX070308..
1.102	28	112	26554	SD504-28-112-C5	157	117	50	SPGX0903-C1	SCGX070308..
1.126	28.59	115	30729	SD504-28.59-115-C5	160	120	50	SPGX0903-C1	SCGX09T308..
1.142	29	116	26556	SD504-29-116-C5	161	121	50	SPGX0903-C1	SCGX09T308..
1.181	30	120	26557	SD504-30-120-C5	165	125	50	SPGX0903-C1	SCGX09T308..
1.220	31	124	26558	SD504-31-124-C5	169	129	50	SPGX0903-C1	SCGX09T308..
1.250	31.75	127	30730	SD504-31.75-127-C5	173	132	50	SPGX11T3-C1	SCGX09T308..
1.260	32	128	26559	SD504-32-128-C5	174	133	50	SPGX11T3-C1	SCGX09T308..
1.299	33	132	26560	SD504-33-132-C5	178	137	50	SPGX11T3-C1	SCGX09T308..
1.339	34	136	26561	SD504-34-136-C5	182	141	50	SPGX11T3-C1	SCGX09T308..
1.378	35	140	26562	SD504-35-140-C5	186	145	50	SPGX11T3-C1	SCGX120408..
1.417	36	144	26563	SD504-36-144-C5	190	149	50	SPGX11T3-C1	SCGX120408..
1.457	37	148	26564	SD504-37-148-C5	194	153	50	SPGX11T3-C1	SCGX120408..
1.496	38	152	26565	SD504-38-152-C5	198	157	50	SPGX12T3-C1	SCGX120408..
1.535	39	156	26566	SD504-39-156-C5	202	161	50	SPGX12T3-C1	SCGX120408..
1.575	40	160	26567	SD504-40-160-C5	206	165	50	SPGX12T3-C1	SCGX120408..

Please check availability in current price and stock-list.

Drilling depth 4 x D

Seco-Capto™ C6 shank



- For insert information see page(s) 247-249
- For cutting and data see page(s) 254-255
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth I <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm			Insert	
					I <sub>1s</sub>	I <sub>3s</sub>	D <sub>5m</sub>	Center insert	Peripheral insert
0.669	17	68	26654	<b>SD504-17-68-C6</b>	108	73	63	SPGX0502-C1	SCGX050204..
0.689	17.5	70	26655	<b>SD504-17.5-70-C6</b>	111	75	63	SPGX0602-C1	SCGX050204..
0.709	18	72	26656	<b>SD504-18-72-C6</b>	113	77	63	SPGX0602-C1	SCGX050204..
0.728	18.5	74	26657	<b>SD504-18.5-74-C6</b>	115	79	63	SPGX0602-C1	SCGX050204..
0.748	19	76	26658	<b>SD504-19-76-C6</b>	117	81	63	SPGX0602-C1	SCGX050204..
0.787	20	80	26659	<b>SD504-20-80-C6</b>	123	85	63	SPGX0602-C1	SCGX060204..
0.812	20.62	83	30754	<b>SD504-20.62-83-C6</b>	126	88	63	SPGX0602-C1	SCGX060204..
0.827	21	84	26660	<b>SD504-21-84-C6</b>	127	89	63	SPGX0602-C1	SCGX060204..
0.866	22	88	26661	<b>SD504-22-88-C6</b>	131	93	63	SPGX0703-C1	SCGX060204..
0.875	22.23	89	30755	<b>SD504-22.23-89-C6</b>	132	94	63	SPGX0703-C1	SCGX060204..
0.906	23	92	26662	<b>SD504-23-92-C6</b>	136	97	63	SPGX0703-C1	SCGX070308..
0.945	24	96	26663	<b>SD504-24-96-C6</b>	141	101	63	SPGX0703-C1	SCGX070308..
0.984	25	100	26664	<b>SD504-25-100-C6</b>	146	105	63	SPGX0703-C1	SCGX070308..
1.000	25.4	102	30756	<b>SD504-25.4-102-C6</b>	148	107	63	SPGX0703-C1	SCGX070308..
1.024	26	104	26665	<b>SD504-26-104-C6</b>	150	109	63	SPGX0903-C1	SCGX070308..
1.063	27	108	26666	<b>SD504-27-108-C6</b>	154	113	63	SPGX0903-C1	SCGX070308..
1.102	28	112	26668	<b>SD504-28-112-C6</b>	159	117	63	SPGX0903-C1	SCGX070308..
1.126	28.59	115	30757	<b>SD504-28.59-115-C6</b>	162	120	63	SPGX0903-C1	SCGX09T308..
1.142	29	116	26669	<b>SD504-29-116-C6</b>	163	121	63	SPGX0903-C1	SCGX09T308..
1.181	30	120	26673	<b>SD504-30-120-C6</b>	167	125	63	SPGX0903-C1	SCGX09T308..
1.220	31	124	26674	<b>SD504-31-124-C6</b>	171	129	63	SPGX0903-C1	SCGX09T308..
1.250	31.75	127	30758	<b>SD504-31.75-127-C6</b>	175	132	63	SPGX11T3-C1	SCGX09T308..
1.260	32	128	26675	<b>SD504-32-128-C6</b>	176	133	63	SPGX11T3-C1	SCGX09T308..
1.299	33	132	26676	<b>SD504-33-132-C6</b>	180	137	63	SPGX11T3-C1	SCGX09T308..
1.339	34	136	26677	<b>SD504-34-136-C6</b>	184	141	63	SPGX11T3-C1	SCGX09T308..
1.378	35	140	26678	<b>SD504-35-140-C6</b>	188	145	63	SPGX11T3-C1	SCGX120408..
1.417	36	144	26679	<b>SD504-36-144-C6</b>	192	149	63	SPGX11T3-C1	SCGX120408..
1.457	37	148	26680	<b>SD504-37-148-C6</b>	196	153	63	SPGX11T3-C1	SCGX120408..
1.496	38	152	26681	<b>SD504-38-152-C6</b>	200	157	63	SPGX12T3-C1	SCGX120408..
1.535	39	156	26682	<b>SD504-39-156-C6</b>	204	161	63	SPGX12T3-C1	SCGX120408..
1.575	40	160	26683	<b>SD504-40-160-C6</b>	208	165	63	SPGX12T3-C1	SCGX120408..

Please check availability in current price and stock-list.

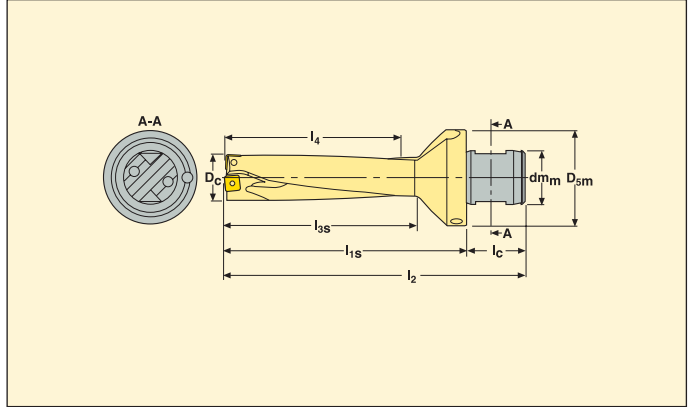


Drilling depth 4 x D

ABS 50 compatible shank, -R2



- For insert information see page(s) 247-249
- For cutting data see page(s) 254-255
- Internal coolant
- Spare parts and accessories see page(s) 232



Drill dia. $D_c$ (inch)	Drill dia. $D_c$ (mm)	Max Drilling depth $l_4$ (mm)	EDP No.	Part No.	Dimensions in mm			Insert	
					$l_{1s}$	$l_{3s}$	$D_{sm}$	Center insert	Peripheral insert
0.669	17	68	05840	<b>SD504-17-68-50R2</b>	98	73	50	SPGX0502-C1	SCGX050204..
0.689	17.5	70	05841	<b>SD504-17.5-70-50R2</b>	100	75	50	SPGX0602-C1	SCGX050204..
0.709	18	72	05842	<b>SD504-18-72-50R2</b>	102	77	50	SPGX0602-C1	SCGX050204..
0.728	18.5	74	05843	<b>SD504-18.5-74-50R2</b>	104	79	50	SPGX0602-C1	SCGX050204..
0.748	19	76	36700	<b>SD504-19-76-50R2-SC05</b>	106	81	50	SPGX0602-C1	SCGX050204..
0.787	20	80	05242	<b>SD504-20-80-50R2</b>	110	85	50	SPGX0602-C1	SCGX060204..
0.812	20.62	83	06629	<b>SD504-20.62-83-50R2</b>	113	88	50	SPGX0602-C1	SCGX060204..
0.827	21	84	05241	<b>SD504-21-84-50R2</b>	114	89	50	SPGX0602-C1	SCGX060204..
0.866	22	88	05240	<b>SD504-22-88-50R2</b>	118	93	50	SPGX0703-C1	SCGX060204..
0.875	22.23	89	06630	<b>SD504-22.23-89-50R2</b>	119	94	50	SPGX0703-C1	SCGX070308..
0.906	23	92	05239	<b>SD504-23-92-50R2</b>	122	97	50	SPGX0703-C1	SCGX070308..
0.945	24	96	05238	<b>SD504-24-96-50R2</b>	126	101	50	SPGX0703-C1	SCGX070308..
0.984	25	100	05237	<b>SD504-25-100-50R2</b>	130	105	50	SPGX0703-C1	SCGX070308..
1.000	25.4	102	06631	<b>SD504-25.4-102-50R2</b>	132	107	50	SPGX0703-C1	SCGX070308..
1.024	26	104	36701	<b>SD504-26-104-50R2-SP09</b>	134	109	50	SPGX0903-C1	SCGX070308..
1.063	27	108	05235	<b>SD504-27-108-50R2</b>	138	113	50	SPGX0903-C1	SCGX070308..
1.102	28	112	37602	<b>SD504-28-112-50R2-SC07</b>	142	117	50	SPGX0903-C1	SCGX070308..
1.126	28.59	115	06632	<b>SD504-28.59-115-50R2</b>	145	120	50	SPGX0903-C1	SCGX09T308..
1.142	29	116	05231	<b>SD504-29-116-50R2</b>	146	121	50	SPGX0903-C1	SCGX09T308..
1.181	30	120	05230	<b>SD504-30-120-50R2</b>	150	125	50	SPGX0903-C1	SCGX09T308..
1.220	31	124	05229	<b>SD504-31-124-50R2</b>	154	129	50	SPGX0903-C1	SCGX09T308..
1.260	32	128	36703	<b>SD504-32-128-50R2-SP11</b>	158	133	50	SPGX11T3-C1	SCGX09T308..
1.299	33	132	05227	<b>SD504-33-132-50R2</b>	162	137	50	SPGX11T3-C1	SCGX09T308..
1.339	34	136	05220	<b>SD504-34-136-50R2</b>	166	141	50	SPGX11T3-C1	SCGX09T308..
1.378	35	140	05226	<b>SD504-35-140-50R2</b>	170	145	50	SPGX11T3-C1	SCGX120408..
1.417	36	144	05225	<b>SD504-36-144-50R2</b>	174	149	50	SPGX11T3-C1	SCGX120408..
1.457	37	148	05224	<b>SD504-37-148-50R2</b>	178	153	50	SPGX11T3-C1	SCGX120408..
1.496	38	152	36705	<b>SD504-38-152-50R2-SP12</b>	182	157	50	SPGX12T3-C1	SCGX120408..
1.535	39	156	05222	<b>SD504-39-156-50R2</b>	186	161	50	SPGX12T3-C1	SCGX120408..
1.575	40	160	05221	<b>SD504-40-160-50R2</b>	190	165	50	SPGX12T3-C1	SCGX120408..

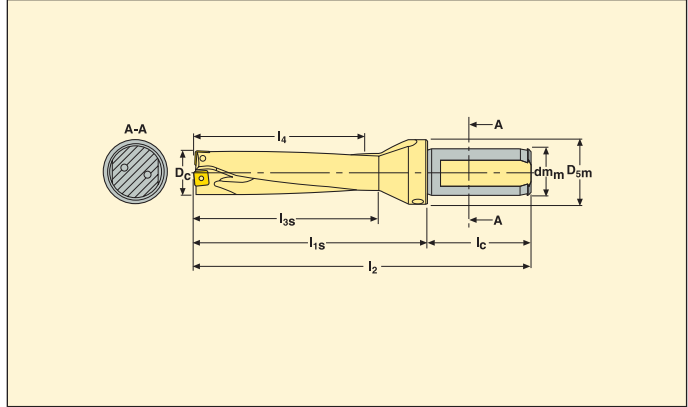
Please check availability in current price and stock-list.

Drilling depth 5 x D - Inch shank

ISO 9766 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 256-257
- Internal coolant
- Spare parts and accessories see page(s) 232

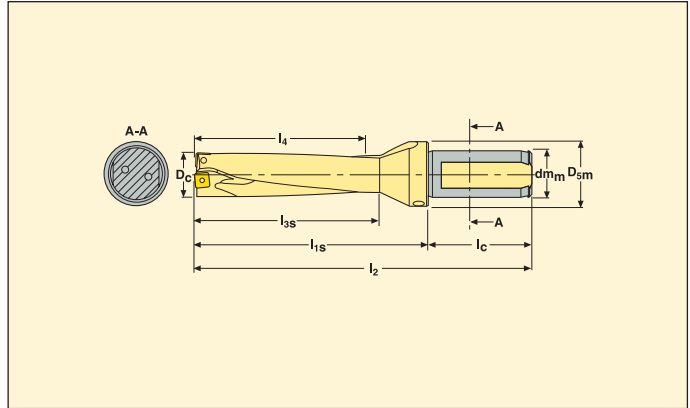


Drill dia. D <sub>c</sub> (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						Insert	
				l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm	D <sub>sm</sub>	Center insert	Peripheral insert
0.750	3.75	36780	SD505-0750-375-1000R7-SC05	7.181	4.931	2.250	3.947	1.00	1.394	SPGX0602-C1	SCGX050204..
0.813	4.06	05490	SD505-0812-406-1000R7	7.491	5.241	2.250	4.257	1.00	1.394	SPGX0602-C1	SCGX060204..
0.875	4.38	05494	SD505-0875-438-1000R7	7.806	5.556	2.250	4.572	1.00	1.394	SPGX0703-C1	SCGX060204..
0.937	4.69	05499	SD505-0937-469-1000R7	8.116	5.866	2.250	4.882	1.00	1.394	SPGX0703-C1	SCGX070308..
1.000	5.00	05501	SD505-1000-500-1250R7	8.556	6.181	2.375	5.197	1.25	1.643	SPGX0703-C1	SCGX070308..
1.062	5.31	05503	SD505-1062-531-1250R7	8.866	6.491	2.375	5.507	1.25	1.643	SPGX0903-C1	SCGX070308..
1.125	5.63	05523	SD505-1125-563-1250R7	9.181	6.806	2.375	5.822	1.25	1.643	SPGX0903-C1	SCGX09T308..
1.188	5.94	05524	SD505-1187-594-1250R7	9.491	7.116	2.375	6.132	1.25	1.643	SPGX0903-C1	SCGX09T308..
1.250	6.25	36800	SD505-1250-625-1500R7-SP11	10.181	7.431	2.375	6.447	1.50	1.894	SPGX11T3-C1	SCGX09T308..
1.375	6.87	52727	SD505-1375-687-1500R7	10.861	8.056	2.375	7.072	1.50	1.894	SPGX11T3-C1	SCGX120408..
1.500	7.50	52731	SD505-1500-750-1500R7	11.306	8.691	2.375	7.697	1.50	1.894	SPGX12T3-C1	SCGX120408..
1.625	8.12	52764	SD505-1625-812-1500R7	11.931	9.306	2.375	8.323	1.50	1.894	SPGX12T3-C1	SCGX120408..
1.750	8.75	52883	SD505-1750-875-1500R7	12.556	9.931	2.375	8.947	1.50	1.894	SPGX1504-C1	SCGX120408..
1.875	9.37	52929	SD505-1875-937-1500R7	13.181	10.556	2.375	9.572	1.50	1.894	SPGX1504-C1	SCGX150512..
1.937	9.68	52932	SD505-1937-968-1500R7	13.491	10.866	2.375	9.882	1.50	1.894	SPGX1504-C1	SCGX150512..
2.000	10.00	52934	SD505-2000-1000-1500R7	13.806	11.181	2.375	10.197	1.50	1.894	SPGX1504-C1	SCGX150512..

Please check availability in current price and stock-list.

**Drilling depth 5 x D – Metric shank**

ISO 9766 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 256-257
- Internal coolant
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Drill dia. D <sub>c</sub> (mm)	Max Drilling depth l <sub>4</sub> (mm)	EDP No.	Part No.	Dimensions in mm						Insert	
					l <sub>2</sub>	l <sub>1s</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert
0.748	19	95	36681	<b>SD505-19-95-25R7-SC05</b>	181	125	56	100	25	35	SPGX0602-C1	SCGX050204..
0.787	20	100	05258	<b>SD505-20-100-25R7</b>	186	130	56	105	25	35	SPGX0602-C1	SCGX060204..
0.827	21	105	05256	<b>SD505-21-105-25R7</b>	191	135	56	110	25	35	SPGX0602-C1	SCGX060204..
0.866	22	110	05255	<b>SD505-22-110-25R7</b>	196	140	56	115	25	35	SPGX0703-C1	SCGX060204..
0.906	23	115	05253	<b>SD505-23-115-25R7</b>	201	145	56	120	25	35	SPGX0703-C1	SCGX070308..
0.945	24	120	05251	<b>SD505-24-120-25R7</b>	206	150	56	125	25	35	SPGX0703-C1	SCGX070308..
0.984	25	125	05250	<b>SD505-25-125-32R7</b>	215	155	60	130	32	42	SPGX0703-C1	SCGX070308..
1.024	26	130	36684	<b>SD505-26-130-32R7-SP09</b>	220	160	60	135	32	42	SPGX0903-C1	SCGX070308..
1.063	27	135	05248	<b>SD505-27-135-32R7</b>	225	165	60	140	32	42	SPGX0903-C1	SCGX070308..
1.102	28	140	36686	<b>SD505-28-140-32R7-SC07</b>	230	170	60	145	32	42	SPGX0903-C1	SCGX070308..
1.142	29	145	05246	<b>SD505-29-145-32R7</b>	235	175	60	150	32	42	SPGX0903-C1	SCGX09T308..
1.181	30	150	05245	<b>SD505-30-150-32R7</b>	240	180	60	155	32	42	SPGX0903-C1	SCGX09T308..
1.220	31	155	05244	<b>SD505-31-155-32R7</b>	245	185	60	160	32	42	SPGX0903-C1	SCGX09T308..
1.260	32	160	44688	<b>SD505-32-160-40R7-SP11</b>	258	190	68	165	40	50	SPGX11T3-C1	SCGX09T308..
1.299	33	165	44687	<b>SD505-33-165-40R7</b>	263	195	68	170	40	50	SPGX11T3-C1	SCGX09T308..
1.339	34	170	45589	<b>SD505-34-170-40R7</b>	268	200	68	175	40	50	SPGX11T3-C1	SCGX09T308..
1.378	35	175	45590	<b>SD505-35-175-40R7</b>	273	205	68	180	40	50	SPGX11T3-C1	SCGX120408..
1.417	36	180	45591	<b>SD505-36-180-40R7</b>	278	210	68	185	40	50	SPGX11T3-C1	SCGX120408..
1.457	37	185	45592	<b>SD505-37-185-40R7</b>	283	215	68	190	40	50	SPGX11T3-C1	SCGX120408..
1.496	38	190	45931	<b>SD505-38-190-40R7-SP12</b>	288	220	68	195	40	50	SPGX12T3-C1	SCGX120408..
1.535	39	195	45594	<b>SD505-39-195-40R7</b>	293	225	68	200	40	50	SPGX12T3-C1	SCGX120408..
1.575	40	200	45595	<b>SD505-40-200-40R7</b>	298	230	68	205	40	50	SPGX12T3-C1	SCGX120408..
1.614	41	205	45745	<b>SD505-41-205-40R7</b>	303	235	68	210	40	50	SPGX12T3-C1	SCGX120408..
1.654	42	210	45746	<b>SD505-42-210-40R7</b>	308	240	68	215	40	50	SPGX12T3-C1	SCGX120408..
1.693	43	215	45747	<b>SD505-43-215-40R7</b>	313	245	68	220	40	50	SPGX12T3-C1	SCGX120408..
1.732	44	220	50599	<b>SD505-44-220-40R7</b>	318	250	68	225	40	50	SPGX1504-C1	SCGX120408..
1.772	45	225	50598	<b>SD505-45-225-40R7</b>	323	255	68	230	40	50	SPGX1504-C1	SCGX150512..

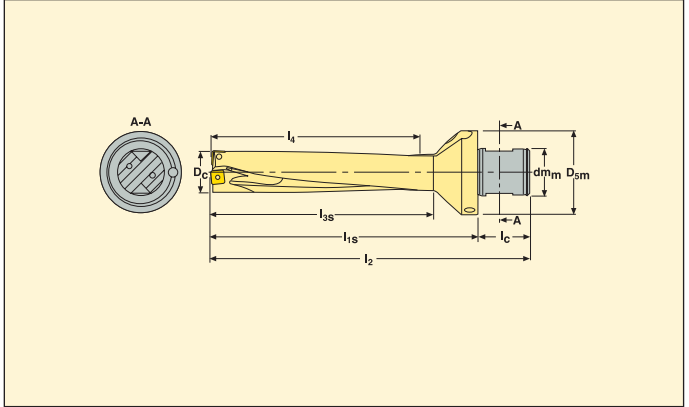
Please check availability in current price and stock-list.

Drilling depth 5 x D – Metric shank

ABS 50 compatible shank, -R2



- For insert information see page(s) 247-249
- For cutting data see page(s) 256-257
- Internal coolant
- Spare parts and accessories see page(s) 232

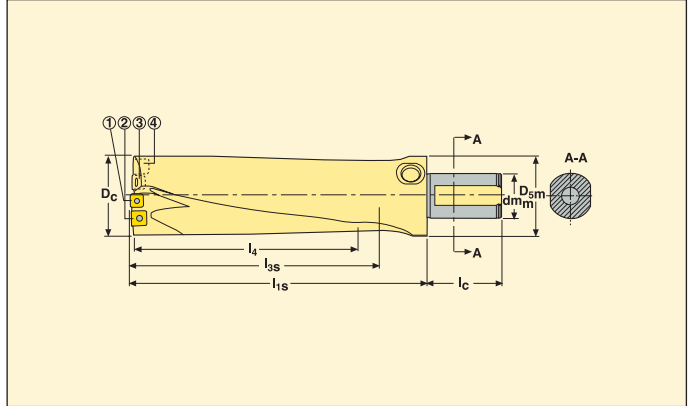


Drill dia. $D_c$ (inch)	Drill dia. $D_c$ (mm)	Max Drilling depth $l_4$ (mm)	EDP No.	Part No.	Dimensions in mm						Insert	
					$l_2$	$l_{1s}$	$l_c$	$l_{3s}$	$d_m$	$D_{5m}$	Center insert	Peripheral insert
0.748	19	95	36706	SD505-19-95-50R2-SC05	156	125	31	100	28	50	SPGX0602-C1	SCGX050204..
0.787	20	100	12361	SD505-20-100-50R2	161	130	31	105	28	50	SPGX0602-C1	SCGX060204..
0.827	21	105	12362	SD505-21-105-50R2	166	135	31	110	28	50	SPGX0602-C1	SCGX060204..
0.866	22	110	12363	SD505-22-110-50R2	171	140	31	115	28	50	SPGX0703-C1	SCGX060204..
0.906	23	115	12364	SD505-23-115-50R2	176	145	31	120	28	50	SPGX0703-C1	SCGX070308..
0.945	24	120	12365	SD505-24-120-50R2	181	150	31	125	28	50	SPGX0703-C1	SCGX070308..
0.984	25	125	12366	SD505-25-125-50R2	186	155	31	130	28	50	SPGX0703-C1	SCGX070308..
1.024	26	130	36709	SD505-26-130-50R2-SP09	191	160	31	135	28	50	SPGX0903-C1	SCGX070308..
1.063	27	135	12368	SD505-27-135-50R2	196	165	31	140	28	50	SPGX0903-C1	SCGX070308..
1.102	28	140	36712	SD505-28-140-50R2-SC07	201	170	31	145	28	50	SPGX0903-C1	SCGX070308..
1.142	29	145	12370	SD505-29-145-50R2	206	175	31	150	28	50	SPGX0903-C1	SCGX09T308..
1.181	30	150	12371	SD505-30-150-50R2	211	180	31	155	28	50	SPGX0903-C1	SCGX09T308..
1.220	31	155	37675	SD505-31-155-50R2	216	185	31	160	28	50	SPGX0903-C1	SCGX09T308..

Please check availability in current price and stock-list.

**Drilling depth 2.5 x D – Inch**

**ISO 9766 shank, -R7**



- For insert information see page(s) 247-249
- For cutting data see page(s) 258-259
- Internal 'through' coolant
- Spare parts and accessories see page(s) 232

Drill dia. D <sub>c</sub> (inch)	Max drilling depth I <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch					Insert	
				I <sub>1s</sub>	I <sub>c</sub>	I <sub>3s</sub>	d <sub>m</sub>	D <sub>5m</sub>	Center insert	Peripheral insert
2.250	5.63	<a href="#">36767</a>	SD542-2250-563-1500R7	7.00	4.5	5.80	1.5	3.11	SPGX 0903-C1	SCGX 09T308..
2.500	6.25	<a href="#">36769</a>	SD542-2500-625-1500R7	8.28	4.5	6.52	1.5	3.11	SPGX 0903-C1	SCGX 09T308..
2.750	6.88	<a href="#">36770</a>	SD542-2750-688-1500R7	8.90	4.5	7.19	1.5	3.11	SPGX 11T3-C1	SCGX 120408..
3.000	7.50	<a href="#">36771</a>	SD542-3000-750-2000R7	9.53	4.5	7.86	2.0	3.11	SPGX 11T3-C1	SCGX 120408..
3.250	8.13	<a href="#">36772</a>	SD542-3250-813-2500R7	10.15	4.5	8.46	2.5	3.50	SPGX 12T3-C1	SCGX 120408..
3.500	8.75	<a href="#">36773</a>	SD542-3500-875-2500R7	10.78	4.5	9.14	2.5	3.50	SPGX 1504-C1	SCGX 120408..

Please check availability in current price and stock-list.

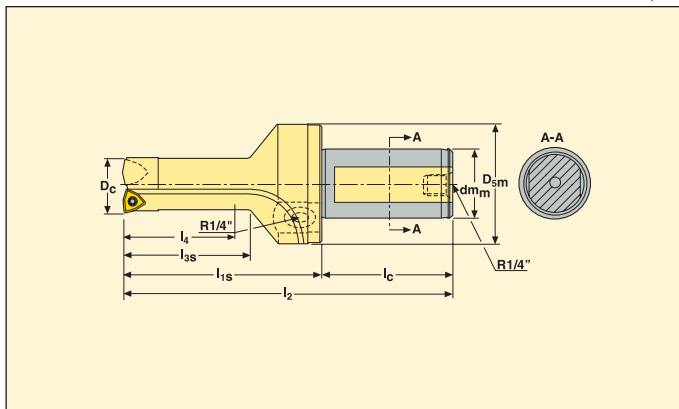


Drilling depth 2 x D – Inch

ISO 9766 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 260-261
- Internal 'through' coolant
- Spare parts and accessories see page(s) 232

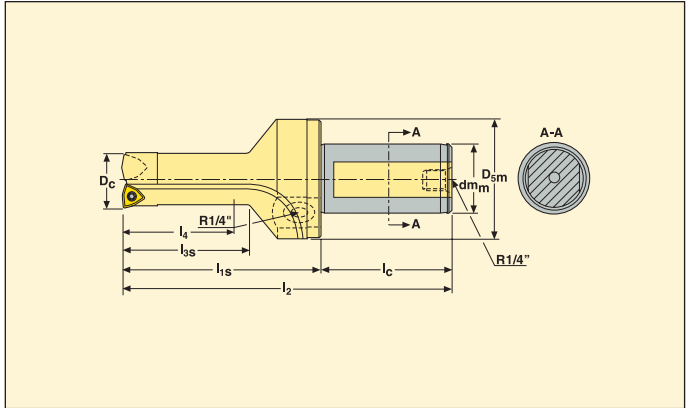


Drill dia. D <sub>c</sub> (inch)	Hole dia. min-max (inch)	Max drilling depth l <sub>4</sub> (inch)	EDP No.	Part No.	Dimensions in inch						Insert	
					l <sub>1s</sub>	l <sub>2</sub>	l <sub>c</sub>	l <sub>3s</sub>	dm <sub>m</sub>	D <sub>sm</sub>	Center insert	Peripheral insert
0.591	0.591-0.709	1.18	<a href="#">36807</a>	SD572-0591-118-1000R7	2.560	5.599	3.0	1.379	1.00	1.775	WCMX030208-86	WCMX 030208..
0.669	0.669-0.748	1.34	<a href="#">36810</a>	SD572-0669-134-1000R7	2.716	5.755	3.0	1.535	1.00	1.775	WCMX030208-86	WCMX 030208..
0.748	0.748-0.866	1.50	<a href="#">36811</a>	SD572-0748-150-1000R7	2.874	5.913	3.0	1.690	1.00	1.775	WCMX040208-86	WCMX 030208..
0.866	0.866-1.062	1.73	<a href="#">36812</a>	SD572-0866-173-1000R7	3.110	6.149	3.0	1.929	1.00	1.775	WCMX050308-86	WCMX 040208..
1.062	1.062-1.299	2.12	<a href="#">36813</a>	SD572-1062-212-1250R7	3.502	6.600	3.0	2.321	1.25	2.165	WCMX06T308-86	WCMX 050308..
1.299	1.299-1.614	2.60	<a href="#">36814</a>	SD572-1299-260-1500R7	3.976	6.917	3.0	2.795	1.50	2.303	WCMX080412-86	WCMX 06T308..
1.614	1.614-1.850	3.23	<a href="#">36815</a>	SD572-1614-322-1500R7	4.606	7.547	3.0	3.425	1.50	2.303	WCMX080412-86	WCMX 080412..
1.850	1.850-2.047	3.70	<a href="#">36816</a>	SD572-1850-370-1500R7	5.078	8.019	3.0	3.700	1.50	2.303	WCMX080412-86	WCMX 080412..

Please check availability in current price and stock-list.

## Drilling depth 2 x D – Metric

ISO 9766 shank, -R7



- For insert information see page(s) 247-249
- For cutting data see page(s) 260-261
- Internal coolant
- Spare parts and accessories see page(s) 232

Drill dia. $D_c$ (mm)	Hole dia min-max (mm)	Max Drilling depth $l_4$ (mm)	EDP No.	Part No.	Dimensions in mm						Insert	
					$l_{1s}$	$l_2$	$l_c$	$l_{3s}$	$d_m$	$D_{5m}$	Center insert	Peripheral insert
15	14.8-18	30	<a href="#">35701</a>	SD572-15-30-25R7	65	121	56	35	25	42	WCMX030208-86	WCMX030208..
16	15.8-18	32	<a href="#">35703</a>	SD572-16-32-25R7	67	123	56	37	25	42	WCMX030208-86	WCMX030208..
17	16.8-19	34	<a href="#">35704</a>	SD572-17-34-25R7	69	125	56	39	25	42	WCMX030208-86	WCMX030208..
19	18.8-22	38	<a href="#">35705</a>	SD572-19-38-25R7	73	129	56	43	25	42	WCMX040208-86	WCMX030208..
22	21.8-27	44	<a href="#">35706</a>	SD572-22-44-25R7	79	135	56	49	25	42	WCMX050308-86	WCMX040208..
27	26.8-33	54	<a href="#">35707</a>	SD572-27-54-32R7	89	149	60	59	32	50	WCMX06T308-86	WCMX050308..
33	32.8-41	66	<a href="#">35708</a>	SD572-33-66-40R7	101	169	68	71	40	59	WCMX080412-86	WCMX06T308..
41	40.8-47	82	<a href="#">35709</a>	SD572-41-82-40R7	117	185	68	87	40	59	WCMX080412-86	WCMX080412..
47	46.8-52	94	<a href="#">35710</a>	SD572-47-94-40R7	129	197	68	99	40	59	WCMX080412-86	WCMX080412..

Please check availability in current price and stock-list.

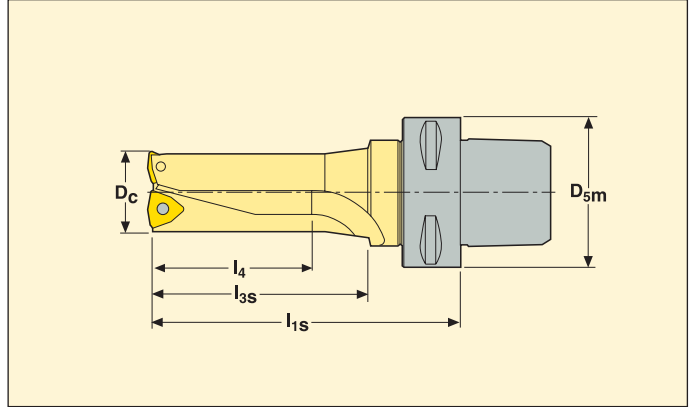


Drilling depth 2 x D

Seco-Capto™ C5 shank






- For insert information see page(s) 247-249
- For cutting and machining data see page(s) 260-261
- Internal coolant
- Spare parts and accessories see page(s) 232





Drill dia. $D_c$ (inch)	Drill dia. $D_c$ (mm)	Hole dia min-max (mm)	Max Drilling depth $l_4$ (mm)	EDP No.	Part No.	Dimensions in mm			Insert	
						$l_{1s}$	$l_{3s}$	$D_{5m}$	Center insert	Peripheral insert
0.591	15	14.8-18	30	<a href="#">35752</a>	SD572-15-30-C5	85	35	50	WCMX030208-86	WCMX030208..
0.630	16	15.8-18	32	<a href="#">35753</a>	SD572-16-32-C5	87	37	50	WCMX030208-86	WCMX030208..
0.669	17	16.8-19	34	<a href="#">35754</a>	SD572-17-34-C5	89	39	50	WCMX030208-86	WCMX030208..
0.748	19	18.8-22	38	<a href="#">35755</a>	SD572-19-38-C5	93	43	50	WCMX040208-86	WCMX030208..
0.866	22	21.8-27	44	<a href="#">35756</a>	SD572-22-44-C5	99	49	50	WCMX050308-86	WCMX040208..
1.063	27	26.8-33	54	<a href="#">35757</a>	SD572-27-54-C5	109	59	50	WCMX06T308-86	WCMX050308..
1.299	33	32.8-41	66	<a href="#">35758</a>	SD572-33-66-C5	121	71	50	WCMX080412-86	WCMX06T308..
1.614	41	40.8-47	82	<a href="#">35759</a>	SD572-41-82-C5	157	87	50	WCMX080412-86	WCMX080412..
1.850	47	46.8-52	94	<a href="#">35760</a>	SD572-47-94-C5	169	99	50	WCMX080412-86	WCMX080412..

Please check availability in current price and stock-list.





Spare parts – SD502, SD503, SD504 & SD505

For drill dia. (inch)	For drill dia. (mm)	Insert screw		Insert key	Blanking screw
		Center insert	Periph insert		
					
0.591-0.687	15.00-17.45	C02245-T07P	C02245-T07P	T07P-2	R1/4"
0.687-0.767	17.46-19.49	C02205-T07P	C02245-T07P	T07P-2	R1/4"
0.768-0.836	19.50-21.24	C02205-T07P	C02205-T07P	T07P-2	R1/4"
0.837-0.885	21.25-22.49	C02506-T08P	C02506-T08P	T08P-2	R1/4"
0.886-1.004	22.50-25.49	C02507-T08P	C03007-T08P	T08P-2	R1/4"
1.004-1.122	25.50-28.49	C03007-T09P	C03007-T08P	T09P-2	R1/4"
1.122-1.240	28.50-31.49	C03007-T09P	C03009-T08P	T09P-2	R1/4"
1.240-1.358	31.50-34.49	C03508-T15P	C03508-T15P	T15P-2D	R1/4"
1.358-1.702	34.50-43.24	C03508-T15P	C05012-T15P	T15P-2D	R1/4"
1.703-2.323	43.25-59.00	C04011-T15P	C05012-T15P	T15P-2D	***



Accessories\*

Torque key**	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
			
T00-07P09	T00-07P	0.9	8.0
T00-07P09	T00-07P	0.9	8.0
T00-07P09	T00-07P	0.9	8.0
T00-08P12	T00-08P	1.2	10.6
T00-08P12	T00-08P	1.2	10.6
T00-09P20	T00-09P	2.0	17.7
T00-09P20	T00-09P	2.0	17.7
T00-15P30	T00-15P	3.0	26.6
T00-15P30	T00-15P	3.0	26.6
T00-15P30	T00-15P	3.0	26.6





Spare Parts – SD542

For drill dia. (inch)	For drill dia. (mm)	Insert screw		Insert key	Blanking screw	Hose adapter
		Insert 1	Insert 2, 3, 4			
						
2.362-2.559	60.00-64.99	C03007-T07P	C03009-T09P	T09P-2	R3/8"	R3/8"-HA
2.559-2.716	65.00-68.99	C03508-T07P	C03508-T15P	T15P-2D	R3/8"	R3/8"-HA
2.717-3.425	69.00-86.99	C03508-T08P	C05012-T15P	T15P-2D	R3/8"	R3/8"-HA



Accessories\*

Torque key**	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
			
T00-09P20	T00-09P	3.0	26.6
T00-15P30	T00-15P	3.0	26.6
T00-15P30	T00-15P	3.0	26.6

Spare Parts – SD572

For drill dia. (inch)	For drill dia. (mm)	Insert screw		Insert key	Blanking screw	Hose adapter
		Center insert	Periph insert			
						
0.591-0.807	15.00-20.50	C02205-T07P	C02205-T07P	T07P-2	R1/4"	1310
0.807-0.965	20.51-24.50	C03007-T08P	C02506-T08P	T08P-2	R1/4"	1310
0.965-1.280	24.51-32.50	C03508-T15P	C03007-T08P	T15P-2D, T08P-2	R1/4"	1310
1.280-1.437	32.51-36.50	C03508-T15P	C03508-T15P	T15P-2D	R1/4"	1310
1.437-2.323	36.51-59.00	C04011-T15P	C04011-T15P	T15P-2D	R1/4"	1310

Accessories\*

Torque key**	Replacement blade	Torque value (Nm)	Torque value (in/lbs)
			
T00-07P09	T00-07P	0.9	8.0
T00-08P12	T00-08P	1.2	10.6
T00-08P12	T00-08P	1.2	10.6
T00-15P30	T00-15P	3.0	26.6
T00-15P30	T00-15P	3.0	26.6

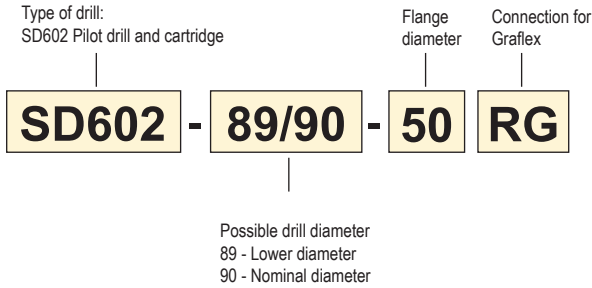
\* Accessories not included in delivery.

\*\* Including blade.

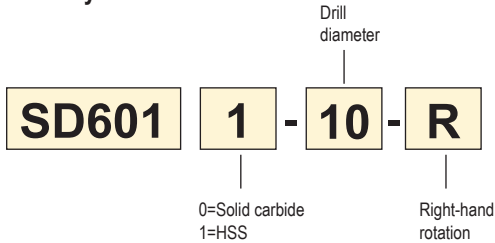
\*\*\* Diameter range: 1.625-1.750 = R1/4", R1/2", 1.812-2.375 = R3/8", R 1/2"



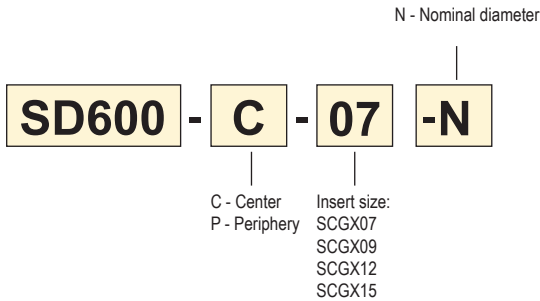
Code key – Drilling bodies



Code key – Pilot drill



Code key – Cassette

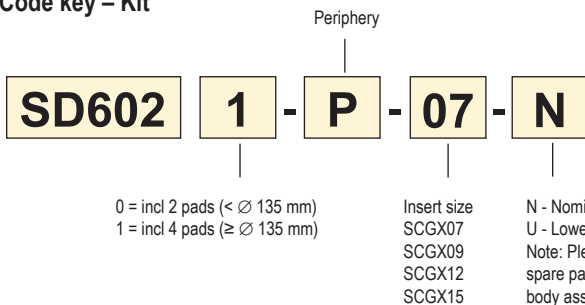


-N



-U

Code key – Kit

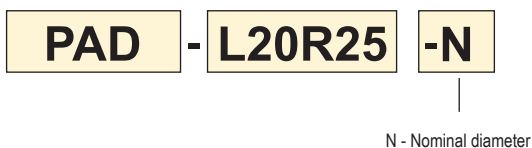


-N

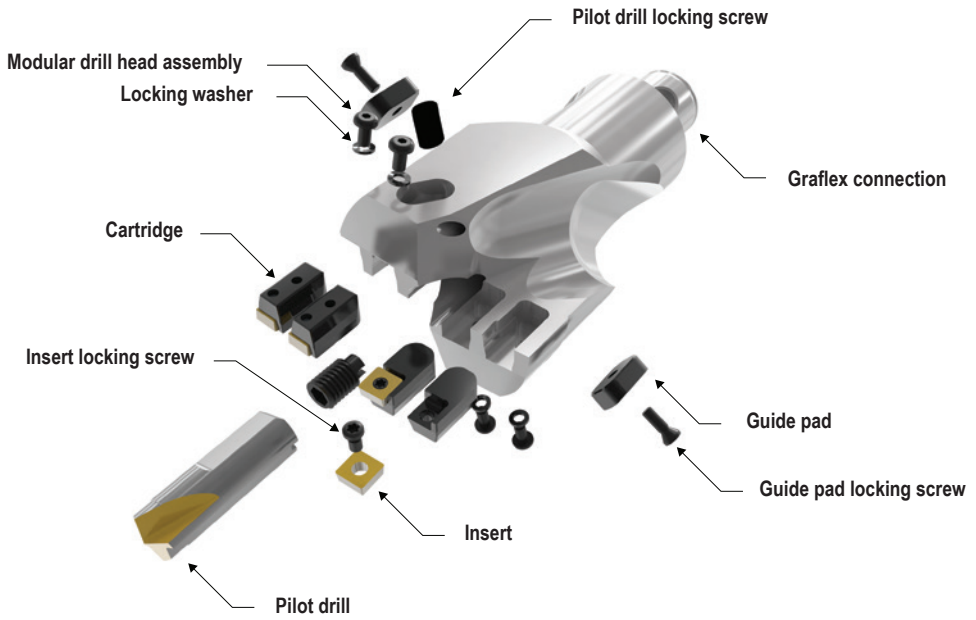


-U

Code key – Pad



Modular drill head assembly



SD602-59/60-40RG

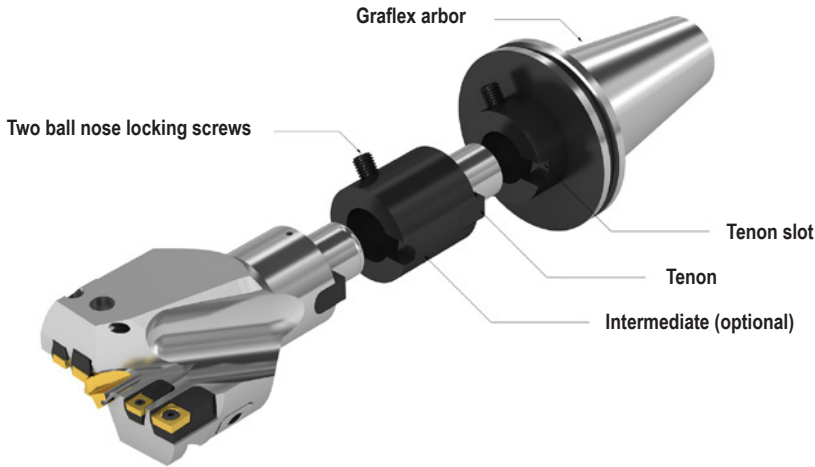


Example diameter 59;  
SD602-59-40RG



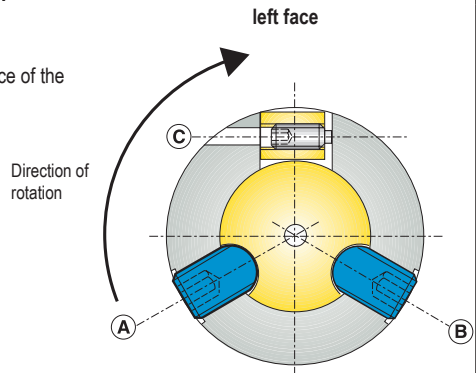
Example diameter 60;  
SD602-60-40RG

Mounting instruction	Mounting of cartridge and guide pad	
<ul style="list-style-type: none"> <li>• Tighten the cartridge locking screw</li> <li>• Mount the inserts</li> <li>• Mount the pilot drill and fix it to the bottom of the hole if you need to extend the pilot drill use the adjusting screw</li> <li>• Mount the extensions</li> </ul>	<ul style="list-style-type: none"> <li>• Mount the cartridge</li> <li>• Make sure that there are no air gaps between the cartridge and the walls</li> <li>• Tighten the cartridge locking screw with the dynamometric key: SD600-x-07: 26.5 in/lbs (3 Nm) SD600-x-09: 26.5 in/lbs (3 Nm) SD600-x-12: 70.8 in/lbs (8 Nm) SD600-x-15: 70.8 in/lbs (8 Nm)</li> <li>• Mount the guide pad</li> <li>• Tighten the pad locking screw</li> </ul>	



**Mounting instruction**

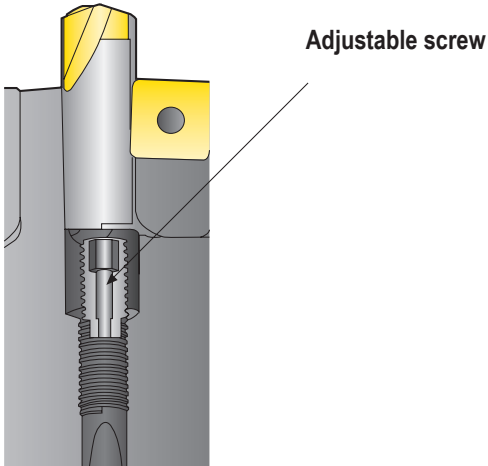
1. Clean the parts to be assembled and apply thin oxidation protection film.
2. Assemble the parts ensuring that the left face of the tenon contacts the left face of the tenon slot.
3. Lightly tighten screw A.
4. Lightly tighten screw B.
5. 'Torque' the blocking screw C.
6. 'Torque' screw A.
7. 'Torque' screw B.
8. Double check the blocking screw tightening.



Graflex size	d mm	D mm	l <sub>c</sub> mm	Recommended Graflex connection locking torques	
				Ball nose screws (A) & (B)	Tenon blocking screw (C)
4	22	40	24	14.7 ft/lbs (20 Nm)	0.5 ft/lbs (0.7 Nm)
5	28	50	30	18.4 ft/lbs (25 Nm)	1.5 ft/lbs (2 Nm)
6	36	63	40	25.8 ft/lbs (35 Nm)	2.9 ft/lbs (4 Nm)
7	46	90	50	44.2 ft/lbs (60 Nm)	5.9 ft/lbs (8 Nm)

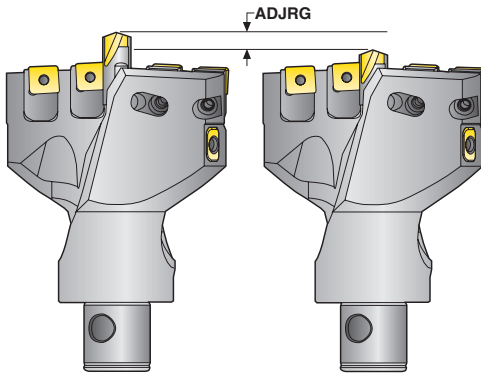
Modular drill head assembly

Feature: Adjustable pilot drill



Drill	Adjustable length distance ADJRG inch (mm)
SD602-59/60-40RG	0.118 (3)
SD602-69/70-40RG	0.118 (3)
SD602-79/80-50RG	0.197 (5)
SD602-89/90-50RG	0.197 (5)
SD602-99/100-63RG	0.197 (5)
SD602-119/120-63RG	0.197 (5)
SD602-139/140-90RG	0.197 (5)
SD602-159/160-90RG	0.197 (5)
SD602-2500-40RG	0.118 (3)
SD602-2750-40RG	0.118 (3)
SD602-3000-40RG	0.197 (5)
SD602-3250-50RG	0.197 (5)
SD602-3500-50RG	0.197 (5)
SD602-4000-63RG	0.197 (5)

Adjustable length distance

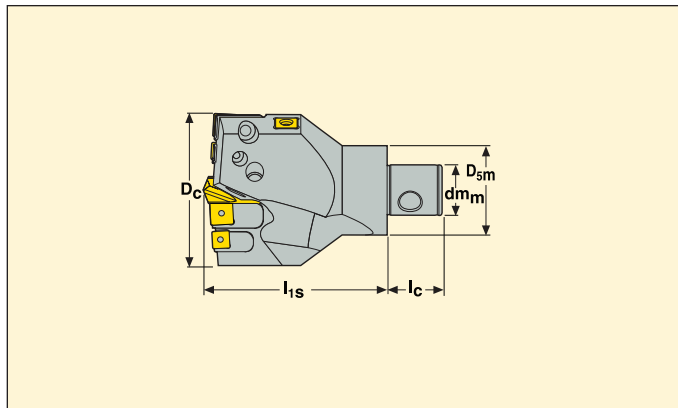


Benefits: Same setting length after regrinding of pilot drill.  
 Possibility to adjust the pilot drill overhang.  
 With drill depths > 5 x D it is recommended to adjust it 0.197" (5 mm) further out.

Recommendation: In case of re-entering the hole the pilot drill should be adjusted 0.118" (3 mm) further out from its original position to ensure a better centering.

## SD602 - Modular drill head

Inch version



- For cutting data see page(s) 262-263
- Internal through coolant
- Adjustable length pilot drill
- For insert information see page(s) 247-249
- For adapters and extensions see page(s) 242-243

D <sub>c</sub> nominal diameter	D <sub>c</sub> lower diameter	EDP No.	Part No.	Dimensions in inch				
				I <sub>1s</sub>	I <sub>c</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Graflex size
2.500	2.461	<a href="#">78154</a>	SD602-2500-40RG	4.134-4.252	0.945	0.866	1.575	4
2.750	2.711	<a href="#">78155</a>	SD602-2750-40RG	4.134-4.252	0.945	0.866	1.575	4
3.000	2.961	<a href="#">78157</a>	SD602-3000-40RG	4.134-4.331	0.945	0.866	1.575	4
3.250	3.211	<a href="#">78158</a>	SD602-3250-50RG	5.118-5.315	1.181	1.102	1.969	5
3.500	3.461	<a href="#">78159</a>	SD602-3500-50RG	5.118-5.315	1.181	1.102	1.969	5
4.000	3.961	<a href="#">78160</a>	SD602-4000-63RG	5.709-5.906	1.575	1.417	2.480	6

Note: Please select nominal (-N) or lower (-U) diameter spare parts Kit "D" on page 239 to complete drill body assembly. Kit "D" must be ordered separately.

### Spare Parts

Cartridge* nominal diameter	Guide pad* nominal diameter	Cartridge* lower diameter	Guide pad* lower diameter	Cartridge Locking screw	Locking washer	Insert*	Insert locking screw	Key	Guide pad locking screw
SD600-P-07-N	PAD-L20R25-N	SD600-x-07	PAD-L20R25	K6S4x8	LW0408	SCGX070308	C03007-T09P	T09P-2, T15P-20	C04014-T15P
SD600-P-09-N	PAD-L20R25-N	SD600-x-09	PAD-L20R25	K6S4x8	LW0408	SCGX09T308	C03508-T15P	T15P-2D	C04014-T15P
SD600-P-12-N	PAD-L20R25-N	SD600-x-12	PAD-L20R25	K6S6x10	LW0611	SCGX120408	C05012-T15P	T15P-2D	C04014-T15P
SD600-P-15-N	PAD-L20R25-N	SD600-x-15	PAD-L20R25	K6S6x12	LW0611	SCGX150512	C05012-T15P	T15P-2D	C04014-T15P

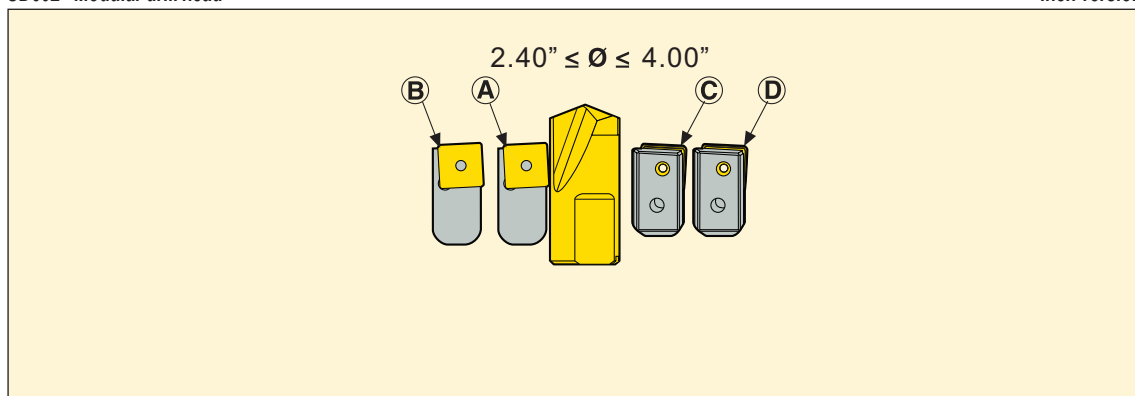
\* Not included in delivery

Please check availability in current price and stock-list.



## SD602 - Modular drill head

Inch version



### Cartridges, included in delivery

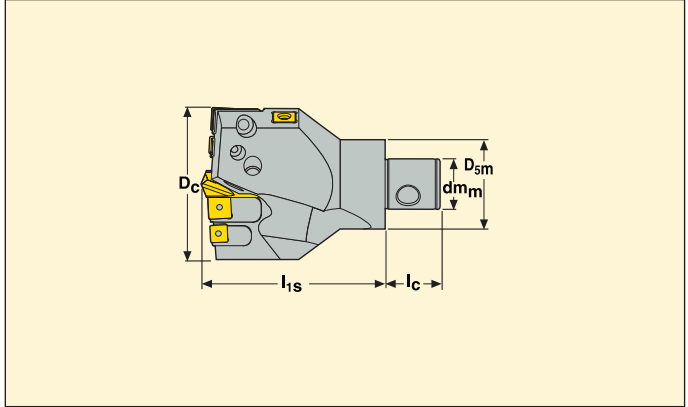
\* Not included in delivery

For drill diameter (inch)	Pilot drill locking screw	Adjusting screw	A	B	C	EDP No. (for Kit D)	Kit D*	Pilot drill* x=0 Solid carbide drill x=1 HSS drill
2.461	P6SS 8X8	19TLR0816	SD600-C-07	SD600-C-07	SD600-P-07	<a href="#">81258</a>	SD6020-P-07-U	SD601x-10-R
2.500	P6SS 8X8	19TLR0816	SD600-C-07	SD600-C-07	SD600-P-07	<a href="#">81257</a>	SD6020-P-07-N	SD601x-10-R
2.711	P6SS 8X8	19TLR0816	SD600-C-09	SD600-C-07	SD600-P-07	<a href="#">81260</a>	SD6020-P-09-U	SD601x-10-R
2.750	P6SS 8X8	19TLR0816	SD600-C-09	SD600-C-09	SD600-P-09	<a href="#">81259</a>	SD6020-P-09-N	SD601x-10-R
2.961	P6SS 10X10	19TLR1016	SD600-C-09	SD600-C-09	SD600-P-09	<a href="#">81260</a>	SD6020-P-09-U	SD601x-15-R
3.000	P6SS 10X10	19TLR1016	SD600-C-09	SD600-C-09	SD600-P-09	<a href="#">81259</a>	SD6020-P-09-N	SD601x-15-R
3.211	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-09	SD600-P-09	<a href="#">81260</a>	SD6020-P-09-U	SD601x-15-R
3.250	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-09	SD600-P-09	<a href="#">81259</a>	SD6020-P-09-N	SD601x-15-R
3.461	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-09	SD600-P-09	<a href="#">81262</a>	SD6020-P-12-U	SD601x-15-R
3.500	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-09	SD600-P-09	<a href="#">81261</a>	SD6020-P-12-N	SD601x-15-R
3.961	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-12	SD600-P-12	<a href="#">81262</a>	SD6020-P-12-U	SD601x-15-R
4.000	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-12	SD600-P-12	<a href="#">81261</a>	SD6020-P-12-N	SD601x-15-R

\* Kit D, U-undersize, N-nominal.  
 \*\* For insert size see page(s) 247-249

## SD602 - Modular drill head

Metric version



- For cutting data see page(s) 262-263
- Internal through coolant
- Adjustable length pilot drill
- For insert information see page(s) 247-249
- For adapters and extensions see page(s) 242-243

D <sub>c</sub> nominal diameter	D <sub>c</sub> lower diameter	EDP No.	Part No.	Dimensions in mm				
				l <sub>1s</sub>	l <sub>c</sub>	dm <sub>m</sub>	D <sub>5m</sub>	Graflex size
60	59	<a href="#">78142</a>	SD602-59/60-40RG	105-108	24	22	40	4
70	69	<a href="#">78143</a>	SD602-69/70-40RG	105-108	24	22	40	4
80	79	<a href="#">78144</a>	SD602-79/80-50RG	130-135	30	28	50	5
90	89	<a href="#">78145</a>	SD602-89/90-50RG	130-135	30	28	50	5
100	99	<a href="#">78147</a>	SD602-99/100-63RG	145-150	40	36	63	6
120	119	<a href="#">78148</a>	SD602-119/120-63RG	145-150	40	36	63	6
140	139	<a href="#">78149</a>	SD602-139/140-90RG	160-165	50	46	90	7
160	159	<a href="#">78150</a>	SD602-159/160-90RG	160-165	50	46	90	7

**Note:** Please select nominal (-N) or lower (-U) diameter spare parts Kit "D" on page 241 to complete drill body assembly. Kit "D" must be ordered separately.

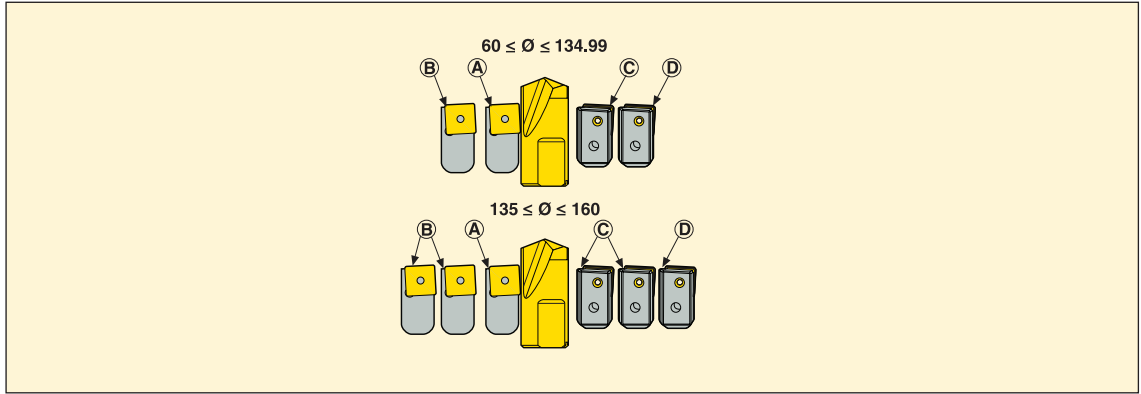
## Spare Parts

Cartridge* nominal diameter	Guide pad* nominal diameter	Cartridge* lower diameter	Guide pad* lower diameter	Cartridge Locking screw	Locking washer	Insert*	Insert locking screw	Key	Guide pad locking screw
SD600-P-07-N	PAD-L20R25-N	SD600-x-07	PAD-L20R25	K6S4x8	LW0408	SCGX070308	C03007-T09P	T09P-2, T15P-20	C04014-T15P
SD600-P-09-N	PAD-L20R25-N	SD600-x-09	PAD-L20R25	K6S4x8	LW0408	SCGX09T308	C03508-T15P	T15P-2D	C04014-T15P
SD600-P-12-N	PAD-L20R25-N	SD600-x-12	PAD-L20R25	K6S6x10	LW0611	SCGX120408	C05012-T15P	T15P-2D	C04014-T15P
SD600-P-15-N	PAD-L20R25-N	SD600-x-15	PAD-L20R25	K6S6x12	LW0611	SCGX150512	C05012-T15P	T15P-2D	C04014-T15P

\* Not included in delivery  
 Please check availability in current price and stock-list.

SD602 - Modular drill head

Metric version



Cartridges, included in delivery

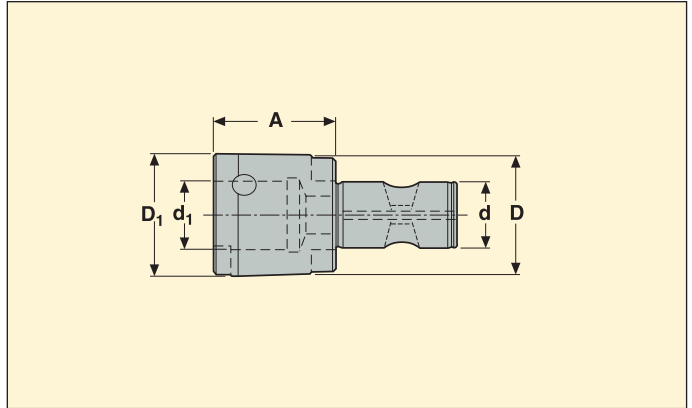
\*Not included in delivery

For drill diameter (mm)	Pilot drill locking screw	Adjusting screw	A	B	C	EDP No. (for Kit D)	Kit D*	Pilot drill* x=0 Solid carbide drill x=1 HSS drill
59	P6SS 8X8	19TLR0816	SD600-C-07	SD600-C-07	SD600-P-07	<a href="#">81258</a>	SD6020-P-07-U	SD601x-10-R
60	P6SS 8X8	19TLR0816	SD600-C-07	SD600-C-07	SD600-P-07	<a href="#">81257</a>	SD6020-P-07-N	SD601x-10-R
69	P6SS 8X8	19TLR0816	SD600-C-09	SD600-C-09	SD600-P-09	<a href="#">81260</a>	SD6020-P-09-U	SD601x-10-R
70	P6SS 8X8	19TLR0816	SD600-C-09	SD600-C-09	SD600-P-09	<a href="#">81259</a>	SD6020-P-09-N	SD601x-10-R
79	P6SS 10X10	19TLR1016	SD600-C-09	SD600-C-09	SD600-P-09	<a href="#">81260</a>	SD6020-P-09-U	SD601x-15-R
80	P6SS 10X10	19TLR1016	SD600-C-09	SD600-C-09	SD600-P-09	<a href="#">81259</a>	SD6020-P-09-N	SD601x-15-R
89	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-09	SD600-P-09	<a href="#">81262</a>	SD6020-P-12-U	SD601x-15-R
90	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-09	SD600-P-09	<a href="#">81261</a>	SD6020-P-12-N	SD601x-15-R
99	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-12	SD600-P-12	<a href="#">81262</a>	SD6020-P-12-U	SD601x-15-R
100	P6SS 10X10	19TLR1016	SD600-C-12	SD600-C-12	SD600-P-12	<a href="#">81261</a>	SD6020-P-12-N	SD601x-15-R
119	P6SS 10X10	19TLR1016	SD600-C-15	SD600-C-15	SD600-P-15	<a href="#">81264</a>	SD6020-P-15-U	SD601x-15-R
120	P6SS 10X10	19TLR1016	SD600-C-15	SD600-C-15	SD600-P-15	<a href="#">81263</a>	SD6020-P-15-N	SD601x-15-R
139	P6SS 12X12	19TLR1216	SD600-C-12	SD600-C-12	SD600-P-12	<a href="#">81262</a>	SD6020-P-12-U	SD601x-25-R
140	P6SS 12X12	19TLR1216	SD600-C-12	SD600-C-12	SD600-P-12	<a href="#">81261</a>	SD6020-P-12-N	SD601x-25-R
159	P6SS 12X12	19TLR1216	SD600-C-15	SD600-C-12	SD600-P-12	<a href="#">81264</a>	SD6020-P-15-U	SD601x-25-R
160	P6SS 12X12	19TLR1216	SD600-C-15	SD600-C-12	SD600-P-12	<a href="#">81263</a>	SD6020-P-15-N	SD601x-25-R

\* Kit D, U-undersize, N-nominal.

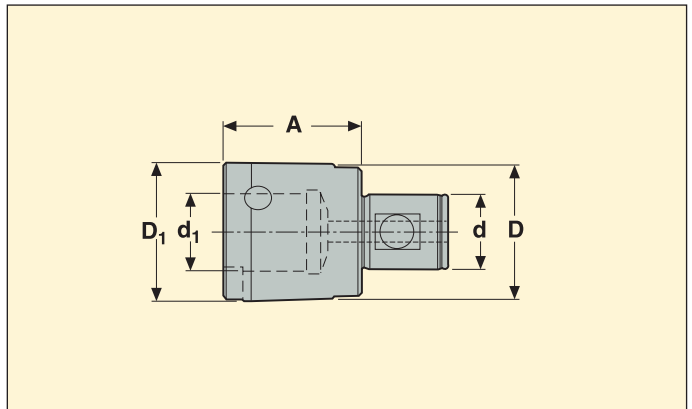
\*\* For insert size see page(s) 247-249

## HTS - Graflex adapter



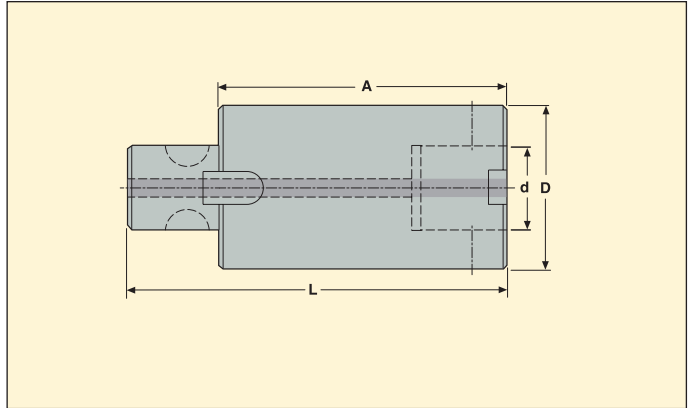
HTS shank	Size	EDP No.	Part No.	Dimensions in mm			
				d <sub>1</sub>	A	D	D <sub>1</sub>
HTS 22	4	64305	BMH4004012240	22	60	40	40
HTS 27	5	64306	BMH4804012850	28	60	48	50
HTS 32	6	64307	BMH5804013660	36	80	58	63
HTS 40	6	64309	BMH7004013660	36	80	70	63
HTS 50	7	64310	BMH8004014660	46	80	80	90

## ABS Compatible - Graflex adapter



ABS Compatible shank	Size	EDP No.	Part No.	Dimensions in mm			
				d <sub>1</sub>	A	D	D <sub>1</sub>
ABS28 (50R2)	5	64302	BMA5004012850	28	60	50	50
ABS34 (63R2)	6	64303	BMA6004013660	36	80	63	63
ABS46 (80R2)	7	64304	BMA8004014660	46	80	80	90

**Type M402 – Extensions**



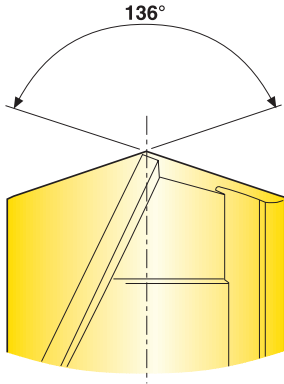
Graflex bore		EDP No.	Part No.	Dimensions in inch			Balancing	
Size	d (mm)			A	D	L		
G0	8	<a href="#">56752</a>	<b>M402000</b>	1.181	0.630	1.654	2	0.11
G0	8	<a href="#">56753</a>	<b>M402001</b>	1.969	0.630	2.441	2	0.18
G1	11	<a href="#">56754</a>	<b>M402110</b>	1.181	0.787	1.693	2	0.15
G1	11	<a href="#">56755</a>	<b>M402111</b>	1.969	0.787	2.480	2	0.26
G2	14	<a href="#">56756</a>	<b>M402220</b>	1.181	0.984	1.811	2	0.24
G2	14	<a href="#">56757</a>	<b>M402221</b>	1.969	0.984	2.598	2	0.40
G3	18	<a href="#">56758</a>	<b>M402330</b>	1.575	1.260	2.362	2	0.53
G3	18	<a href="#">56759</a>	<b>M402331</b>	2.362	1.260	3.150	2	0.79
G4	22	<a href="#">56760</a>	<b>M402440</b>	1.575	1.575	2.520	2	0.82
G4	22	<a href="#">56761</a>	<b>M402441</b>	2.362	1.575	3.307	2	1.26
G4	22	<a href="#">70090</a>	<b>M402444</b>	7.874	1.575	8.819	2	4.30
G5	28	<a href="#">56762</a>	<b>M402550</b>	1.969	1.969	3.150	2	1.59
G5	28	<a href="#">56763</a>	<b>M402551</b>	2.953	1.969	4.134	2	2.47
G5	28	<a href="#">56764</a>	<b>M402552</b>	3.937	1.969	5.118	2	3.26
G5	28	<a href="#">70093</a>	<b>M402554</b>	9.843	1.969	11.024	2	8.60
G6	36	<a href="#">56765</a>	<b>M402660</b>	2.362	2.480	3.937	2	3.04
G6	36	<a href="#">56766</a>	<b>M402661</b>	3.543	2.480	5.118	2	4.63
G6	36	<a href="#">56767</a>	<b>M402662</b>	4.724	2.480	6.299	2	6.22
G6	36	<a href="#">70097</a>	<b>M402664</b>	11.811	2.480	13.386	2	15.87
G7	46	<a href="#">56768</a>	<b>M402770</b>	2.362	3.543	4.331	–	6.24
G7	46	<a href="#">56769</a>	<b>M402771</b>	3.543	3.543	5.512	–	8.88
G7	46	<a href="#">56770</a>	<b>M402772</b>	4.724	3.543	6.693	–	12.74
G7	46	<a href="#">70099</a>	<b>M402774</b>	11.811	3.543	13.780	–	32.19

Please check availability in current price and stock-list.

2 = Pre-balancing quality: The majority of EPB holders are pre-balanced to e = 30 g.mm/kg maximum for holders with mass M ≥ 1 kg or U = 30 g.mm maximum for holders < 1 kg. Most of the pre-balanced holders can be fine-balanced on request, please inquire.

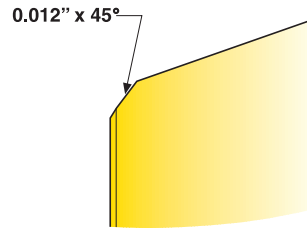
Regrinding instructions for SD602

1. Point angle

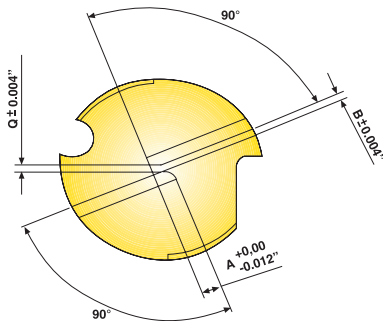


Edge preparation 0.004". Drill point conical relief 10°.

2. Corner chamfer



3.



4.

Diameter	Dimensions in inch			
	A	B	Q	Minimum (length)
10 mm	0.059	0.020	0.022	1.496
15 mm	0.059	0.024	0.027	1.772
25 mm	0.059	0.055	0.063	2.244

Specifications

Proposed specification of diamond wheels:

- Conical clearance: Wheel shape 12A2 Grit size D54 (picture 1).
- Gashing: Wheel shape 1A1 or 1V1 Grit size D64-D46 (picture 3).
- Corner chamfer: Wheel shape 1A1 or 12A2
- Edge treatment: grinding K-land or brushing (picture 2).

Important:

The cutting edges must be uniform and have the same size of edge preparation. The edge preparation must be applied on the whole length of the cutting edges.

**Insert grade**

**Features:**

- 4 cutting edges per insert
- Strong square inserts

**Benefits:**

- Economy
- Reliability
- Performance
- Low cost per hole

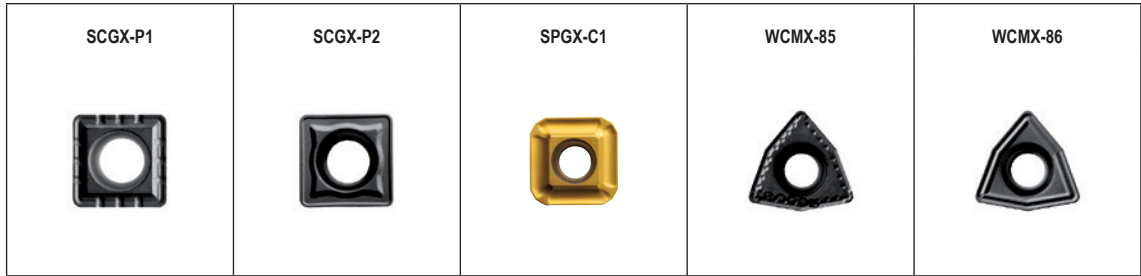
**Peripheral insert**

	<p><b>DP2000</b></p>	<ul style="list-style-type: none"> <li>• DURATOMIC® coating technology</li> <li>• Optimized grade for steel and cast iron machining</li> <li>• For machining with very high cutting speeds</li> <li>• A unique combination of superior edge toughness and a thick wear resistant coating</li> <li>• Ti(C,N) + Al<sub>2</sub>O<sub>3</sub> DURATOMIC®</li> </ul>
	<p><b>DP3000</b></p>	<ul style="list-style-type: none"> <li>• DURATOMIC® coating technology</li> <li>• Universal grade</li> <li>• Superior wear resistance and edge toughness</li> <li>• Tough grade for maximum application security</li> <li>• Ti(C,N) + Al<sub>2</sub>O<sub>3</sub> DURATOMIC®</li> <li>• Gradient substrate</li> </ul>
	<p><b>T250D</b></p>	<ul style="list-style-type: none"> <li>• First choice for superalloys and difficult stainless steel</li> <li>• Tough micrograin with TiAlN coating ensures                             <ul style="list-style-type: none"> <li>- Extremely good hardness</li> <li>- Extreme resistance to chemical wear and oxidation</li> </ul> </li> <li>• PVD coated</li> <li>• (Ti, Al)N + TiN</li> </ul>



**Center insert**






	<p><b>T400D</b></p>	<ul style="list-style-type: none"> <li>• First choice</li> <li>• Tough center insert grade for maximum application security</li> <li>• PVD coated</li> <li>• (Ti, Al)N + TiN</li> </ul>
	<p><b>DP3000</b></p>	<ul style="list-style-type: none"> <li>• DURATOMIC® coating technology</li> <li>• Universal grade</li> <li>• Superior wear resistance and edge toughness</li> <li>• Tough grade for maximum application security</li> <li>• Ti(C,N) + Al<sub>2</sub>O<sub>3</sub> DURATOMIC®</li> <li>• Gradient substrate</li> </ul>



Geometries



<b>S</b>	<b>C</b>	<b>G</b>	<b>X</b>	<b>06</b>	<b>02</b>	<b>04</b>	-	<b>P1</b>
1	2	3	4	5	6	7		10

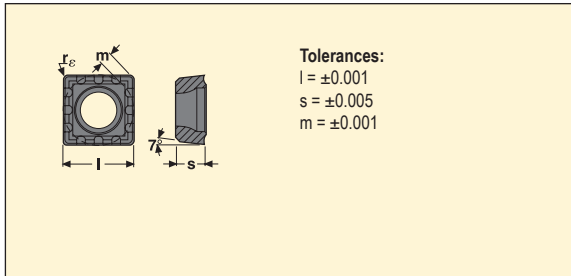
1. Insert shape	2. Insert side clearance angle	4. Type
<p style="text-align: center;">S                      W</p> 	<p style="text-align: center;">C                      P</p> 	<p>X=Special</p>

3. Tolerances				5. Cutting edge length								
Tol. class	Tolerance +/- mm			For d dimension in inch								
				0.2187	0.2500	0.3125	0.3126	0.3750	0.4531	0.5000	0.6250	0.7500
G	0.001	0.005	0.001	•	•	•		•	•	•	•	•
M	0.005	0.005	0.002	•	•		•	•				
	0.005	0.005	0.003							•		
	S			W								
												

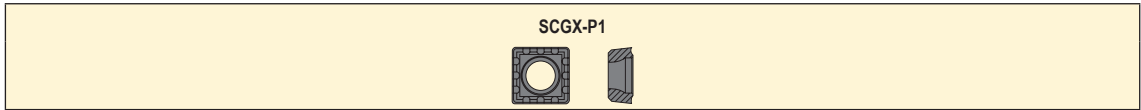
6. Thickness	7. Insert with corner chamfers/nose radius	10. Internal designation
<p style="text-align: center;">S</p>  <p>02 = 0.094" (2.38 mm) 03 = 0.125" (3.18 mm) T3 = 0.156" (3.97 mm)</p> <p>04 = 0.187" (4.76 mm) 05 = 0.219" (5.56 mm)</p>	<p style="text-align: center;">nose radius</p>  <p>04 = 0.016" (0.4 mm) 08 = 0.031" (0.8 mm) 12 = 0.047" (1.2 mm) etc.</p>	<p>e.g. chipbreaker designation</p> <p>P1 = xx P2 = xx 85 = xx 86 = xx</p>



Indexable inserts – Peripheral insert, type P1\* for SD502, SD503, SD504, SD505, SD542 and SD602



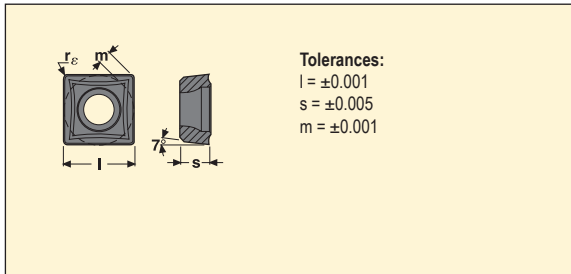
Size	Dimensions in inch			
	l	s	r <sub>c</sub>	m
06	0.250	0.094	0.016	0.045
07	0.313	0.125	0.031	0.052
09	0.375	0.156	0.031	0.065
12	0.500	0.187	0.031	0.091
15	0.625	0.219	0.047	0.110



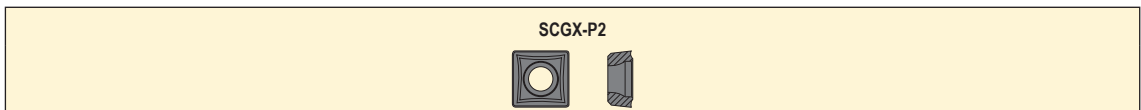
Inserts	Part No.	Grades		
		T250D	DP2000	DP3000
SCGX-P1	SCGX 060204-P1	<a href="#">59712</a>	<a href="#">34791</a>	<a href="#">09916</a>
	070308-P1	<a href="#">59713</a>	<a href="#">34792</a>	<a href="#">09914</a>
	09T308-P1	<a href="#">59714</a>	<a href="#">34793</a>	<a href="#">09919</a>
	120408-P1	<a href="#">59715</a>	<a href="#">34794</a>	<a href="#">09912</a>
	150512-P1	<a href="#">59716</a>	<a href="#">34795</a>	<a href="#">09910</a>

\* Chipbreaker for low feed rates and for good surface finish in all materials.

Indexable inserts – Peripheral insert, type P2\*\* for SD502, SD503, SD504, SD505, SD542 and SD602



Size	Dimensions in inch			
	l	s	r <sub>c</sub>	m
05	0.219	0.094	0.016	0.039
06	0.250	0.094	0.016	0.045
07	0.312	0.125	0.031	0.052
09	0.375	0.156	0.031	0.065
12	0.500	0.187	0.031	0.091
15	0.625	0.219	0.047	0.110

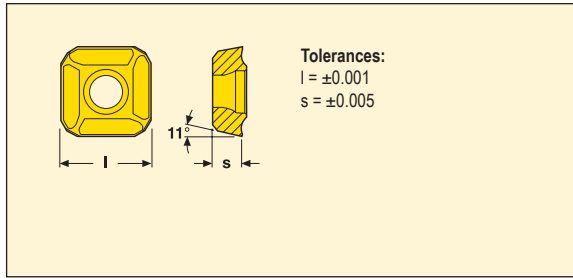


Inserts	Part No.	Grades		
		T250D	DP2000	DP3000
SCGX-P2	SCGX 050204-P2	<a href="#">59711</a>	<a href="#">34796</a>	<a href="#">09917</a>
	060204-P2	<a href="#">71439</a>	<a href="#">34797</a>	<a href="#">09915</a>
	070308-P2	<a href="#">71460</a>	<a href="#">34798</a>	<a href="#">09913</a>
	09T308-P2	<a href="#">02358</a>	<a href="#">34799</a>	<a href="#">09918</a>
	120408-P2	<a href="#">02357</a>	<a href="#">34800</a>	<a href="#">09911</a>
	150512-P2	<a href="#">00136</a>	<a href="#">34801</a>	<a href="#">09909</a>

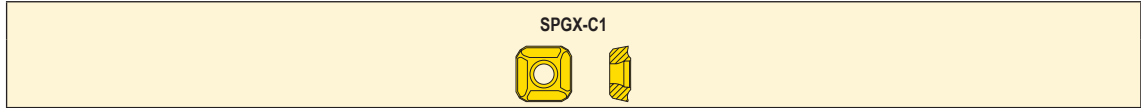
Please check availability in current price and stock-list.

\*\* Chipbreaker for high feed rates in steel, stainless steel and cast iron.

Indexable inserts – Center insert, type C1 for SD502, SD503, SD504, SD505 and SD542



Size	Dimensions in inch	
	l	s
05	0.219	0.094
06	0.250	0.094
07	0.312	0.125
09	0.375	0.125
11	0.453	0.156
12	0.500	0.156
15	0.625	0.187
19	0.750	0.187

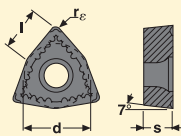


Inserts	Part No.	Grades		
		T400D	DP3000	
SPGX-C1	SPGX 0502-C1	<a href="#">77370</a>	<a href="#">09934</a>	
	0602-C1	<a href="#">77371</a>	<a href="#">09933</a>	
	0703-C1	<a href="#">77372</a>	<a href="#">09932</a>	
	0903-C1	<a href="#">77373</a>	<a href="#">09931</a>	
	11T3-C1	<a href="#">77374</a>	<a href="#">09936</a>	
	12T3-C1	<a href="#">77375</a>	<a href="#">09935</a>	
	1504-C1	<a href="#">77376</a>	<a href="#">09930</a>	
	1904-C1	<a href="#">77377</a>	<a href="#">09929</a>	

Please check availability in current price and stock-list.

T3000D is recommended when maximum wear resistance is needed on the center insert. It is preferably used together with the T1000D at high cutting speeds.

Indexable inserts – Peripheral insert, type 85\* for SD572



Tolerances:  
 $d = \pm .002$   
 $d = \pm .003$   
 $s = \pm .005$   
 $r_c = \pm .004$

Size:  
 04, 05, 06  
 08

Size	Dimensions in inch			
	d	l	s	r <sub>c</sub>
04	0.250	0.157	0.094	0.031
05	0.313	0.200	0.125	0.031
06	0.375	0.242	0.156	0.031
08	0.500	0.320	0.187	0.047

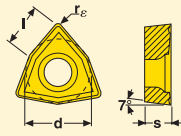
**WCMX-85**



Inserts	Part No.	Grades	
		DP 3000	
WCMX-85			
	WCMX 040208-85	<a href="#">09925</a>	
	050308-85	<a href="#">09923</a>	
	06T308-85	<a href="#">09928</a>	
	080412-85	<a href="#">09921</a>	

\* Chipbreaker for low feed rates and for good surface finish in all materials.

Indexable inserts – Center insert & Peripheral insert, type 86\*\* for SD572



Tolerances:  
 $d = \pm .002$   
 $d = \pm .003$   
 $s = \pm .005$   
 $r_c = \pm .004$

Size:  
 03, 04, 05, 06  
 08

Size	Dimensions in inch			
	d	l	s	r <sub>c</sub>
03	0.219	0.136	0.094	0.031
04	0.250	0.157	0.094	0.031
05	0.313	0.200	0.125	0.031
06	0.375	0.242	0.156	0.031
08	0.500	0.320	0.187	0.047

**WCMX-86**




Inserts	Part No.	Grades		
		T400D	DP 2000	DP 3000
WCMX-86				
	WCMX 030208-86	<a href="#">24136</a>	<a href="#">90250</a>	<a href="#">09926</a>
	040208-86	<a href="#">24137</a>	<a href="#">90251</a>	<a href="#">09924</a>
	050308-86	<a href="#">24138</a>	<a href="#">90252</a>	<a href="#">09922</a>
	06T308-86	<a href="#">24139</a>	<a href="#">90253</a>	<a href="#">09927</a>
	080412-86	<a href="#">24140</a>	<a href="#">90254</a>	<a href="#">09920</a>

Please check availability in current price and stock-list.

\*\* Chipbreaker for high feed rates in steel, stainless steel and cast iron.

Cutting data – SD502 Ø 0.590-2.375

SMG		f						v <sub>c</sub>
		Ø 0.590-0.767	Ø 0.768-0.885	Ø 0.886-1.121	Ø 1.122-1.357	Ø 1.358-1.751	Ø 1.752-2.375	
P1	P1 DP2000	0.0044	0.0050	0.0065	0.0070	0.0085	0.0095	1025
P2	P1 DP2000	0.0020	0.0026	0.0034	0.0040	0.0048	0.0055	1000
P3	P2 DP3000	0.0040	0.0050	0.0060	0.0070	0.0080	0.0095	690
P4	P2 DP3000	0.0040	0.0050	0.0060	0.0065	0.0080	0.0095	720
P5	P2 DP3000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	690
P6	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	780
P7	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	730
P8	P2 DP3000	0.0040	0.0050	0.0060	0.0070	0.0080	0.0095	690
P11	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	710
M1	P2 DP3000	0.0044	0.0055	0.0065	0.0075	0.0085	0.010	820
M2	P2 DP3000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	660
M3	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	330
M4	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	245
M5	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	205
K1	P2 DP2000	0.0044	0.0055	0.0065	0.0075	0.0085	0.010	790
K2	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	690
K3	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	580
K4	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	550
K5	P2 DP2000	0.0036	0.0044	0.0050	0.0060	0.0070	0.0080	330
N1	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	1200
N2	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	770
N3	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	510
N11	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	1025
S1	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	130
S2	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	100
S3	P1 T250D	0.0026	0.0032	0.0038	0.0044	0.0050	0.0060	100
S11	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	255
S12	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	195
S13	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	150
H3	P1 T250D	0.0018	0.0022	0.0026	0.0030	0.0036	0.0040	230
H5	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	430
H7	P1 T250D	0.0018	0.0022	0.0026	0.0030	0.0036	0.0040	230
H8	P1 T250D	0.0020	0.0026	0.0030	0.0036	0.0040	0.0048	430
H11	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	550
H12	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	830
H21	P1 T250D	0.0020	0.0026	0.0030	0.0036	0.0040	0.0048	430

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min


All cutting data are start values

Cutting data – SD502 Cutting speed

SMG	v <sub>c</sub>		
	DP2000	DP3000	T250D
P1	1025	820	630
P2	1000	800	610
P3	860	690	520
P4	930	720	460
P5	890	690	440
P6	1000	780	495
P7	940	730	465
P8	890	690	440
P11	920	710	455
M1	—	820	530
M2	—	660	430
M3	—	500	330
M4	—	375	245
M5	—	315	205
K1	790	590	—
K2	690	510	—
K3	580	435	—
K4	550	415	—
K5	330	245	—
N1	—	1375	1200
N2	—	890	770
N3	—	590	510
N11	—	1150	1025
S1	—	—	130
S2	—	—	100
S3	—	—	100
S11	—	—	255
S12	—	—	195
S13	—	—	150
H3	—	230	230
H5	—	430	430
H7	—	230	230
H8	—	430	430
H11	—	550	550
H12	—	830	830
H21	—	430	430

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD503 Ø 0.590-2.375

SMG		f						v <sub>c</sub>
		Ø 0.590-0.767	Ø 0.768-0.885	Ø 0.886-1.121	Ø 1.122-1.357	Ø 1.358-1.751	Ø 1.752-2.375	
P1	P1 DP2000	0.0044	0.0050	0.0065	0.0070	0.0085	0.0095	830
P2	P1 DP2000	0.0020	0.0026	0.0034	0.0040	0.0048	0.0055	810
P3	P2 DP3000	0.0040	0.0050	0.0060	0.0070	0.0080	0.0095	590
P4	P2 DP3000	0.0040	0.0050	0.0060	0.0065	0.0080	0.0095	620
P5	P2 DP3000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	590
P6	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	660
P7	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	630
P8	P2 DP3000	0.0040	0.0050	0.0060	0.0070	0.0080	0.0095	590
P11	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	610
M1	P2 DP3000	0.0044	0.0055	0.0065	0.0075	0.0085	0.010	700
M2	P2 DP3000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	560
M3	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	280
M4	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	210
M5	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	175
K1	P2 DP2000	0.0044	0.0055	0.0065	0.0075	0.0085	0.010	640
K2	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	560
K3	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	470
K4	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	450
K5	P2 DP2000	0.0036	0.0044	0.0050	0.0060	0.0070	0.0080	270
N1	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	1025
N2	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	650
N3	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	435
N11	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	860
S1	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	110
S2	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	85
S3	P1 T250D	0.0026	0.0032	0.0038	0.0044	0.0050	0.0060	85
S11	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	215
S12	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	165
S13	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	130
H3	P1 T250D	0.0018	0.0022	0.0026	0.0030	0.0036	0.0040	195
H5	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	365
H7	P1 T250D	0.0018	0.0022	0.0026	0.0030	0.0036	0.0040	195
H8	P1 T250D	0.0020	0.0026	0.0030	0.0036	0.0040	0.0048	365
H11	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	465
H12	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	700
H21	P1 T250D	0.0020	0.0026	0.0030	0.0036	0.0040	0.0048	365

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min


All cutting data are start values

Cutting data – SD503 Cutting speed

SMG	v <sub>c</sub>		
	DP2000	DP3000	T250D
P1	830	710	530
P2	810	690	520
P3	700	590	445
P4	760	620	390
P5	720	590	375
P6	810	660	420
P7	770	630	395
P8	720	590	375
P11	750	610	385
M1	—	700	450
M2	—	560	365
M3	—	430	280
M4	—	320	210
M5	—	270	175
K1	640	510	—
K2	560	440	—
K3	470	370	—
K4	450	355	—
K5	270	210	—
N1	—	1175	1025
N2	—	760	650
N3	—	510	435
N11	—	990	860
S1	—	—	110
S2	—	—	85
S3	—	—	85
S11	—	—	215
S12	—	—	165
S13	—	—	130
H3	—	200	195
H5	—	370	365
H7	—	200	195
H8	—	370	365
H11	—	470	465
H12	—	710	700
H21	—	370	365

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD504 Ø 0.590-2.375

SMG		f						v <sub>c</sub>
		Ø 0.590-0.767	Ø 0.768-0.885	Ø 0.886-1.121	Ø 1.122-1.357	Ø 1.358-1.751	Ø 1.752-2.375	
P1	P1 DP2000	0.0044	0.0050	0.0065	0.0070	0.0085	0.0095	700
P2	P1 DP2000	0.0020	0.0026	0.0034	0.0040	0.0048	0.0055	680
P3	P2 DP3000	0.0040	0.0050	0.0060	0.0070	0.0080	0.0095	520
P4	P2 DP3000	0.0040	0.0050	0.0060	0.0065	0.0080	0.0095	550
P5	P2 DP3000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	520
P6	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	580
P7	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	550
P8	P2 DP3000	0.0040	0.0050	0.0060	0.0070	0.0080	0.0095	520
P11	P2 DP3000	0.0040	0.0048	0.0055	0.0065	0.0075	0.0085	540
M1	P2 DP3000	0.0044	0.0055	0.0065	0.0075	0.0085	0.010	610
M2	P2 DP3000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	495
M3	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	240
M4	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	180
M5	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	150
K1	P2 DP2000	0.0044	0.0055	0.0065	0.0075	0.0085	0.010	540
K2	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	465
K3	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	395
K4	P2 DP2000	0.0040	0.0048	0.0060	0.0065	0.0080	0.0085	375
K5	P2 DP2000	0.0036	0.0044	0.0050	0.0060	0.0070	0.0080	225
N1	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	880
N2	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	570
N3	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	380
N11	P1 T250D	0.0055	0.0065	0.0080	0.0095	0.011	0.013	750
S1	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	95
S2	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	75
S3	P1 T250D	0.0026	0.0032	0.0038	0.0044	0.0050	0.0060	75
S11	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	190
S12	P1 T250D	0.0032	0.0040	0.0048	0.0055	0.0065	0.0070	145
S13	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0055	0.0065	110
H3	P1 T250D	0.0018	0.0022	0.0026	0.0030	0.0036	0.0040	170
H5	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	315
H7	P1 T250D	0.0018	0.0022	0.0026	0.0030	0.0036	0.0040	170
H8	P1 T250D	0.0020	0.0026	0.0030	0.0036	0.0040	0.0048	315
H11	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	405
H12	P1 T250D	0.0028	0.0034	0.0040	0.0048	0.0050	0.0060	610
H21	P1 T250D	0.0020	0.0026	0.0030	0.0036	0.0040	0.0048	315

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values



Cutting data – SD504 Cutting speed

SMG	v <sub>c</sub>		
	DP2000	DP3000	T250D
P1	700	620	460
P2	680	600	450
P3	580	520	385
P4	640	550	340
P5	610	520	325
P6	680	580	365
P7	640	550	345
P8	610	520	325
P11	620	540	335
M1	—	610	395
M2	—	495	315
M3	—	380	240
M4	—	285	180
M5	—	235	150
K1	540	445	—
K2	465	385	—
K3	395	325	—
K4	375	310	—
K5	225	185	—
N1	—	1050	880
N2	—	670	570
N3	—	445	380
N11	—	870	750
S1	—	—	95
S2	—	—	75
S3	—	—	75
S11	—	—	190
S12	—	—	145
S13	—	—	110
H3	—	175	170
H5	—	325	315
H7	—	175	170
H8	—	325	315
H11	—	415	405
H12	—	620	610
H21	—	325	315

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD505 Ø 0.748-2.000

SMG		f				v <sub>c</sub>
		Ø 0.748-0.885	Ø 0.886-1.121	Ø 1.122-1.357	Ø 1.358-2.000	
P1	P2 DP3000	0.0050	0.0065	0.0070	0.0085	560
P2	P2 DP3000	0.0026	0.0034	0.0040	0.0048	540
P3	P2 DP3000	0.0050	0.0060	0.0070	0.0080	465
P4	P2 DP3000	0.0050	0.0060	0.0065	0.0080	490
P5	P2 DP3000	0.0048	0.0060	0.0065	0.0080	465
P6	P2 DP3000	0.0048	0.0055	0.0065	0.0075	520
P7	P2 DP3000	0.0048	0.0055	0.0065	0.0075	495
P8	P2 DP3000	0.0050	0.0060	0.0070	0.0080	465
P11	P2 DP3000	0.0048	0.0055	0.0065	0.0075	480
M1	P2 DP3000	0.0055	0.0065	0.0075	0.0085	550
M2	P2 DP3000	0.0048	0.0060	0.0065	0.0080	445
M3	P1 T250D	0.0040	0.0048	0.0055	0.0065	215
M4	P1 T250D	0.0034	0.0040	0.0048	0.0055	160
M5	P1 T250D	0.0034	0.0040	0.0048	0.0055	135
K1	P2 DP3000	0.0055	0.0065	0.0075	0.0085	400
K2	P2 DP3000	0.0048	0.0060	0.0065	0.0080	345
K3	P2 DP3000	0.0048	0.0060	0.0065	0.0080	295
K4	P2 DP3000	0.0048	0.0060	0.0065	0.0080	280
K5	P2 DP3000	0.0044	0.0050	0.0060	0.0070	165
N1	P1 T250D	0.0065	0.0080	0.0095	0.011	780
N2	P1 T250D	0.0065	0.0080	0.0095	0.011	500
N3	P1 T250D	0.0065	0.0080	0.0095	0.011	335
N11	P1 T250D	0.0065	0.0080	0.0095	0.011	660
S1	P1 T250D	0.0034	0.0040	0.0048	0.0055	85
S2	P1 T250D	0.0034	0.0040	0.0048	0.0055	65
S3	P1 T250D	0.0032	0.0038	0.0044	0.0050	65
S11	P1 T250D	0.0040	0.0048	0.0055	0.0065	165
S12	P1 T250D	0.0040	0.0048	0.0055	0.0065	130
S13	P1 T250D	0.0034	0.0040	0.0048	0.0055	100
H3	P1 T250D	0.0022	0.0026	0.0030	0.0036	150
H5	P1 T250D	0.0034	0.0040	0.0048	0.0050	280
H7	P1 T250D	0.0022	0.0026	0.0030	0.0036	150
H8	P1 T250D	0.0026	0.0030	0.0036	0.0040	280
H11	P1 T250D	0.0034	0.0040	0.0048	0.0050	355
H12	P1 T250D	0.0034	0.0040	0.0048	0.0050	540
H21	P1 T250D	0.0026	0.0030	0.0036	0.0040	280

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min


All cutting data are start values

Cutting data – SD505 Cutting speed

SMG	v <sub>c</sub>		
	DP2000	DP3000	T250D
P1	590	560	410
P2	580	540	400
P3	495	465	340
P4	540	490	300
P5	520	465	290
P6	580	520	325
P7	550	495	305
P8	520	465	290
P11	530	480	295
M1	—	550	350
M2	—	445	280
M3	—	340	215
M4	—	255	160
M5	—	210	135
K1	460	400	—
K2	395	345	—
K3	335	295	—
K4	320	280	—
K5	190	165	—
N1	—	930	780
N2	—	600	500
N3	—	400	335
N11	—	780	660
S1	—	—	85
S2	—	—	65
S3	—	—	65
S11	—	—	165
S12	—	—	130
S13	—	—	100
H3	—	155	150
H5	—	290	280
H7	—	155	150
H8	—	290	280
H11	—	370	355
H12	—	560	540
H21	—	290	280

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD542 Ø 2.250-3.500

SMG		f		V <sub>c</sub>
		Ø 2.250-2.559	Ø 2.750-3.500	
P1	P2 DP3000	0.0070	0.0085	760
P2	P2 DP3000	0.0040	0.0048	740
P3	P2 DP3000	0.0070	0.0080	640
P4	P2 DP3000	0.0065	0.0080	670
P5	P2 DP3000	0.0065	0.0080	640
P6	P2 DP3000	0.0065	0.0075	710
P7	P2 DP3000	0.0065	0.0075	670
P8	P2 DP3000	0.0070	0.0080	640
P11	P2 DP3000	0.0065	0.0075	660
M1	P2 DP3000	0.0075	0.0085	750
M2	P2 DP3000	0.0065	0.0080	610
M3	P1 T250D	0.0055	0.0065	300
M4	P1 T250D	0.0048	0.0055	225
M5	P1 T250D	0.0048	0.0055	190
K1	P2 DP3000	0.0075	0.0085	550
K2	P2 DP3000	0.0065	0.0080	475
K3	P2 DP3000	0.0065	0.0080	400
K4	P2 DP3000	0.0065	0.0080	380
K5	P2 DP3000	0.0060	0.0070	225
N1	P1 T250D	0.0095	0.011	1100
N2	P1 T250D	0.0095	0.011	710
N3	P1 T250D	0.0095	0.011	470
N11	P1 T250D	0.0095	0.011	930
S1	P1 T250D	0.0048	0.0055	120
S2	P1 T250D	0.0048	0.0055	90
S3	P1 T250D	0.0044	0.0050	90
S11	P1 T250D	0.0055	0.0065	235
S12	P1 T250D	0.0055	0.0065	180
S13	P1 T250D	0.0048	0.0055	140
H3	P1 T250D	0.0030	0.0036	210
H5	P1 T250D	0.0048	0.0050	395
H7	P1 T250D	0.0030	0.0036	210
H8	P1 T250D	0.0036	0.0040	395
H11	P1 T250D	0.0048	0.0050	500
H12	P1 T250D	0.0048	0.0050	760
H21	P1 T250D	0.0036	0.0040	395

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min


All cutting data are start values

Cutting data – SD542 Cutting speed

SMG	v <sub>c</sub>		
	DP2000	DP3000	T250D
P1	920	760	570
P2	890	740	560
P3	770	640	480
P4	840	670	420
P5	800	640	405
P6	900	710	455
P7	850	670	425
P8	800	640	405
P11	820	660	415
M1	—	750	490
M2	—	610	395
M3	—	460	300
M4	—	345	225
M5	—	290	190
K1	710	550	—
K2	620	475	—
K3	520	400	—
K4	495	380	—
K5	295	225	—
N1	—	1275	1100
N2	—	820	710
N3	—	550	470
N11	—	1050	930
S1	—	—	120
S2	—	—	90
S3	—	—	90
S11	—	—	235
S12	—	—	180
S13	—	—	140
H3	—	215	210
H5	—	395	395
H7	—	215	210
H8	—	395	395
H11	—	510	500
H12	—	760	760
H21	—	395	395

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

Cutting data – SD572 Ø 0.590-1.850

SMG		f						v <sub>c</sub>
		Ø 0.590-0.669	Ø 0.670-0.787	Ø 0.788-0.944	Ø 0.945-1.259	Ø 1.260-1.417	Ø 1.418-1.850	
P1	85 DP3000	0.0012	0.0014	0.0017	0.0020	0.0024	0.0028	1025
P2	85 DP3000	0.0012	0.0014	0.0017	0.0022	0.0024	0.0028	1000
P3	86 DP3000	0.0040	0.0048	0.0050	0.0065	0.0065	0.0080	860
P4	86 DP3000	0.0040	0.0048	0.0050	0.0060	0.0065	0.0075	760
P5	86 DP3000	0.0040	0.0044	0.0050	0.0060	0.0065	0.0075	720
P6	86 DP3000	0.0040	0.0044	0.0050	0.0060	0.0065	0.0075	810
P7	86 DP3000	0.0040	0.0044	0.0050	0.0060	0.0065	0.0075	760
P8	86 DP3000	0.0040	0.0048	0.0050	0.0065	0.0065	0.0080	720
P11	86 DP3000	0.0040	0.0044	0.0050	0.0060	0.0065	0.0075	740
M1	86 DP3000	0.0044	0.0050	0.0055	0.0065	0.0070	0.0080	770
M2	86 DP3000	0.0040	0.0044	0.0050	0.0060	0.0065	0.0075	620
M3	85 DP3000	0.0032	0.0036	0.0040	0.0048	0.0050	0.0060	475
M4	85 DP3000	0.0028	0.0032	0.0036	0.0040	0.0048	0.0050	355
M5	85 DP3000	0.0028	0.0032	0.0036	0.0040	0.0048	0.0050	295
K1	86 DP3000	0.0044	0.0050	0.0055	0.0065	0.0070	0.0080	590
K2	86 DP3000	0.0040	0.0044	0.0050	0.0060	0.0065	0.0075	510
K3	86 DP3000	0.0040	0.0044	0.0050	0.0060	0.0065	0.0075	435
K4	86 DP3000	0.0040	0.0044	0.0050	0.0060	0.0065	0.0075	415
K5	86 DP3000	0.0036	0.0040	0.0048	0.0050	0.0060	0.0065	245
S1	85 DP3000	0.0028	0.0032	0.0036	0.0040	0.0048	0.0050	130
S2	85 DP3000	0.0028	0.0032	0.0036	0.0040	0.0048	0.0050	100
S3	85 DP3000	0.0026	0.0030	0.0034	0.0038	0.0044	0.0048	100
S11	85 DP3000	0.0032	0.0036	0.0040	0.0048	0.0050	0.0060	255
S12	85 DP3000	0.0032	0.0036	0.0040	0.0048	0.0050	0.0060	195
S13	85 DP3000	0.0028	0.0032	0.0036	0.0040	0.0048	0.0050	155
H3	86 DP3000	0.0017	0.0020	0.0024	0.0026	0.0030	0.0034	265
H5	86 DP3000	0.0028	0.0032	0.0036	0.0040	0.0044	0.0050	495
H7	86 DP3000	0.0017	0.0020	0.0024	0.0026	0.0030	0.0034	265
H8	86 DP3000	0.0020	0.0024	0.0026	0.0032	0.0034	0.0040	495
H11	86 DP3000	0.0028	0.0032	0.0036	0.0040	0.0044	0.0050	630
H12	86 DP3000	0.0028	0.0032	0.0036	0.0040	0.0044	0.0050	950
H21	86 DP3000	0.0020	0.0024	0.0026	0.0032	0.0034	0.0040	495

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min


All cutting data are start values

Cutting data – SD572 Cutting speed

SMG	$v_c$
	DP2000
P1	1225
P2	1200
P3	1025
P4	910
P5	870
P6	980
P7	920
P8	870
P11	890
M1	930
M2	750
M3	570
M4	430
M5	360
K1	710
K2	610
K3	520
K4	495
K5	295
S1	—
S2	—
S3	—
S11	—
S12	—
S13	—
H3	265
H5	495
H7	265
H8	495
H11	630
H12	950
H21	495

SMG = Seco Material Group  
 f = in/rev  
 $v_c$  = sf/min  
 All cutting data are start values

Cutting data – SD602 Ø 2.362-6.300

SMG		f					v <sub>c</sub>
		Ø 2.362-2.755	Ø 2.756-3.621	Ø 3.622-4.369	Ø 4.370-4.314	Ø 4.315-6.300	
P1	P2 DP3000	0.0055	0.0065	0.0070	0.0075	0.0070	620
P2	P2 DP3000	0.0030	0.0036	0.0038	0.0040	0.0038	600
P3	P2 DP3000	0.0055	0.0065	0.0065	0.0070	0.0065	520
P4	P2 DP3000	0.0055	0.0065	0.0065	0.0070	0.0065	550
P5	P2 DP3000	0.0050	0.0065	0.0065	0.0065	0.0065	520
P6	P2 DP3000	0.0050	0.0060	0.0065	0.0065	0.0065	580
P7	P2 DP3000	0.0050	0.0060	0.0065	0.0065	0.0065	550
P8	P2 DP3000	0.0055	0.0065	0.0065	0.0070	0.0065	520
P11	P2 DP3000	0.0050	0.0060	0.0065	0.0065	0.0065	540
M1	P2 DP3000	0.0060	0.0065	0.0070	0.0075	0.0070	610
M2	P2 DP3000	0.0050	0.0065	0.0065	0.0065	0.0065	495
M3	P1 DP3000	0.0044	0.0050	0.0050	0.0055	0.0050	380
M4	P1 DP3000	0.0038	0.0044	0.0048	0.0048	0.0048	285
M5	P1 DP3000	0.0038	0.0044	0.0048	0.0048	0.0048	235
K1	P2 DP3000	0.0060	0.0065	0.0070	0.0075	0.0070	445
K2	P2 DP3000	0.0050	0.0065	0.0065	0.0065	0.0065	385
K3	P2 DP3000	0.0050	0.0065	0.0065	0.0065	0.0065	325
K4	P2 DP3000	0.0050	0.0065	0.0065	0.0065	0.0065	310
K5	P2 DP3000	0.0048	0.0055	0.0060	0.0060	0.0060	185
H3	P2 DP3000	0.0024	0.0028	0.0030	0.0030	0.0030	175
H5	P2 DP3000	0.0036	0.0044	0.0044	0.0048	0.0044	325
H7	P2 DP3000	0.0024	0.0028	0.0030	0.0030	0.0030	175
H8	P2 DP3000	0.0028	0.0032	0.0034	0.0036	0.0034	325
H11	P2 DP3000	0.0036	0.0044	0.0044	0.0048	0.0044	415
H12	P2 DP3000	0.0036	0.0044	0.0044	0.0048	0.0044	620
H21	P2 DP3000	0.0028	0.0032	0.0034	0.0036	0.0034	325

SMG = Seco Material Group

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values



Cutting data – SD602 Cutting speed

SMG	v <sub>c</sub>
	T250D
P1	460
P2	450
P3	385
P4	340
P5	325
P6	365
P7	345
P8	325
P11	335
M1	395
M2	315
M3	240
M4	180
M5	150
K1	—
K2	—
K3	—
K4	—
K5	—
H3	170
H5	315
H7	170
H8	315
H11	405
H12	610
H21	315

SMG = Seco Material Group  
 f = in/rev  
 v<sub>c</sub> = sf/min  
 All cutting data are start values

**Custom design – No waiting for quotations. Price and delivery time available instantly.**

A well defined strategy has been created for the total process for custom-made drills from quotation to finished drill. You can now design your own customized Perfomax® drill using the Custom Design software.

The concept gives you a number of advantages:

- No waiting for quotations! price and delivery time available instantly
- Directly visualises your needs. No risk of misinterpretation
- Short delivery time

**SECO**
**CUSTOM DESIGN**

Drilling >> perfoMAX® - SD70 - SD54 >> Single Diameter >> Chamfer
Feedback

Back
Start Page
English

Print this page

**Step 1: Tool Specification**  
Step 2: Request for Quotation

	Min	Max	
Dc	15	60	42.5
L4	42.5	212.5	175.2
Vch	70	160	132
Dch	42.5	60.8	51.3
Type of shank			ISO 9766 (R7)
Shank size			40
L1s (±0.5)	210.2	247.5	222
Lc			68
D5m			59
Dmm (h6)			40
D6			61.4

Previous
Next

Spare Parts / Inserts

**Note** Inserts have to be ordered separately

**Designation**  
SD509-A31-42.5-6791950

**Delivery Time**  
Quantity:  Get data

Please contact your local Seco representative for more information.

Different types of custom drills – Detailed information can be found in the Custom Design software

A1. Single diameter



A1. Drill dia 0.591-2.362" (15-60 mm)

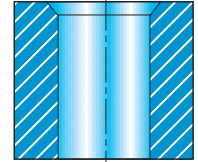


A1. Drill dia 2.362-4.331" (60-110 mm)

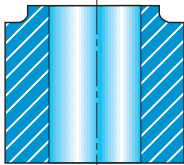
A2. Reinforced



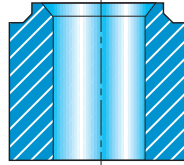
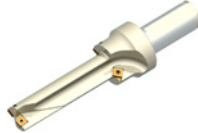
A3. Chamfer



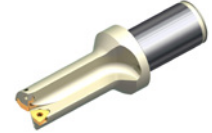
A4. Face



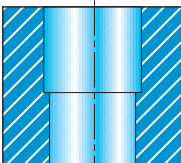
A5. Face with chamfer



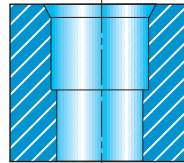
A6. Straight flutes



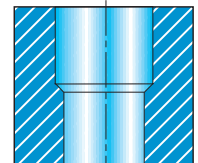
B1. Counterbore



B2. Counterbore and chamfer

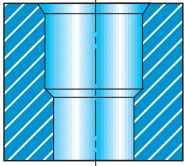


B2. Step

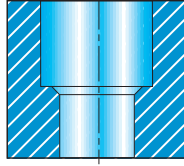


Different types of custom drills – Detailed information can be found in the Custom Design software

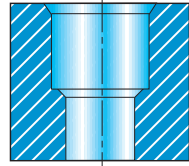
B4. Step and chamfer



B5. Counterbore and chamfer



B6. Counterbore with chamfers



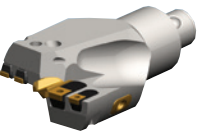
E1. Core drill single diameter



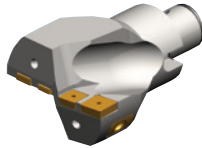
E2. Core drill reinforced



F1. Drill heads  
(With pilot drill)



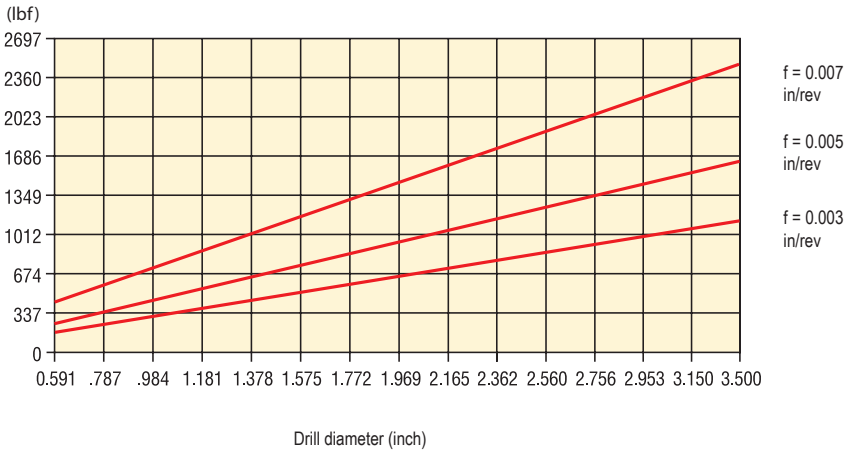
F2. Drill heads  
(without pilot drill)



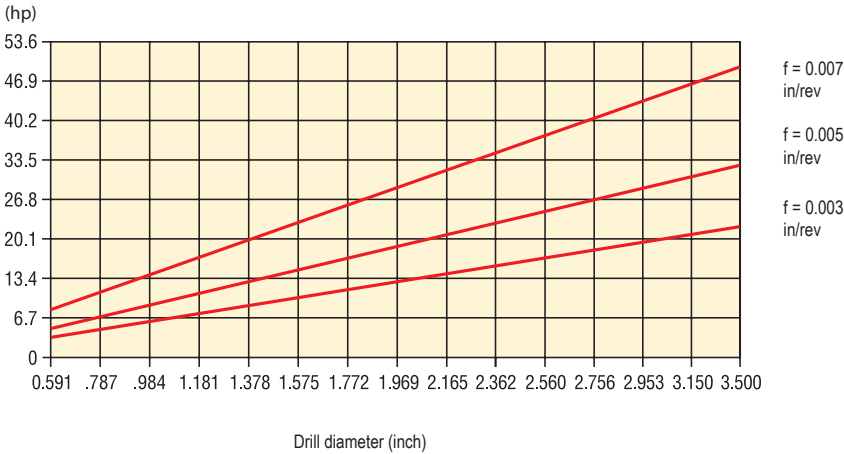
**Machining data – Power consumption, coolant volume requirement and force graphs**

The values in the graphs vary with e.g., cutting data, material, with a machine efficiency of 80%.  
The graphs below are valid for Seco material group No. P5-P6 and cutting speed 655 sf/min.

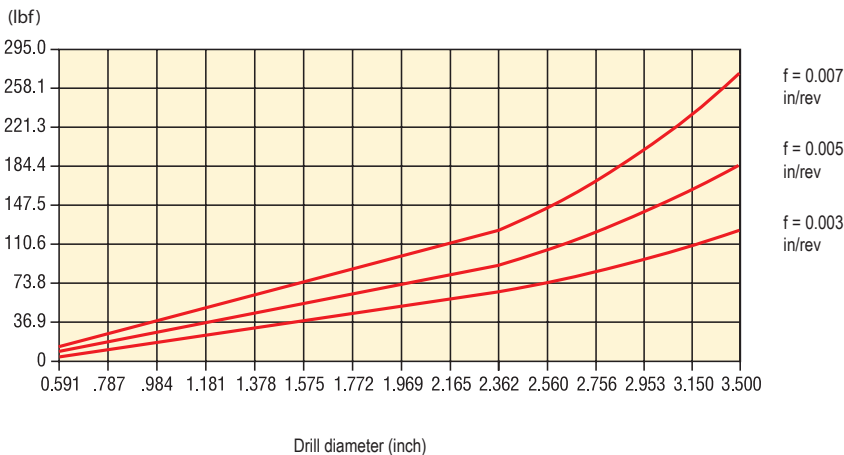
**Feed force**



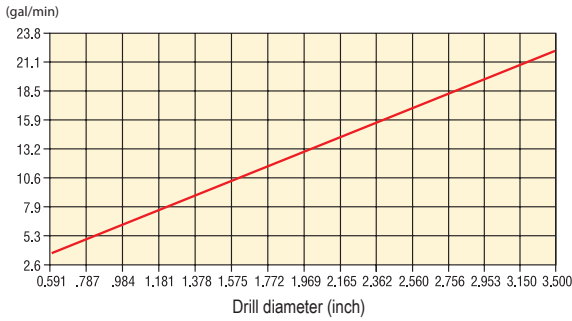
**Net power consumption**



**Drilling torque**



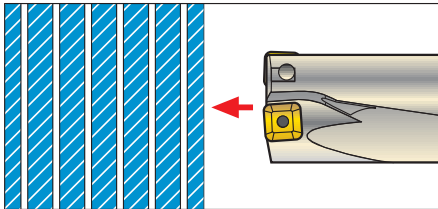
**Machining data – Coolant volume requirement**



**Coolant pressure requirement**

Drilling depth	Recommended pressure (psi)		
	Drill diameter (inch)		
	0.591-0.984	> 0.984-1.575	> 1.575
< 3 x D	87	65	44
≥ 3 x D	174	130	87

**Drilling of stacked materials**



Drilling of stacked materials with no air gaps between the layers, 0.008" (max 0.2 mm), can be done with the SD503 3 x D and the SD542 2.5 x D drill. The component must be securely fixed so no flexing occurs when breaking through each layer.

**Cutting data and insert recommendations for drilling of stacked materials**

**Insert geometry:**                      **Carbide grade:**  
 Center insert: SPGX-C1              Center insert: T400D  
 Periph insert: SCGX-P2              Periph insert: DP3000  
**Cutting speed:** See recommendations for DP3000 carbide grade  
**Feed/rev:** See recommendations for P2 geometry

If a problem occurs when breaking through each layer, reduce the feed/rev by 30-50%.

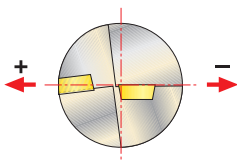
**Caution!**

The disc produced when the drill breaks through can be ejected at high speed when using the drill as a stationary tool, (rotating workpiece). It is most important to ensure that the machine is adequately guarded to ensure operator safety.

**Set up**

**Hole diameter adjustment and set-up recommendation**

The insert drills can be displaced off-center to achieve a smaller or larger hole diameter than the actual drill. For measurement see 'Radial adjustment' in the tool data table in the catalog pages.



**Rotating**

Seco's adjustable holder is recommended for precision hole diameter IT10 setting when using SD502 and SD503, 3 x D as rotating drills.

**Stationary**

When mounting the drill make sure the cutting edges are parallel with the guide ways of the cross slide and that the drill center line and workpiece center line align. To achieve a larger hole diameter, displace the drill so that the periphery insert moves away from the workpiece center line.

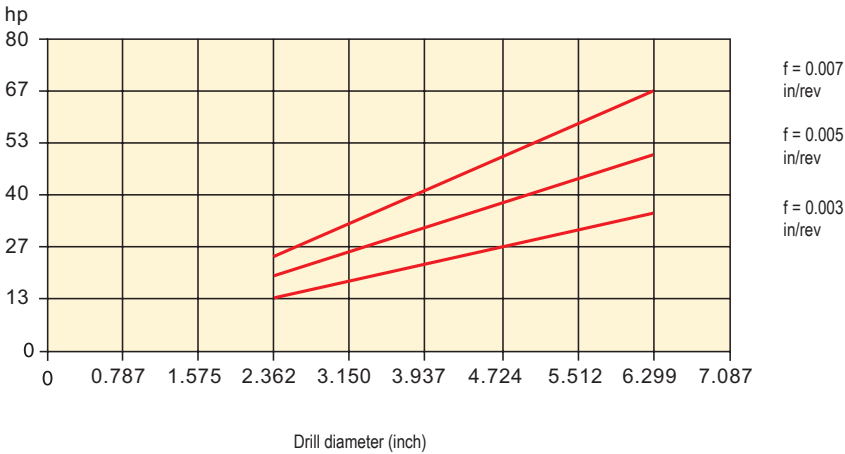
## Power consumption, coolant volume requirement and force graphs

The values in the graphs vary with e.g., cutting data, material, with a machine efficiency of 80%.  
The graphs below are valid for Seco material group No. P5-P6 and cutting speed 655 sf/min.

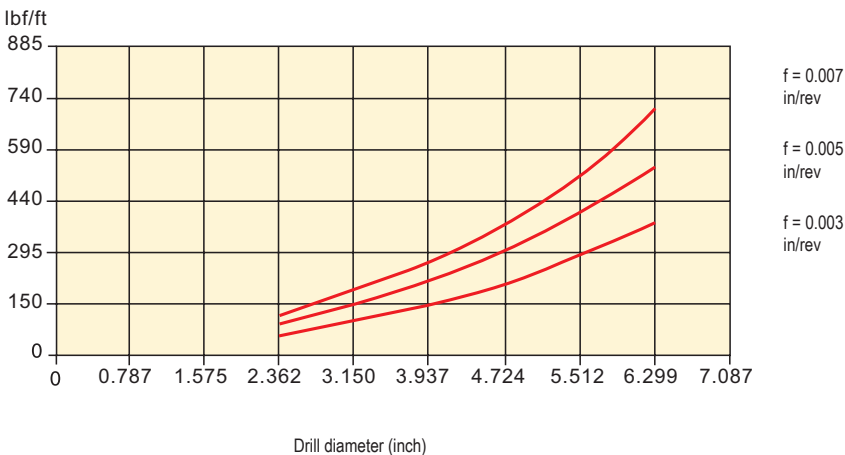
### Feed force



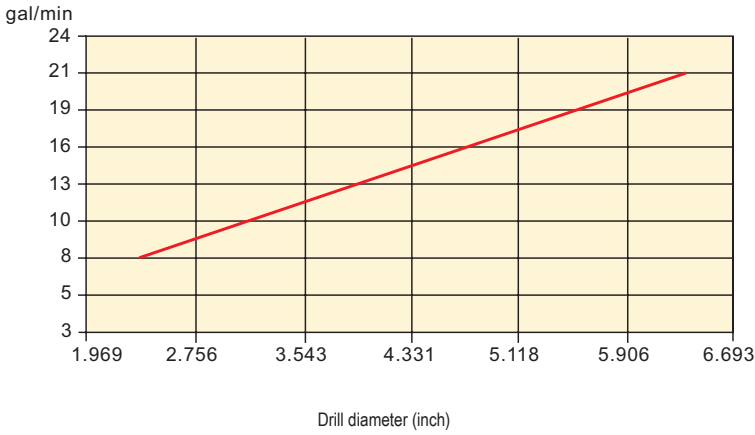
### Net power consumption



### Drilling torque



## Machining data – Coolant volume requirement



## Methods

Not recommended	Solution	
	1.	2.

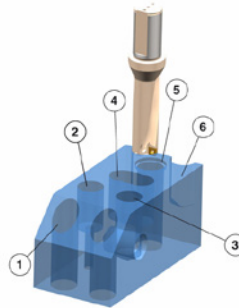
> 5xD



## Versatility

### Applications:

1. Hole with angled entrance
2. Boring
3. Drilling across an existing hole
4. Drilling and plunging
5. Drilling and milling countersink by circular interpolation
6. Plunging

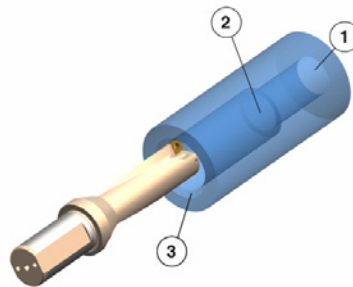


### Recommendations:

- 2 X D and 3 X D drills (SD502, SD503)
- Reduce the feed ~ 50% when the drill is not fully engaged
- Use grade DP3000
- Use -P2 chipbreaker

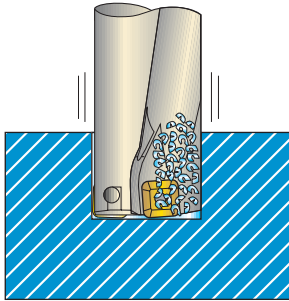
### Multiple choice in non rotating operations:

1. Drilling
2. Boring / Conical hole
3. Chamfering



## Troubleshooting

### Vibrations



- Check mounting of drill
- Check mounting of workpiece
- Increase feed. If a very soft material, reduce feed and increase speed
- Reduce the cutting speed

### Insufficient torque

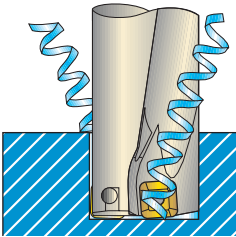
- Reduce feed
- Choose a geometry with harder chipbreaking for lower feeds

### Insufficient power

- Reduce cutting speed
- Reduce feed
- Choose a geometry with harder chipbreaking for lower feeds. (SCGX-P1)

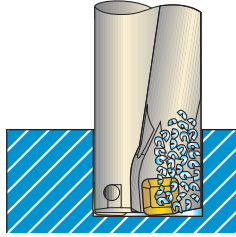
## Chip Jamming Problems

### Chip jamming problems due to long chips



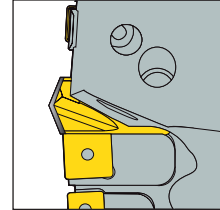
- Increase feed. If a very soft material, reduce feed and increase speed
- Choose a geometry with harder chipbreaking for lower feeds. (SCGX-P1)

### Chip jamming problems despite short chips



- Increase coolant pressure/volume
- Reduce cutting speed

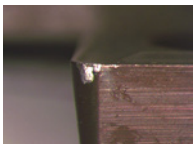
### Rapid flank wear on pilot drill



- Reduce the cutting speed
- Increase coolant concentration

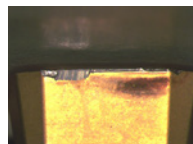
## Tool life problems

### Chipping of periphery insert



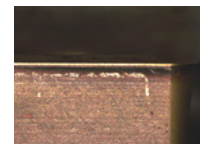
- Reduce entrance feed
- Choose a tougher grade
- Choose a geometry with softer chipbreaking for higher feeds (SCGX-P2)
- Reduce feed
- Reduce cutting speed

### Chipping of center insert



- Check mounting of drill
- Check mounting of workpiece
- Reduce entrance feed
- Increase feed
- Reduce cutting speed

### Rapid flank wear on periphery insert



- Reduce cutting speed
- Increase coolant pressure volume
- Choose a more wear resistant grade

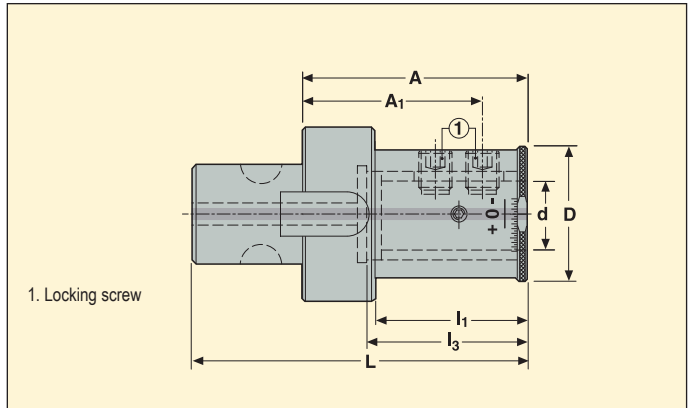


## EPB 6100 – Adjustable drill holders, for type 7 drill shanks – ISO 9766 – Metric

Graflex®



- For Performax™ drills
- Adjustable from -0.012 to +0.031" (-0.3 mm to +0.8 mm) on diameter



Graflex shank size	For drill shank type	d (mm)	EDP No.	Part No.	Dimensions in mm						lbs	
					A	A <sub>1</sub>	D	L	l <sub>1</sub>	l <sub>3</sub>		
G6	R7	25	<a href="#"> 06959 </a>	<b> BM061610025 </b>	70	55	49	110	54	54	2.47	
	R7	32	<a href="#"> 06958 </a>	<b> BM061610032 </b>	85	70	71	125	66	60.5	4.61	
	R7	40	<a href="#"> 06957 </a>	<b> BM061610040 </b>	85	70	81	125	66	60.5	5.25	

### Spare parts

For d mm	Tenon	Locking screw
25	90M61	950AF1210014
32	90M61	950AF1210020
40	90M61	950AF1210020

### Accessories\*

Key	Reducing sleeve	Reducing sleeve 2
H06-4	–	–
H06-4	05B61003225	–
H06-4	05B61004025	05B61004032

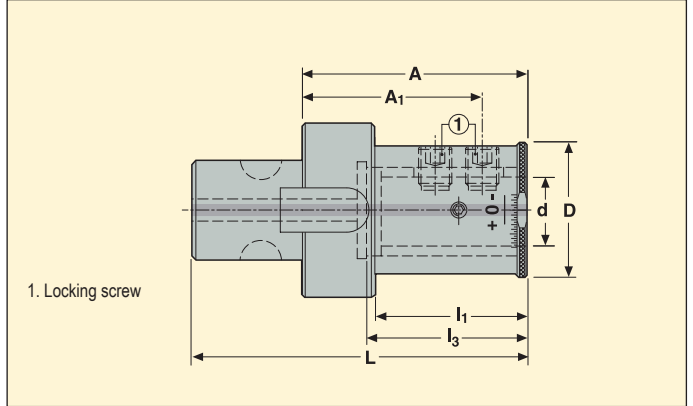
\* Accessories not included in delivery. Please check availability in current price and stock-list.

## EPB 6101 – Adjustable drill holders, for type 7 drill shanks - Inch

Graflex®



- For Performax™ drills
- Adjustable from -0.012 to +0.031" (-0.3 mm to +0.8 mm) on diameter



Graflex shank size	For drill shank type	d (inch)	EDP No.	Part No.	Dimensions in inch						lbs
					A	A <sub>1</sub>	D	L	I <sub>1</sub>	I <sub>3</sub>	
G6	R7	1.00	06956	BM061610125	2.756	2.165	1.929	4.331	2.126	2.146	2.45
	R7	1.25	06955	BM061610131	3.346	2.756	2.795	4.921	2.598	2.382	4.61
	R7	1.50	06954	BM061610138	3.346	2.756	3.189	4.921	2.598	2.382	5.40

### Spare parts

### Accessories\*

For d inch	Tenon	Locking screw
1.00	90M61	950AF1210014
1.25	90M61	950AF1210020
1.50	90M61	950AF1210020

Key	Reducing sleeve	Reducing sleeve 2
H06-4	-	-
H06-4	05B61013125	-
H06-4	05B61013825	05B61013831

\* Accessories not included in delivery. Please check availability in current price and stock-list.



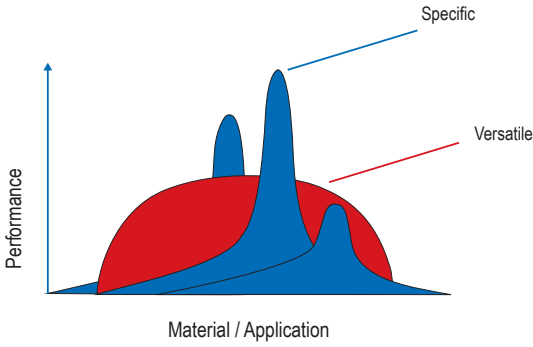
## Range overview

Threading	∅ Range	Length
<p>Threadmaster™</p>  <p>Page(s) 285-288</p>	<p>M4-M20 10 - 9/16"</p>	<p>~ 2-3 x D</p>
<p>Drill Threadmaster™</p>  <p>Page(s) 288</p>	<p>M4-M16</p>	<p>~ 2 x D</p>
<p>R396.18/19</p>  <p>Page(s) 289-293</p>	<p>14 ≤</p>	<p>~ 2-3.5 x D</p>
<p>Niagara Cutter™ – Thread mill</p>  <p>Page(s) 294-299</p>	<p>M3-M24 0.2-1"</p>	<p>~ 2-3 x D</p>
<p>Niagara Cutter™ – Thread mill</p>  <p>Page(s) 296</p>	<p>10-1"</p>	<p>~ 3-5 x D</p>

## Versatile & Specific

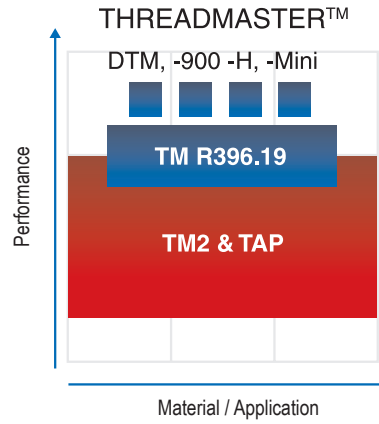
### Thread milling and Tapping – Choice of tool

#### Product Strategy



Continuous research and development of better materials, coatings and optimal geometries help fulfil customer's requirements. Our product strategy is to provide the market with versatile first choice tools and specific optimized solutions for threading.

#### Product Assortment





## Thread milling – Choice of cutter, inserts and cutting data

### Solid carbide cutter – Threadmaster™ and Threadmaster™2

#### 1. General

The same cutter can be used for machining both right and left hand threads. Metric and UN versions are only for internal threading. The remaining of the range can be used for both external and internal threading.

- The cutters are regrindable

#### 2. Select cutter diameter

- Look up the pages with the Threadmaster programs
- Look up the column for the required thread type
- Look up the required pitch/TPI
- When more alternatives are available note that:
  - Smaller cutter diameter allows smaller threading diameter (minimum thread diameter is found in the designation).
  - Larger cutter diameter allows larger threading depth (maximum threading depth is 2 x cutter diameter,  $D_c$ ).
  - With Threadmaster<sup>2</sup> also 3 x D is available.

Note: when using Threadmaster<sup>2</sup> additional orbital cuts have to be done since  $a_p$  has a limit of 3 pitch.

#### 3. Selection of cutter

- TM: Basic choice
- TM...-900: Choice for steel and stainless steel with tensile strength > 130 ksi
- TM...-H: Choice for hardened steel with hardness 45-60 HRC
- DTM: Drill, thread and chamfer with same tool. To be used in aluminum and cast iron

#### 4. Select cutting data

- Use the tables beginning on page(s) 612-N/A to classify the workpiece material into a SMG (Seco Material Group)
- Cutting speed recommendations are found on the cutting data page for Threadmaster
- Feed per tooth (= flute) recommendations are found on the cutting data page for Threadmaster
- Formulae for cutting data calculation are on page(s) 282

For best performance use the "Seco Threading Wizard" software (available at <http://mypages.secotools.com>)

#### 5. Machining methods

- Helical interpolation must be used to create the pitch
- Clockwise or counterclockwise feed direction can be used depending on thread type and machining method (right or left hand), external or internal thread
- Climb milling is recommended
- Coolant supply is recommended except when threading hardened material
- Special machining recommendations for certain workpiece materials are found on the cutting data page for Threadmaster

## Feed recommendations

### Threadmaster™:

- Feed recommendations for TM-M4X0.7ISO-6R1 except for TM-Mini, that recommendation is for TM-M1.0X0.25ISO-3R1-H and only a start value
- For best performance use the "Seco Threading Wizard" software (available at <http://mypages.secotools.com>)
- All feed are related to the center of the cutter and not the periphery
- In the entrance loop reduce feed by 50%. In the exit loop increase feed by 50%
- In the entrance and exit loop feed the cutter 15% of the pitch axially
- For free cutting steel, low alloy and ferritic steel, quench & temper steel, low to medium alloy stainless steels and austenitic cast irons, leave 0.002" (0.05 mm) in  $a_e$  for a finishing cut
- For high strength steels, martensitic and high alloy stainless steels, Ni-based superalloys and titanium alloys remove 2/3 of  $a_e$  in the first cut and the remaining 1/3 in the second cut
- For hardened steels remove 1/3 of  $a_e$  in the first cut, 1/3 of  $a_e$  in the second cut and the remaining 1/3 in the third cut
- For NPT and NPTF threads take the whole  $a_e$  in one cut
- Coolant is recommended (except when using -H in hardened materials)
- The Metric and UN thread mills are only for internal threads

### TM-Mini:

- Do the entrance loop before entering into the workpiece

### DTM:

- Use peck drilling

## Choice of cutter, inserts and cutting data

### 1. General

- The same cutter can be used for machining external and internal, right-hand and left-hand threads.

### 2. Select cutter diameter

- Look up the pages for thread milling cutters and choose a suitable diameter in the tool data table.
- The insert size varies with the cutter diameters. Check the available insert program for the different sizes before deciding cutter diameter.
- For internal thread milling check the 'minimum thread diameter' table before deciding cutter diameter. This table shows the relation between the cutter diameter and the smallest thread diameter to be machined.

### 3. Select insert

- Look up the thread milling inserts pages and choose the required thread type in the correct insert size for the cutter. Choose the grade F30M/CP500 for general machining.

### 4. Select cutting data

#### Radial cutting depth

- Use the formulae to calculate the radial cutting depth ( $a_e$ ). (See figures)

#### Feed rate

- Divide the radial cutting depth with the cutter diameter to get the actual cutter engagement percentage ( $a_e/D_c\%$ ). Use the cutting data table to get a feed per tooth recommendation.

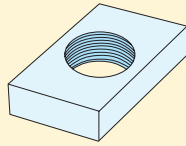
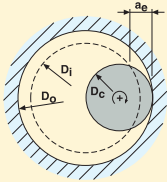
#### Cutting speed

- Use the tables beginning at page(s) 612-N/A to classify the workpiece material into a SMG.
- Cutting speed recommendations (for 10% engagement) are in the basic cutting speed table in the catalog.
- Maximum rpm that for safety reasons should never be exceeded, are shown on each product page.
- Formulae for cutting data calculation are found on page(s) 282.

### 5. Machining methods

- Helical interpolation must be used to create the pitch.
- Clockwise or counterclockwise feed direction can be used depending on thread type and machining method (right or left hand, external or internal thread).
- Climb milling and coolant is recommended.
- For best performance use the "Seco Threading Wizard" software (available at <http://mypages.secotools.com>)

### Internal

$D_1 = D_o - 2h$

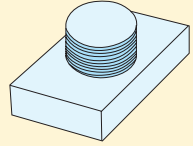
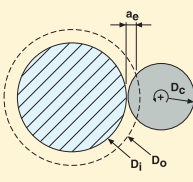
Thread	h
ISO	$0.60 \times p$
UN	$0.60 \times p$
W	$0.69 \times p$
BSPT	$0.69 \times p$
NPT	$0.78 \times p$

p = pitch (inch)  
h = depth of thread (inch)  
D<sub>c</sub> = Cutter dia (inch)  
D<sub>o</sub> = Major dia (inch)  
D<sub>1</sub> = Minor dia (inch)

Radial infeed value  $a_e$ :

$$a_e = \frac{D_o^2 - D_1^2}{4(D_o - D_c)}$$

### External

$D_1 = D_o - 2h$

Thread	h
ISO	$0.65 \times p$
UN	$0.65 \times p$
W	$0.69 \times p$
BSPT	$0.69 \times p$
NPT	$0.78 \times p$

p = pitch (inch)  
h = depth of thread (inch)  
D<sub>c</sub> = Cutter dia (inch)  
D<sub>o</sub> = Major dia (inch)  
D<sub>1</sub> = Minor dia (inch)

Radial infeed value  $a_e$ :

$$a_e = \frac{D_o^2 - D_1^2}{4(D_1 + D_c)}$$

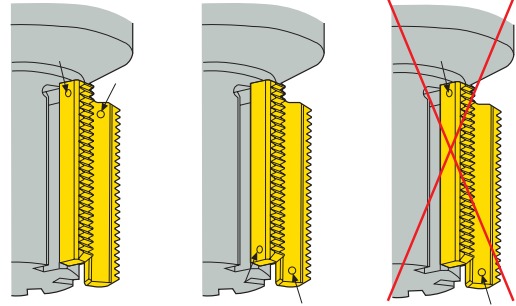
## Feed related to the center of the cutter

When calculating feed and feed/tooth from average chip thickness using circular interpolation or helical interpolation ramping in an operation, the feed and feed/tooth are always related to the center and not to the periphery of the cutter.

## Tolerance on the machined component

The tolerance on the thread diameter is 6H when using a cutter with more than one tooth. With a single cutting insert the tolerance is 4H. If a multi-tooth milling cutter is used with one cutting insert, the other insert seat(s) must be equipped with non-cutting blank insert(s) to stabilise the milling cutter during the cutting process.

As all 396.19 inserts are double sided, it is important that all inserts are mounted in the same position to achieve best possible tolerance. It must be done by indexing the identification dots in the same position. See opposite figure.



## Choice of cutter, inserts and cutting data – Threading Wizard

In order to simplify the selection of tools and cutting parameters Seco has introduced the Threading Wizard software, which eliminates complicated programming and calculations. The Threading Wizard selects the optimum holder and insert, identifies the best operating parameters and then downloads the information to the CNC machine.

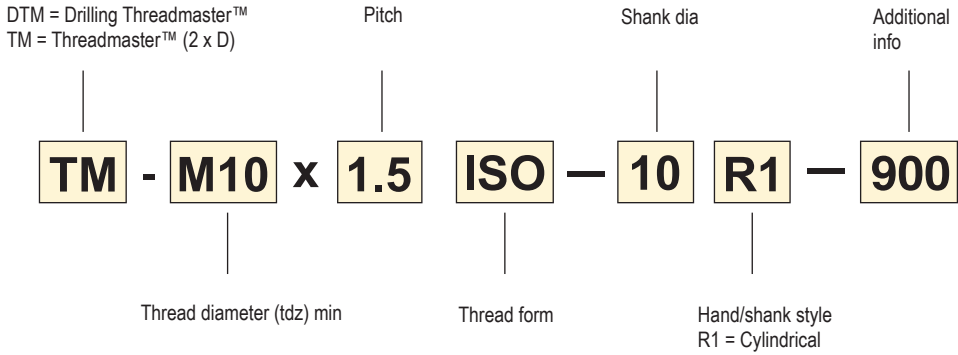
The Threading Wizard is free and downloadable at [www.secotools.com/customerzone](http://www.secotools.com/customerzone)



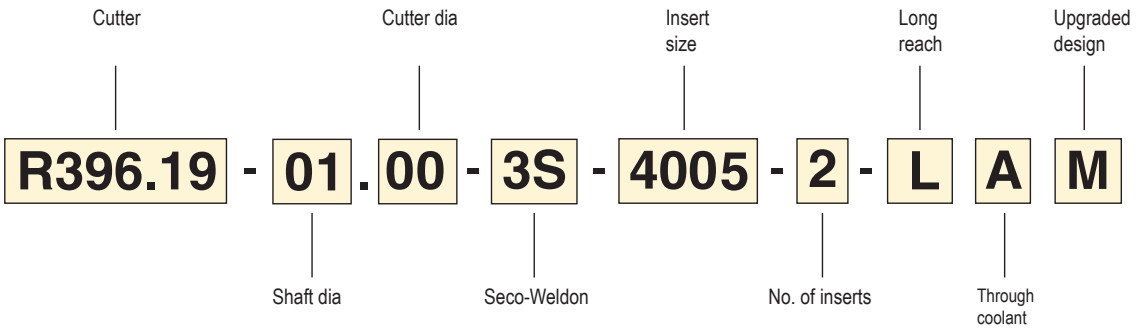
<b>RPM</b>	$n = \frac{v_c \cdot 3.82}{D_c} \quad (\text{rev/min})$
<b>Cutting speed</b>	$v_c = \frac{n \cdot D_c}{3.82} \quad (\text{sf/min})$
<b>Feed speed</b>	$v_f = n \cdot z_n \cdot f_z \quad (\text{in/min})$ $v_f = n \cdot z_c \cdot f_z \quad (\text{in/min})$
<b>Feed per revolution</b>	$f = z_n \cdot f_z \quad (\text{in/rev})$ $f = z_c \cdot f_z \quad (\text{in/rev})$

$D_c$	= Cutter diameter	inch
$f$	= Feed per revolution	in/rev
$f_z$	= Feed per tooth	in/tooth
$z_c$	= Effective No. of teeth for calculation of feed speed or feed per rev	
$n$	= RPM	rev/min
$v_c$	= Cutting speed	sf/min
$v_f$	= Feed speed	in/min
$z_n$	= No. of teeth	

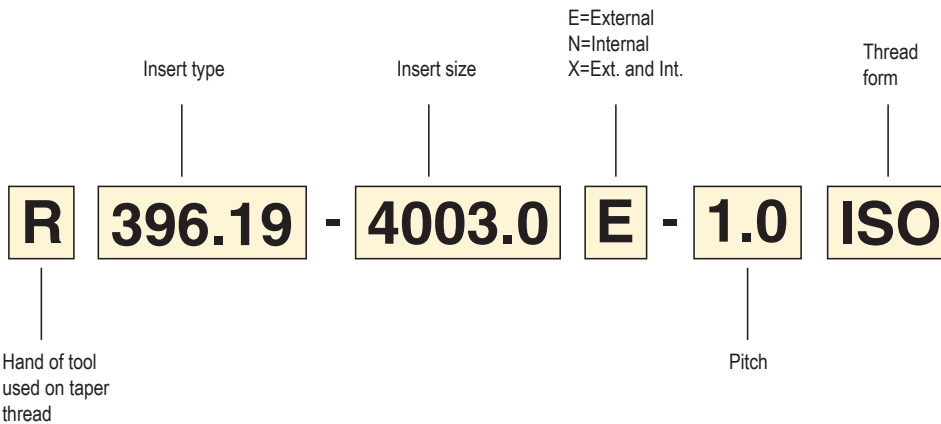
## Threadmaster™ – Code key




## R396.19 – Code key



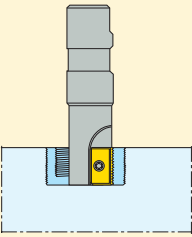
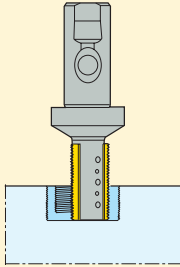
## Insert 396.19 – Code key



## Application overview, milling cutters – Solid carbide

<p><b>Threadmaster</b></p>  <p>TM - Thread size M1-M20</p> <p>Solid carbide thread milling cutters for smaller threads</p> <p>Page(s) 285-286, 287-288</p>	
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## Application overview, milling cutters – Cutter with inserts

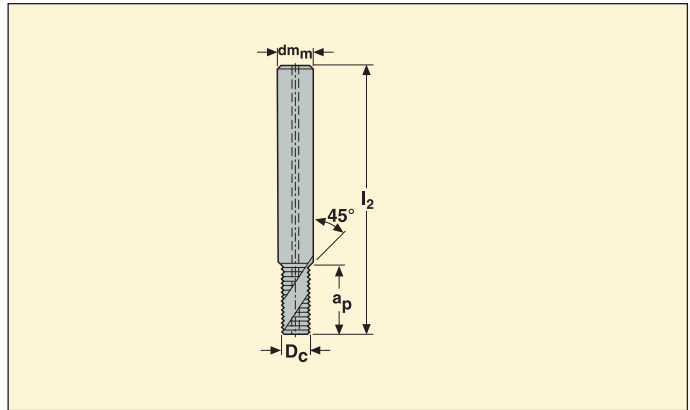
<p><b>396.18</b></p>  <p>Ø 0.39-0.47" (396.18)</p> <p>Thread milling cutters with indexable inserts</p> <p>Page(s) 289</p>	<p><b>396.19</b></p>  <p>Ø 0.59-2.283" (396.19)</p> <p>Thread milling cutters with indexable inserts</p> <p>Page(s) 289-290</p>	
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## Threadmaster™

## Solid carbide thread milling cutters for smaller threads



- For cutting data recommendations use "Thread Milling Wizard" software available at <http://mypages.secotools.com>
- TM; 2 x D



Thread profile	EDP No.	Part No.	Thread tdz	Through coolant	Pitch		Dimensions in inch			dm <sub>m</sub> (mm)	No. of flutes
					mm	TPI	D <sub>c</sub>	l <sub>2</sub>	a <sub>p</sub>		
Metric coarse	16970	TM-M4X0.7ISO-6R1	M4		0.70	–	0.124	1.929	0.315	6	3
	17163	TM-M4X0.7ISO-6R1-900	M4		0.70	–	0.124	1.929	0.315	6	3
	17106	TM-M4X0.7ISO-6R1-H	M4		0.70	–	0.124	1.811	0.248	6	4
	16941	TM-M5X0.8ISO-6R1	M5		0.80	–	0.156	1.929	0.394	6	3
	17164	TM-M5X0.8ISO-6R1-900	M5		0.80	–	0.156	1.929	0.394	6	3
	17121	TM-M5X0.8ISO-6R1-H	M5		0.80	–	0.156	1.850	0.283	6	4
	16939	TM-M6X1.0ISO-6R1	M6		1.00	–	0.185	2.165	0.492	6	3
	17166	TM-M6X1.0ISO-6R1-900	M6		1.00	–	0.185	2.165	0.492	6	3
	17122	TM-M6X1.0ISO-6R1-H	M6		1.00	–	0.185	2.047	0.335	6	4
	16921	TM-M8X1.25ISO-8R1	M8	■	1.25	–	0.244	2.441	0.665	8	3
	17167	TM-M8X1.25ISO-8R1-900	M8	■	1.25	–	0.244	2.441	0.665	8	3
	17128	TM-M8X1.25ISO-8R1-H	M8		1.25	–	0.244	2.244	0.492	8	4
	16920	TM-M10X1.5ISO-10R1	M10	■	1.50	–	0.307	2.913	0.799	10	3
	17168	TM-M10X1.5ISO-10R1-900	M10	■	1.50	–	0.307	2.913	0.799	10	3
	17139	TM-M10X1.5ISO-10R1-H	M10		1.50	–	0.307	2.598	0.591	10	5
	16918	TM-M12X1.75ISO-12R1	M12	■	1.75	–	0.370	3.110	1.000	12	3
	17169	TM-M12X1.75ISO-12R1-900	M12	■	1.75	–	0.370	3.110	1.000	12	3
	17157	TM-M12X1.75ISO-12R1-H	M12		1.75	–	0.370	2.992	0.689	12	5
16917	TM-M14X2.0ISO-14R1	M14	■	2.00	–	0.429	3.504	1.142	14	4	
17170	TM-M14X2.0ISO-14R1-900	M14	■	2.00	–	0.429	3.504	1.142	14	4	
16460	TM-M20X2.5ISO-20R1	M20	■	2.50	–	0.623	4.252	1.575	20	4	
Metric fine	16466	TM-MF4X0.5ISO-6R1	M4		0.50	–	0.124	1.929	0.327	6	3
	16992	TM-MF5X0.5ISO-6R1	M5		0.50	–	0.156	1.929	0.406	6	3
	16980	TM-MF6X0.75ISO-6R1	M6		0.75	–	0.185	2.165	0.488	6	3
	16916	TM-MF10X1.0ISO-10R1	M10	■	1.00	–	0.307	2.913	0.807	10	3
	16904	TM-MF12X1.5ISO-12R1	M12	■	1.50	–	0.370	3.110	0.976	12	3
	17171	TM-MF12X1.5ISO-12R1-900	M12	■	1.50	–	0.370	3.110	0.976	12	3
	17158	TM-MF12X1.5ISO-12R1-H	M12		1.50	–	0.370	2.992	0.705	12	5
	17160	TM-MF14X1.5ISO-14R1-H	M14		1.50	–	0.430	3.228	0.843	14	5
	17161	TM-MF16X1.5ISO-16R1-H	M16		1.50	–	0.505	3.701	0.941	16	5
UNC	17090	TM-NR.10X24UNC-6R1	No.10		–	24	0.146	1.929	0.398	6	3
	09352	TM-1/4X20UNC-6R1	1/4		–	20	0.185	2.165	0.575	6	3
	17105	TM-5/16X18UNC-8R1	5/16	■	–	18	0.244	2.441	0.638	8	3
	16537	TM-3/8X16UNC-10R1	3/8	■	–	16	0.289	2.913	0.780	10	3
	16534	TM-7/16X14UNC-12R1	7/16	■	–	14	0.337	3.110	0.894	12	3
	17104	TM-1/2X13UNC-12R1	1/2	■	–	13	0.370	3.110	1.039	12	3
	17103	TM-9/16X12UNC-14R1	9/16	■	–	12	0.429	3.504	1.209	14	4

■ Stock standard

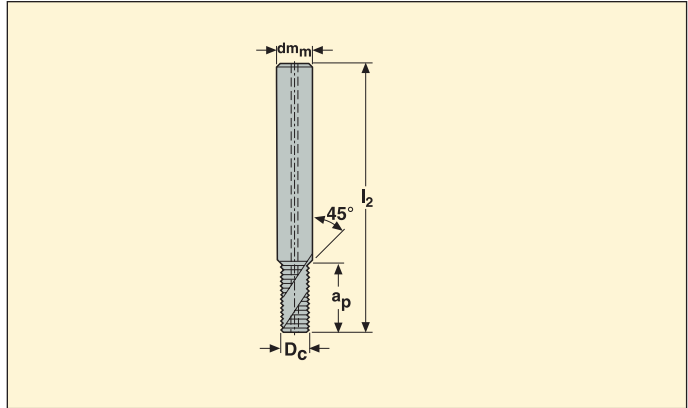
Please check availability in current price and stock-list.

## Threadmaster™

## Solid carbide thread milling cutters for smaller threads



- For cutting data recommendations use "Thread Milling Wizard" software available at <http://mypages.secotools.com>
- TM; 2 x D



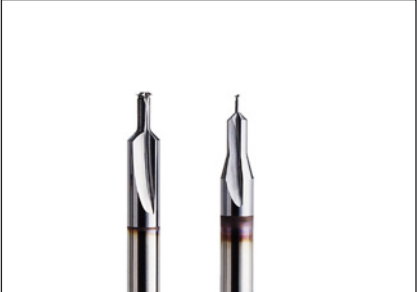
Thread profile	EDP No.	Part No.	Thread tdz	Through coolant	Pitch		Dimensions in inch			dm <sub>m</sub> (mm)	No. of flutes
					mm	TPI	D <sub>c</sub>	l <sub>2</sub>	a <sub>p</sub>		
UNF	16519	TM-NR.10X32UNF-6R1	No.10		-	32	0.156	1.929	0.390	6	3
	16506	TM-1/4X28UNF-6R1	1/4		-	28	0.185	2.165	0.555	6	3
	16449	TM-5/16X24UNF-8R1	5/16	■	-	24	0.244	2.441	0.646	8	3
	16505	TM-3/8X24UNF-10R1	3/8	■	-	24	0.307	2.913	0.772	10	3
	16499	TM-7/16X20UNF-12R1	7/16	■	-	20	0.366	3.110	0.874	12	3
	16483	TM-1/2X20UNF-12R1	1/2	■	-	20	0.370	3.110	1.024	12	3
	17098	TM-9/16X18UNF-14R1	9/16	■	-	18	0.429	3.504	1.138	14	4
NPT	17082	TM-1/8X27NPT-12R1	1/8	■	-	27	0.307	2.756	0.350	12	3
	17080	TM-1/4X18NPT-16R1	1/4	■	-	18	0.396	3.189	0.528	16	4
	16978	TM-3/8X18NPT-18R1	3/8	■	-	18	0.530	3.189	0.528	18	4
NPTF	17079	TM-1/8X27NPTF-12R1	1/8	■	-	27	0.303	2.756	0.350	12	3
	17047	TM-1/4X18NPTF-16R1	1/4	■	-	18	0.394	3.189	0.528	16	4
	16979	TM-3/8X18NPTF-18R1	3/8	■	-	18	0.528	3.189	0.528	18	4
BSP	17018	TM-1/8X28W-10R1	1/8	■	-	28	0.307	2.913	0.803	10	3
	16436	TM-1/4X19W-14R1	1/4	■	-	19	0.429	3.504	1.079	14	3
	15490	TM-3/8X19W-18R1	3/8	■	-	19	0.547	4.016	1.394	18	3

■ Stock standard  
 Please check availability in current price and stock-list.

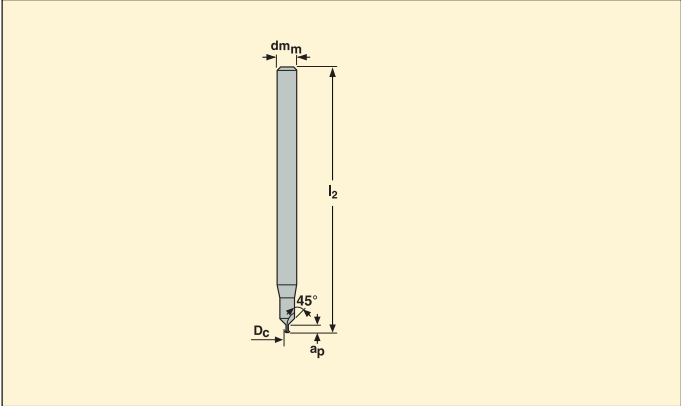


## Threadmaster™ – TM-Mini

Solid carbide for smaller threads



- For cutting data recommendations use "Thread Milling Wizard" software available at <http://mypages.secotools.com>
- TM; 1.5 x D



Thread profile	EDP No.	Part No.	Thread tdz	Through coolant	Pitch		Dimensions in inch			dm <sub>m</sub> (mm)	No. of flutes
					mm	TPI	D <sub>c</sub>	l <sub>2</sub>	a <sub>p</sub>		
Metric coarse	75476	TM-M1.0X0.25ISO-3R1-H	M1.0	No	0.25	–	0.028	1.575	0.081	3	2
	75579	TM-M1.4X0.30ISO-3R1-H	M1.4	No	0.30	–	0.038	1.575	0.104	3	2
	75477	TM-M1.6X0.35ISO-3R1-H	M1.6	No	0.35	–	0.045	1.575	0.121	3	2
	75475	TM-M2.0X0.40ISO-3R1-H	M2.0	No	0.40	–	0.061	1.575	0.147	3	2
	75580	TM-M2.2X0.45ISO-3R1-H	M2.2	No	0.45	–	0.067	1.575	0.154	3	2
	75581	TM-M2.5X0.45ISO-3R1-H	M2.5	No	0.45	–	0.079	1.575	0.175	3	3

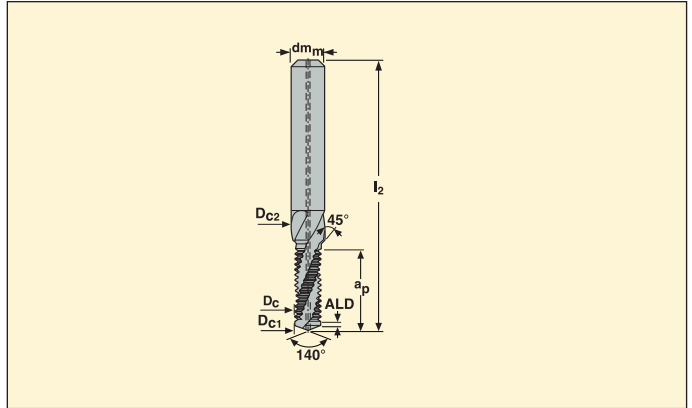
Please check availability in current price and stock-list.

## Drilling Threadmaster™

Solid carbide



- For cutting data recommendations use "Thread Milling Wizard" software available at <http://mypages.secotools.com>
- DTM; 2 x D



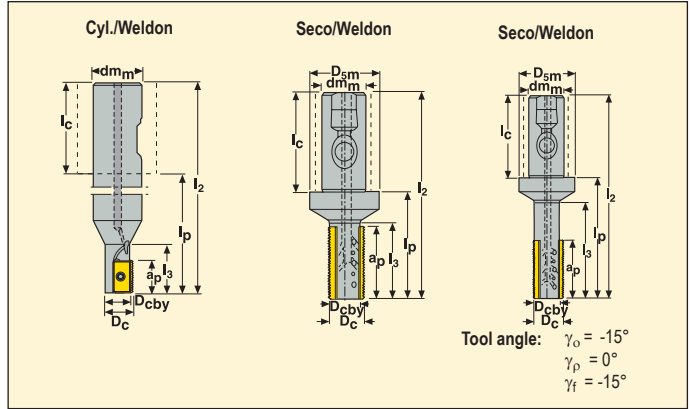
Thread profile	EDP No.	Part No.	Thread tdz	Through coolant	Pitch		Dimensions in inch					dm <sub>m</sub> (mm)	No. of flutes	
					mm	TPI	ALD	D <sub>c</sub>	D <sub>c1</sub>	D <sub>c2</sub>	I <sub>2</sub>			a <sub>p</sub>
Metric coarse	17173	DTM-M4X0.7ISO-6R1	M4	■	0.70	-	0.028	0.128	0.130	0.169	1.929	0.371	6	2
	17174	DTM-M5X0.8ISO-6R1	M5	■	0.80	-	0.031	0.161	0.165	0.209	2.165	0.459	6	2
	17176	DTM-M6X1.0ISO-8R1	M6	■	1.00	-	0.039	0.191	0.197	0.248	2.441	0.570	8	2
	17177	DTM-M8X1.25ISO-10R1	M8	■	1.25	-	0.047	0.254	0.266	0.327	2.913	0.715	10	2
	17178	DTM-M10X1.5ISO-12R1	M10	■	1.50	-	0.059	0.318	0.335	0.406	3.110	0.920	12	2
	17179	DTM-M12X1.75ISO-14R1	M12	■	1.75	-	0.059	0.383	0.404	0.484	3.504	1.065	14	2
	17180	DTM-M14X2.0ISO-16R1	M14	■	2.00	-	0.059	0.447	0.472	0.563	4.016	1.290	16	2
17182	DTM-M16X2.0ISO-18R1	M16	■	2.00	-	0.059	0.523	0.551	0.642	4.016	1.461	18	2	
Metric fine	17184	DTM-MF8X1.0ISO-10R1	M8	■	1.00	-	0.039	0.267	0.276	0.327	2.913	0.740	10	2
	17186	DTM-MF10X1.0ISO-12R1	M10	■	1.00	-	0.059	0.344	0.354	0.406	3.110	0.913	12	2
	17187	DTM-MF12X1.5ISO-14R1	M12	■	1.50	-	0.059	0.396	0.413	0.484	3.504	1.110	14	2
UNC	17189	DTM-1/4X20UNC-8R1	1/4	■	-	20	0.047	0.185	0.200	0.262	2.441	0.619	8	2
	17190	DTM-5/16X18UNC-10R1	5/16	■	-	18	0.055	0.237	0.257	0.324	2.913	0.748	10	2
	17193	DTM-3/8X16UNC-12R1	3/8	■	-	16	0.059	0.290	0.313	0.387	3.110	0.904	12	2
	17194	DTM-1/2X13UNC-14R1	1/2	■	-	13	0.059	0.389	0.423	0.512	3.504	1.184	14	2
UNF	17195	DTM-1/4X28UNF-8R1	1/4	■	-	28	0.035	0.204	0.214	0.262	2.441	0.597	8	2
	17196	DTM-5/16X24UNF-10R1	5/16	■	-	24	0.043	0.256	0.271	0.324	2.913	0.741	10	2
	17197	DTM-3/8X24UNF-12R1	3/8	■	-	24	0.043	0.318	0.333	0.387	3.110	0.835	12	2
	17208	DTM-1/2X20UNF-14R1	1/2	■	-	20	0.051	0.428	0.450	0.512	3.504	1.110	14	2
BSP	17209	DTM-1/8X28W-12R1	1/8	■	-	28	0.035	0.331	0.343	0.395	3.110	0.867	12	2
	17210	DTM-1/4X19W-16R1	1/4	■	-	19	0.051	0.450	0.459	0.530	4.016	1.159	16	2

■ Stock standard  
Please check availability in current price and stock-list.

## R396.18/R396.19



- For cutting data recommendations use "Thread Milling Wizard" software available at <http://mypages.secotools.com>
- For insert program, see page(s) 291-293



EDP No.	Part No.	Dimensions in inch												Type of mounting	
		D <sub>c</sub>	D <sub>cby</sub>	dm <sub>m</sub>	D <sub>sm</sub>	l <sub>2</sub>	l <sub>p</sub>	l <sub>3</sub>	l <sub>c</sub>	a <sub>p</sub>					
<a href="#">87568</a>	R396.18 -00.39-3-13AT	0.39	0.31	0.75	-	4.14	-	0.53	3.61	0.51	1	0.44	30000	Cyl/Weldon	13..
<a href="#">54862</a>	-00.50-3-13A	0.47	0.39	0.75	-	4.14	-	0.78	3.36	0.51	1	0.66	30000	Cyl/Weldon	13..
<a href="#">74293</a>	-00.50-3-13AT	0.39	0.31	0.75	-	4.13	-	0.75	3.00	0.51	1	0.44	30000	Cyl/Weldon	13..
<a href="#">29547</a>	R396.19 -00.58-3S-1AM	0.59	0.45	1.00	1.57	4.80	2.36	1.02	2.44	1.10	1	1.10	22400	Seco/Weldon	396.19-4003
<a href="#">29536</a>	R396.19 -00.67-3S-4003-2AM	0.67	0.51	1.00	1.57	4.55	2.36	1.02	2.19	0.98	2	1.10	22000	Seco/Weldon	396.19-4003
<a href="#">29537</a>	-00.87-3S-4003-3AM	0.87	0.71	1.00	1.57	4.55	2.36	1.69	2.19	1.57	3	1.10	20000	Seco/Weldon	396.19-4003
<a href="#">29538</a>	-01.25-3S-4003-6AM	1.26	1.10	1.25	1.97	4.55	2.36	1.65	2.34	1.57	6	1.54	16800	Seco/Weldon	396.19-4003
<a href="#">29539</a>	R396.19 -01.00-3S-4005-2AM	0.98	0.75	1.00	1.57	4.55	2.36	1.69	2.19	1.57	2	1.10	13600	Seco/Weldon	396.19-4005
<a href="#">29540</a>	-01.18-3S-4005-3AM	1.18	0.91	1.00	1.57	4.55	2.36	1.69	2.19	1.57	3	1.10	12000	Seco/Weldon	396.19-4005
<a href="#">29542</a>	-01.42-3S-4005-6AM	1.42	1.14	1.25	1.97	4.70	2.36	1.65	2.34	1.57	6	1.54	11200	Seco/Weldon	396.19-4005
<a href="#">29543</a>	R396.19 -00.87-3S-4003-LAM	0.87	0.71	1.00	1.57	5.51	3.31	2.56	2.19	1.57	3	1.10	20000	Seco/Weldon	396.19-4003
<a href="#">29544</a>	-01.18-3S-4005-LAM	1.18	0.91	1.00	1.57	6.04	3.86	3.15	2.19	1.57	3	1.32	12000	Seco/Weldon	396.19-4005

Note! R396.19-01.00-3S-4005-2AM Max pitch size 4.5 ISO/6 TPI can be used.

### Spare Parts, Parts included in delivery

### Min thread diameter (major dia), for different pitch and cutter combinations

For cutter	Insert screw	Insert key*	Torque value in/ lbs*
R396.18	C02506-T07P	T07P-3, T09P-2	8.0
For cutter	Insert screw	Insert key*	Torque value in/ lbs*
R396.19	P6SS4x4-T09P	T09P-2	17.7

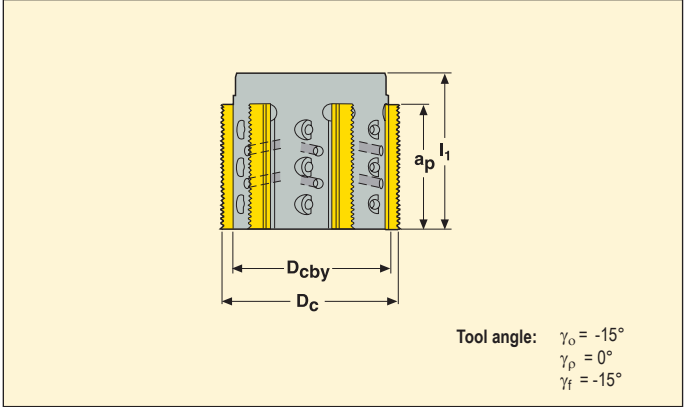
For cutter	Pitch, mm										
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
	TPI inch										
	24	16	12	10	8	7	6		5		4
R396.18-00.50.3-13	0.551	0.590	0.630	-	-	-	-	-	-	-	-
R396.18-00.50.3-13A	0.551	0.590	0.630	-	-	-	-	-	-	-	-
R396.19-00.58.3S-1AM	0.748	0.787	0.827	0.866	0.945	-	-	-	-	-	-
R396.19-00.67.3S-4003-2AM	0.748	0.787	0.827	0.866	0.945	-	-	-	-	-	-
R396.19-00.87.3S-4003-3AM	0.945	0.984	1.024	1.063	1.063	-	-	-	-	-	-
R396.19-00.87.3S-4003-3-LAM	0.945	0.984	1.024	1.063	1.063	-	-	-	-	-	-
R396.19-01.25.3S-4003-6AM	1.339	1.378	1.417	1.535	1.575	-	-	-	-	-	-
R396.19-01.00.3S-4005-2AM	-	-	-	-	-	1.299	1.378	1.457	1.496	1.575	1.654
R396.19-01.18.3S-4005-3AM	-	-	-	-	-	1.575	1.654	1.732	1.772	1.850	1.890
R396.19-01.18.3S-4005-3-LAM	-	-	-	-	-	1.575	1.654	1.732	1.772	1.850	1.890
R396.19-01.42.3S-4005-6AM	-	-	-	-	-	1.772	1.850	1.850	1.890	1.969	2.087

Please check availability in current price and stock-list.

Note! When milling threads to smaller diameters than indicated for a certain pitch/cutter combination, an incorrect thread form will result.

\* Torque key T00-07P09, T00-09P20.

## R396.19



- For cutting data recommendations use "Thread Milling Wizard" software available at <http://mypages.secotools.com>
- For insert program, see page(s) 291-293

EDP No.	Part No.	Dimensions in inch							
		D <sub>c</sub>	D <sub>cby</sub>	l <sub>1</sub>	a <sub>p</sub>				
29545	R396.19 -02.28-4003-6AM	2.283	2.087	1.969	1.575	6	1.76	8600	396.19-4003
29546	-02.28-4005-6AM	2.283	1.969	1.969	1.575	6	0.22	8600	396.19-4005

### Spare Parts, Parts included in delivery

For cutter	Insert screw	Insert key*	Arbor screw
R396.19-02.28	P6SS4x4-T09P	T09P-3	UC6S 1/2 UNF x 2

\*Torque values 17.7 in/lbs. Torque key, T00-09P20.

### Mounting dimensions

	For cutter	Dimensions in inch				For arbor
		dm <sub>m</sub>	D <sub>sm</sub>	B <sub>kw</sub>	c	
	R396.19-02.28-4003-6AM	1.000	2.087	0.382	0.224	1.000
	R396.19-02.28-4005-6AM	1.000	1.969	0.382	0.224	1.000

Please check availability in current price and stock-list.

## 13NMS/XMS

Tolerances:  
 $d = \pm 0.0005$   
 $s = \pm 0.001$   
 $l = \pm 0.0005$

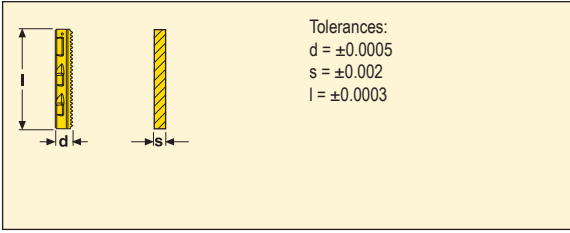
Size	Dimensions in inch		
	d	l	s
13NMS	0.276	0.512	0.098
13XM	0.276	0.512	0.098
13XMS	0.276	0.512	0.098

13NMS/XMS

Inserts	Part No.	Grades				
		Coated				
		CP500				
For internal threading	13NMS 1.0ISO	<a href="#">17495</a>				
	1.5ISO	<a href="#">17496</a>				
	2.0ISO	<a href="#">17499</a>				
For internal threading	24UN	<a href="#">19898</a>				
	20UN	<a href="#">17501</a>				
	16UN	<a href="#">17497</a>				
For external and internal threading	13XMS 19W	<a href="#">17503</a>				
	14W	<a href="#">17502</a>				
	13XM 18NPT	<a href="#">24218</a>				
	13XMS 14NPT	<a href="#">28896</a>				

Please check availability in current price and stock-list.

## 396.19-4003



Size	Dimensions in inch	
	l	s
4003	1.575	0.138

### 396.19-4003



Inserts	Part No.	Grades			
		F30M	H15		
For external threading	396.19 -4003.0E1.0ISO	<a href="#">96509</a>			
	-4003.0E1.5ISO	<a href="#">96579</a>			
	-4003.0E2.0ISO	<a href="#">96610</a>			
For external threading	396.19 -4003.0E18UN	<a href="#">96690</a>			
	-4003.0E16UN	<a href="#">96710</a>			
	-4003.0E14UN	<a href="#">96730</a>			
	-4003.0E12UN	<a href="#">96751</a>			
For internal threading	396.19 -4003.0N1.0ISO	<a href="#">96100</a>	<a href="#">96408</a>		
	-4003.0N1.5ISO	<a href="#">96510</a>	<a href="#">96544</a>		
	-4003.0N2.0ISO	<a href="#">96588</a>	<a href="#">96601</a>		
	-4003.0N2.5ISO	<a href="#">96640</a>			
	-4003.0N3.0ISO	<a href="#">96650</a>			
For internal threading	396.19 -4003.0N20UN	<a href="#">01486</a>			
	-4003.0N18UN	<a href="#">96680</a>			
	-4003.0N16UN	<a href="#">96700</a>	<a href="#">96702</a>		
	-4003.0N14UN	<a href="#">96720</a>	<a href="#">96721</a>		
	-4003.0N12UN	<a href="#">96740</a>	<a href="#">96750</a>		
	-4003.0N10UN	<a href="#">96252</a>			
	-4003.0N9UN	<a href="#">96253</a>			
	-4003.0N8UN	<a href="#">96254</a>			
For external and internal threading	396.19 -4003.0X16W	<a href="#">96840</a>			
	-4003.0X14W	<a href="#">96830</a>			
	-4003.0X12W	<a href="#">96820</a>			
	-4003.0X11W	<a href="#">96810</a>			

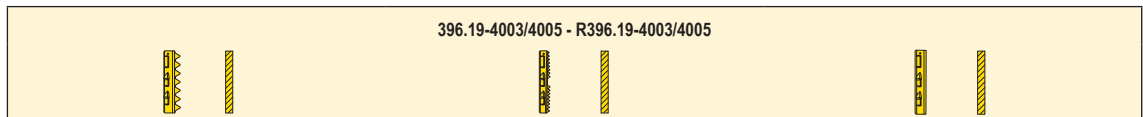
Subject to change refer to current price- and stock-list.

## 396.19-4003/4005

Tolerances: 4003...  
 $d = \pm 0.0005$   
 $s = \pm 0.002$   
 $l = \pm 0.0003$

Tolerances: 4005...  
 $d = \pm 0.0005$   
 $s = \pm 0.002$   
 $l = \pm 0.0006$

Size	Dimensions in inch	
	l	s
4003	1.575	0.138
4005	1.575	0.191



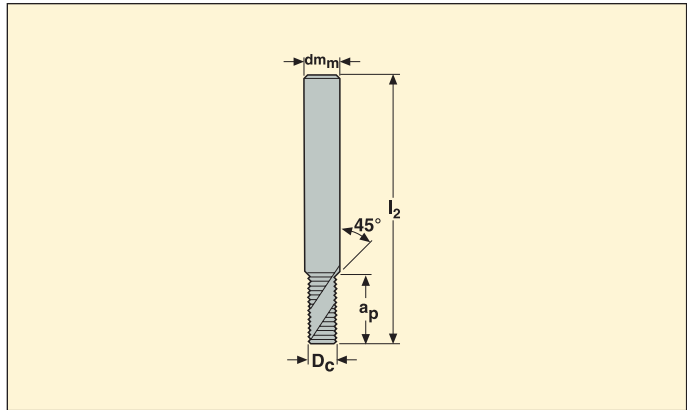
Inserts	Part No.	Grades				
		F30M	H15			
For internal threading	396.19 -4005.0N3.5ISO	<a href="#">96660</a>				
	-4005.0N4.0ISO	<a href="#">96670</a>				
	-4005.0N4.5ISO	<a href="#">96237</a>				
	-4005.0N5.0ISO	<a href="#">96671</a>				
	-4005.0N5.5ISO	<a href="#">96672</a>				
	-4005.0N6.0ISO	<a href="#">96674</a>				
	396.19 -4005.0N7UN	<a href="#">96255</a>				
	-4005.0N6UN	<a href="#">96256</a>				
	-4005.0N5UN	<a href="#">96257</a>				
	-4005.0N4.5UN	<a href="#">96760</a>				
-4005.0N4UN	<a href="#">96770</a>					
For external and internal threading	396.19 -4005.0X8W	<a href="#">96800</a>				
	R396.19-4003.0X14NPT	<a href="#">96790</a>				
	-4003.0X11.5NPT	<a href="#">96780</a>				
	-4005.0X8NPT	<a href="#">96771</a>				
	R396.19-4003.0X14NPTF	<a href="#">96269</a>				
	-4003.0X11.5NPTF	<a href="#">96268</a>				
	R396.19-4003.0X14BSPT	<a href="#">01490</a>				
	-4003.0X11BSPT	<a href="#">01488</a>				
Non cutting blank	396.19 -4003XX		<a href="#">14900</a>			
	-4005XX		<a href="#">14901</a>			

Please check availability in current price and stock-list.

## Thread mills – NTM100UN



- Helical flutes for internal and external threading
- Coating: AlCrN



Thread profile	EDP No.	Part No.	Thread tdz	Pitch TPI	Dimensions in inch				No. of flutes
					D <sub>c</sub>	l <sub>2</sub>	a <sub>p</sub>	d <sub>m</sub>	
UN									
	<a href="#">N68746</a>	NTM100NR.2X56UN.125	2	56	0.065	2.000	0.125	0.125	3
	<a href="#">N68748</a>	NTM100NR.4X40UN.125	4	40	0.085	2.000	0.175	0.125	3
	<a href="#">N68750</a>	NTM100NR.6X32UN.125	6	32	0.100	2.000	0.218	0.125	3
	<a href="#">N68752</a>	NTM100NR.8X32UN.125	8	32	0.115	2.000	0.250	0.125	3
	<a href="#">N68754</a>	NTM100NR.10X24UN.187	10	24	0.134	2.000	0.312	0.187	3
	<a href="#">N68756</a>	NTM100NR.10X28UN.187	10	28	0.134	2.000	0.312	0.187	3
	<a href="#">N68758</a>	NTM100NR.10X32UN.187	10	32	0.134	2.000	0.312	0.187	3
	<a href="#">N68760</a>	NTM1001/4X20UN.187	1/4	20	0.180	2.500	0.500	0.187	3
	<a href="#">N68762</a>	NTM1001/4X28UN.187	1/4	28	0.180	2.500	0.500	0.187	3
	<a href="#">N68764</a>	NTM1001/4X32UN.187	1/4	32	0.180	2.500	0.500	0.187	3
	<a href="#">N68766</a>	NTM1005/16X18UN.250	5/16	18	0.235	2.500	0.625	0.250	3
	<a href="#">N68768</a>	NTM1005/16X24UN.250	5/16	24	0.235	2.500	0.625	0.250	3
	<a href="#">N68770</a>	NTM1005/16X32UN.250	5/16	32	0.235	2.500	0.625	0.250	3
	<a href="#">N68772</a>	NTM1003/8X16UN.312	3/8	16	0.285	3.000	0.750	0.312	3
	<a href="#">N68774</a>	NTM1003/8X24UN.312	3/8	24	0.285	3.000	0.750	0.312	3
	<a href="#">N68776</a>	NTM1007/16X14UN.312	7/16	14	0.305	3.000	0.875	0.312	3
	<a href="#">N68778</a>	NTM1007/16X20UN.312	7/16	20	0.305	3.000	0.875	0.312	3
	<a href="#">N68780</a>	NTM1001/2X13UN.375	1/2	13	0.350	3.500	0.875	0.375	3
	<a href="#">N68782</a>	NTM1001/2X20UN.375	1/2	20	0.350	3.500	0.875	0.375	3
	<a href="#">N68784</a>	NTM1001/2X28UN.375	1/2	28	0.350	3.500	0.875	0.375	3
	<a href="#">N68786</a>	NTM1009/16X12UN.375	9/16	12	0.370	3.500	0.875	0.375	4
	<a href="#">N68788</a>	NTM1009/16X18UN.375	9/16	18	0.370	3.500	0.875	0.375	4
	<a href="#">N68796</a>	NTM1003/4X10UN.500	3/4	10	0.495	4.000	1.250	0.500	4
	<a href="#">N68798</a>	NTM1003/4X12UN.500	3/4	12	0.495	4.000	1.250	0.500	4
	<a href="#">N68800</a>	NTM1003/4X16UN.500	3/4	16	0.495	4.000	1.250	0.500	4
	<a href="#">N68802</a>	NTM1003/4X20UN.500	3/4	20	0.495	4.000	1.250	0.500	4
	<a href="#">N68790</a>	NTM1005/8X11UN.500	5/8	11	0.470	4.000	1.250	0.500	4
	<a href="#">N68792</a>	NTM1005/8X12UN.500	5/8	12	0.470	4.000	1.250	0.500	4
	<a href="#">N68794</a>	NTM1005/8X18UN.500	5/8	18	0.470	4.000	1.250	0.500	4
	<a href="#">N68814</a>	NTM1001X8UN.625	1	8	0.620	4.000	1.375	0.625	4
	<a href="#">N68816</a>	NTM1001X12UN.625	1	12	0.620	4.000	1.375	0.625	4
	<a href="#">N68818</a>	NTM1001X16UN.625	1	16	0.620	4.000	1.375	0.625	4
	<a href="#">N68804</a>	NTM1007/8X9UN.625	7/8	9	0.620	4.000	1.375	0.625	4
	<a href="#">N68806</a>	NTM1007/8X12UN.625	7/8	12	0.620	4.000	1.375	0.625	4
	<a href="#">N68808</a>	NTM1007/8X14UN.625	7/8	14	0.620	4.000	1.375	0.625	4
	<a href="#">N68810</a>	NTM1007/8X16UN.625	7/8	16	0.620	4.000	1.375	0.625	4
	<a href="#">N68812</a>	NTM1007/8X20UN.625	7/8	20	0.620	4.000	1.375	0.625	4

Please check availability in current price and stock-list.







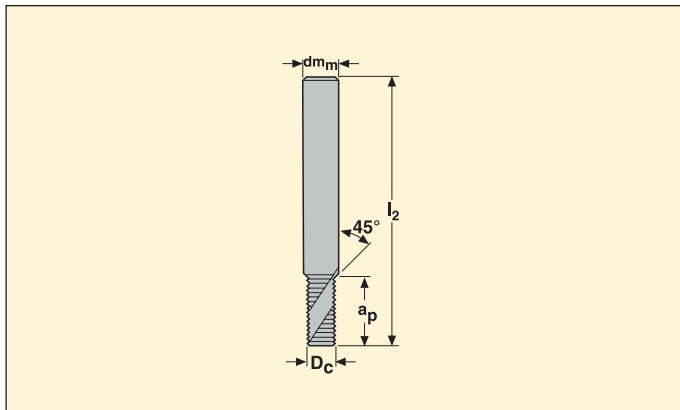




## Thread mills – NTM400MI



- Helical flutes for internal and external threading
- Coating: AlCrN



Thread profile	EDP No.	Part No.	Thread tdz	Pitch TPI	Dimensions in inch				No. of flutes
					D <sub>c</sub>	l <sub>2</sub>	a <sub>p</sub>	dm <sub>m</sub>	
ISO	N68850	NTM400M3X.5ISO.125	M3	0.5	0.085	2.000	0.178	0.125	3
	N68852	NTM400M3.5X6ISO.125	M3.5	0.6	0.095	2.000	0.235	0.125	3
	N68854	NTM400M4X.7ISO.125	M4	0.7	0.115	2.000	0.276	0.125	3
	N68856	NTM400M4.5X.75ISO.187	M4.5	0.75	0.134	2.000	0.313	0.187	3
	N68858	NTM400M5X.8ISO.187	M5	0.8	0.134	2.000	0.313	0.187	3
	N68860	NTM400M6X1.0ISO.187	M6	1	0.170	2.500	0.500	0.187	3
	N68862	NTM400M8X1.0ISO.250	M8	1	0.235	2.500	0.625	0.250	3
	N68864	NTM400M8X1.25ISO.250	M8	1.25	0.235	2.500	0.625	0.250	3
	N68866	NTM400M10X1.25ISO.312	M10	1.25	0.300	3.000	0.750	0.312	3
	N68868	NTM400M10X1.5ISO.312	M10	1.5	0.300	3.000	0.750	0.312	3
	N68870	NTM400M12X1.25ISO.375	M12	1.25	0.360	3.500	0.875	0.375	3
	N68872	NTM400M12X1.75ISO.375	M12	1.75	0.360	3.500	0.875	0.375	3
	N68874	NTM400M14X1.25ISO.375	M14	1.25	0.370	3.500	0.875	0.375	4
	N68876	NTM400M14X1.5ISO.375	M14	1.5	0.370	3.500	0.875	0.375	4
	N68878	NTM400M14X2.0ISO.375	M14	2	0.370	3.500	0.875	0.375	4
	N68880	NTM400M16X2.0ISO.500	M16	2	0.470	4.000	1.250	0.500	4
	N68882	NTM400M18X2.5ISO.500	M18	2.5	0.490	4.000	1.250	0.500	4
	N68884	NTM400M20X1.5ISO.500	M20	1.5	0.495	4.000	1.250	0.500	4
	N68886	NTM400M20X2.0ISO.500	M20	2	0.495	4.000	1.250	0.500	4
	N68888	NTM400M20X2.5ISO.500	M20	2.5	0.495	4.000	1.250	0.500	4
	N68890	NTM400M24X1.5ISO.625	M24	1.5	0.620	4.000	1.373	0.625	4
	N68892	NTM400M24X2.0ISO.625	M24	2	0.620	4.000	1.373	0.625	4
	N68894	NTM400M24X2.5ISO.625	M24	2.5	0.620	4.000	1.373	0.625	4
	N68896	NTM400M24X3.0ISO.625	M24	3	0.620	4.000	1.375	0.625	4

Please check availability in current price and stock-list.

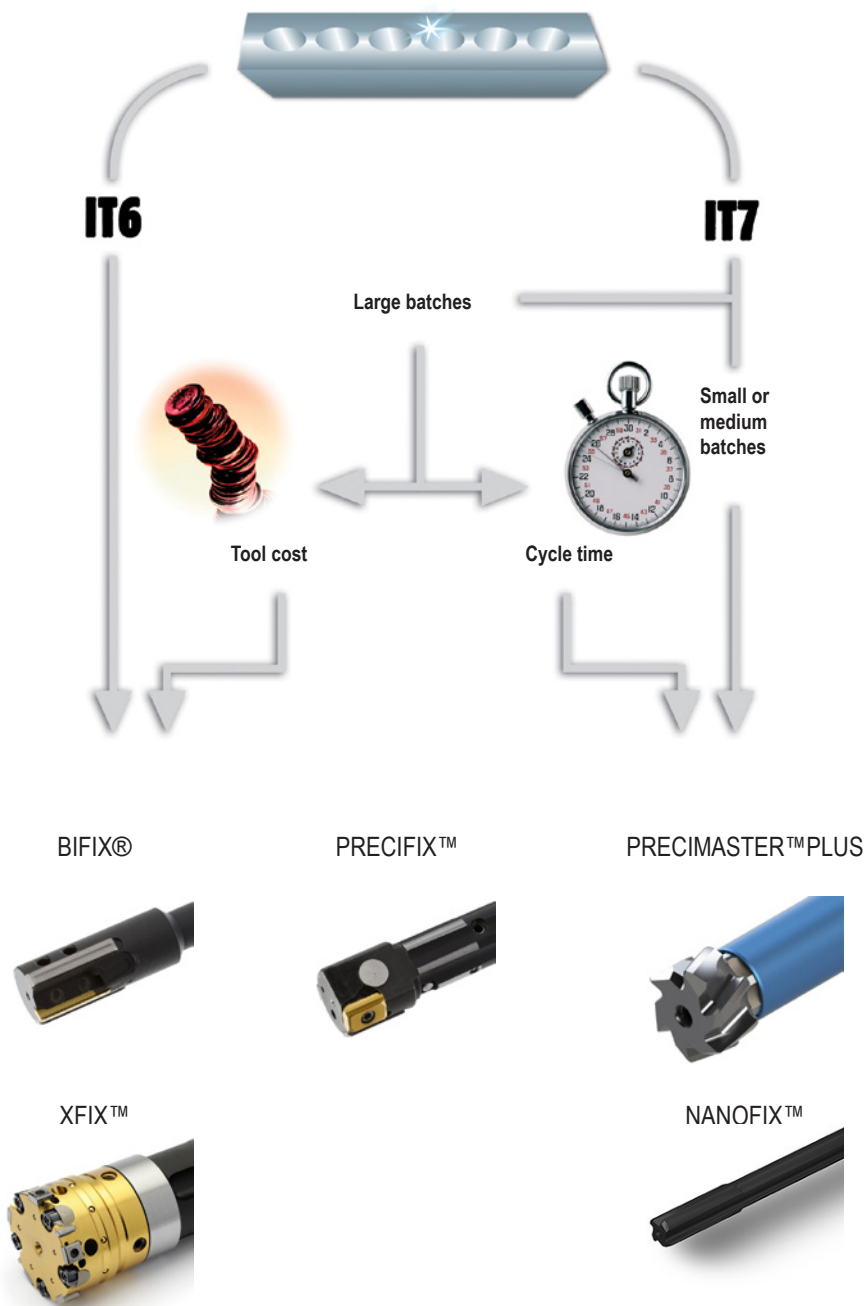


## Multi-cut or indexable insert – Choosing the best solution

Quality, performance and tool cost, all these objectives can be met. The choice of a reaming tool depends on hole tolerance, production quantity and cycle time. Seco Holemaking systems can meet these demands.

With Precimaster Plus, Precifix, Bifix, new Xfix and Nanofix reamers Seco can solve all problems related to reaming operations.

The chart below helps you to choose the ideal reaming tool




## Range overview

	∅ Range	Reaming depth	Hole tolerance	Intermediate diameters	Surface finish
<p><b>Nanofix™</b></p>  <p>Page(s) 303-322</p>	0.1169-0.4744" (2.970-12.050 mm)	~ 5-12 x D	IT 7	Yes, available through Custom Design	R <sub>a</sub> 31-47 μm R <sub>a</sub> 0.8-1.2 μm
<p><b>Precimaster™ Plus</b></p>  <p>Page(s) 323-347</p>	0.3937-2.3622" (10-60 mm)	~ 2-10 x D	IT 6-7-8	Yes, available through Custom Design	R <sub>a</sub> 8-47 μm R <sub>a</sub> 0.2-1.2 μm
<p><b>Bifix®</b></p>  <p>Page(s) 348-368</p>	0.2323-2.3819" (5.900-60.500 mm)	~ 2-7 x D	D IT 6-7	Yes, available through Custom Design	R <sub>a</sub> 8-47 μm R <sub>a</sub> 0.2-1.2 μm
<p><b>Precifix™</b></p>  <p>Page(s) 369-393</p>	0.4626-2.3819" (11.750-60.500 mm)	~ 2-10 x D	IT 6-7	Yes, available through Custom Design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm
<p><b>Xfix™</b></p>  <p>Page(s) 394-433</p>	1.5551-6.0827" (39.500-154.500 mm)	~ 2.5-6.5 x D	IT 6	Yes, available through Custom Design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm





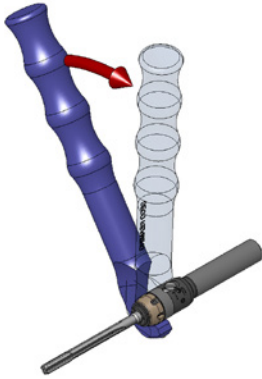
Nanofix™	∅ Range	Reaming depth	Hole tolerance	Intermediate diameters	Surface finish
	0.1169-0.4744" (2.97-12.05 mm)	5-12 x D	IT 7	yes, available through Custom Design	Ra 31-47 µin Ra 0.8-1.2 µm

Nanofix™ is a Seco solid carbide reamer program dedicated for small ∅ from 0.1169 to 0.4744 inch (2.97 to 12.05 mm).

Design includes a unique patented Quick-fit clamping system that will allow it to hold the entire diameter range with only 2 tool holders .

Tool holders have internal coolant with a simple adjustable system so the outlet style can be set for either through or blind bore, depending on application.

### Quick-fit clamping



Quick and easy tool change.  
Accurate repositioning in run-out and length.

### 2 Quick-fit sizes to cover the complete diameter range



Quick-fit  $\varnothing$  10 mm for  
 $\varnothing$  0.2382 to 0.4744 inch  
(6.051-12.050 mm).



Quick-fit  $\varnothing$  6 mm for  
 $\varnothing$  0.1169 to 0.2382 inch  
(2.97-6.050 mm).

### Same tool for blind or through hole application



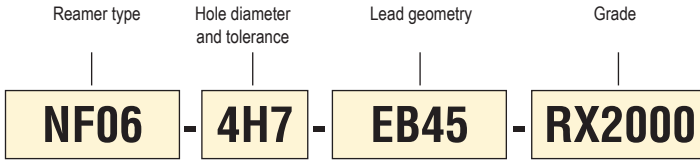
through



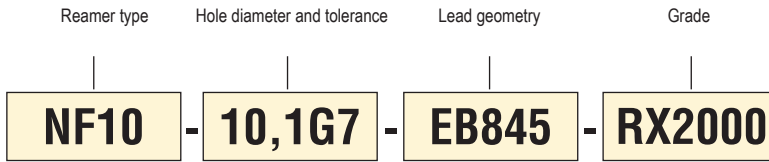
blind

Turn coolant style adjusting screw by 1/4 of a revolution to change coolant outlet from through to blind and vice-versa.

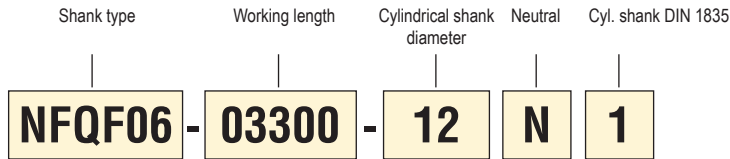
Code key - Reamers



Code key - Intermediate diameter reamers



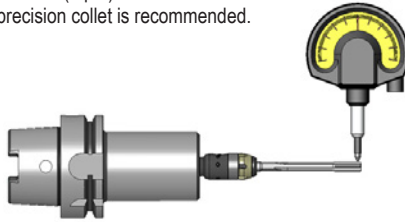
Code key - Shanks



**Run-out**

**Rotating tool**

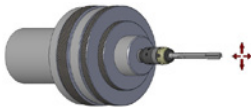
Max. run-out recommended: 0.0002" (5 µm).  
 Hydraulic chuck, or HP5672 precision collet is recommended.



Note: due to coolant outlet adjustment sealing o-ring, the use of a Shrinkfit holder is not recommended.

**Static tool**

Use a Seco floating holder, see page(s) 447-456.



Floating holders allow reamer self-centering in pre-bore.

**Coolant requirements**

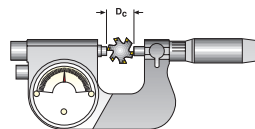
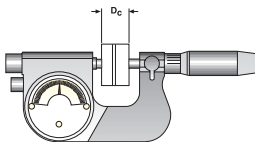
To reach maximum tool life and hole quality, the following coolant requirements should be observed.

Coolant through the tool is recommended.  
 External coolant supply can be used with cutting condition reduced by 75%.

Soluble oil with 40% minimum mineral oil.  
 Neat oil recommended for stainless steel.

Concentration minimum 6-8%.  
 Filtration 1200-2000 µin (30-50 µm).  
 Volume min 3.35 gal/min/inch (0.5 l/min/mm) in tool diameter. Ex: Reamer Ø10, min volume is 1.3 gal/min (5 l/min).

**Diameter measurement**



Gauge indicator micrometer prior to Ø measurement.

**Important!**

Nanofix reamers have differential pitch on teeth.  
 When measuring the diameter, make sure that you have 2 teeth 180° opposite.

Use indicator micrometer and measuring blocks for gauging.

Lead geometries and grades – Applications

**Lead geometry - EB45**

Chip control +++  
 Surface Finish + ( $R_a$  31 - 47  $\mu$ m)  
 Surface Finish + ( $R_a$  0.8 - 1.2  $\mu$ m)  
 Versatile



**Lead geometry - EB845**

Chip control ++  
 Surface finish+++ ( $R_a$  8 - 31  $\mu$ m)  
 Surface finish+++ ( $R_a$  0.2 - 0.8  $\mu$ m)

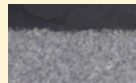



**Lead geometry - EB25**

Feed performance +++  
 Surface finish ++ ( $R_a$  16 - 31  $\mu$ m)  
 Surface finish ++ ( $R_a$  0.4 - 0.8  $\mu$ m)  
 Chip control +



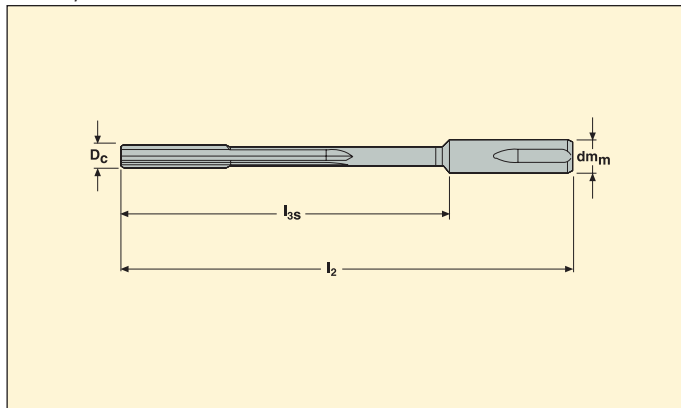
Grades

	<p><b>H15</b></p>	<p><b>Uncoated</b>                  A tough micrograin grade for all materials. Suitable for fine-reaming operations due to edge sharpness.</p>
	<p><b>RX2000</b></p>	<p><b>Coated</b>                  High performance coated grade suitable for all materials.</p>

Reamer for blind and through holes  $\varnothing$  2.97-6.01 (0.1169-0.2366")



- For tool holders see page(s) 317-318
- For cutting data see page(s) 319-320
- Regrinding instructions see page(s) 322

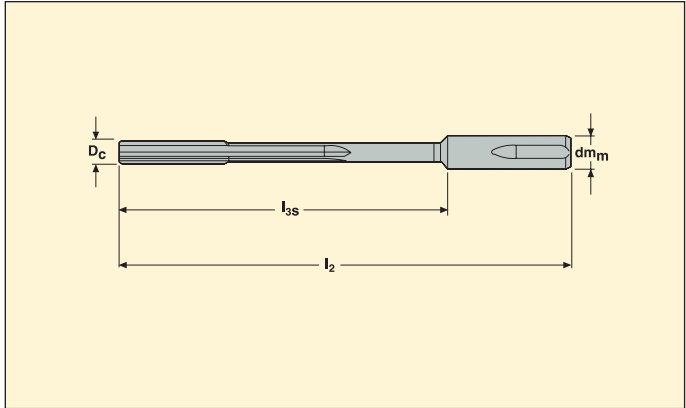


Dia. Dc (mm)	Hole dia ISO (mm)	Hole dia min/max (mm)	Hole dia min/max (inch)	Seco drill size (mm)	Part No.	Dimensions in mm				Geometries			Grades		
						$\varnothing$	$l_{3s}$	$d_{m1}$	$l_2$	Body size	EB45	EB845	EB25	RX2000	H15
2.97	2.97 H7	2.970/2.980	0.1169/0.1173	2.8-2.9	NF06-2.97 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
2.98	2.98 H7	2.980/2.990	0.1173/0.1177	2.8-2.9	NF06-2.98 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
2.99	2.99 H7/3 K7	2.990/3.000	0.1177/0.1181	2.8-2.9	NF06-2.99 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
3.00	3 H7	3.000/3.010	0.1181/0.1185	2.8-2.9	NF06-3 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
3.01	3.01 H7	3.010/3.022	0.1185/0.1190	2.8-2.9	NF06-3.01 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
3.02	3.02 H7/3 D7	3.020/3.032	0.1189/0.1194	2.9	NF06-3.02 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
3.03	3.03 H7	3.030/3.042	0.1193/0.1198	2.9	NF06-3.03 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
3.04	3.04 H7/3D10	3.040/3.052	0.1197/0.1202	2.9	NF06-3.04 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
3.05	3.05 H7	3.050/3.062	0.1201/0.1206	2.9	NF06-3.05 H7-EB..	4	40	6	60	NFQF06...	■	□	□	■	□
3.167	3.167 H7	3.167/3.179	0.1247/0.1252	3	NF06-3.167 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
3.175	3.175 H7	3.187/3.175	0.1255/0.1250	3	NF06-3.175 H7-EB...	4	60	6	80	NFQF06...	■	□	□	■	□
3.49	3.49 H7	3.490/3.502	0.1374/0.1379	3.3-3.4	NF06-3.49 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
3.50	3.5 H7	3.500/3.512	0.1378/0.1383	3.3-3.4	NF06-3.5 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
3.51	3.51 H7	3.510/3.522	0.1382/0.1387	3.3-3.4	NF06-3.51 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
3.52	3.52 H7	3.520/3.532	0.1386/0.1391	3.3-3.4	NF06-3.52 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
3.97	3.97 H7	3.970/3.982	0.1563/0.1568	3.8-3.9	NF06-3.97 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
3.98	3.98 H7/4 P7	3.980/3.992	0.1567/0.1572	3.8-3.9	NF06-3.98 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
3.99	3.99 H7/4 K8	3.990/4.002	0.1571/0.1576	3.8-3.9	NF06-3.99 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.00	4 H7	4.000/4.012	0.1575/0.1580	3.8-3.9	NF06-4 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.01	4.01 H7/4 F7	4.010/4.022	0.1579/0.1583	3.8-3.9	NF06-4.01 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.02	4.02 H7/4 E7	4.020/4.032	0.1583/0.1587	3.9	NF06-4.02 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.03	4.03 H7/4 D7	4.030/4.042	0.1587/0.1591	3.9	NF06-4.03 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.04	4.04 H7	4.040/4.052	0.1591/0.1595	3.9	NF06-4.04 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.05	4.05 H7	4.050/4.062	0.1594/0.1599	3.9	NF06-4.05 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.50	4.5 H7	4.500/4.512	0.1772/0.1776	4.3-4.4	NF06-4.5 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.75	4.75 H7	4.762/4.750	0.1875/0.1870	4.5	NF06-4.750 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.762	4.762 H7	4.774/4.762	0.1880/0.1875	4.5	NF06-4.762 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.97	4.97 H7	4.970/4.982	0.1957/0.1961	4.8-4.9	NF06-4.97 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.98	4.98 H7/5 P7	4.980/4.992	0.1961/0.1965	4.8-4.9	NF06-4.98 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
4.99	4.99 H7/5 K8	4.990/5.002	0.1965/0.1969	4.8-4.9	NF06-4.99 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.00	5 H7	5.000/5.012	0.1969/0.1973	4.8-4.9	NF06-5 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.01	5.01 H7/5 F7	5.010/5.022	0.1972/0.1977	4.8-4.9	NF06-5.01 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.02	5.02 H7/5 E7	5.020/5.032	0.1976/0.1981	4.9	NF06-5.02 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.03	5.03 H7/5 D7	5.030/5.042	0.1980/0.1985	4.9	NF06-5.03 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.04	5.04 H7	5.040/5.052	0.1984/0.1989	4.9	NF06-5.04 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.05	5.05 H7	5.050/5.062	0.1988/0.1993	4.9	NF06-5.05 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.50	5.5 H7	5.500/5.512	0.2165/0.2170	5.3-5.4	NF06-5.5 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.97	5.97 H7	5.970/5.982	0.2350/0.2355	5.8-5.9	NF06-5.97 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.98	5.98 H7/6 P7	5.980/5.992	0.2354/0.2359	5.8-5.9	NF06-5.98 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
5.99	5.99 H7/6 K8	5.990/6.002	0.2358/0.2363	5.8-5.9	NF06-5.99 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
6.00	6 H7	6.000/6.012	0.2362/0.2367	5.8-5.9	NF06-6 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□
6.01	6.01 H7/6 F7	6.010/6.025	0.2366/0.2372	5.8-5.9	NF06-6.01 H7-EB..	4	60	6	80	NFQF06...	■	□	□	■	□

■ Stock standard, □ = Non stock standard. Subject to change refer to current price- and stock-list

Note: When ordering Nanofix reamers for intermediate diameters, please state diameter and tolerance of hole to be reamed.

Reamer for blind and through holes  $\varnothing$  6.02-9.97 mm (0.2370-0.3925")



- For tool holders see page(s) 317-318
- For cutting data see page(s) 319-320
- Regrinding instructions see page(s) 322

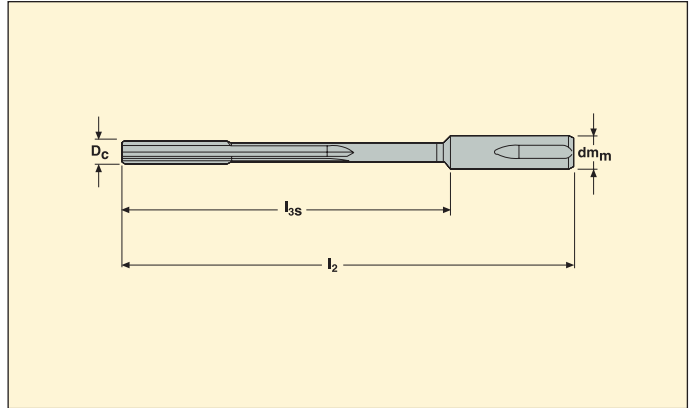
Dia. D <sub>c</sub> (mm)	Hole dia ISO (mm)	Hole dia min/max (mm)	Hole dia min/max (inch)	Seco drill size (mm)	Part No.	Dimensions in mm					Geometries					Grades	
						$\varnothing$	l <sub>3s</sub>	dm <sub>m</sub>	l <sub>2</sub>	Body size	EB45	EB845	EB25	RX2000	H15		
6.02	6.02 H7/6 E7	6.020/6.035	0.2370/0.2376	5.9	NF06-6.02 H7-EB..	4	60	6	80	NFQF06...	■	□	□	□	■	□	
6.03	6.03 H7/6 D7	6.030/6.045	0.2374/0.2380	5.9	NF06-6.03 H7-EB..	4	60	6	80	NFQF06...	■	□	□	□	■	□	
6.04	6.04 H7	6.040/6.055	0.2378/0.2384	5.9	NF06-6.04 H7-EB..	4	60	6	80	NFQF06...	■	□	□	□	■	□	
6.05	6.05 H7	6.050/6.065	0.2382/0.2388	5.9	NF06-6.05 H7-EB..	4	60	6	80	NFQF06...	■	□	□	□	■	□	
6.334	6.334 H7	6.334/6.349	0.2494/0.2500	6.1-6.2	NF10-6.334 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
6.35	6.35 H7	6.35/6.365	0.2500/0.2506	6.2	NF10-6.350 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
6.375	6.375 H7	6.375/6.39	0.2510/0.2516	6.2	NF10-6.375 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
6.50	6.5 H7	6.500/6.515	0.2559/0.2565	6.3-6.35-6.4	NF10-6.5 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
6.97	6.97 H7	6.970/6.985	0.2744/0.2750	6.8-6.9	NF10-6.97 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
6.98	6.98 H7	6.980/6.995	0.2748/0.2754	6.8-6.9	NF10-6.98 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
6.99	6.99 H7/7 K7	6.990/7.005	0.2752/0.2758	6.8-6.9	NF10-6.99 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.00	7 H7	7.000/7.015	0.2756/0.2762	6.8-6.9	NF10-7 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.01	7.01 H7	7.010/7.025	0.2760/0.2766	6.8-6.9	NF10-7.01 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.02	7.02 H7	7.020/7.035	0.2764/0.2770	6.9	NF10-7.02 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.03	7.03 H7/7 E8	7.030/7.045	0.2768/0.2774	6.9	NF10-7.03 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.04	7.04 H7/7 D7	7.040/7.055	0.2772/0.2778	6.9	NF10-7.04 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.05	7.05 H7	7.050/7.065	0.2776/0.2781	6.9	NF10-7.05 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.50	7.5 H7	7.500/7.515	0.2953/0.2959	7.3-7.4	NF10-7.5 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.937	7.937 H7	7.937/7.952	0.3125/0.3131	7.8	NF10-7.9375 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.97	7.97 H7	7.970/7.985	0.3138/0.3144	7.8-7.9	NF10-7.97 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.98	7.98 H7	7.980/7.995	0.3142/0.3148	7.8-7.9	NF10-7.98 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
7.99	7.99 H7/8 K7	7.990/8.005	0.3146/0.3152	7.8-7.9	NF10-7.99 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
8.00	8 H7	8.000/8.015	0.3150/0.3156	7.8-7.9	NF10-8 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
8.01	8.01 H7	8.010/8.025	0.3154/0.3159	7.8-7.9	NF10-8.01 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
8.02	8.02 H7	8.020/8.035	0.3157/0.3163	7.9	NF10-8.02 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
8.03	8.03 H7/8 E8	8.030/8.045	0.3161/0.3167	7.9	NF10-8.03H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
8.04	8.04 H7/8 D7	8.040/8.055	0.3165/0.3171	7.9	NF10-8.04 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
8.05	8.05 H7	8.050/8.065	0.3169/0.3175	7.9	NF10-8.05 H7-EB..	6	83	10	115	NFQF10...	■	□	□	□	■	□	
8.50	8.5 H7	8.500/8.515	0.3346/0.3352	8.3-8.338-8.4	NF10-8.5 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
8.97	8.97 H7	8.970/8.985	0.3531/0.3537	8.8-8.9	NF10-8.97 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
8.98	8.98 H7	8.980/8.995	0.3535/0.3541	8.8-8.9	NF10-8.98 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
8.99	8.99 H7/9 K7	8.990/9.005	0.3539/0.3545	8.8-8.9	NF10-8.99 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.00	9 H7	9.000/9.015	0.3543/0.3549	8.8-8.9	NF10-9 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.01	9.01 H7	9.010/9.025	0.3547/0.3553	8.8-8.9	NF10-9.01 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.02	9.02 H7	9.020/9.035	0.3551/0.3557	8.9	NF10-9.02 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.03	9.03 H7/9 E8	9.030/9.045	0.3555/0.3561	8.9	NF10-9.03 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.04	9.04 H7/9 D7	9.040/9.055	0.3559/0.3565	8.9	NF10-9.04 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.05	9.05 H7	9.050/9.065	0.3563/0.3569	8.9	NF10-9.05 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.50	9.5 H7	9.500/9.515	0.3740/0.3746	9.3-9.4	NF10-9.5 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.512	9.512 H7	9.512/9.527	0.3745/0.3751	9.3-9.4	NF10-9.5123 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.525	9.525 H7	9.525/9.54	0.3750/0.3756	9.8-9.9	NF10-9.525 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.97	9.97 H7	9.970/9.985	0.3925/0.3931	9.8-9.9	NF10-9.97 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	

■ Stock standard, □ = Non stock standard. Subject to change refer to current price- and stock-list

Note: When ordering Nanofix reamers for intermediate diameters, please state diameter and tolerance of hole to be reamed.



Reamer for blind and through holes  $\varnothing$  9.98-12.05 mm (0.3929-0.4744")



- For tool holders see page(s) 317-318
- For cutting data see page(s) 319-320
- Regrinding instructions see page(s) 322

Dia. D <sub>c</sub> (mm)	Hole dia ISO (mm)	Hole dia min/max (mm)	Hole dia min/max (inch)	Seco drill size (mm)	Part No.	Dimensions in mm					Geometries					Grades	
							l <sub>3s</sub>	dm <sub>m</sub>	l <sub>2</sub>	Body size	EB45	EB845	EB25	RX2000	H15		
9.98	9.98 H7	9.980/9.995	0.3929/0.3935	9.8-9.9	NF10-9.98 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
9.99	9.99 H7/10 K7	9.990/10.005	0.3933/0.3939	9.8-9.9	NF10-9.99 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
10.00	10 H7	10.000/10.015	0.3937/0.3943	9.8-9.9	NF10-10 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
10.01	10.01 H7	10.010/10.028	0.3941/0.3948	9.8-9.9	NF10-10.01 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
10.02	10.02 H7	10.020/10.038	0.3945/0.3952	9.8-9.9	NF10-10.02 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
10.03	10.03 H7/10 E8	10.030/10.048	0.3949/0.3956	9.9	NF10-10.03 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
10.04	10.04 H7/10 D7	10.040/10.058	0.3953/0.3960	9.9	NF10-10.04 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
10.05	10.05 H7	10.050/10.068	0.3957/0.3964	9.9	NF10-10.05 H7-EB..	6	93	10	125	NFQF10...	■	□	□	□	■	□	
10.50	10.5 H7	10.500/10.518	0.4134/0.4141	10.319-10.4	NF10-10.5 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
10.97	10.97 H7	10.970/10.988	0.4319/0.4326	10.8	NF10-10.97 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
10.98	10.98 H7	10.980/10.998	0.4323/0.4330	10.8	NF10-10.98 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
10.99	10.99 H7	10.990/11.008	0.4327/0.4334	10.8	NF10-10.99 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.00	11 H7	11.000/11.018	0.4331/0.4338	10.8	NF10-11 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.01	11.01 H7	11.010/11.028	0.4335/0.4342	10.8	NF10-11.01 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.02	11.02 H7/11 F8	11.020/11.038	0.4339/0.4346	10.8	NF10-11.02 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.03	11.03 H7	11.030/11.048	0.4343/0.4350	10.8	NF10-11.03 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.04	11.04 H7/11 E7	11.040/11.058	0.4346/0.4354	10.8	NF10-11.04 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.05	11.05 H7/11 D7	11.050/11.068	0.4350/0.4357	10.8	NF10-11.05 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.112	11.112 H7	11.112/11.130	0.4375/0.4382	10.9-11	NF10-11.112 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.50	11.5 H7	11.500/11.518	0.4528/0.4535	11.3	NF10-11.5 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.97	11.97 H7	11.970/11.988	0.4713/0.4720	11.8	NF10-11.97 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.98	11.98 H7	11.980/11.998	0.4717/0.4724	11.8	NF10-11.98 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
11.99	11.99 H7	11.990/12.008	0.4720/0.4728	11.8	NF10-11.99 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
12.00	12 H7	12.000/12.018	0.4724/0.4731	11.8	NF10-12 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
12.01	12.01 H7	12.010/12.028	0.4728/0.4735	11.8	NF10-12.01 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
12.02	12.02 H7/12 F8	12.020/12.038	0.4732/0.4739	11.8-11.906	NF10-12.02 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
12.03	12.03 H7	12.030/12.048	0.4736/0.4743	11.8-11.906	NF10-12.03 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
12.04	12.04 H7/12 E7	12.040/12.058	0.4740/0.4747	11.8-11.906	NF10-12.04 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	
12.05	12.05 H7/12 D7	12.050/12.068	0.4744/0.4751	11.8-11.906	NF10-12.05 H7-EB..	6	114	10	145	NFQF10...	■	□	□	□	■	□	

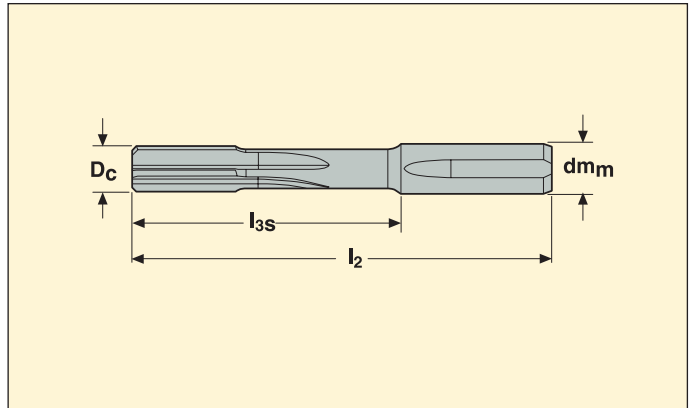
■ Stock standard, □ = Non stock standard. Subject to change refer to current price- and stock-list

Note: When ordering Nanofix reamers for intermediate diameters, please state diameter and tolerance of hole to be reamed.



Reamer for blind and through holes  $\varnothing 2.97-6.01$  mm (0.1169-0.2366")

Short version



- For tool holders see page(s) 317-318
- For cutting data see page(s) 319-320
- Regrinding instructions see page(s) 322

Dia. Dc (mm)	Hole dia ISO (mm)	Hole dia min/max (mm)	Hole dia min/max (inch)	Seco drill size (mm)	Part No.	Dimensions in mm				Geometries			Grades		
						$\varnothing$	$l_{3s}$	$d_m$	$l_2$	Body size	EB45	EB845	EB25	RX2000	H15
2.97	2.97 H7	2.970/2.980	0.1169/0.1173	2.8-2.9	NS06-2.97 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.98	2.98 H7	2.980/2.990	0.1173/0.1177	2.8-2.9	NS06-2.98 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.99	2.99 H7/3 K7	2.990/3.000	0.1177/0.1181	2.8-2.9	NS06-2.99 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.00	3 H7	3.000/3.010	0.1181/0.1185	2.8-2.9	NS06-3 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.01	3.01 H7	3.010/3.022	0.1185/0.1190	2.8-2.9	NS06-3.01 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.02	3.02 H7/3 D7	3.020/3.032	0.1189/0.1194	2.9	NS06-3.02 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.03	3.03 H7	3.030/3.042	0.1193/0.1198	2.9	NS06-3.03 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.04	3.04 H7/3D10	3.040/3.052	0.1197/0.1202	2.9	NS06-3.04 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.05	3.05 H7	3.050/3.062	0.1201/0.1206	2.9	NS06-3.05 H7-EB...	4	25	6	45	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.167	3.167 H7	3.179/3.167	0.1252/0.1247	3	NS06-3.167 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.175	3.175 H7	3.175/3.187	0.1250/0.1255	3	NS06-3.175 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.49	3.49 H7	3.490/3.502	0.1374/0.1379	3.3-3.4	NS06-3.49 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.50	3.5 H7	3.500/3.512	0.1378/0.1383	3.3-3.4	NS06-3.5 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.51	3.51 H7	3.510/3.522	0.1382/0.1387	3.3-3.4	NS06-3.51 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.52	3.52 H7	3.520/3.532	0.1386/0.1391	3.3-3.4	NS06-3.52 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.97	3.97 H7	3.970/3.982	0.1563/0.1568	3.8-3.9	NS06-3.97 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.98	3.98 H7/4 P7	3.980/3.992	0.1567/0.1572	3.8-3.9	NS06-3.98 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.99	3.99 H7/4 K8	3.990/4.002	0.1571/0.1576	3.8-3.9	NS06-3.99 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.00	4 H7	4.000/4.012	0.1575/0.1580	3.8-3.9	NS06-4 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.01	4.01 H7/4 F7	4.010/4.022	0.1579/0.1583	3.8-3.9	NS06-4.01 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.02	4.02 H7/4 E7	4.020/4.032	0.1583/0.1587	3.9	NS06-4.02 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.03	4.03 H7/4 D7	4.030/4.042	0.1587/0.1591	3.9	NS06-4.03 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.04	4.04 H7	4.040/4.052	0.1591/0.1595	3.9	NS06-4.04 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.05	4.05 H7	4.050/4.062	0.1594/0.1599	3.9	NS06-4.05 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.50	4.5 H7	4.500/4.512	0.1772/0.1776	4.3-4.4	NS06-4.5 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.75	4.75 H7	4.750/4.762	0.1870/0.1875	4.5	NS06-4.750 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.762	4.762 H7	4.762/4.774	0.1875/0.1880	4.5	NS06-4.762 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.97	4.97 H7	4.970/4.982	0.1957/0.1961	4.8-4.9	NS06-4.97 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.98	4.98 H7/5 P7	4.980/4.992	0.1961/0.1965	4.8-4.9	NS06-4.98 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.99	4.99 H7/5 K8	4.990/5.002	0.1965/0.1969	4.8-4.9	NS06-4.99 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.00	5 H7	5.000/5.012	0.1969/0.1973	4.8-4.9	NS06-5 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.01	5.01 H7/5 F7	5.010/5.022	0.1972/0.1977	4.8-4.9	NS06-5.01 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.02	5.02 H7/5 E7	5.020/5.032	0.1976/0.1981	4.9	NS06-5.02 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.03	5.03 H7/5 D7	5.030/5.042	0.1980/0.1985	4.9	NS06-5.03 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.04	5.04 H7	5.040/5.052	0.1984/0.1989	4.9	NS06-5.04 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.05	5.05 H7	5.050/5.062	0.1988/0.1993	4.9	NS06-5.05 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.50	5.5 H7	5.500/5.512	0.2165/0.2170	5.3-5.4	NS06-5.5 H7-EB...	4	30	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.97	5.97 H7	5.970/5.982	0.2350/0.2355	5.8-5.9	NS06-5.97 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.98	5.98 H7/6 P7	5.980/5.992	0.2354/0.2359	5.8-5.9	NS06-5.98 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.99	5.99 H7/6 K8	5.990/6.002	0.2358/0.2363	5.8-5.9	NS06-5.99 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.00	6 H7	6.000/6.012	0.2362/0.2367	5.8-5.9	NS06-6 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.01	6.01 H7/6 F7	6.010/6.025	0.2366/0.2372	5.8-5.9	NS06-6.01 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

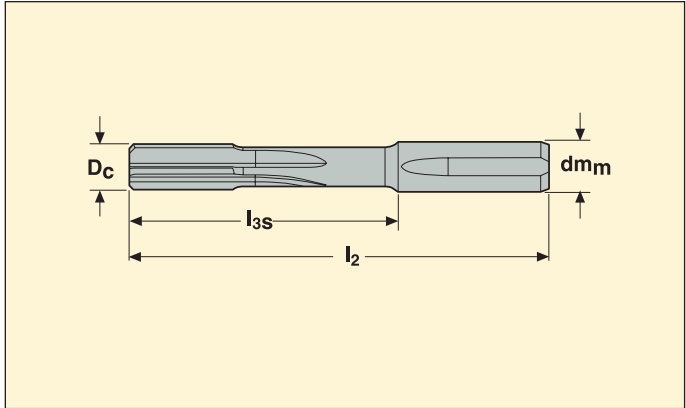
= Non stock standard. Subject to change refer to current price- and stock-list

For ordering information, please see custom design page(s) 321.

Ordering example: NS10-10.187/10.213-EB845, RX2000

Reamer for blind and through holes  $\varnothing$  6.02-9.97 mm (0.2370-0.3925")

Short version



- For tool holders see page(s) 317-318
- For cutting data see page(s) 319-320
- Regrinding instructions see page(s) 322

Dia. D <sub>c</sub> (mm)	Hole dia ISO (mm)	Hole dia min/max (mm)	Hole dia min/max (inch)	Seco drill size (mm)	Part No.	Dimensions in mm					Geometries			Grades	
						$\varnothing$	l <sub>3s</sub>	dm <sub>m</sub>	l <sub>2</sub>	Body size	EB45	EB845	EB25	RX2000	H15
6.02	6.02 H7/6 E7	6.020/6,035	0.2370/0.2376	5.9	NS06-6.02 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.03	6.03 H7/6 D7	6.030/6,045	0.2374/0.2380	5.9	NS06-6.03 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.04	6.04 H7	6.040/6,055	0.2378/0.2384	5.9	NS06-6.04 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.05	6.05 H7	6.050/6,065	0.2382/0.2388	5.9	NS06-6.05 H7-EB...	4	31	6	50	NFQF06...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.334	6.334 H7	6.334/6,349	0.2494/0.2500	6.1-6.2	NS10-6.334 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.35	6.35 H7	6.35/6,365	0.2500/0.2506	6.2	NS10-6.350 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.375	6.375 H7	6.375/6,39	0.2510/0.2516	6.2	NS10-6.375 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.50	6.5 H7	6.500/6,515	0.2559/0.2565	6.3-6.35-6.4	NS10-6.5 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.97	6.97 H7	6.970/6,985	0.2744/0.2750	6.8-6.9	NS10-6.97 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.98	6.98 H7	6.980/6,995	0.2748/0.2754	6.8-6.9	NS10-6.98 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.99	6.99 H7/7 K7	6.990/7,005	0.2752/0.2758	6.8-6.9	NS10-6.99 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.00	7 H7	7.000/7,015	0.2756/0.2762	6.8-6.9	NS10-7 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.01	7.01 H7	7.010/7,025	0.2760/0.2766	6.8-6.9	NS10-7.01 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.02	7.02 H7	7.020/7,035	0.2764/0.2770	6.9	NS10-7.02 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.03	7.03 H7/7 E8	7.030/7,045	0.2768/0.2774	6.9	NS10-7.03 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.04	7.04 H7/7 D7	7.040/7,055	0.2772/0.2778	6.9	NS10-7.04 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.05	7.05 H7	7.050/7,065	0.2776/0.2781	6.9	NS10-7.05 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.50	7.5 H7	7.500/7,515	0.2953/0.2959	7.3-7.4	NS10-7.5 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.937	7.937 H7	7.937/7,952	0.3125/0.3131	7.8	NS10-7.9375 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.97	7.97 H7	7.970/7,985	0.3138/0.3144	7.8-7.9	NS10-7.97 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.98	7.98 H7	7.980/7,995	0.3142/0.3148	7.8-7.9	NS10-7.98 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.99	7.99 H7/8 K7	7.990/8,005	0.3146/0.3152	7.8-7.9	NS10-7.99 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.00	8 H7	8.000/8,015	0.3150/0.3156	7.8-7.9	NS10-8 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.01	8.01 H7	8.010/8,025	0.3154/0.3159	7.8-7.9	NS10-8.01 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.02	8.02 H7	8.020/8,035	0.3157/0.3163	7.9	NS10-8.02 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.03	8.03 H7/8 E8	8.030/8,045	0.3161/0.3167	7.9	NS10-8.03 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.04	8.04 H7/8 D7	8.040/8,055	0.3165/0.3171	7.9	NS10-8.04 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.05	8.05 H7	8.050/8,065	0.3169/0.3175	7.9	NS10-8.05 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.50	8.5 H7	8.500/8,515	0.3346/0.3352	8.3-8.338-8.4	NS10-8.5 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.97	8.97 H7	8.970/8,985	0.3531/0.3537	8.8-8.9	NS10-8.97 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.98	8.98 H7	8.980/8,995	0.3535/0.3541	8.8-8.9	NS10-8.98 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.99	8.99 H7/9 K7	8.990/9,005	0.3539/0.3545	8.8-8.9	NS10-8.99 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.00	9 H7	9.000/9,015	0.3543/0.3549	8.8-8.9	NS10-9 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.01	9.01 H7	9.010/9,025	0.3547/0.3553	8.8-8.9	NS10-9.01 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.02	9.02 H7	9.020/9,035	0.3551/0.3557	8.9	NS10-9.02 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.03	9.03 H7/9 E8	9.030/9,045	0.3555/0.3561	8.9	NS10-9.03 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.04	9.04 H7/9 D7	9.040/9,055	0.3559/0.3565	8.9	NS10-9.04 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.05	9.05 H7	9.050/9,065	0.3563/0.3569	8.9	NS10-9.05 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.50	9.5 H7	9.500/9,515	0.3740/0.3746	9.3-9.4	NS10-9.5 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.512	9.512 H7	9.512/9,527	0.3745/0.3751	9.3-9.4	NS10-9.5123 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.525	9.525 H7	9.525/9,54	0.3750/0.3756	9.3-9.4	NS10-9.5250 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.97	9.97 H7	9.970/9,985	0.3925/0.3931	9.8-9.9	NS10-9.97 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

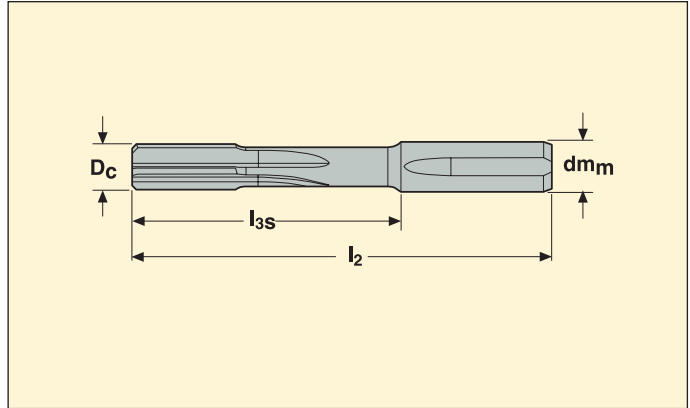
= Non stock standard. Subject to change refer to current price- and stock-list

For ordering information, please see custom design page(s) 321.

Ordering example: NS10-10,187/10,213-EB845, RX2000.

Reamer for blind and through holes  $\varnothing 9.98-12.05 \text{ mm}$  (0.3929-0.4744")

Short version



- For tool holders see page(s) 317-318
- For cutting data see page(s) 319-320
- Regrinding instructions see page(s) 322

Dia. D <sub>c</sub> (mm)	Hole dia ISO (mm)	Hole dia min/max (mm)	Hole dia min/max (inch)	Seco drill size (mm)	Part No.	Dimensions in mm				Geometries			Grades		
							l <sub>3s</sub>	d <sub>m</sub>	l <sub>2</sub>	Body size	EB45	EB845	EB25	RX2000	H15
9.98	9.98 H7	9.980/9.995	0.3929/0.3935	9.8-9.9	NS10-9.98 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.99	9.99 H7/10 K7	9.990/10.005	0.3933/0.3939	9.8-9.9	NS10-9.99 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.00	10 H7	10.000/10.015	0.3937/0.3943	9.8-9.9	NS10-10 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.01	10.01 H7	10.010/10.028	0.3941/0.3948	9.8-9.9	NS10-10.01 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.02	10.02 H7	10.020/10.038	0.3945/0.3952	9.8-9.9	NS10-10.02 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.03	10.03 H7/10 E8	10.030/10.048	0.3949/0.3956	9.9	NS10-10.03 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.04	10.04 H7/10 D7	10.040/10.058	0.3953/0.3960	9.9	NS10-10.04 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.05	10.05 H7	10.050/10.068	0.3957/0.3964	9.9	NS10-10.05 H7-EB...	6	46	10	78	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.50	10.5 H7	10.500/10.518	0.4134/0.4141	10.319-10.4	NS10-10.5 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.97	10.97 H7	10.970/10.988	0.4319/0.4326	10.8	NS10-10.97 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.98	10.98 H7	10.980/10.998	0.4323/0.4330	10.8	NS10-10.98 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.99	10.99 H7	10.990/11.008	0.4327/0.4334	10.8	NS10-10.99 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.00	11 H7	11.000/11.018	0.4331/0.4338	10.8	NS10-11 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.01	11.01 H7	11.010/11.028	0.4335/0.4342	10.8	NS10-11.01 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.02	11.02 H7/11 F8	11.020/11.038	0.4339/0.4346	10.8	NS10-11.02 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.03	11.03 H7	11.030/11.048	0.4343/0.4350	10.8	NS10-11.03 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.04	11.04 H7/11 E7	11.040/11.058	0.4346/0.4354	10.8	NS10-11.04 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.05	11.05 H7/11 D7	11.050/11.068	0.4350/0.4357	10.8	NS10-11.05 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.112	11.112 H7	11.112/11.130	0.4375/0.4382	10.9-11	NS10-11.112 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.50	11.5 H7	11.500/11.518	0.4528/0.4535	11.3	NS10-11.5 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.97	11.97 H7	11.970/11.988	0.4713/0.4720	11.8	NS10-11.97 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.98	11.98 H7	11.980/11.998	0.4717/0.4724	11.8	NS10-11.98 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.99	11.99 H7	11.990/12.008	0.4720/0.4728	11.8	NS10-11.99 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.00	12 H7	12.000/12.018	0.4724/0.4731	11.8	NS10-12 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.01	12.01 H7	12.010/12.028	0.4728/0.4735	11.8	NS10-12.01 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.02	12.02 H7/12 F8	12.020/12.038	0.4732/0.4739	11.8-11.906	NS10-12.02 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.03	12.03 H7	12.030/12.048	0.4736/0.4743	11.8-11.906	NS10-12.03 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.04	12.04 H7/12 E7	12.040/12.058	0.4740/0.4747	11.8-11.906	NS10-12.04 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.05	12.05 H7/12 D7	12.050/12.068	0.4744/0.4751	11.8-11.906	NS10-12.05 H7-EB...	6	57	10	88	NFQF10...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

= Non stock standard. Subject to change refer to current price- and stock-list

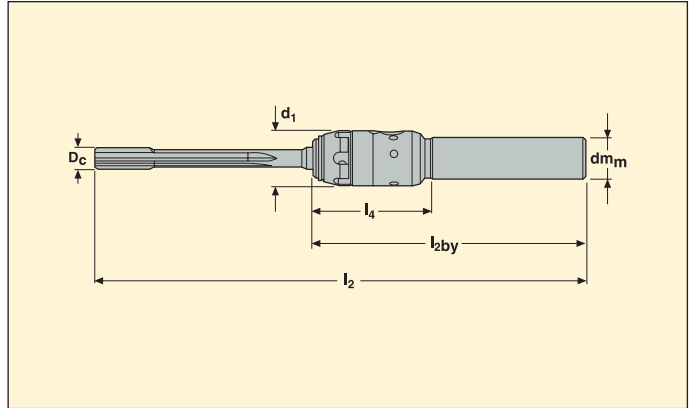
For ordering information, please see custom design page(s) 321.

Ordering example: NS10-10,187/10,213-EB845, RX2000.



Nanofix tool holder

Inch diameter shank



• For reamer heads see page(s) 309-316

EDP No.	Part No.	Dimensions in inch				
		D <sub>c</sub>	dm <sub>m</sub>	d <sub>1</sub>	l <sub>4</sub>	l <sub>2by</sub>
63255	NFQF06-14567-0375N1	0.1169-0.2382	0.375	0.630	1.457	3.150
63264	NFQF06-11811-0625N1	0.1169-0.2382	0.625	0.630	1.181	3.150
63260	NFQF06-12992-0500N1	0.1169-0.2382	0.500	0.630	1.299	3.150
63270	NFQF10-20472-0500N1	0.2382-0.4744	0.500	0.906	2.047	3.937
63284	NFQF10-19291-0625N1	0.2382-0.4744	0.625	0.906	1.929	3.937
63290	NFQF10-18504-07500N1	0.2382-0.4744	0.750	0.906	1.850	3.937

D <sub>c</sub>	l <sub>2</sub>
0.1169-0.1259	4.901
0.1260-0.2382	5.689
0.2382-0.3169	7.461
0.3170-0.3957	7.854
0.3957-0.4744	8.642

Spare Parts

	Spare Clamping Kit	Key
0.1169-0.2382	NF06-CLKI	CLC06KEY
0.2383-0.4744	NF10-CLKI	CLC10KEY

Spare clamping kit for Nanofix holders includes:

- 1 clamping nut
- 1 axial stop spring ring
- 3 clamping balls (dia 3.5 mm for size NF06 & dia 5 mm for size NF10)
- 1 error-proof ball (dia 3 mm for size NF06 & dia 4 mm for size NF10)
- 1 o-ring

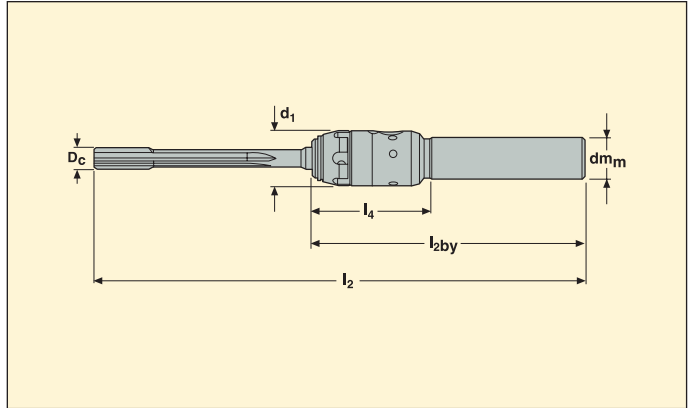
Note: Error-proof ball not shown on above view.

Nanofix tool holder

Metric diameter shank



• For reamer heads see page(s) 309-316



EDP No.	Part No.	Dimensions in mm				
		D <sub>c</sub>	dm <sub>m</sub>	d <sub>1</sub>	l <sub>4</sub>	l <sub>2by</sub>
<a href="#">63242</a>	NFQF06-03700-10N1	2.970-6.050	10	16	37	80
<a href="#">63243</a>	NFQF06-03300-12N1	2.970-6.050	12	16	33	80
<a href="#">63244</a>	NFQF06-03000-16N1	2.970-6.050	16	16	30	80
<a href="#">63248</a>	NFQF10-05200-12N1	6.050-12.050	12	23	52	100
<a href="#">63250</a>	NFQF10-04900-16N1	6.050-12.050	16	23	49	100
<a href="#">63251</a>	NFQF10-04700-20N1	6.050-12.050	20	23	47	100

D <sub>c</sub>	l <sub>2</sub>
2.970-3.200	124.5
3.201-6.050	144.5
6.051-8.050	189.5
8.051-10.050	199.5
10.051-12.050	219.5

Spare Parts

	Spare Clamping Kit	Key
2.97-6.050	NF06-CLKI	CLC06KEY
6.051-12.050	NF10-CLKI	CLC10KEY

Spare clamping kit for Nanofix holders includes:

- 1 clamping nut
- 1 axial stop spring ring
- 3 clamping balls (dia 3.5 mm for size NF06 & dia 5 mm for size NF10)
- 1 error-proof ball (dia 3 mm for size NF06 & dia 4 mm for size NF10)
- 1 o-ring

Note: Error-proof ball not shown on above view.



Cutting data – NF/NS-EB25

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)		V <sub>c</sub> (sf/min)		
		z=4	z=6	z=4	z=6	H15	CP20	RX2000
P1	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.035	0.020–0.047	80 (50-100)	195 (100-330)	260 (100-490)
P2	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.035	0.020–0.047	80 (50-100)	195 (100-330)	260 (100-490)
P3	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.035	0.020–0.047	80 (50-100)	195 (100-330)	260 (100-490)
P4	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.028	0.020–0.039	65 (35-80)	165 (100-265)	195 (100-395)
P5	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.028	0.020–0.039	65 (35-80)	165 (100-265)	195 (100-395)
P6	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.028	0.020–0.039	65 (35-80)	165 (100-265)	195 (100-395)
P7	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.028	0.020–0.039	65 (35-80)	165 (100-265)	195 (100-395)
M1	NF/NS-EB25	0.003–0.006	0.004–0.006	0.012–0.028	0.020–0.039	–	80 (50-130)	115 (65-195)
K1	NF/NS-EB25	0.004–0.008	0.004–0.010	0.012–0.035	0.020–0.047	80 (50-100)	195 (130-330)	260 (100-490)
K2	NF/NS-EB25	0.004–0.008	0.004–0.010	0.012–0.035	0.020–0.047	–	80 (65-130)	130 (100-230)
K3	NF/NS-EB25	0.004–0.008	0.004–0.010	0.012–0.035	0.020–0.047	80 (50-100)	195 (130-330)	260 (100-490)
K4	NF/NS-EB25	0.004–0.008	0.004–0.010	0.012–0.035	0.020–0.047	80 (50-100)	150 (100-230)	230 (130-395)
K5	NF/NS-EB25	0.004–0.008	0.004–0.010	0.012–0.035	0.020–0.047	80 (50-100)	150 (100-230)	230 (130-395)
K6	NF/NS-EB25	0.004–0.008	0.004–0.010	0.012–0.035	0.020–0.047	–	195 (130-330)	260 (100-490)
K7	NF/NS-EB25	0.004–0.008	0.004–0.010	0.012–0.035	0.020–0.047	–	195 (130-330)	260 (100-490)
N1	NF/NS-EB25	0.004–0.787	0.004–0.012	0.012–0.035	0.020–0.047	165 (65-265)	–	–
N2	NF/NS-EB25	0.004–0.787	0.004–0.012	0.012–0.035	0.020–0.047	165 (65-265)	–	–
N3	NF/NS-EB25	0.004–0.787	0.004–0.012	0.012–0.035	0.020–0.047	165 (65-265)	–	–
N11	NF/NS-EB25	0.004–0.787	0.004–0.012	0.012–0.035	0.020–0.047	165 (65-265)	–	–
PM1	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.035	0.020–0.047	–	165 (100-265)	230 (130-330)
PM2	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.035	0.020–0.047	–	165 (100-265)	230 (130-330)
PM3	NF/NS-EB25	0.004–0.006	0.004–0.008	0.012–0.035	0.020–0.047	–	165 (100-265)	230 (130-330)

Cutting data – NF/NS...-EB845

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)		V <sub>c</sub> (sf/min)		
		z=4	z=6	z=4	z=6	H15	CP20	RX2000
P3	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	–	195 (100-330)	260 (100-490)
P4	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	–	165 (100-260)	195 (100-395)
P5	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	65 (35-80)	165 (100-260)	195 (100-395)
P6	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	65 (35-80)	165 (100-260)	195 (100-395)
P7	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	65 (35-80)	165 (100-260)	195 (100-395)
P8	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	50 (35-65)	115 (65-195)	130 (65-260)
P11	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	50 (35-65)	115 (65-195)	130 (65-260)
K1	NF/NS-EB845	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	80 (50-100)	195 (130-330)	260 (100-490)
K2	NF/NS-EB845	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	–	80 (65-130)	130 (100-230)
K3	NF/NS-EB845	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	80 (50-100)	195 (130-330)	260 (100-490)
K4	NF/NS-EB845	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	80 (50-100)	150 (100-330)	230 (130-395)
K5	NF/NS-EB845	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	80 (50-100)	150 (100-330)	230 (130-395)
K6	NF/NS-EB845	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	–	195 (130-330)	260 (100-490)
K7	NF/NS-EB845	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	–	195 (130-330)	260 (100-490)
S1	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	50 (25-65)	65 (35-80)
S2	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	50 (25-65)	65 (35-80)
S3	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	50 (25-65)	65 (35-80)
S11	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	65 (50-100)	100 (50-130)	130 (65-165)
S12	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	65 (50-100)	100 (50-130)	130 (65-165)
S13	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	65 (50-100)	100 (50-130)	130 (65-165)
H3	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H5	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H7	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H8	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H11	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H12	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H21	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H31	NF/NS-EB845	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
PM1	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	–	165 (100-260)	230 (130-350)
PM2	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	–	165 (100-260)	230 (130-350)
PM3	NF/NS-EB845	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	–	165 (100-260)	230 (130-350)

Cutting data – NF/NS...-EB45

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)		V <sub>c</sub> (sf/min)		
		z=4	z=6	z=4	z=6	H15	CP20	RX2000
P1	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	80 (50-100)	195 (100-330)	260 (100-490)
P2	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	80 (50-100)	195 (100-330)	260 (100-490)
P3	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	80 (50-100)	195 (100-330)	260 (100-490)
P4	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	65 (35-80)	165 (100-260)	195 (100-395)
P5	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	65 (35-80)	165 (100-260)	195 (100-395)
P6	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	65 (35-80)	165 (100-260)	195 (100-395)
P7	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	65 (35-80)	165 (100-260)	195 (100-395)
P8	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	50 (35-65)	115 (65-195)	130 (65-260)
P11	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	50 (35-65)	115 (65-195)	130 (65-260)
M1	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.020	40 (30-50)	80 (50-130)	115 (65-195)
M2	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.020	–	80 (50-130)	115 (65-195)
M3	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.020	–	80 (50-130)	115 (65-195)
M4	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.020	–	65 (35-100)	80 (50-130)
M5	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.020	–	65 (35-100)	80 (50-130)
K1	NF/NS-EB45	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	80 (50-100)	195 (130-330)	260 (100-490)
K2	NF/NS-EB45	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	–	80 (65-130)	130 (100-230)
K3	NF/NS-EB45	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	80 (50-100)	195 (130-330)	260 (100-490)
K4	NF/NS-EB45	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	80 (50-100)	150 (100-230)	230 (130-395)
K5	NF/NS-EB45	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	80 (50-100)	150 (100-230)	230 (130-395)
K6	NF/NS-EB45	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	–	195 (130-330)	260 (100-490)
K7	NF/NS-EB45	0.004–0.008	0.004–0.010	0.004–0.012	0.008–0.024	–	195 (130-330)	260 (100-490)
N1	NF/NS-EB45	0.004–0.787	0.004–0.012	0.004–0.012	0.008–0.024	165 (65-260)	–	260 (100-490)
N2	NF/NS-EB45	0.004–0.787	0.004–0.012	0.004–0.012	0.008–0.024	165 (65-260)	–	260 (100-490)
N3	NF/NS-EB45	0.004–0.787	0.004–0.012	0.004–0.012	0.008–0.024	165 (65-260)	–	260 (100-490)
N11	NF/NS-EB45	0.004–0.787	0.004–0.012	0.004–0.012	0.008–0.024	165 (65-260)	–	260 (100-490)
S1	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	50 (25-65)	65 (35-80)
S2	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	50 (25-65)	65 (35-80)
S3	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	50 (25-65)	65 (35-80)
S11	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	65 (50-100)	100 (50-130)	130 (65-165)
S12	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	65 (50-100)	100 (50-130)	130 (65-165)
S13	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	65 (50-100)	100 (50-130)	130 (65-165)
H3	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H5	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H7	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H8	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H11	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H12	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H21	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
H31	NF/NS-EB45	0.003–0.006	0.004–0.006	0.004–0.008	0.008–0.012	–	–	35 (25-50)
PM1	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	–	165 (100-260)	230 (130-350)
PM2	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	–	165 (100-260)	230 (130-350)
PM3	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.008	0.008–0.020	–	165 (100-260)	230 (130-350)
TS1	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	65 (50-80)	–	130 (65-195)
TS2	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	65 (50-80)	–	130 (65-195)
TS3	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	65 (50-80)	–	130 (65-195)
TS4	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	65 (50-80)	–	130 (65-195)
TP1	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	65 (50-80)	–	130 (65-195)
TP2	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	65 (50-80)	–	130 (65-195)
TP3	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	65 (50-80)	–	130 (65-195)
TP4	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	65 (50-80)	–	130 (65-195)
GR1	NF/NS-EB45	0.004–0.006	0.004–0.008	0.004–0.012	0.008–0.024	130 (65-260)	–	195 (100-395)

SMG = Seco Material Group

a<sub>p</sub> = inch

f = in/rev

v<sub>c</sub> = sf/min

z = no. of flutes

All cutting data are start values

## Custom design – No waiting for quotation - Short delivery time

Custom Design is also available for Nanofix reamers and tool holders. You can now quote for your own intermediate  $\varnothing$  reamer and tailor made Nanofix tool holder using the Seco Custom Design software. Easy to use concept: Just indicate component min/max  $\varnothing$  or use ISO tolerance system available in the software. Nanofix head designation is created automatically. Custom Design gives you a number of advantages:

- No waiting for quotation: Price and delivery time is available instantly
- Directly visualize your needs. No risk for misinterpretation
- Short delivery time
- Custom Design available at <http://www.secotools.com/customerzoneus>

### CUSTOM DESIGN

Version 1.7.9.6

Reaming >> Nanofix >> Nanofix shanks
Test mode (Exit) Seco mode Feedback

Back
Start Page
Login
English

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**Step 1: Tool Specification**  
Step 2: Request for Quotation

Inch:

	Min	Max
Reamer Dc	Dc 2.970	3.050
dmm		10
Length I4 minimum		30
Length A	75	146
I2		125
I2by		80
I4		40

Previous
Request quotation

**Designation**  
NFQF06-04000-10N1

**Delivery Time**

Quantity:  Send request

**Send to SIQ**

Customer number:

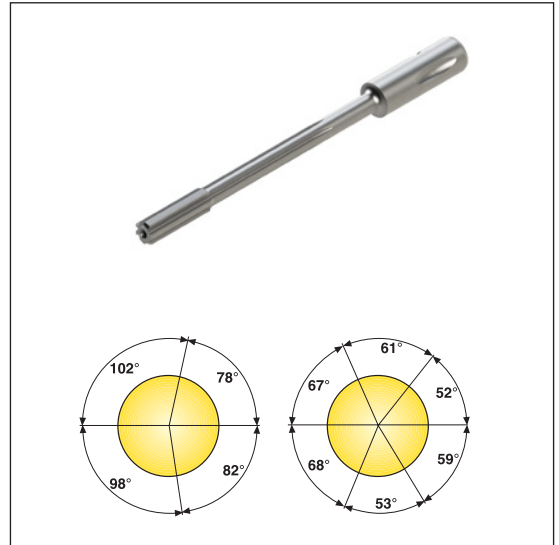
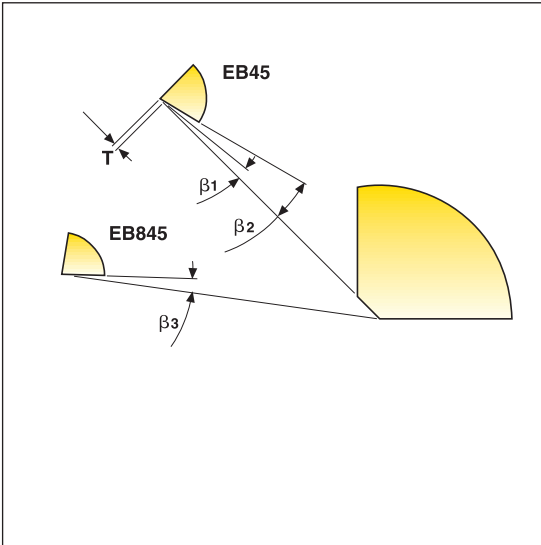
Customer name:

Contact:

Comments:

Quantity:  Create Inquiry

Regrinding instructions



∅ Nanofix	$\beta_1$	$\beta_2$	$\beta_3$	t
0.1169-0.4744 inch	8°	25°	10°	0.006 inch
2.97-12.050 mm	8°	25°	10°	0.15 mm

**Specification:**

Diamond grinding wheel

Grain size:

D6 for 1st clearance angle ( $\beta_1 - \beta_3$ )

D64 for 2nd clearance angle ( $\beta_2$ )

**Important**

Regrinding reduces reamer diameter

Recoating may produce oversized diameter

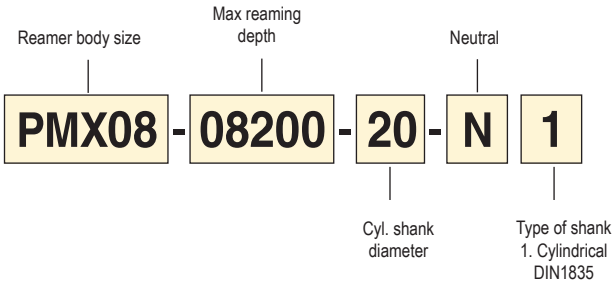
Max run-out on lead chamfers 0.0004 inch (10  $\mu$ m)



## Range overview

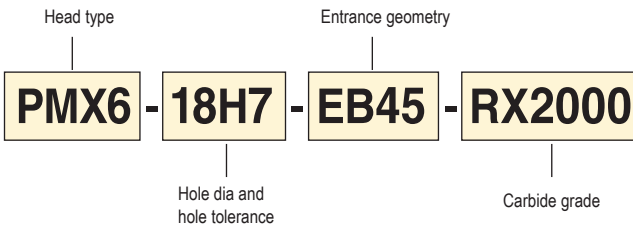
Precimaster™ Plus	∅ Range	Reaming depth	Hole tolerance	Intermediate diameters	Surface finish
	0.3937-2.3622" (10-60 mm)	~ 2-3 x D	IT 6-7-8	Yes, available through Custom Design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm
	0.3937-2.3622" (10-60 mm)	~ 4-5 x D	IT 6-7-8	Yes, available through Custom Design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm
	0.3937-2.3622" (10-60 mm)	~ 8-10 x D	IT 6-7-8	Yes, available through Custom Design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm

## Code key tool shank

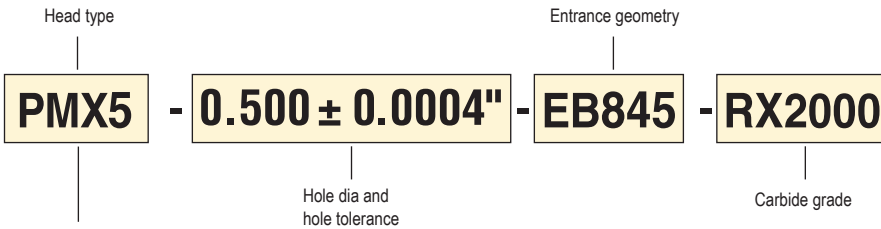


Precimaster Plus toolholders are suitable for both blind and through holes.

## Code key head

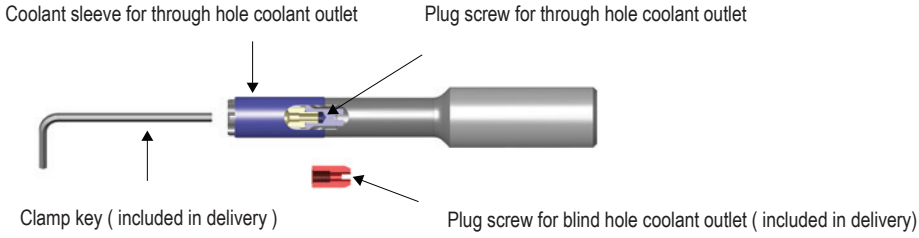


## Code key head intermediate diameter



PMX5 : Straight flutes design, suitable for blind and through holes.  
 PMX6 : Helical flutes design, suitable for through holes only.  
 The left hand flutes design improves the action of pushing the chips forward.  
 See Precimaster Plus head choice page 331.

## Coolant outlet set-up

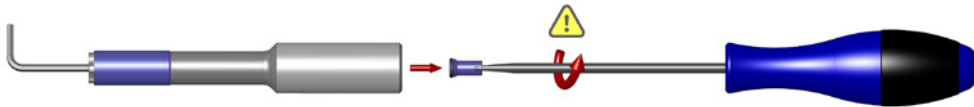


**Note :** Precimaster Plus tool holders are pre-set from factory for through holes coolant outlet.

### Blind hole coolant set up procedure:

1) dismount plug screw for through hole

**Note: plug screws are LH screw**



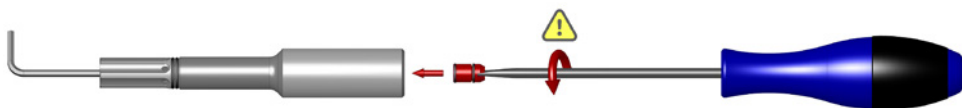
Body size	Flat blade screw driver size	Allen Key size
PMX06	1.0 x 5.5 x 150	2.5 x 150
PMX08	1.2 x 6.5 x 200	3 x 200
PMX12	1.2 x 8 x 175	5 x 175

2) Remove coolant sleeve for through hole



3) Mount plug screw for blind hole coolant outlet

**Note : plug screws are LH screw**





## Head mounting



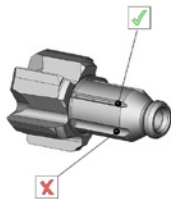
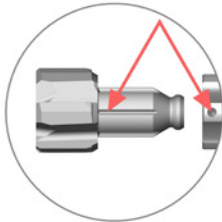
PMX5 : Suitable for through and blind hole



PMX6 : Suitable for through hole only

1) Align index groove with dot on body

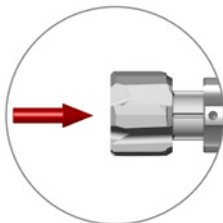
1



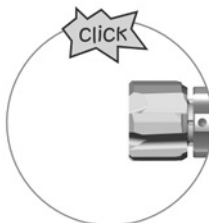
2) Place head into body

3) Push head inside body until 'click' is achieved

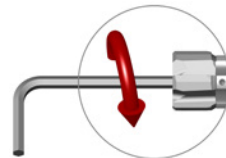
4) Clamp head with Allen clamp key



2



3



4

**Note** : Use of torque key is not required for Precimaster Plus head clamping

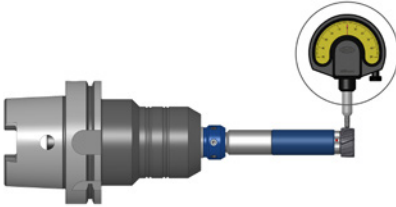
## Set up – Run-out

### Rotating tool

Max recommended run-out : 0.0004-0.0006" (10-15 μm).

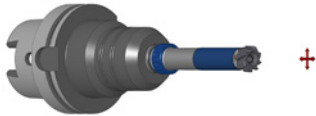
Hydraulic chuck, Shrinkfit, holder or precision collet holder is recommended.

For best run-out control, we recommend to use Precimaster Plus PMX-AD adjustable adapters, see page(s) 436-443.



### Static tool

Use Precimaster Plus floating holders PMX - FL, see page(s) 447-456.



Floating holders allow reamer self-centering in pre-bore.

### Coolant requirements

To reach maximum tool life and hole quality, the following coolant requirements should be observed.

Coolant through the tool is recommended.

External coolant supply can be used if reaming depth < 2 x D.

Quality soluble oil with 40% minimum mineral oil.

Neat oil recommended for stainless steel.

Concentration minimum 6-8%.

Filtration 1200-2000 μin (30-50 μm).

Volume min 3.35 gal/min/inch (0.5 l/min/mm) in tool diameter. (Ex: Reamer Ø 10, min volume is 1.3 gal/min (5 l/min)).

### Diameter measurement



Gauge dial indicator micrometer prior to Ø measurement.

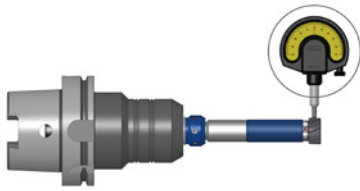
### Important!

Precimaster reamers have differential pitch between the teeth.

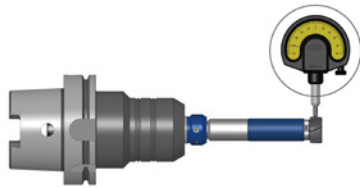
When measuring the diameter, make sure that you have 2 teeth that are 180° opposite.

Use indicator micrometer and measuring blocks for gauging.

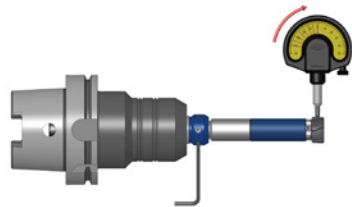
## Precimaster Plus Adjusting shanks set-up:



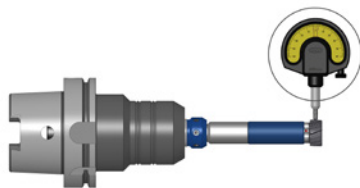
- 1) Mount tool in machine spindle
- 2) Set-up dial indicator as shown



- 3) Rotate tool manually till lowest point is reached

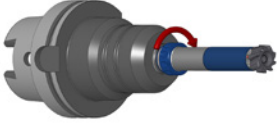


- 4) Proceed to run-out compensation using adjusting screws. Direction as shown with arrows
- 5) Check run-out and repeat compensation if necessary

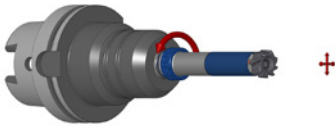


- 6) When maximum run-out is less than 0.0002" (5 μm), secure adjusting screws clamping to avoid losing adjustment

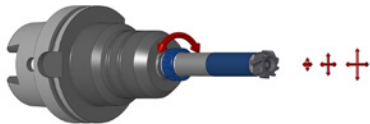
## Precimaster Plus Floating shanks set-up:



1) Completely lock floating shank turning adjusting ring clockwise



2) Open floating shank 2 or 3 clicks turning adjusting ring anti-clockwise

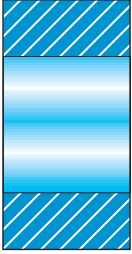


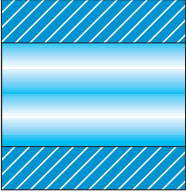
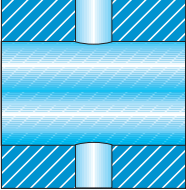



3) Proceed to further floating value adjustment if necessary

Too much floating value can create unstable conditions at bore entry.

Too few floating value can create vibrations and tapered bore.

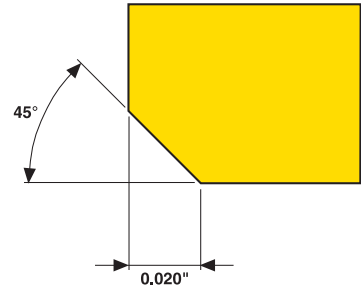
## Head choice – Choose cutting head style according to application and diameter

Workpiece	Diameter to ream $\varnothing$ 0.3937-2.3622" (10-60 mm)	
<p>Short through hole &lt; 3 x D</p> 	<p>PMX5</p> 	
<p>Long through hole &gt; 3 x D</p> 	<p>PMX6</p> 	
<p>Crossing hole</p> 	<p>For through hole application, toolholder coolant outlet must be set for through holes: see coolant set up pages</p>	
<p>Blind hole</p> 	<p>PMX5</p> 	
<p>Blind and crossing hole</p> 	<p>For blind hole application, toolholder coolant outlet must be set for blind holes: see coolant set up pages</p>	

Geometry choice – Applications

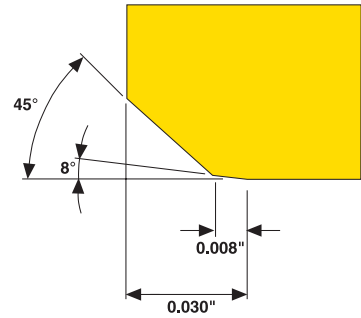
**Lead geometry - EB45**

Chip control +++  
 Surface Finish + ( $R_a$  31 - 47  $\mu\text{in}$ )  
 Surface Finish + ( $R_a$  0.8 - 1.2  $\mu\text{m}$ )  
 Versatile



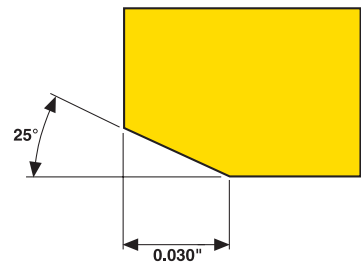
**Lead geometry - EB845**

Chip control ++  
 Surface finish+++ ( $R_a$  8 - 31  $\mu\text{in}$ )  
 Surface finish+++ ( $R_a$  0.2 - 0.8  $\mu\text{m}$ )

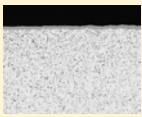
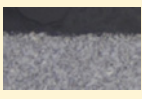





**Lead geometry - EB25**

Feed performance +++  
 Surface finish ++ ( $R_a$  16 - 31  $\mu\text{in}$ )  
 Surface finish ++ ( $R_a$  0.4 - 0.8  $\mu\text{m}$ )  
 Chip control +



## Grades

	<b>CP20</b>	<b>Coated</b> A versatile coated grade suitable for most materials, except aluminum. TiN
	<b>H15</b>	<b>Uncoated</b> A tough micrograin grade for all materials. Suitable for fine-reaming operations due to edge sharpness.
	<b>CF</b>	<b>Cermet</b> A wear resistant grade for performance optimization in steel.
	<b>RX1500</b>	<b>Coated Cermet</b> A wear resistant coated grade for performance optimization in steel and cast iron.
	<b>RX2000</b>	<b>Coated</b> High performance coated grade suitable for all materials.



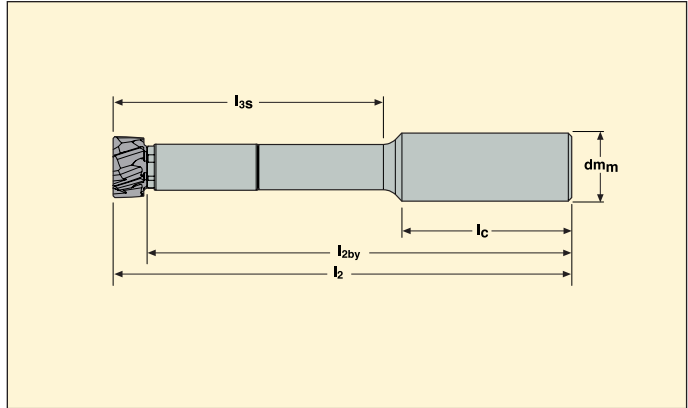




## Shanks for through and blind holes $\varnothing 0.3937\text{-}2.3819''$ (10-60.500 mm)



- Cutting data see page(s) 343-344
- For choice of geometry EB45, EB845 or EB25, please see page(s) 332

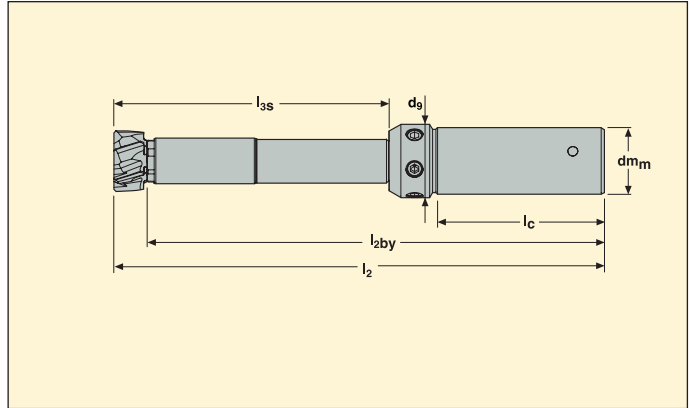


Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Tool holder material	EDP No.	Part No.	Dimensions in inch				
					l <sub>2</sub>	l <sub>2by</sub>	l <sub>3s</sub>	l <sub>c</sub>	dm <sub>m</sub>
0.3937-0.5708	10-14.499	Steel	<a href="#">14352</a>	PMX06-03700-12N1	3.307	3.031	1.457	1.772	0.472
		Steel	<a href="#">14353</a>	PMX06-05700-12N1	4.094	3.819	2.244	1.772	0.472
		Steel	<a href="#">14354</a>	PMX06-12000-12N1	6.575	6.299	4.724	1.772	0.472
		Carbide	<a href="#">14355</a>	PMX06HM-12000-12N1	6.575	6.299	4.724	1.772	0.472
0.5709-0.8464	14.5-21.499	Steel	<a href="#">14356</a>	PMX08-04600-20N1	3.898	3.504	1.811	1.969	0.787
		Steel	<a href="#">14357</a>	PMX08-08200-20N1	5.315	4.921	3.228	1.969	0.787
		Steel	<a href="#">14358</a>	PMX08-14500-20N1	7.795	7.402	5.709	1.969	0.787
		Carbide	<a href="#">14362</a>	PMX08HM-14500-20N1	7.795	7.402	5.709	1.969	0.787
0.8465-1.2795	21.5-32.499	Steel	<a href="#">14363</a>	PMX12-06800-25N1	5.000	4.528	2.677	2.205	0.984
		Steel	<a href="#">14364</a>	PMX12-10400-25N1	6.417	5.945	4.094	2.205	0.984
		Steel	<a href="#">14365</a>	PMX12-17000-25N1	9.016	8.543	6.693	2.205	0.984
		Carbide	<a href="#">14366</a>	PMX12HM-17000-25N1	9.016	8.543	6.693	2.205	0.984
1.2795-2.3819	32.5-60.500	Steel	<a href="#">14367</a>	PMX16-06300-32N1	4.882	4.331	2.480	2.402	1.260
		Steel	<a href="#">14368</a>	PMX16-12700-32N1	7.402	6.850	5.000	2.402	1.260
		Steel	<a href="#">14370</a>	PMX16-17000-32N1	9.094	8.543	6.693	2.402	1.260
		Carbide	<a href="#">14372</a>	PMX16HM-17000-32N1	9.094	8.543	6.693	2.402	1.260

## Spare Parts

For shank	For dia. (inch)	For dia. (mm)	Clamp kit 	Coolant kit 	Key 	Plug, blind hole 	Plug, through hole 
PMX06	0.3937-0.5708	10-14.499	PMX06-CLKI	RT06-KI	2SMS795	SB06	ST06
PMX08	0.5709-0.8464	14.5-21.499	PMX08-CLKI	RT08-KI	2.5SMS795	SB08	ST08
PMX12	0.8465-1.2795	21.5-32.499	PMX12-CLKI	RT12-KI	4SMS795	SB12	ST12
PMX16	1.2795-2.3622	32.5-60	PMX16-CLKI	-	5SMS795	SB16	ST16

## Adjustable shanks for through holes $\varnothing$ 0.3937-2.3819" (10-60.500 mm)



- Cutting data see page(s) 343-344
- For choice of geometry EB45, EB845 or EB25, please see page(s) 332

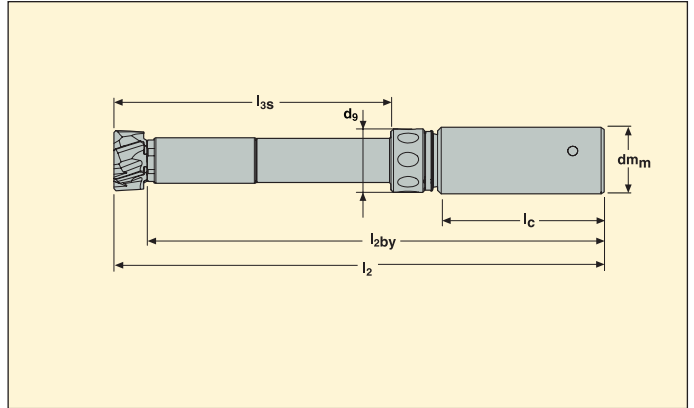
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	EDP No.	Part No.	Dimensions in inch					
				l <sub>2</sub>	l <sub>2by</sub>	l <sub>3s</sub>	l <sub>c</sub>	dm <sub>m</sub>	d <sub>g</sub>
0.3937-0.5708	10-14.499	<a href="#">53479</a>	PMX06T-AD-05700-16N1	4.606	4.331	2.244	1.890	0.630	0.709
0.5709-0.8464	14.5-21.499	<a href="#">53483</a>	PMX08T-AD-08200-20N1	5.787	5.394	3.228	1.969	0.787	0.866
0.8465-1.2795	21.5-32.499	<a href="#">53486</a>	PMX12T-AD-10400-25N1	7.047	6.575	4.094	2.205	0.984	1.102
1.2795-2.3819	32.5-60.500	<a href="#">53488</a>	PMX16T-AD-12700-32N1	8.425	7.874	5.000	2.362	1.260	1.339

### Spare parts

For shank	For dia. (inch)	For dia. (mm)	Key	Setting key	Clamp kit	Coolant ring
PMX06T	0.3937-0.5708	10.00-14.499				
PMX08T	0.5709-0.8464	14.50-21.499	2SMS795	–	PMX06-CLKI	RT06-KI
PMX12T	0.8465-1.2795	21.50-32.499	2.5SMS795	–	PMX08-CLKI	RT08-KI
PMX16T	1.2795-2.3622	32.50-60.000	4SMS795	3SMS795	PMX12-CLKI	RT12-KI
			5SMS795	3SMS795	PMX16-CLKI	–




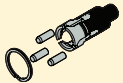
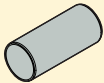
## Floating shanks for through holes $\varnothing 0.3937\text{-}2.3819''$ (10-60.500 mm)



- Cutting data see page(s) 343-344
- For choice of geometry EB45, EB845 or EB25, please see page(s) 332

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	EDP No.	Part No.	Dimensions in inch					
				l <sub>2</sub>	l <sub>2by</sub>	l <sub>3s</sub>	l <sub>c</sub>	dm <sub>m</sub>	d <sub>g</sub>
0.3937-0.5708	10-14.499	<a href="#">53469</a>	PMX06T-FL-05700-16N1	4.606	4.331	2.244	1.890	0.630	0.591
0.5709-0.8464	14.5-21.499	<a href="#">53471</a>	PMX08T-FL-08200-20N1	5.787	5.394	3.228	1.969	0.787	0.748
0.8465-1.2795	21.5-32.499	<a href="#">53473</a>	PMX12T-FL-10400-25N1	7.047	6.575	4.094	2.205	0.984	1.102
1.2795-2.3819	32.5-60.500	<a href="#">53476</a>	PMX16T-FL-12700-32N1	8.425	7.874	5.000	2.362	1.260	1.339

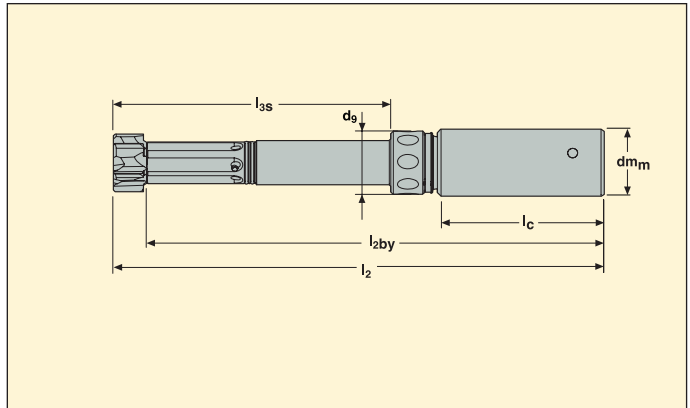
## Spare parts

For shank	For dia. (inch)	For dia. (mm)	Key 	Clamp kit 	Coolant ring 
PMX06B	0.3937-0.5708	10.00-14.499	2SMS795	PMX06-CLKI	RT06-KI
PMX08B	0.5709-0.8464	14.50-21.499	2.5SMS795	PMX08-CLKI	RT08-KI
PMX12B	0.8465-1.2795	21.50-32.499	4SMS795	PMX12-CLKI	RT12-KI
PMX16B	1.2795-2.3622	32.50-60.000	5SMS795	PMX16-CLKI	-

## Floating shanks for blind holes $\varnothing 0.3937\text{-}2.3819''$ (10-60.500 mm)



- Cutting data see page(s) 343-344
- For choice of geometry EB45, EB845 or EB25, please see page(s) 332



Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	EDP No.	Part No.	Dimensions in inch					
				l <sub>2</sub>	l <sub>2by</sub>	l <sub>3s</sub>	l <sub>c</sub>	dm <sub>m</sub>	d <sub>g</sub>
0.3937-0.5708	10-14.499	<a href="#">53470</a>	PMX06B-FL-05700-16N1	4.606	4.331	2.244	1.890	0.630	0.591
0.5709-0.8464	14.5-21.499	<a href="#">53472</a>	PMX08B-FL-08200-20N1	5.787	5.394	3.228	1.969	0.787	0.748
0.8465-1.2795	21.5-32.499	<a href="#">53475</a>	PMX12B-FL-10400-25N1	7.047	6.575	4.094	2.205	0.984	1.102
1.2795-2.3819	32.5-60.500	<a href="#">53478</a>	PMX16B-FL-12700-32N1	8.425	7.874	5.000	2.362	1.260	1.339

### Spare parts

For shank	For dia. (inch)	For dia. (mm)	Key	Clamp kit
PMX06B	0.3937-0.5708	10.00-14.499	2SMS795	PMX06-CLKI
PMX08B	0.5709-0.8464	14.50-21.499	2.5SMS795	PMX08-CLKI
PMX12B	0.8465-1.2795	21.50-32.499	4SMS795	PMX12-CLKI
PMX16B	1.2795-2.3622	32.50-60.500	5SMS795	PMX16-CLKI







Cutting data – PM Plus...-EB845

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)		V <sub>c</sub> (sf/min)				
		z=6	z=8	z=6	z=8	H15	CP20	RX2000	CF	RX1500
P3	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.035	.012 –.047	–	195 (100-330)	260 (100-490)	590 (295-655)	720 (395-985)
P4	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.028	.012 –.035	–	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P5	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.028	.012 –.035	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P6	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.028	.012 –.035	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P7	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.028	.012 –.035	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P8	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.028	.012 –.035	50 (35-65)	115 (65-195)	130 (65-260)	260 (195-395)	395 (260-590)
P11	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.028	.012 –.035	50 (35-65)	115 (65-195)	130 (65-260)	260 (195-395)	395 (260-590)
M1	PMX5/PMX6-EB845	.003 –.006	.004 –.008	.008 –.024	.012 –.031	40 (30-50)	80 (50-130)	115 (65-230)	–	–
M2	PMX5/PMX6-EB845	.003 –.006	.004 –.008	.008 –.024	.012 –.031	–	80 (50-130)	115 (65-230)	–	–
M3	PMX5/PMX6-EB845	.003 –.006	.004 –.008	.008 –.024	.012 –.031	–	80 (50-130)	115 (65-230)	–	–
M4	PMX5/PMX6-EB845	.003 –.006	.004 –.008	.008 –.024	.012 –.031	–	65 (35-100)	80 (50-165)	–	–
M5	PMX5/PMX6-EB845	.003 –.006	.004 –.008	.008 –.024	.012 –.031	–	65 (35-100)	80 (50-165)	–	–
K1	PMX5/PMX6-EB845	.004 –.008	.004 –.010	.012 –.035	.012 –.047	80 (50-100)	195 (130-330)	260 (100-490)	–	720 (395-985)
K2	PMX5/PMX6-EB845	.004 –.008	.004 –.010	.012 –.035	.012 –.047	–	80 (65-130)	130 (100-230)	–	260 (165-330)
K3	PMX5/PMX6-EB845	.004 –.008	.004 –.010	.012 –.035	.012 –.047	80 (50-100)	195 (130-330)	260 (100-490)	–	720 (395-985)
K4	PMX5/PMX6-EB845	.004 –.008	.004 –.010	.012 –.035	.012 –.047	80 (50-100)	150 (100-230)	230 (130-395)	330 (230-490)	490 (260-655)
K5	PMX5/PMX6-EB845	.004 –.008	.004 –.010	.012 –.035	.012 –.047	80 (50-100)	150 (100-230)	230 (130-395)	330 (230-490)	490 (260-655)
K6	PMX5/PMX6-EB845	.004 –.008	.004 –.010	.012 –.035	.012 –.047	–	195 (130-330)	260 (100-490)	–	720 (395-985)
K7	PMX5/PMX6-EB845	.004 –.008	.004 –.010	.012 –.035	.012 –.047	–	195 (130-330)	260 (100-490)	–	720 (395-985)
S1	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.024	.012 –.031	–	65 (35-80)	65 (35-80)	–	–
S2	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.024	.012 –.031	–	65 (35-80)	65 (35-80)	–	–
S3	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.024	.012 –.031	–	65 (35-80)	65 (35-80)	–	–
S11	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.024	.012 –.031	65 (50-100)	100 (50-130)	130 (65-165)	–	–
S12	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.024	.012 –.031	65 (50-100)	100 (50-130)	130 (65-165)	–	–
S13	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.024	.012 –.031	65 (50-100)	100 (50-130)	130 (65-165)	–	–
H3	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.016	.012 –.022	–	–	35 (25-50)	–	–
H5	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.016	.012 –.022	–	–	35 (25-50)	–	–
H7	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.016	.012 –.022	–	–	35 (25-50)	–	–
H8	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.016	.012 –.022	–	–	35 (25-50)	–	–
H11	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.016	.012 –.022	–	–	35 (25-50)	–	–
H12	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.016	.012 –.022	–	–	35 (25-50)	–	–
H21	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.016	.012 –.022	–	–	35 (25-50)	–	–
H31	PMX5/PMX6-EB845	.003 –.006	.004 –.006	.008 –.016	.012 –.022	–	–	35 (25-50)	–	–
PM1	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.024	.012 –.031	–	165 (100-260)	230 (130-330)	–	–
PM2	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.024	.012 –.031	–	165 (100-260)	230 (130-330)	–	–
PM3	PMX5/PMX6-EB845	.004 –.008	.004 –.012	.008 –.024	.012 –.031	–	165 (100-260)	230 (130-330)	–	–

Cutting data – PM Plus...-EB25

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)		V <sub>c</sub> (sf/min)				
		z=6	z=8	z=6	z=8	H15	CP20	RX2000	CF	RX1500
P1	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.071	.039 –.094	80 (50-100)	195 (100-330)	260 (100-490)	590 (295-655)	720 (395-985)
P2	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.071	.039 –.094	80 (50-100)	195 (100-330)	260 (100-490)	590 (295-655)	720 (395-985)
P3	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.071	.039 –.094	80 (50-100)	195 (100-330)	260 (100-490)	590 (295-655)	720 (395-985)
P4	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.071	.039 –.094	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P5	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.071	.039 –.094	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P6	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.071	.039 –.094	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P7	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.071	.039 –.094	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
M1	PMX5/PMX6-EB25	.003 –.006	.004 –.008	.031 –.047	.039 –.079	–	80 (50-130)	115 (65-230)	–	–
K1	PMX5/PMX6-EB25	.004 –.008	.004 –.010	.031 –.087	.039 –.110	80 (50-100)	195 (130-330)	260 (100-490)	–	720 (395-985)
K2	PMX5/PMX6-EB25	.004 –.008	.004 –.010	.031 –.071	.039 –.094	–	80 (65-130)	130 (100-230)	–	260 (165-330)
K3	PMX5/PMX6-EB25	.004 –.008	.004 –.010	.031 –.087	.039 –.110	80 (50-100)	195 (130-330)	260 (100-490)	–	720 (395-985)
K4	PMX5/PMX6-EB25	.004 –.008	.004 –.010	.031 –.087	.039 –.110	80 (50-100)	150 (100-230)	230 (130-395)	330 (230-490)	490 (260-655)
K5	PMX5/PMX6-EB25	.004 –.008	.004 –.010	.031 –.087	.039 –.110	80 (50-100)	150 (100-230)	230 (130-395)	330 (230-490)	490 (260-655)
K6	PMX5/PMX6-EB25	.004 –.008	.004 –.010	.031 –.071	.039 –.094	–	195 (130-330)	260 (100-490)	–	720 (395-985)
K7	PMX5/PMX6-EB25	.004 –.008	.004 –.010	.031 –.071	.039 –.094	–	195 (130-330)	260 (100-490)	–	720 (395-985)
N1	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.087	.039 –.110	165 (100-330)	–	–	–	–
N2	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.087	.039 –.110	165 (100-330)	–	–	–	–
N3	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.087	.039 –.110	165 (100-330)	–	–	–	–
N11	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.031 –.087	.039 –.110	165 (100-330)	–	–	–	–
PM1	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.020 –.071	.031 –.079	–	165 (100-260)	230 (130-330)	–	–
PM2	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.020 –.071	.031 –.079	–	165 (100-260)	230 (130-330)	–	–
PM3	PMX5/PMX6-EB25	.004 –.008	.004 –.012	.020 –.071	.031 –.079	–	165 (100-260)	230 (130-330)	–	–

## Cutting data – PM Plus...-EB45

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)		V <sub>c</sub> (sf/min)				
		z=6	z=8	z=6	z=8	H15	CP20	RX2000	CF	RX1500
P1	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	80 (50-100)	195 (100-330)	260 (100-490)	590 (295-655)	720 (395-985)
P2	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	80 (50-100)	195 (100-330)	260 (100-490)	590 (295-655)	720 (395-985)
P3	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	80 (50-100)	195 (100-330)	260 (100-490)	590 (295-655)	720 (395-985)
P4	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.008 – .028	.012 – .039	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P5	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.008 – .028	.012 – .039	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P6	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.008 – .028	.012 – .039	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P7	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.008 – .028	.012 – .039	65 (35-80)	165 (100-260)	195 (100-395)	395 (260-490)	590 (295-655)
P8	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.008 – .028	.012 – .039	50 (35-65)	115 (65-195)	130 (65-260)	260 (195-395)	395 (260-590)
P11	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.008 – .028	.012 – .039	50 (35-65)	115 (65-195)	130 (65-260)	260 (195-395)	395 (260-590)
M1	PMX5/PMX6-EB45	.003 – .006	.004 – .008	.008 – .024	.012 – .031	40 (30-50)	80 (50-130)	115 (65-230)	–	–
M2	PMX5/PMX6-EB45	.003 – .006	.004 – .008	.008 – .024	.012 – .031	–	80 (50-130)	115 (65-230)	–	–
M3	PMX5/PMX6-EB45	.003 – .006	.004 – .008	.008 – .024	.012 – .031	–	80 (50-130)	115 (65-230)	–	–
M4	PMX5/PMX6-EB45	.003 – .006	.004 – .008	.008 – .024	.012 – .031	–	65 (35-100)	80 (50-165)	–	–
M5	PMX5/PMX6-EB45	.003 – .006	.004 – .008	.008 – .024	.012 – .031	–	65 (35-100)	80 (50-165)	–	–
K1	PMX5/PMX6-EB45	.004 – .008	.004 – .010	.012 – .035	.016 – .047	80 (50-100)	195 (130-330)	260 (100-490)	–	720 (395-985)
K2	PMX5/PMX6-EB45	.004 – .008	.004 – .010	.012 – .035	.016 – .047	–	80 (65-130)	130 (100-230)	–	260 (165-330)
K3	PMX5/PMX6-EB45	.004 – .008	.004 – .010	.012 – .035	.016 – .047	80 (50-100)	195 (130-330)	260 (100-490)	–	720 (395-985)
K4	PMX5/PMX6-EB45	.004 – .008	.004 – .010	.012 – .035	.016 – .047	80 (50-100)	150 (100-230)	230 (130-395)	330 (230-490)	490 (260-655)
K5	PMX5/PMX6-EB45	.004 – .008	.004 – .010	.012 – .035	.016 – .047	80 (50-100)	150 (100-230)	230 (130-395)	330 (230-490)	490 (260-655)
K6	PMX5/PMX6-EB45	.004 – .008	.004 – .010	.012 – .035	.016 – .047	–	195 (130-330)	260 (100-490)	–	720 (395-985)
K7	PMX5/PMX6-EB45	.004 – .008	.004 – .010	.012 – .035	.016 – .047	–	195 (130-330)	260 (100-490)	–	720 (395-985)
N1	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	165 (100-330)	–	260 (100-490)	–	–
N2	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	165 (100-330)	–	260 (100-490)	–	–
N3	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	165 (100-330)	–	260 (100-490)	–	–
N11	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	165 (100-330)	–	260 (100-490)	–	–
S1	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .024	.012 – .031	–	65 (35-80)	65 (35-80)	–	–
S2	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .024	.012 – .031	–	65 (35-80)	65 (35-80)	–	–
S3	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .024	.012 – .031	–	65 (35-80)	65 (35-80)	–	–
S11	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .024	.012 – .031	65 (50-100)	100 (50-130)	130 (65-165)	–	–
S12	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .024	.012 – .031	65 (50-100)	100 (50-130)	130 (65-165)	–	–
S13	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .024	.012 – .031	65 (50-100)	100 (50-130)	130 (65-165)	–	–
H3	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .016	.012 – .024	–	–	35 (25-50)	–	–
H5	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .016	.012 – .024	–	–	35 (25-50)	–	–
H7	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .016	.012 – .024	–	–	35 (25-50)	–	–
H8	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .016	.012 – .024	–	–	35 (25-50)	–	–
H11	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .016	.012 – .024	–	–	35 (25-50)	–	–
H12	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .016	.012 – .024	–	–	35 (25-50)	–	–
H21	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .016	.012 – .024	–	–	35 (25-50)	–	–
H31	PMX5/PMX6-EB45	.003 – .006	.004 – .006	.008 – .016	.012 – .024	–	–	35 (25-50)	–	–
PM1	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	–	165 (100-260)	230 (130-330)	–	–
PM2	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	–	165 (100-260)	230 (130-330)	–	–
PM3	PMX5/PMX6-EB45	.004 – .008	.004 – .012	.012 – .035	.016 – .047	–	165 (100-260)	230 (130-330)	–	–
TS1	PMX5/PMX6-EB45	.004 – .006	.004 – .008	.012 – .035	.016 – .047	65 (50-80)	–	130 (65-195)	–	–
TS2	PMX5/PMX6-EB45	.004 – .006	.004 – .008	.012 – .035	.016 – .047	65 (50-80)	–	130 (65-195)	–	–
TS3	PMX5/PMX6-EB45	.004 – .006	.004 – .008	.012 – .035	.016 – .047	65 (50-80)	–	130 (65-195)	–	–
TS4	PMX5/PMX6-EB45	.004 – .006	.004 – .008	.012 – .035	.016 – .047	65 (50-80)	–	130 (65-195)	–	–
TP1	PMX5/PMX6-EB45	.004 – .006	.004 – .008	.012 – .035	.016 – .047	65 (50-80)	–	130 (65-195)	–	–
TP2	PMX5/PMX6-EB45	.004 – .006	.004 – .008	.012 – .035	.016 – .047	65 (50-80)	–	130 (65-195)	–	–
TP3	PMX5/PMX6-EB45	.004 – .006	.004 – .008	.012 – .035	.016 – .047	65 (50-80)	–	130 (65-195)	–	–
TP4	PMX5/PMX6-EB45	.004 – .006	.004 – .008	.012 – .035	.016 – .047	65 (50-80)	–	130 (65-195)	–	–
GR1	PMX5/PMX6-EB45	.004 – .012	.004 – .016	.012 – .035	.016 – .047	130 (260-65)	–	195 (100-395)	–	–

SMG = Seco material group

a<sub>p</sub> = inch

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

### No waiting for quotations – Short delivery time

Custom Design is also available for Precimaster Plus reamers and tool holders. You can now quote for your own intermediate  $\varnothing$  reamer and custom Precimaster Plus tool holder using the Seco Custom Design software. Easy to use concept: Just indicate component min/max  $\varnothing$  or use ISO tolerance system available in the software. Precimaster Plus head designation is created automatically. Custom Design gives you a number of advantages:

- No waiting for quotations! Price and delivery time available instantly
- Directly visualises your needs. No risk of misinterpretation
- Short delivery time

## CUSTOM DESIGN

Reaming >> Precimaster >> Cutting Heads
Feedback

Back
Start Page
English

Print this page

$D_c$

**Step 1: Tool Specification**  
Step 2: Request for Quotation

	Min	Max
Work piece	A. Short through hole < 3D	
Tolerance	Custom	
Dc min	4	60.469 <span style="border: 1px solid green; padding: 2px;">30.5</span>
Dc max	30.516	60.499 <span style="border: 1px solid green; padding: 2px;">30.525</span>
Geometry	EB45	
Grade	CP20	

Previous
Next

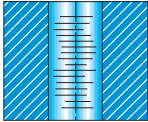
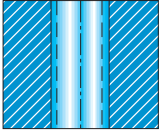
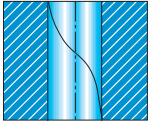
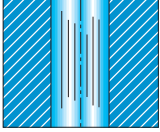
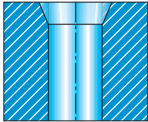
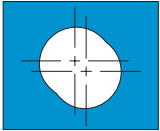
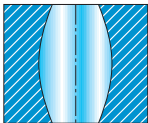
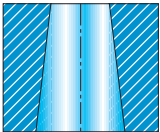
**Designation**  
PM50-30.500/30.525-EB45,CP20

**Delivery Time**  
Quantity:  Get data  
Min Quantity: 1

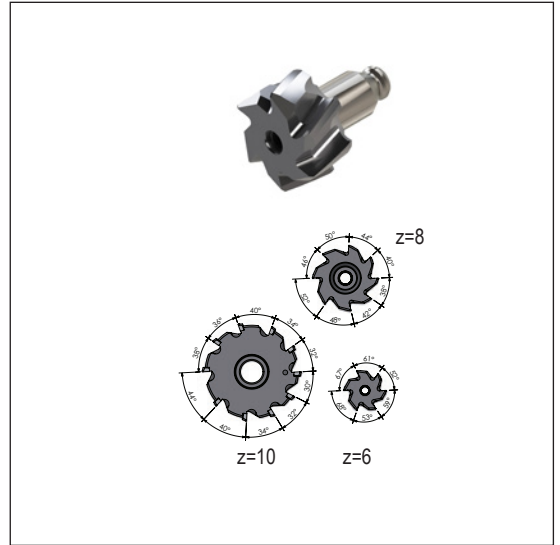
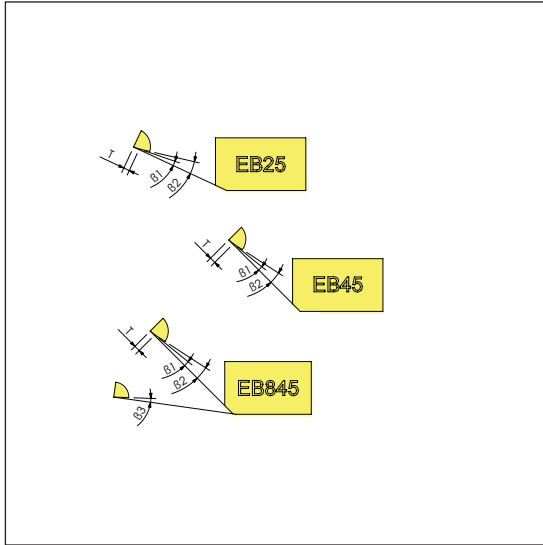
Please contact your local Seco representative for more information.

345

## Troubleshooting

<p><b>Poor surface finish</b></p> <ul style="list-style-type: none"> <li>• Check material allowance</li> <li>• Improve coolant conditions (outlet type, pressure, quality)</li> <li>• Reduce feed rate</li> </ul> 	<p><b>Too large diameter</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> </ul> 
<p><b>Retraction marks</b></p> <ul style="list-style-type: none"> <li>• Improve coolant conditions (outlet type, pressure, quality)</li> <li>• Improve centering (part/tool)</li> <li>• Reduce feed-out speed</li> </ul> 	<p><b>Facets</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> <li>• Check material allowance</li> </ul> 
<p><b>Tapered entry</b></p> <ul style="list-style-type: none"> <li>• Reduce feed rate</li> <li>• Improve centering (part/tool)</li> <li>• Reduce radial run-out</li> </ul> 	<p><b>Off center/Ovality</b></p> <ul style="list-style-type: none"> <li>• Improve clamping (workpiece deformation)</li> <li>• Check material allowance</li> <li>• Improve centering (part/tool)</li> </ul> 
<p><b>Deformed hole</b></p> <ul style="list-style-type: none"> <li>• Improve clamping (workpiece deformation)</li> </ul> 	<p><b>Tapered hole</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> </ul> 

## Regrinding instructions for Precimaster Plus



∅ Precimaster Plus (inch)	∅ Precimaster Plus (mm)	$\beta_1$	$\beta_2$	$\beta_3$	t (inch)
0.3937-0.5708	10.00-14.499	8°	20°	8°	0.008
0.5709-0.8464	14.500-21.499	8°	20°	8°	0.008
0.8465-1.2795	21.500-32.499	8°	20°	8°	0.010
1.2795-2.3819	32.500-60.499	8°	20°	8°	0.012

### Specifications

Diamond grinding wheel

Grain size:

**D6** – For first clearance angle ( $\beta_1$ - $\beta_3$ )

**D64** – For second clearance angle ( $\beta_2$ )

### Important:

Regrinding reduces reamer diameter

Recoating may produce oversized diameter

Recoating may cause driving pin loosening

Max run-out on lead chamfers 0.0004" (10  $\mu$ m)



Range overview

Bifix®	∅ Range	Reaming depth	Hole tolerance	Intermediate diameters	Surface finish
<p><b>SR80 For through holes</b></p> 	<p>0.2323-2.3819" (5.900-60.500 mm)</p>	<p>3-5-7 x D</p>	<p>IT 6-7</p>	<p>Yes, available through Custom Design</p>	<p>R<sub>a</sub> 8-31 μin R<sub>a</sub> 0.2-0.8 μm</p>
<p><b>SR81 For blind holes</b></p> 	<p>0.3100-2.3819" (7.875-60.500 mm)</p>	<p>3-5-7 x D</p>	<p>IT 6-7</p>	<p>Yes, available through Custom Design</p>	<p>R<sub>a</sub> 8-31 μin R<sub>a</sub> 0.2-0.8 μm</p>
<p><b>SR82 For blind holes short version</b></p> 	<p>0.3100-2.3819" (7.875-60.500 mm)</p>	<p>2-3-5 x D</p>	<p>IT 6-7</p>	<p>Yes, available through Custom Design</p>	<p>R<sub>a</sub> 8-31 μin R<sub>a</sub> 0.2-0.8 μm</p>

### Code key - Reamers

Unless requested otherwise, reamers are designed to produce a diameter in the middle of the required tolerance.

Reamer type:

Type 80: Through hole

Type 81: Blind hole

Type 82: Blind hole, short version

Type of lead geometry

EN1, EN2, EN3

**SR80 - 16,85 P6 - EN1 - R - 9**

Hole diameter  
and tolerance

Shank type: (to be stated when requested  
style is not standard)  
SR80 and SR81: R1 without flat is standard  
SR82: R9 with flat is standard



### Code key - Blades

**Important:** The reamer and the blade must have the same lead geometry.

Blade size:

P00, P0, P1

P2, P4

Cutting rake

angle:

0°, 6°, 12°

**P2 - EN1 - 06 CP20**

Type of lead geometry  
EN1, EN2, EN3

Carbide grade:  
CP20, H15, CF

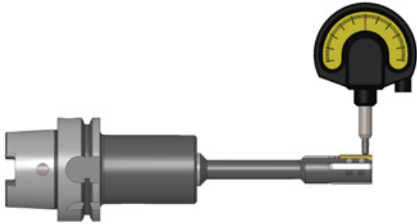


**Set up and machining data**

**Rotating tool**

Max. run-out allowed 0.0008" (0.02 mm).

Precision holder is recommended : Hydraulic chuck, D-type collet chuck, 5672 collet chuck or shrink-fit.

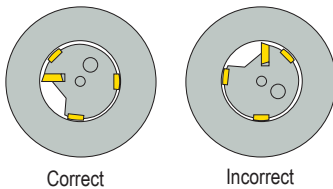


**Stationary tool**

Use Seco floating holders, see page(s) 447-456.

**For optimal chip evacuation**

Recommended blade orientation for static tools (see drawing, view from front of tools).



**Coolant requirements**

To reach maximum tool life and hole quality, the following coolant requirements should be observed.

Coolant through the tool is recommended. External coolant supply can be used if reaming depth < 2 x D.

Quality soluble oil with 40% minimum mineral oil. Neat oil recommended for stainless steel.

Concentration minimum 6-8%.

Filtration 1200-2000 µm (30-50 µm).

Volume min 3.35 gal/min/inch (0.5 l/min/mm) in tool diameter. (Ex: Reamer Ø10, min volume is 1.3 gal/min (5 l/min)).

**Setting fixture**



**SF-60200-C160C190: Part No. 02885396**

- Horizontal stand
- First choice for Ø smaller than 2.3622 inch (60 mm)
- 2 indicators
- Maximum tool Ø: 2.3819 inch (60.5 mm)
- Maximum tool length: 7.8740 inch (200 mm)

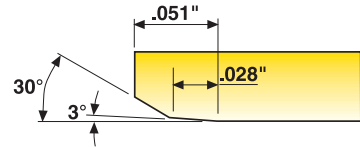
## Choice of blade – Select a lead geometry

### EN1 - General information

Maximum machining allowance on  $\varnothing 0.020''$  (0.5 mm)

Surface Finish + ( $R_a$  12 - 31  $\mu\text{in}$ )

Surface Finish + ( $R_a$  0.3 - 0.8  $\mu\text{m}$ )



### EN2 - Short lead

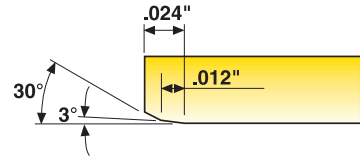
Maximum machining allowance on  $\varnothing 0.012''$  (0.3 mm)

Surface finish ( $R_a$  16 - 47  $\mu\text{in}$ )

Surface finish ( $R_a$  0.4 - 1.2  $\mu\text{m}$ )

Maximum feed rate 0.008 in/rev (0.2 mm/rev)

Only to be used when a short lead is required. Designed with end cutting



### EN3 - Extreme surface finish

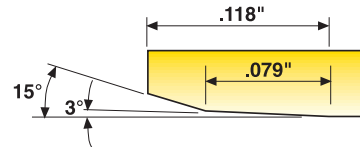
Maximum machining allowance on  $\varnothing 0.020''$  (0.5 mm)

Surface finish ( $R_a$  8 - 24  $\mu\text{in}$ )

Surface finish ( $R_a$  0.2 - 0.6  $\mu\text{m}$ )

Suitable for all materials except aluminum

To be used when  $R_a$  should be < 12-16  $\mu\text{in}$  (0.3-0.4  $\mu\text{m}$ )



Note that reamer and blade must have the same lead geometry.

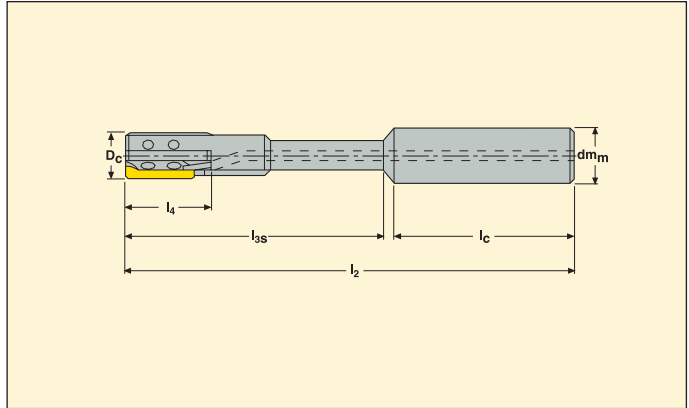
## Grade and rake angle

Use the tables on page to classify the workpiece material into SMG.

Use the blade and cutting data recommendation table on page(s) 360 to choose grade and rake angle.

The blade program is on page(s) 361.

For through holes  $\varnothing$  6H6–26H6 – Shank type R1, cylindrical without flat



- Blade information on page(s) 361
- For cutting data see page(s) 363-365
- Internal through coolant

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Drill size* (inch)	EDP No.	Part No.	Dimensions in mm					Blade size
					l <sub>2</sub>	l <sub>c</sub>	l <sub>3s</sub>	l <sub>4</sub>	dm <sub>m</sub>	
0.2362	6	0.217/0.232	09644	SR80-6H6-EN1	105	40	62	15	10	P00-EN1-XX
0.2756	7	0.267/0.272	09645	SR80-7H6-EN1	105	40	63	25	10	P0-EN1-XX
0.3150	8	0.307/0.311	09668	SR80-8H6-EN1	115	40	73	25	10	P0-EN1-XX
0.3543	9	0.346/0.350	09669	SR80-9H6-EN1	115	40	73	25	10	P1-EN1-XX
0.3937	10	0.386/0.390	09658	SR80-10H6-EN1	115	40	74	25	10	P1-EN1-XX
0.4331	11	0.425/0.429	79532	SR80-11H6-EN1	133	48	81	25	16	P1-EN1-XX
0.4724	12	0.465/0.469	09659	SR80-12H6-EN1	133	48	81	25	16	P1-EN1-XX
0.5118	13	0.504/0.508	09660	SR80-13H6-EN1	133	48	81	25	16	P2-EN1-XX
0.5512	14	0.543/0.547	09619	SR80-14H6-EN1	133	48	81	25	16	P2-EN1-XX
0.6299	16	0.622/0.626	09621	SR80-16H6-EN1	133	48	82	25	16	P2-EN1-XX
0.6693	17	0.661/0.665	09661	SR80-17H6-EN1	155	50	100	25	20	P2-EN1-XX
0.7087	18	0.701/0.705	09622	SR80-18H6-EN1	155	50	100	25	20	P2-EN1-XX
0.7480	19	0.740/0.744	09623	SR80-19H6-EN1	155	50	100	25	20	P2-EN1-XX
0.7874	20	0.780/0.783	00568	SR80-20H6-EN1	155	50	100	30	20	P4-EN1-XX
0.8268	21	0.819/0.823	09662	SR80-21H6-EN1	191	56	128	30	25	P4-EN1-XX
0.8661	22	0.858/0.862	09624	SR80-22H6-EN1	191	56	129	30	25	P4-EN1-XX
0.9055	23	0.898/0.902	09663	SR80-23H6-EN1	191	56	129	30	25	P4-EN1-XX
0.9449	24	0.938/0.941	09679	SR80-24H6-EN1	191	56	129	30	25	P4-EN1-XX
0.9843	25	0.976/0.980	09681	SR80-25H6-EN1	191	56	129	30	25	P4-EN1-XX
1.0236	26	1.016/1.020	09626	SR80-26H6-EN1	191	56	129	30	25	P4-EN1-XX

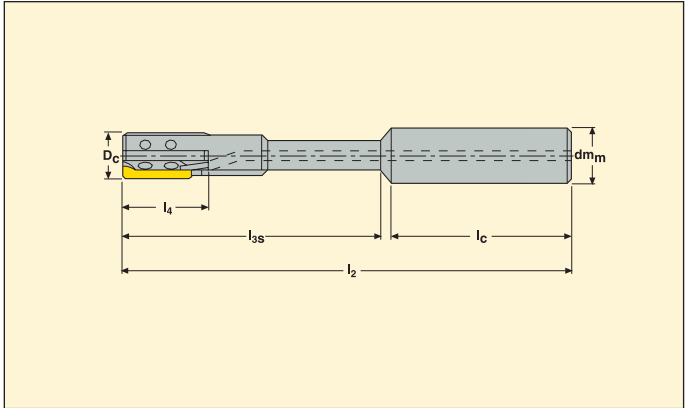
**Spare Parts**

For dia. (mm)	Clamp 	Clamp screw 	Support ball 	Adjusting screw 	Setting key 	Torque key** 	Torque value
6	SR-B02	M2T	BB1.5	SH2020	T06P-2+0.9 SMS795	–	–
7-8	SR-B0	LH2040	BB1.5	SH2020	0.9 SMS795	–	–
9	SR-B1	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305	4.4 in/lbs
10-12	SR-B2	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305	4.4 in/lbs
13-19	SR-B3	LH3050	BB2.5	SH3040	1.5 SMS795	H00-1509	8.0 in/lbs
20-60	SR-B5	LH4010	BB3.0	SH4060	2.0 SMS795	H00-2020	17.7 in/lbs

\* For further information on which drill to use and how to use it see page(s) 9.

\*\* Including blade.

For through holes  $\varnothing$  27H6-60H6 – Shank type R1, cylindrical without flat



- Blade information on page(s) 361
- For cutting data see page(s) 363-365
- Internal through coolant

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	EDP No.	Part No.	Dimensions in mm					Blade size
				l <sub>2</sub>	l <sub>c</sub>	l <sub>3s</sub>	l <sub>4</sub>	dm <sub>m</sub>	
1.0630	27	09627	SR80-27H6-EN1	221	56	159	30	25	P4-EN1-XX
1.1024	28	09682	SR80-28H6-EN1	221	56	159	30	25	P4-EN1-XX
1.1417	29	09628	SR80-29H6-EN1	221	56	159	30	25	P4-EN1-XX
1.1811	30	09664	SR80-30H6-EN1	221	56	159	30	25	P4-EN1-XX
1.2205	31	09629	SR80-31H6-EN1	221	56	160	30	25	P4-EN1-XX
1.2598	32	09631	SR80-32H6-EN1	221	56	160	30	25	P4-EN1-XX
1.3386	34	09632	SR80-34H6-EN1	226	56	165	30	25	P4-EN1-XX
1.3780	35	09633	SR80-35H6-EN1	226	56	165	30	25	P4-EN1-XX
1.4173	36	09634	SR80-36H6-EN1	226	56	166	30	25	P4-EN1-XX
1.4961	38	09637	SR80-38H6-EN1	226	56	166	30	25	P4-EN1-XX
1.5748	40	09665	SR80-40H6-EN1	226	56	166	30	25	P4-EN1-XX
1.6535	42	09666	SR80-42H6-EN1	226	56	167	30	25	P4-EN1-XX
1.7323	44	09667	SR80-44H6-EN1	226	56	167	30	25	P4-EN1-XX
1.8898	48	09638	SR80-48H6-EN1	226	56	168	30	25	P4-EN1-XX
1.9685	50	09639	SR80-50H6-EN1	226	56	168	30	25	P4-EN1-XX
2.0472	52	09640	SR80-52H6-EN1	226	56	169	30	25	P4-EN1-XX
2.1260	54	09641	SR80-54H6-EN1	226	56	169	30	25	P4-EN1-XX
2.2835	58	09642	SR80-58H6-EN1	226	56	169	30	25	P4-EN1-XX
2.3622	60	09643	SR80-60H6-EN1	226	56	169	30	25	P4-EN1-XX

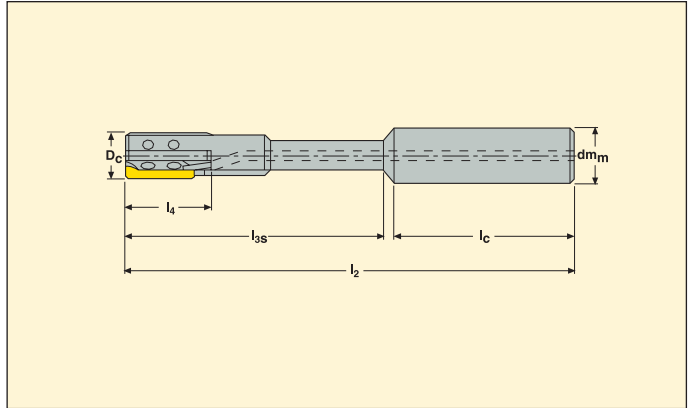
### Spare Parts

For dia. (mm)	Clamp 	Clamp screw 	Support ball 	Adjusting screw 	Setting key 	Torque key** 	Torque value
20-60	SR-B5	LH4010	BB3.0	SH4060	2.0 SMS795	H00-2020	17.7 in/lbs

\* For further information on which drill to use and how to use it see page(s) 9.

\*\* Including blade.

## For through holes – Intermediate range – Shank type R1, cylindrical without flat



- Blade information on page(s) 361
- Important! Reamer and blade must have the same lead geometry
- For choice of lead geometry EN1, EN2 or EN3 see page(s) 352

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in mm					Blade size
			l <sub>2</sub>	l <sub>c</sub>	l <sub>3s</sub>	l <sub>4</sub>	dm <sub>m</sub>	
0.2323-0.2706	5.900-6.874	SR80-x.xxx-EN	105	40	62	15	10	P00-EN-XX
0.2707-0.3100	6.875-7.874	SR80-x.xxx-EN	105	40	63	15	10	P0-EN-XX
0.3100-0.3444	7.875-8.749	SR80-x.xxx-EN	115	40	73	25	10	P0-EN-XX
0.3445-0.4232	8.750-10.749	SR80-x.xxx-EN	115	40	73	25	10	P1-EN-XX
0.4232-0.5019	10.750-12.749	SR80-xx.xxx-EN	133	48	81	25	16	P1-EN-XX
0.5020-0.6594	12.750-16.749	SR80-xx.xxx-EN	133	48	81	25	16	P2-EN-XX
0.6594-0.7677	16.750-19.499	SR80-xx.xxx-EN	155	50	100	25	20	P2-EN-XX
0.7677-0.8070	19.500-20.499	SR80-xx.xxx-EN	155	50	100	30	20	P4-EN-XX
0.8071-1.0433	20.500-26.499	SR80-xx.xxx-EN	191	56	129	30	25	P4-EN-XX
1.0433-1.2795	26.500-32.499	SR80-xx.xxx-EN	221	56	160	30	25	P4-EN-XX
1.2795-1.5157	32.500-38.499	SR80-xx.xxx-EN	226	56	165	30	25	P4-EN-XX
1.5157-1.5944	38.500-40.499	SR80-xx.xxx-EN	226	56	166	30	25	P4-EN-XX
1.5945-1.7519	40.500-44.499	SR80-xx.xxx-EN	226	56	167	30	25	P4-EN-XX
1.7520-1.9881	44.500-50.499	SR80-xx.xxx-EN	226	56	168	30	25	P4-EN-XX
1.9882-2.3819	50.500-60.500	SR80-xx.xxx-EN	226	56	169	30	25	P4-EN-XX

## Spare Parts

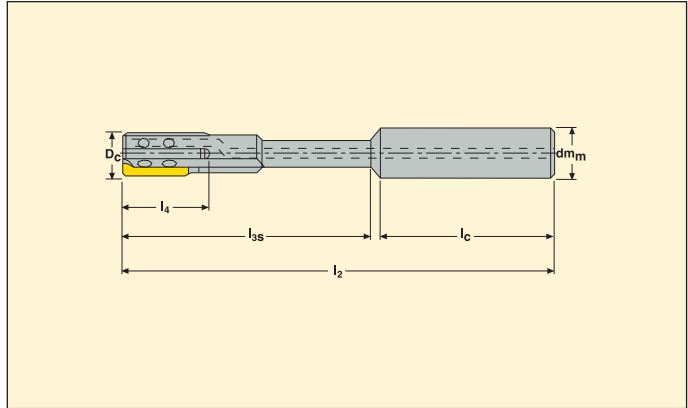
For dia. (inch)	For dia. (mm)	Clamp 	Clamp screw 	Support ball 	Adjusting screw 	Setting key 	Torque key** 
0.2323-0.2479	5.900-6.299	SR-B02	M2T	BB1.5	SH2020	T06P-2+0.9 SMS795	–
0.2480-0.2706	6.300-6.874	SR-B01	M2T	BB1.5	SH2020	T06P-2+0.9 SMS795	–
0.2707-0.3444	6.875-8.749	SR-B0	LH2040	BB1.5	SH2020	0.9 SMS795	–
0.3445-0.3838	8.750-9.749	SR-B1	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305
0.3839-0.5019	9.750-12.749	SR-B2	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305
0.5020-0.7676	12.750-19.499	SR-B3	LH3050	BB2.5	SH3040	1.5 SMS795	H00-1509
0.7677-2.3819	19.500-60.500	SR-B5	LH4010	BB3.0	SH4060	2.0 SMS795	H00-2020

**Note!** When ordering reamers for intermediate diameter, please state: ∅ and tolerance of bore to be reamed, lead geometry (EN1, EN2 or EN3).

**Ordering example:** SR80-11.50 H7-EN2, P1-EN2-06, CP20.

\*\*Including blade

For blind holes  $\varnothing$  8H6–26H6 – Shank type R1, cylindrical without flat



- Blade information on page(s) 361
- For cutting data see page(s) 363-365
- Internal through coolant

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Drill size* (inch)	EDP No.	Part No.	Dimensions in mm					Blade size
					l <sub>2</sub>	l <sub>c</sub>	l <sub>3s</sub>	l <sub>4</sub>	dm <sub>m</sub>	
0.3150	8	0.307/0.311	09657	SR81-8H6-EN1	115	40	73	25	10	P0-EN1-XX
0.3543	9	0.346/0.350	09678	SR81-9H6-EN1	115	40	73	25	10	P1-EN1-XX
0.4331	11	0.425/0.429	09646	SR81-11H6-EN1	133	48	81	25	16	P1-EN1-XX
0.5118	13	0.504/0.508	09684	SR81-13H6-EN1	133	48	81	25	16	P2-EN1-XX
0.5512	14	0.543/0.547	09647	SR81-14H6-EN1	133	48	81	25	16	P2-EN1-XX
0.5906	15	0.583/0.587	25571	SR81-15H6-EN1	133	48	82	25	16	P2-EN1-XX
0.6299	16	0.622/0.626	09648	SR81-16H6-EN1	133	48	82	25	16	P2-EN1-XX
0.6693	17	0.661/0.665	09649	SR81-17H6-EN1	155	50	100	25	20	P2-EN1-XX
0.7087	18	0.701/0.705	09650	SR81-18H6-EN1	155	50	100	25	20	P2-EN1-XX
0.7480	19	0.740/0.744	09651	SR81-19H6-EN1	155	50	100	25	20	P2-EN1-XX
0.7874	20	0.780/0.783	09685	SR81-20H6-EN1	155	50	100	30	20	P4-EN1-XX
0.8268	21	0.819/0.823	09652	SR81-21H6-EN1	191	56	128	30	25	P4-EN1-XX
0.8661	22	0.858/0.862	09653	SR81-22H6-EN1	191	56	129	30	25	P4-EN1-XX
0.9055	23	0.898/0.902	09673	SR81-23H6-EN1	191	56	129	30	25	P4-EN1-XX
0.9449	24	0.938/0.941	09674	SR81-24H6-EN1	191	56	129	30	25	P4-EN1-XX
0.9843	25	0.976/0.980	09675	SR81-25H6-EN1	191	56	129	30	25	P4-EN1-XX
1.0236	26	1.016/1.020	09656	SR81-26H6-EN1	191	56	129	30	25	P4-EN1-XX

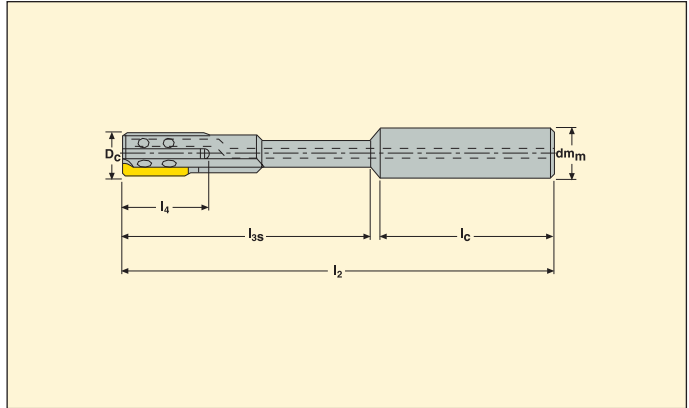
## Spare Parts

For dia. (mm)	Clamp	Clamp screw	Support ball	Adjusting screw	Setting key	Torque key**	Torque value
8							–
8	SR-B0	LH2040	BB1.5	SH2020	0.9 SMS795	–	–
9	SR-B1	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305	4.4 in/lbs
10-12	SR-B2	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305	4.4 in/lbs
13-19	SR-B3	LH3050	BB2.5	SH3040	1.5 SMS795	H00-1509	8.0 in/lbs
20-60	SR-B5	LH4010	BB3.0	SH4060	2.0 SMS795	H00-2020	17.7 in/lbs

\* For further information on which drill to use and how to use it see page(s) 9.

\*\* Including blade.

For blind holes  $\varnothing$  27H6–60H6 – Shank type R1, cylindrical without flat



- Blade information on page(s) 361
- For cutting data see page(s) 363-365
- Internal through coolant

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	EDP No.	Part No.	Dimensions in mm					Blade size
				l <sub>2</sub>	l <sub>c</sub>	l <sub>3s</sub>	l <sub>4</sub>	dm <sub>m</sub>	
1.0630	27	09676	SR81-27H6-EN1	221	56	159	30	25	P4-EN1-XX
1.1024	28	09677	SR81-28H6-EN1	221	56	159	30	25	P4-EN1-XX
1.1417	29	10227	SR81-29H6-EN1	221	56	159	30	25	P4-EN1-XX
1.1811	30	10243	SR81-30H6-EN1	221	56	159	30	25	P4-EN1-XX
1.2205	31	10228	SR81-31H6-EN1	221	56	160	30	25	P4-EN1-XX
1.2598	32	10229	SR81-32H6-EN1	221	56	160	30	25	P4-EN1-XX
1.3386	34	10236	SR81-34H6-EN1	226	56	165	30	25	P4-EN1-XX
1.3780	35	10230	SR81-35H6-EN1	226	56	165	30	25	P4-EN1-XX
1.4173	36	10237	SR81-36H6-EN1	226	56	166	30	25	P4-EN1-XX
1.4961	38	10238	SR81-38H6-EN1	226	56	166	30	25	P4-EN1-XX
1.5748	40	10231	SR81-40H6-EN1	226	56	166	30	25	P4-EN1-XX
1.6535	42	10239	SR81-42H6-EN1	226	56	167	30	25	P4-EN1-XX
1.7323	44	10240	SR81-44H6-EN1	226	56	167	30	25	P4-EN1-XX
1.8898	48	10232	SR81-48H6-EN1	226	56	168	30	25	P4-EN1-XX
1.9685	50	10241	SR81-50H6-EN1	226	56	168	30	25	P4-EN1-XX
2.0472	52	10233	SR81-52H6-EN1	226	56	169	30	25	P4-EN1-XX
2.1260	54	10242	SR81-54H6-EN1	226	56	169	30	25	P4-EN1-XX
2.2835	58	10234	SR81-58H6-EN1	226	56	169	30	25	P4-EN1-XX
2.3622	60	10235	SR81-60H6-EN1	226	56	169	30	25	P4-EN1-XX

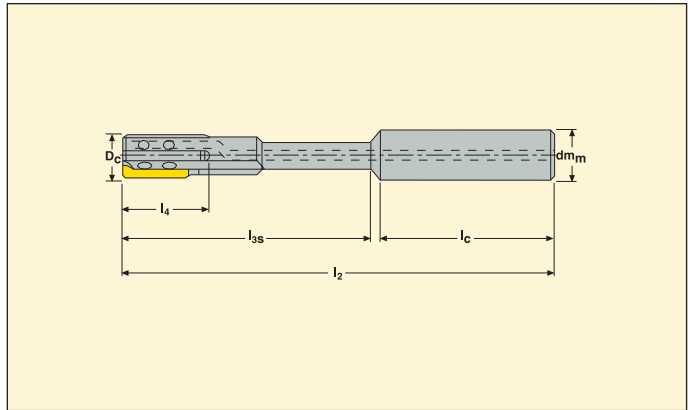
**Spare Parts**

For dia. (mm)	Clamp 	Clamp screw 	Support ball 	Adjusting screw 	Setting key 	Torque key** 	Torque value
20-60	SR-B5	LH4010	BB3.0	SH4060	2.0 SMS795	H00-2020	17.7 in/lbs

\* For further information on which drill to use and how to use it see page(s) 9.

\*\* Including blade.

## For blind holes – Intermediate range – Shank type R1, cylindrical without flat



- Blade information on page(s) 361
- Important! Reamer and blade must have the same lead geometry
- For choice of lead geometry EN1, EN2 or EN3 see page(s) 352

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in mm					Blade size
			l <sub>2</sub>	l <sub>c</sub>	l <sub>3s</sub>	l <sub>4</sub>	dm <sub>m</sub>	
0.3100-0.3444	7.875-8.749	SR81-x.xxx-EN	115	40	73	25	10	P0-EN-XX
0.3445-0.4232	8.750-10.749	SR81-x.xxx-EN	115	40	73	25	10	P1-EN-XX
0.4232-0.5019	10.750-12.749	SR81-x.xxx-EN	133	48	81	25	16	P1-EN-XX
0.5020-0.6594	12.750-16.749	SR81-x.xxx-EN	133	48	81	25	16	P2-EN-XX
0.6594-0.7677	16.750-19.499	SR81-x.xxx-EN	155	50	100	25	20	P2-EN-XX
0.7677-0.8070	19.500-20.499	SR81-x.xxx-EN	155	50	100	30	20	P4-EN-XX
0.8071-1.0433	20.500-26.499	SR81-x.xxx-EN	191	56	129	30	25	P4-EN-XX
1.0433-1.2795	26.500-32.499	SR81-x.xxx-EN	221	56	160	30	25	P4-EN-XX
1.2795-1.5157	32.500-38.499	SR81-x.xxx-EN	226	56	165	30	25	P4-EN-XX
1.5157-1.5944	38.500-40.499	SR81-x.xxx-EN	226	56	166	30	25	P4-EN-XX
1.5945-1.7519	40.500-44.499	SR81-x.xxx-EN	226	56	167	30	25	P4-EN-XX
1.7520-1.9881	44.500-50.499	SR81-x.xxx-EN	226	56	168	30	25	P4-EN-XX
1.9882-2.3819	50.500-60.500	SR81-x.xxx-EN	226	56	169	30	25	P4-EN-XX

## Spare Parts

For dia. (mm)	Clamp	Clamp screw	Support ball	Adjusting screw	Setting key	Torque key**
7.875-8.749	SR-B0	LH2040	BB1.5	SH2020	0.9 SMS795	-
8.750-9.749	SR-B1	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305
9.750-12.749	SR-B2	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305
12.750-19.499	SR-B3	LH3050	BB2.5	SH3040	1.5 SMS795	H00-1509
19.500-60.500	SR-B5	LH4010	BB3.0	SH4060	2.0 SMS795	H00-2020

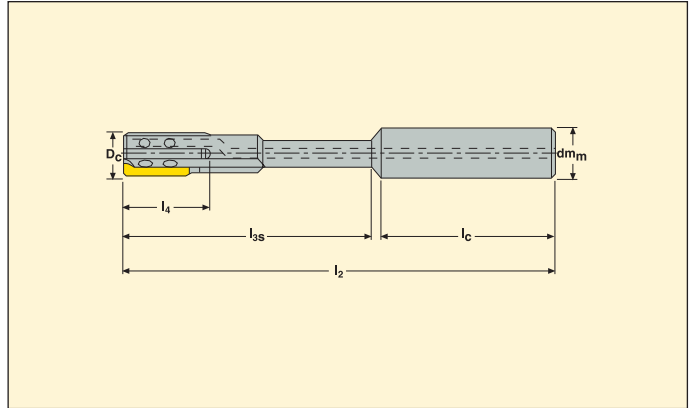
**Note!** When ordering reamers for intermediate diameter, please state: Ø and tolerance of bore to be reamed, lead geometry (EN1, EN2 or EN3).

**Ordering example:** SR81-11.50 H7-EN2, P1-EN2-06, CP20.

\*\* Including blade



For blind holes – Intermediate range – Short range for turning applications – Shank type R9, cylindrical with flat



- Blade information on page(s) 361
- Important! Reamer and blade must have the same lead geometry
- For choice of lead geometry EN1, EN2 or EN3 see page(s) 352

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in mm					Blade size
			l <sub>2</sub>	l <sub>c</sub>	l <sub>3s</sub>	l <sub>4</sub>	dm <sub>m</sub>	
0.3100-0.3444	7.875-8.749	SR82-x.xxx-EN	95	40	53	25	10	P0-EN-XX
0.3445-0.4232	8.750-10.749	SR82-x.xxx-EN	95	40	53	25	10	P1-EN-XX
0.4232-0.5019	10.750-12.749	SR82-x.xxx-EN	113	48	61	25	16	P1-EN-XX
0.5020-0.6594	12.750-16.749	SR82-x.xxx-EN	113	48	61	25	16	P2-EN-XX
0.6594-0.7677	16.750-19.499	SR82-x.xxx-EN	115	50	60	25	20	P2-EN-XX
0.7677-0.8070	19.500-20.499	SR82-x.xxx-EN	115	50	60	30	20	P4-EN-XX
0.8071-1.2795	20.500-32.499	SR82-x.xxx-EN	151	56	89	30	25	P4-EN-XX
1.2795-1.4370	32.500-36.499	SR82-x.xxx-EN	166	56	105	30	25	P4-EN-XX
1.4370-1.5944	36.500-40.499	SR82-x.xxx-EN	166	56	106	30	25	P4-EN-XX
1.5945-1.7519	40.500-44.499	SR82-x.xxx-EN	166	56	107	30	25	P4-EN-XX
1.7520-1.9881	44.500-50.499	SR82-x.xxx-EN	166	56	108	30	25	P4-EN-XX
1.9882-2.3819	50.500-60.500	SR82-x.xxx-EN	166	56	109	30	25	P4-EN-XX

### Spare Parts

For dia. (mm)	Clamp 	Clamp screw 	Support ball 	Adjusting screw 	Setting key 	Torque key** 
7.875-8.749	SR-B0	LH2040	BB1.5	SH2020	0.9 SMS795	–
8.750-9.749	SR-B1	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305
9.750-12.749	SR-B2	LH2540	BB2.0	SH2525	1.3 SMS795	H00-1305
12.750-19.499	SR-B3	LH3050	BB2.5	SH3040	1.5 SMS795	H00-1509
19.500-60.500	SR-B5	LH4010	BB3.0	SH4060	2.0 SMS795	H00-2020

**Note!** When ordering reamers for intermediate diameter, please state: Ø and tolerance of bore to be reamed, lead geometry (EN1, EN2 or EN3)

**Ordering example:** SR82-11.50 H7EN2, P1-EN2-06, CP20



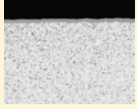

\*\* Including blade

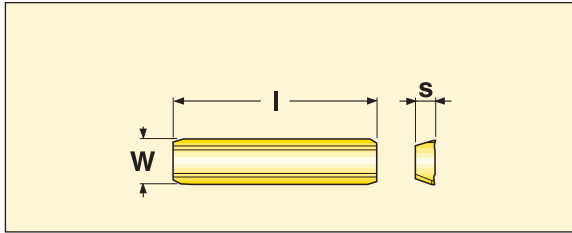
Optimization/Grades

Use the blade selection table to choose alternative blades for higher productivity or better security.

Blade size	Steel	Stainless steel	Cast iron	Non-ferrous	Aluminum	Wear resistance ↔ Toughness			Part No.	
						Productivity	Versatility	Security	Blade	Grade
P00, P0, P1, P2, P4										
				•	•			X	Pxx-ENx-00	H15
	•			•	•			X	Pxx-ENx-06	H15
		•		•	•			X	Pxx-ENx-12	H15
	•					X			Pxx-ENx-00	CP20
	•			•			X		Pxx-ENx-06	CP20
	•	•					X		Pxx-ENx-12	CP20
	•			•		X			Pxx-ENx-00	CP15
	•			•		X			Pxx-ENx-06	CP15
	•	•		•	•	X			Pxx-ENx-12	CP15
	•			•		X			Pxx-ENx-06	CF

Grades

	CF	<b>Cermet</b> A wear resistant grade for performance optimization in steel.
	CP15	<b>Coated</b> A wear-resistant coated grade alternative to CP20. For optimization in cast iron and steels. Also suitable for non-ferrous. Ti(C, N)
	CP20	<b>Coated</b> A versatile coated grade suitable for most materials, except aluminum. TiN
	H15	<b>Uncoated</b> A tough micrograin grade for all materials. Suitable for fine-reaming operations due to edge sharpness.



Size	Dimensions in inch		
	W	L	s
P0	0.098	0.787	0.047
P00	0.059	0.433	0.039
P1	0.118	0.787	0.059
P2	0.177	0.787	0.079
P4	0.276	0.984	0.091

Blade	Part No.	Grades			
		H15	CP15	CP20	CF
P00	P00 -EN1-0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	-EN1-06	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	-EN1-12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	-EN2-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	-EN2-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	-EN2-12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	-EN3-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	-EN3-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	-EN3-12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P0	P0- EN1-0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN1-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN1-12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN2-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN2-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN2-12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN3-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN3-06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN3-12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P1	P1- EN1-0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN1-06	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN1-12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN2-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN2-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN2-12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN3-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN3-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN3-12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2	P2- EN1-0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN1-06	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN1-12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN2-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN2-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN2-12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN3-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN3-06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN3-12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P4	P4- EN1-0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN1-06	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN1-12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN2-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN2-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN2-12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN3-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	EN3-06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EN3-12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

■ Stock standard, □ = Non stock standard. Subject to change refer to current price- and stock-list.

### Custom design – No waiting for quotation – Short delivery time

Custom Design is also available for Bifix reamers and tool holders.


You can now quote for your own intermediate  $\varnothing$  reamer and tailor made Bifix tool holder using the Seco Custom Design software.

Easy to use concept: Just indicate component min/max  $\varnothing$  or use ISO tolerance system available in the software.

Bifix head designation is created automatically.

Custom Design gives you a number of advantages:

- No waiting for quotation! Price and delivery time is available instantly!
- Directly visualize your needs. No risk for misinterpretation
- Short delivery time




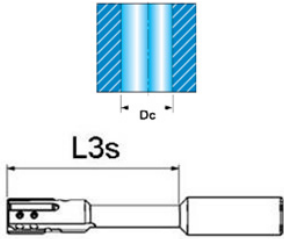
## CUSTOM DESIGN

Version 1.7.9.6

Reaming >> Bifix >> Which Bifix to choose ?
Test mode (Exit) Seco mode Feedback

Back
Start Page
Login
English v

 Print this page



Inch:

	Min	Max
Hole	Through hole – SR80	
Seco Material Group N°	1-4	
Tolerance	ISO	
ISO Class	H	
ISO Quality	6	
Dc	5.9	60.5
L3s	73	
Bifix type	SR80	
Lead geometry choice	EN1	
Shank type	R1	

Previous
Request quotation

Spare Parts

Note: inserts have to be ordered separately

Designation  
SR80-8H6-EN1

Delivery Time

Quantity:  Send request

362

Cutting data – Pxx-EN1/EN2-00

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)	V <sub>c</sub> (sf/min)	
		Ø < 9 mm	Ø ≥ 9 mm		CP20	CP15
P5	Pxx-EN1/EN2-00	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-165)	–
P6	Pxx-EN1/EN2-00	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-165)	–
P7	Pxx-EN1/EN2-00	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-165)	–
K1	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	295 (260-330)	395 (260-490)
K2	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	115 (80-165)	165 (80-230)
K3	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	295 (260-330)	395 (260-490)
K4	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	230 (195-260)	295 (260-330)
K5	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	230 (195-260)	295 (260-330)
K6	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	295 (260-330)	395 (260-490)
K7	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	295 (260-330)	395 (260-490)
PM1	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	165 (80-230)	–
PM2	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	165 (80-230)	–
PM3	Pxx-EN1/EN2-00	0.004–0.008	0.004–0.012	0.004–0.012	165 (80-230)	–

Cutting data – Pxx-EN1/EN2-06

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)	V <sub>c</sub> (sf/min)			
		Ø < 9 mm	Ø ≥ 9 mm		H15	CP20	CP15	CF
P1	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)	655 (330-985)
P2	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)	655 (330-985)
P3	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)	655 (330-985)
P4	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)	490 (330-655)
P5	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)	490 (330-655)
P6	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)	490 (330-655)
P7	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)	490 (330-655)
P8	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	100 (80-130)	165 (100-195)	195 (130-230)	490 (330-655)
P11	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	100 (80-130)	165 (100-195)	195 (130-230)	–
M1	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	80 (65-100)	115 (80-130)	115 (80-130)	–
M2	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	80 (65-100)	115 (80-130)	115 (80-130)	–
M3	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	80 (65-100)	115 (80-130)	115 (80-130)	–
M4	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	65 (50-100)	100 (80-130)	100 (80-130)	–
M5	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	65 (50-100)	100 (80-130)	100 (80-130)	–
K1	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	395 (260-490)	–
K2	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	115 (80-165)	165 (80-230)	–
K3	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	395 (260-490)	–
K4	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	230 (195-260)	295 (260-330)	490 (330-655)
K5	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	230 (195-260)	295 (260-330)	490 (330-655)
K6	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	395 (260-490)	–
K7	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	395 (260-490)	–
N1	Pxx-EN1/EN2-06	0.004–0.012	0.008–0.020	0.004–0.012	215 (165-150)	295 (230-490)	–	–
N2	Pxx-EN1/EN2-06	0.004–0.012	0.008–0.020	0.004–0.012	215 (165-150)	295 (230-490)	–	–
N3	Pxx-EN1/EN2-06	0.004–0.012	0.008–0.020	0.004–0.012	215 (165-150)	295 (230-490)	–	–
N11	Pxx-EN1/EN2-06	0.004–0.012	0.008–0.020	0.004–0.012	215 (165-150)	295 (230-490)	–	–
S1	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	–	80 (50-100)	–	–
S2	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	–	80 (50-100)	–	–
S3	Pxx-EN1/EN2-06	0.004–0.006	0.004–0.008	0.004–0.012	–	80 (50-100)	–	–
PM1	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–	–
PM2	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–	–
PM3	Pxx-EN1/EN2-06	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–	–

SMG = Seco Material Group

a<sub>p</sub> = inch

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

## Cutting data – Pxx-EN1/EN2-12

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)	V <sub>c</sub> (sf/min)		
		Ø < 9 mm	Ø ≥ 9 mm		H15	CP20	CP15
P1	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)
P2	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)
P3	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)
P4	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)
P5	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)
P6	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)
P7	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)
P8	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	100 (80-130)	165 (100-195)	195 (130-230)
P11	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	100 (80-130)	165 (100-195)	195 (130-230)
M1	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	80 (65-100)	115 (80-130)	115 (80-130)
M2	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	80 (65-100)	115 (80-130)	115 (80-130)
M3	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	80 (65-100)	115 (80-130)	115 (80-130)
M4	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	65 (50-100)	100 (80-130)	100 (80-130)
M5	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	65 (50-100)	100 (80-130)	100 (80-130)
K1	Pxx-EN1/EN2-12	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	–
K3	Pxx-EN1/EN2-12	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	–
K4	Pxx-EN1/EN2-12	0.004–0.008	0.004–0.012	0.004–0.012	–	230 (195-260)	–
K5	Pxx-EN1/EN2-12	0.004–0.008	0.004–0.012	0.004–0.012	–	230 (195-260)	–
N1	Pxx-EN1/EN2-12	0.004–0.012	0.008–0.020	0.004–0.012	215 (165-490)	295 (230-490)	–
N2	Pxx-EN1/EN2-12	0.004–0.012	0.008–0.020	0.004–0.012	215 (165-490)	295 (230-490)	–
N3	Pxx-EN1/EN2-12	0.004–0.012	0.008–0.020	0.004–0.012	215 (165-490)	295 (230-490)	–
N11	Pxx-EN1/EN2-12	0.004–0.012	0.008–0.020	0.004–0.012	215 (165-490)	295 (230-490)	–
S1	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	–	80 (50-100)	–
S2	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	–	80 (50-100)	–
S3	Pxx-EN1/EN2-12	0.004–0.006	0.004–0.008	0.004–0.012	–	80 (50-100)	–
PM1	Pxx-EN1/EN2-12	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–
PM2	Pxx-EN1/EN2-12	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–
PM3	Pxx-EN1/EN2-12	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–

## Cutting data – Pxx-EN3-00

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)	V <sub>c</sub> (sf/min)	
		Ø < 9 mm	Ø ≥ 9 mm		CP20	CP15
P5	Pxx-EN3-00	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-165)	–
P6	Pxx-EN3-00	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-165)	–
P7	Pxx-EN3-00	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-165)	–
K1	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	295 (260-330)	395 (260-490)
K2	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	115 (80-165)	165 (80-230)
K3	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	295 (260-330)	395 (260-490)
K4	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	230 (195-260)	295 (260-330)
K5	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	230 (195-260)	295 (260-330)
K6	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	295 (260-330)	395 (260-490)
K7	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	295 (260-330)	395 (260-490)
PM1	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	165 (80-230)	–
PM2	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	165 (80-230)	–
PM3	Pxx-EN3-00	0.004–0.008	0.004–0.012	0.004–0.012	165 (80-230)	–

SMG = Seco Material Group

a<sub>p</sub> = inch

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

Cutting data – Pxx-EN3-06

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)	V <sub>c</sub> (sf/min)			
		Ø < 9 mm	Ø ≥ 9 mm		H15	CP20	CP15	CF
P1	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)	655 (330-985)
P2	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)	655 (330-985)
P3	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)	655 (330-985)
P4	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)	490 (330-655)
P5	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)	490 (330-655)
P6	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)	490 (330-655)
P7	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)	490 (330-655)
P8	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	100 (80-130)	165 (100-195)	195 (130-230)	490 (330-655)
P11	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	100 (80-130)	165 (100-195)	195 (130-230)	–
M1	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	–	–	115 (80-130)	–
M2	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	–	–	115 (80-130)	–
M3	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	–	–	115 (80-130)	–
M4	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	–	–	100 (80-130)	–
M5	Pxx-EN3-06	0.004–0.006	0.004–0.008	0.004–0.012	–	–	100 (80-130)	–
K1	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	395 (260-490)	–
K2	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	115 (80-165)	165 (80-230)	–
K3	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	395 (260-490)	–
K4	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	230 (195-260)	295 (260-330)	–
K5	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	230 (195-260)	295 (260-330)	–
K6	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	395 (260-490)	–
K7	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	395 (260-490)	–
PM1	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–	–
PM2	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–	–
PM3	Pxx-EN3-06	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–	–

Cutting data – Pxx-EN3-12

SMG		a <sub>p</sub> on (Ø) inch		f (in/rev)	V <sub>c</sub> (sf/min)		
		Ø < 9 mm	Ø ≥ 9 mm		H15	CP20	CP15
P1	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)
P2	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)
P3	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	130 (100-195)	345 (295-395)	395 (295-490)
P4	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)
P5	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)
P6	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)
P7	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	115 (80-130)	195 (130-230)	260 (195-330)
P8	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	100 (80-130)	165 (100-195)	195 (130-230)
P11	Pxx-EN3-12	0.004–0.006	0.004–0.008	0.004–0.012	100 (80-130)	165 (100-195)	195 (130-230)
K1	Pxx-EN3-12	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	–
K3	Pxx-EN3-12	0.004–0.008	0.004–0.012	0.004–0.012	–	295 (260-330)	–
K4	Pxx-EN3-12	0.004–0.008	0.004–0.012	0.004–0.012	–	230 (195-260)	–
K5	Pxx-EN3-12	0.004–0.008	0.004–0.012	0.004–0.012	–	230 (195-260)	–
PM1	Pxx-EN3-12	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–
PM2	Pxx-EN3-12	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–
PM3	Pxx-EN3-12	0.004–0.008	0.004–0.012	0.004–0.012	–	165 (80-230)	–

SMG = Seco Material Group

a<sub>p</sub> = inch

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

## Adjustment instructions

1



Loosen the two adjustment screws (7) by a 1/4 turn.

2



Loosen the two clamping screws (5).

3



Clean the blade seat thoroughly then, index the used blade (2) edge or replace it.

4



Firmly push the blade against the axial end stop and the adjustment balls (6).

5



Tighten the clamping screws carefully.  
(Hold the key at its shortest end for correct torque).

6



Set the  $\mu\text{m}$  indicator to zero using the cylindrical rear end of guiding pads (3).



Adjustment instructions

7



Set the rear end of the blade to a diameter so that a back taper of 0.0004" per every 0.394" of blade length (0.01/10 mm). See figure 2 below.

8



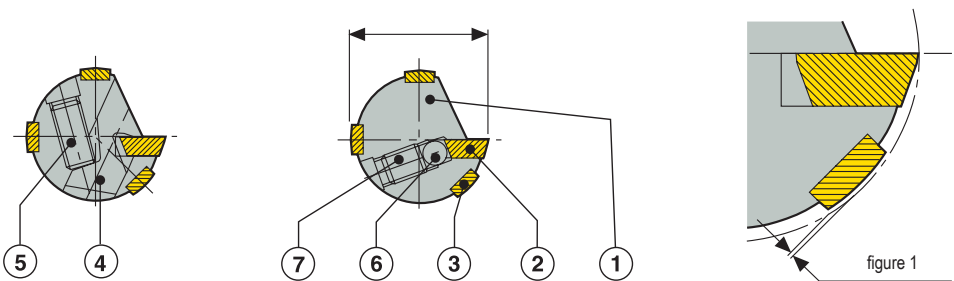
Set the  $\mu\text{m}$  indicator to zero using the cylindrical front end of guiding pads (3).

9



Set the front end of the blade to 0.0008" or 0.0006" (0.02 mm or 0.015 mm) above the guide pads (3) clock A, see figure 1.  
Check again back taper value (steps 6 and 7) clock B.

10

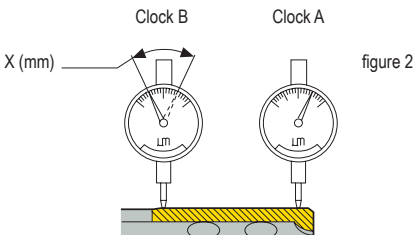


**Note:** If the required diameter is exceeded during adjustment, start again from the beginning to eliminate backlash on adjustment screws.

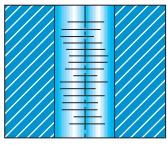
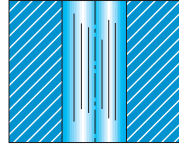
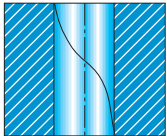
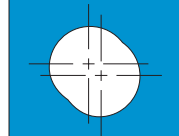
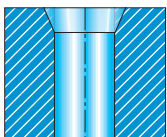
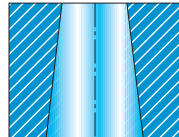
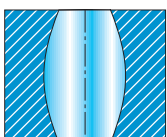
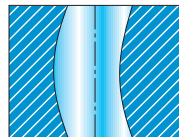
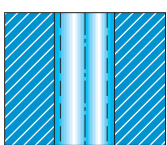
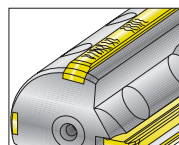
0.0006"  $\varnothing \leq 0.394"$  (0.015 mm  $\varnothing \leq 10$  mm)  
0.0008"  $\varnothing > 0.394"$  (0.020 mm  $\varnothing > 10$  mm)  
clock A value for  $\varnothing$  setting

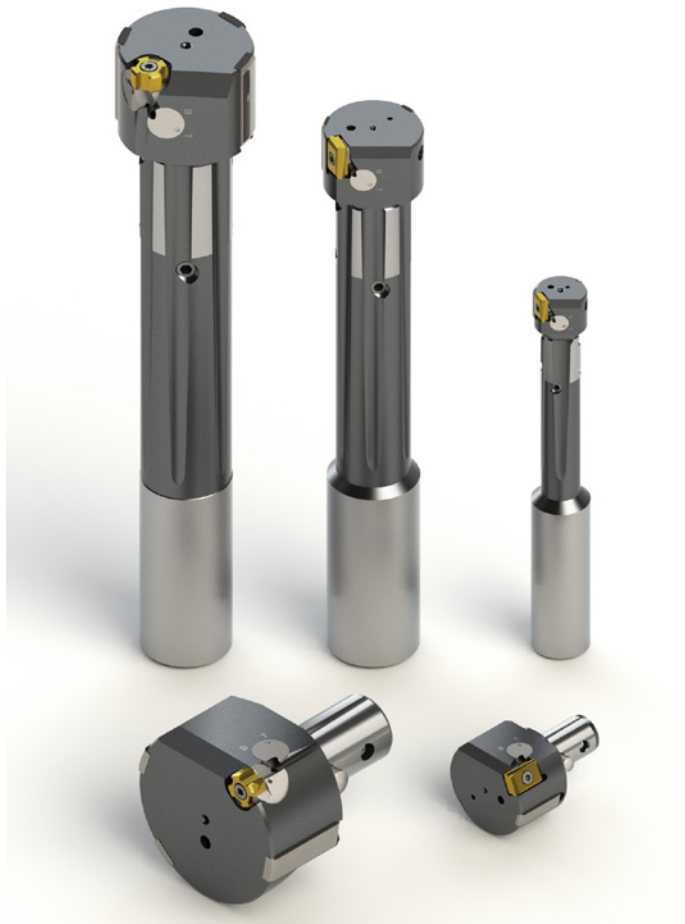
Setting chart

Diameter range (inch)	Diameter range (mm)	Blade size	Front clock A (inch)	Rear clock B (inch)	Front clock A (mm)	Rear clock B (mm)
0.2323-0.2706	5.900-6.874	P00	+0.0006"	+0.0002"	+15	+5
0.2707-0.3444	6.875-8.749	P0	+0.0006"	+0.0002"	+15	-5
0.3445-0.3937	8.750-10.000	P1	+0.0006"	+0.0002"	+15	-5
0.3937-0.5019	10.001-12.749	P1	+0.0008"	0	+20	0
0.5020-0.7676	12.750-19.499	P2	+0.0008"	0	+20	0
0.7677-2.3819	19.500-60.500	P4	+0.0008"	0	+20	0



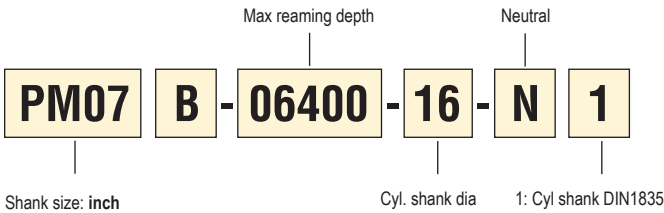
- Indicator unit = 0.00004" (1  $\mu\text{m}$ )
- Front & rear indicator values valid when set zero on adjacent pad
- Rear clock values calculated on back taper of 0.00004 per every 0.040 inch (1  $\mu\text{m}/\text{mm}$ ) of blade length

<p><b>Poor surface finish</b></p> <ul style="list-style-type: none"> <li>• Check material allowances</li> <li>• Improve coolant conditions (outlet type, pressure, quality)</li> <li>• Reduce feed rate</li> <li>• Change blade (wrong lead geometry or wrong rake angle)</li> <li>• Check axial position of blade</li> </ul> 	<p><b>Facets</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> <li>• Increase back taper</li> </ul> 
<p><b>Retraction marks</b></p> <ul style="list-style-type: none"> <li>• Improve coolant conditions (outlet type, pressure, quality)</li> <li>• Improve centering (part/tool)</li> <li>• Increase back taper</li> </ul> 	<p><b>Off center/Ovality</b></p> <ul style="list-style-type: none"> <li>• Improve clamping (workpiece deformation)</li> <li>• Check material allowance</li> <li>• Improve centering (part/tool)</li> <li>• Check axial position of blade</li> </ul> 
<p><b>Tapered entry</b></p> <ul style="list-style-type: none"> <li>• Reduce feed rate</li> <li>• Improve centering (part/tool)</li> <li>• Check back taper</li> <li>• Reduce radial run-out</li> </ul> 	<p><b>Tapered hole</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> <li>• Check back taper</li> </ul> 
<p><b>Deformed hole</b></p> <ul style="list-style-type: none"> <li>• Improve clamping (workpiece deformation)</li> </ul> 	<p><b>Curved hole</b></p> <ul style="list-style-type: none"> <li>• Change blade (wrong lead geometry)</li> <li>• Check axial position of blade</li> </ul> 
<p><b>Too large diameter</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> <li>• Adjust diameter (too large)</li> </ul> 	<p><b>Adhesion to pads</b></p> <ul style="list-style-type: none"> <li>• Improve coolant conditions (outlet type, pressure, quality)</li> <li>• Adjust diameter (too small)</li> </ul> 



Precifix™	∅ Range	Reaming depth	Hole tolerance	Intermediate diameters	Surface finish
	0.4626-0.6889" (11.750-17.499 mm)	~ 2-10 x D	IT 6-7	Yes, available through Custom design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm
	0.6890-1.2401" (17.500-31.499 mm)	~ 2-8 x D	IT 6-7	Yes, available through Custom design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm
	1.2402-1.7519" (31.500-44.499 mm)	~ 2-5 x D	IT 6-7	Yes, available through Custom design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm
	1.7520-2.3819" (44.500-60.500 mm)	~ 2-3 x D	IT 6-7	Yes, available through Custom design	R <sub>a</sub> 16-31 μm R <sub>a</sub> 0.4-0.8 μm

Code key – Shanks

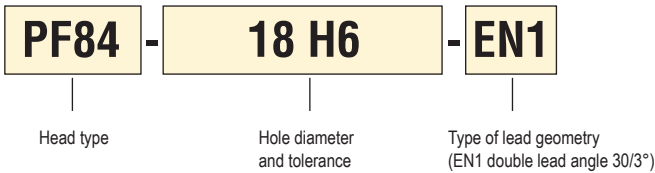


Shank size: **inch**  
 ∅ 0.4626-0.6889 – PM07B  
 ∅ 0.6890-1.2401 – PM08B  
 ∅ 1.2402-1.7519 – PM15B  
 ∅ 1.7520-2.3819 – PM19B

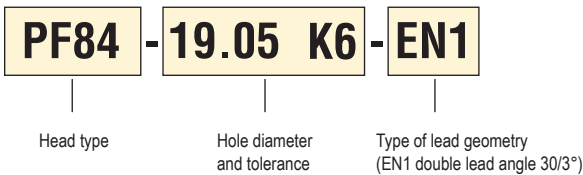
Shank size: **mm**  
 ∅ 11.750-17.499 – PM07B  
 ∅ 17.500-31.499 – PM08B  
 ∅ 31.500-44.499 – PM15B  
 ∅ 44.500-60.500 – PM19B



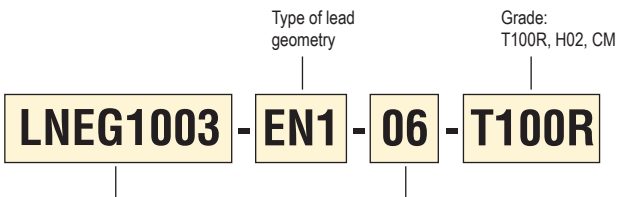
Code key – Heads



Code key – Heads – Intermediate diameter

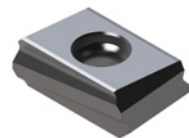


Code key – Inserts



Insert type: **inch**  
 ∅ 0.4626-0.6889 – LNEG0702  
 ∅ 0.6890-1.2401 – LNEG1003  
 ∅ 1.2402-2.3819 – RNAX1005

Insert type: **mm**  
 ∅ 11.750-17.499 – LNEG0702  
 ∅ 17.500-31.499 – LNEG1003  
 ∅ 31.500-60.500 – RNAX1005



**Set up – Run-out**

**Rotating tool**

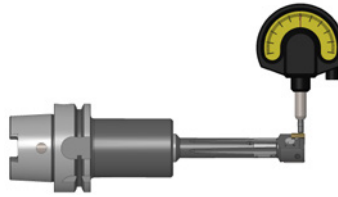
0.0008" max

Max. run-out allowed is 0.0008".

Precision holder is recommended : Hydraulic chuck, D-type collet chuck, 5672 collet chuck or Shrinkfit.

**Stationary tool**

Use a Seco floating holder see page(s) 447-456.



**Coolant requirements**

To reach maximum tool life and hole quality, the following coolant requirements should be observed.

Coolant through the tool is recommended.

External coolant supply can be used if reaming depth < 2 x D.

Quality soluble oil with 40% minimum mineral oil.

Neat oil recommended for stainless steel.

Concentration minimum 6-8%.

Filtration 1200-2000 µin (30-50 µm).

Volume min 3.35 gal/min/inch (0.5 l/min/mm) in tool diameter.

(Ex: Reamer Ø 0.5", min volume is 1.675 gal/min or Ø 10, min volume is 5 l/min).

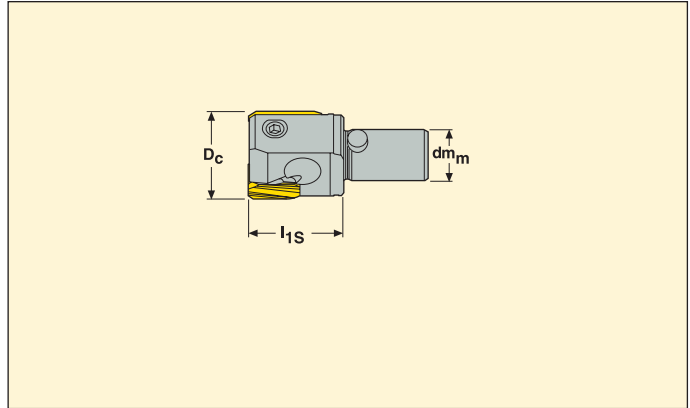
**Setting fixture**



**SF-60200-C160: Part No. 02885395**

- Horizontal stand
- First choice for Ø smaller than 2.3622" (60 mm)
- 1 clock
- Maximum tool Ø: 2.3819" (60.5 mm)
- Maximum tool length: 7.8740" (200 mm)

Heads for  $\varnothing 0.4626-0.6889$ " (11.750-17.499 mm)



- For complete blade program see page(s) 388
- For cutting data recommendations see page(s) 390

Dia. $D_c$ (inch)	Dia. $D_c$ (mm)	Drill size* (inch)	EDP No.	Part No.	Dimensions in inch		Blade size
					$l_{1s}$	$dm_m$	
0.4724	12	0.465/0.469	36829	PF84-12H6-EN1	0.512	0.276	LNEG0702-EN1...
0.5118	13	0.504/0.508	36830	PF84-13H6-EN1	0.512	0.276	LNEG0702-EN1...
0.5512	14	0.543/0.547	36831	PF84-14H6-EN1	0.512	0.276	LNEG0702-EN1...
0.5906	15	0.583/0.587	36832	PF84-15H6-EN1	0.512	0.276	LNEG0702-EN1...
0.6299	16	0.622/0.626	36833	PF84-16H6-EN1	0.512	0.276	LNEG0702-EN1...
0.6693	17	0.661/0.665	36834	PF84-17H6-EN1	0.512	0.276	LNEG0702-EN1...

Spare Parts

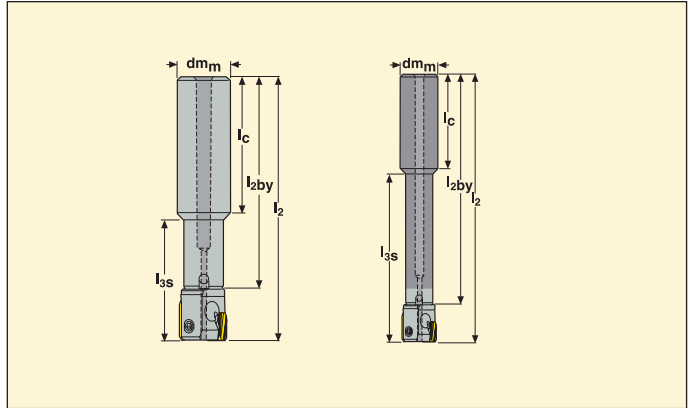
Accessories\*\*

For dia. (inch)	For dia. (mm)	Adjusting screw	Clamp	Clamp screw	Cylindrical cartridge	Insert screw	Key	Torque key	Dynamometric key
0.4626-0.6889	11.750-17.499	SH3030P	CLW5	C02506-T07P	CARTCY4	C01805-T06P	1.5SMS795	T00-06P05	T00-07P05

\* For further information on which drill to use and how to use it see page(s) 9. \*\* Accessories not included in delivery. When ordering intermediate diameters please state  $\varnothing$  and tolerance of hole to be reamed. Ordering example: PF84-12.700 ± 8 μm-EN1.

Shanks for  $\varnothing 0.4626-0.6889''$  (11.750-17.499 mm)

Metric shank



Dia. $D_c$ (mm)	Head	Tool holder material	EDP No.	Part No.	Dimensions in mm				
					$l_2$	$l_{2by}$	$l_{3s}$	$l_c$	$dm_m$
11.750-17.499	PF84	Steel	<a href="#">23460</a>	PM07B-03300-16N1	84	72	33	48	16
	PF84	Steel	<a href="#">23470</a>	PM07B-06400-16N1	115	103	64	48	16
	PF84	Steel	<a href="#">23466</a>	PM07B-12000-16N1	171	159	120	48	16
	PF84	Carbide	29455	PM07BHM-06400-16N1	115	103	64	48	16
	PF84	Carbide	29482	PM07BHM-12000-16N1	171	159	120	48	16

Spare Parts

Accessories\*

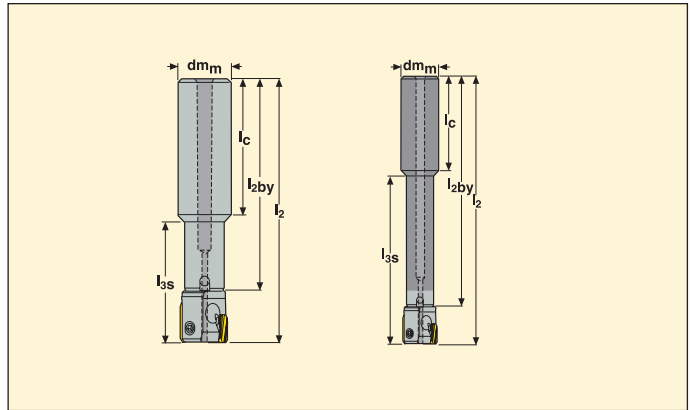
For shank	Clamp kit	Clamp key	Torque key	Replacement blade
PM07B	PM07-CLKI	1.5SMS795	H00-1505	H00-1.5

\* Accessories not included in delivery.



Shanks for  $\varnothing 0.4626-0.6889$  (11.750-17.499 mm)

Inch shank



Dia. D <sub>c</sub> (inch)	Head	Tool holder material	EDP No.	Part No.	Dimensions in inch				
					l <sub>2</sub>	l <sub>2by</sub>	l <sub>3s</sub>	l <sub>c</sub>	dm <sub>m</sub>
0.4626-0.6889	PF84	Steel	22881	PM07B-06400-0625N1	4.528	4.055	2.520	1.890	0.625
	PF84	Steel	22886	PM07B-12000-0625N1	6.850	6.378	4.724	1.890	0.625

### Spare Parts

For shank	Key	Clamp kit
PM07B	1.5SMS795	PM07-CLKI

### Accessories\*

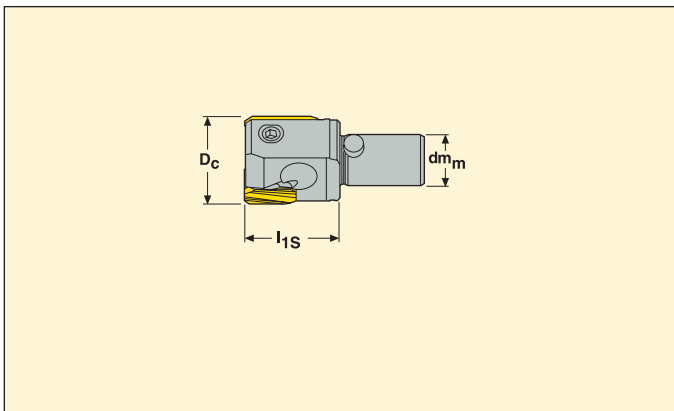
Torque key	Replacement blade
H00-1505	H00-1.5

\* Accessories not included in delivery.

Heads for  $\varnothing$  0.6890-0.9645" (17.500-24.499 mm)



- For complete blade program see page(s) 388
- For cutting data recommendations see page(s) 390



Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Drill size* (inch)	EDP No.	Part No.	Dimensions in inch		Blade size
					l <sub>1s</sub>	dm <sub>m</sub>	
0.7087	18	0.701/0.705	36835	PF84-18H6-EN1	0.787	0.315	LNEG1003-EN1...
0.7480	19	0.740/0.744	36836	PF84-19H6-EN1	0.787	0.315	LNEG1003-EN1...
0.7874	20	0.779/0.783	36837	PF84-20H6-EN1	0.787	0.315	LNEG1003-EN1...
0.8268	21	0.819/0.823	36838	PF84-21H6-EN1	0.787	0.315	LNEG1003-EN1...
0.8661	22	0.858/0.862	36839	PF84-22H6-EN1	0.787	0.315	LNEG1003-EN1...
0.9055	23	0.898/0.901	36840	PF84-23H6-EN1	0.787	0.315	LNEG1003-EN1...
0.9449	24	0.937/0.941	36841	PF84-24H6-EN1	0.787	0.315	LNEG1003-EN1...

Spare Parts

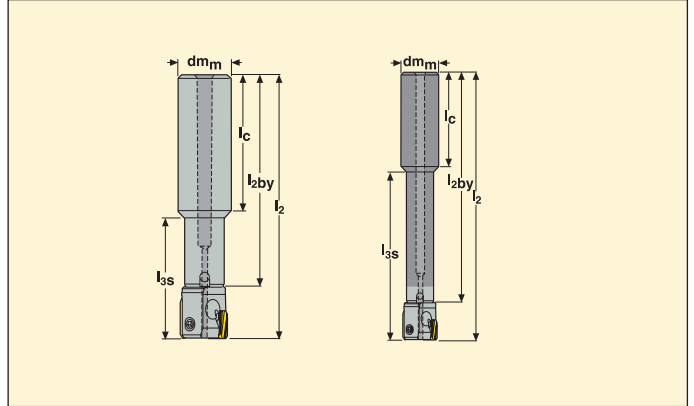
Accessories\*\*

For dia. (inch)	For dia. (mm)	Adjusting screw	Clamp	Clamp screw	Cylindrical cartridge	Insert screw	Key	Torque key	Dynamometric key
0.6890-0.9645	17.500-24.499	SH4040P	CLW7	C03010-T09P	CARTCY6	C02506-T07P	2SMS795	T00-07P09	T00-09P09

\* For further information on which drill to use and how to use it see page(s) 9. \*\* Accessories not included in delivery.  
When ordering intermediate diameters please state  $\varnothing$  and tolerance of hole to be reamed. **Ordering example:** PF84-25.400 ± 18 μm-EN1.

Shanks for  $\varnothing 0.6890\text{-}0.9645''$  (17.500-24.499 mm)

Metric shank



Dia. D <sub>c</sub> (mm)	Head	Tool holder material	EDP No.	Part No.	Dimensions in mm				
					l <sub>2</sub>	l <sub>2by</sub>	l <sub>3s</sub>	l <sub>c</sub>	dm <sub>m</sub>
17.500-24.499	PF84	Steel	29443	PM08B-03800-12N1	91	78	38	50	12
	PF84	Steel	29444	PM08B-03800-16N1	91	78	38	50	16
	PF84	Steel	23461	PM08B-03800-20N1	91	78	38	50	20
	PF84	Steel	23471	PM08B-08200-20N1	135	122	82	50	20
	PF84	Steel	23467	PM08B-14500-20N1	198	185	145	50	20
	PF84	Carbide	29458	PM08BHM-08200-20N1	135	122	82	50	20
	PF84	Carbide	29483	PM08BHM-14500-20N1	198	185	145	50	20

Spare Parts

Accessories\*

For shank	Clamp kit	Clamp key
PM08B	PM08-CLKI	2SMS795

Torque key	Replacement blade
H00-2009	H00-2.0

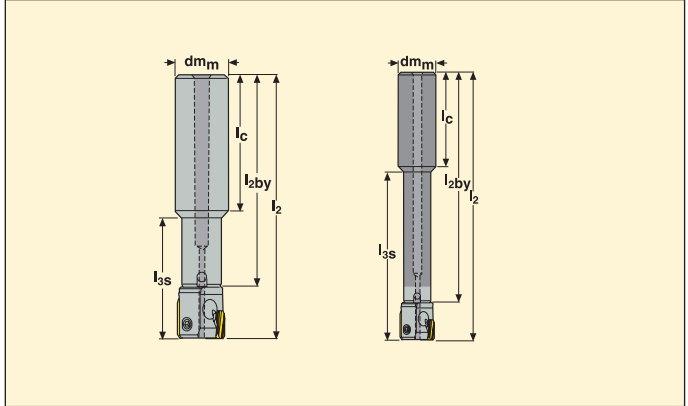
\* Accessories not included in delivery.





Shanks for  $\varnothing 0.9646-1.2401''$  (24.500-31.499 mm)

Metric shank



Dia. D <sub>c</sub> (mm)	Head	Tool holder material	EDP No.	Part No.	Dimensions in mm				
					l <sub>2</sub>	l <sub>2by</sub>	l <sub>3s</sub>	l <sub>c</sub>	dm <sub>m</sub>
24.500-31.499	PF84	Steel	<a href="#">23462</a>	PM11B-04800-25N1	107	91	48	56	25
	PF84	Steel	<a href="#">23472</a>	PM11B-10600-25N1	165	149	106	56	25
	PF84	Steel	<a href="#">23468</a>	PM11B-17000-25N1	229	213	170	56	25
	PF84	Carbide	29460	PM11BHM-10600-25N1	165	149	106	56	25
	PF84	Carbide	29485	PM11BHM-17000-25N1	229	213	170	56	25

Spare Parts

Accessories\*

For shank	Clamp kit	Clamp key
PM11B	PM11-CLKI	2.5SMS795

Torque key	Replacement blade
H00-2512	H00-2.5

\* Accessories not included in delivery.

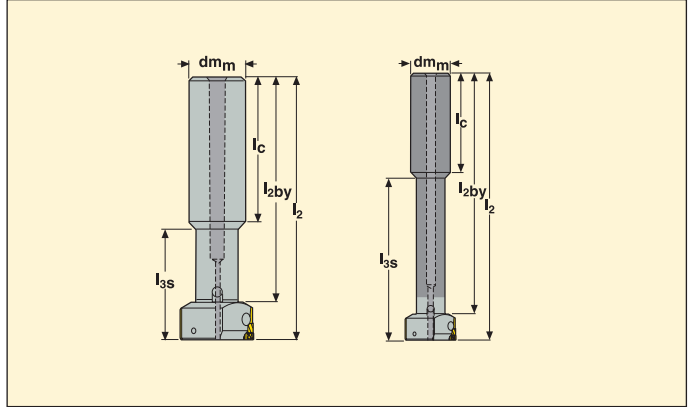






Shanks for Ø 1.2401-1.7519" (31.500-44.499 mm)

Inch shank



Dia. D <sub>c</sub> (inch)	Head	Tool holder material	EDP No.	Part No.	Dimensions in inch				
					l <sub>2</sub>	l <sub>2by</sub>	l <sub>3s</sub>	l <sub>c</sub>	dm <sub>m</sub>
1.2401-1.7519	PF84	Steel	22884	PM15B-12700-1000N1	7.283	6.496	5.000	2.205	1.000
	PF84	Steel	22889	PM15B-17000-1000N1	8.937	8.150	6.693	2.205	1.000

Spare Parts

Accessories\*

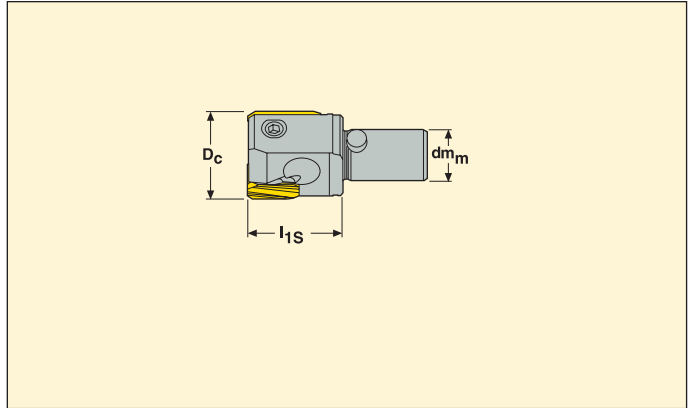
For shank	Key	Clamp kit	Torque key	Replacement blade
PM15B	3SMS795	PM15-CLKI	H00-3020	H00-3.0

\* Accessories not included in delivery.





Heads for  $\varnothing$  0.4626-2.3819" (11.750-60.500 mm) – Intermediate diameters



- For complete blade program see page(s) 388
- For cutting data recommendations see page(s) 390


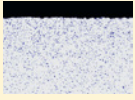
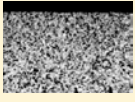
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch		Blade size
			l <sub>1s</sub>	dm <sub>m</sub>	
0.4626-0.6889	11.750-17.499	PF84-xx.xxx-EN1	0.512	0.276	LNEG0702EN1...
0.6890-0.9645	17.500-24.499	PF84-xx.xxx-EN1	0.787	0.315	LNEG1003EN1...
0.9646-1.2401	24.500-31.499	PF84-xx.xxx-EN1	0.787	0.433	LNEG1003EN1...
1.2402-1.7519	31.500-44.499	PF84-xx.xxx-EN1	1.220	0.591	RNAX1005...
1.7520-2.3819	44.500-60.500	PF84-xx.xxx-EN1	1.220	0.748	RNAX1005...

Spare Parts

For dia. (inch)	For dia. (mm)	Insert screw	Torque key**	Cylindrical cartridge	Clamp	Clamp screw	Torque key**	Setting screw	Setting key
0.4626-0.6889	11.750-17.499								
0.6890-0.9645	17.500-24.499	C01805-T06P	T00-06P05	CARTCY4	CLW5	C02506-T07P	T00-07P05	SH3030P	1.5 SMS795
0.9646-1.2401	24.500-31.499	C02506-T07P	T00-07P09	CARTCY6	CLW7	C03010-T09P	T00-09P09	SH4040P	2.0 SMS795
1.2402-1.7519	31.500-44.499	C02506-T07P	T00-07P09	CARTCY6	CLW7	C03010-T09P	T00-09P09	SH4040P	2.0 SMS795
1.7520-2.3819	44.500-60.500	C03010-T07P	T00-09P20	CARTCY12	CLW10	C04013-T15P	T00-15P20	SH4080P	2.0 SMS795
		C03010-T07P	T00-09P20	CARTCY12	CLW10	C04013-T15P	T00-15P20	SH4080P	2.0 SMS795

\* For further information on which drill to use and how to use it see page(s) 9. \*\* To be ordered separately.  
When ordering intermediate diameters please state  $\varnothing$  and tolerance of hole to be reamed. **Ordering example:** PF84-12.700 ± 8 µm-EN1.

Grades

	<p><b>T100R</b></p>	<p><b>Coated</b> PVD coated hard micrograin grade, suitable for most materials. (Ti,Al) N</p>
	<p><b>H02</b></p>	<p><b>Uncoated</b> A tough micrograin grade for all materials. Suitable for fine-reaming operations thanks to very good edge sharpness.</p>
	<p><b>CM</b></p>	<p><b>Cermet</b> A very high wear resistant grade. Intended for finishing operation on steels, in which strict demands are made on surface finish.</p>

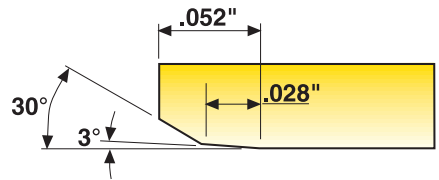
Applications

Lead geometry - EN1

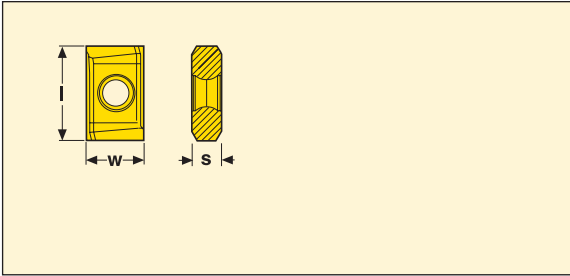
Maximum machining allowance on  $\varnothing 0.020"$ .

Surface Finish ( $R_a$  12 - 31  $\mu$ m)

Surface Finish ( $R_a$  0.3 - 0.8  $\mu$ m)



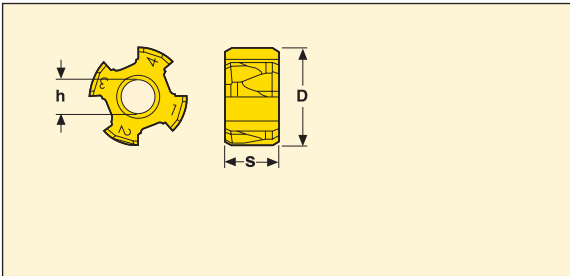
Blades/Grades LNEG



Size	Dimensions in inch		
	l	W	s
07	0.276	0.165	0.089
10	0.394	0.250	0.138

Inserts	Part No.	Grades		
		T100R	H02	CM
LNEG-EN1	LNEG0702-EN1-06	<a href="#">63309</a>	<a href="#">63308</a>	<a href="#">92060</a>
	LNEG0702-EN1-12	<a href="#">63307</a>	<a href="#">63306</a>	
	LNEG1003-EN1-06	<a href="#">63313</a>	<a href="#">63312</a>	<a href="#">92059</a>
	LNEG1003-EN1-12	<a href="#">63311</a>	<a href="#">63310</a>	

Blades/Grades RNAX



Size	Dimensions in inch		
	d	s	d <sub>1</sub>
10	0.394	0.217	0.138


Inserts	Part No.	Grades		
		T100R	H02	CM
RNAX-EN1	RNAX1005-EN1-06	<a href="#">36880</a>	<a href="#">36870</a>	<a href="#">36876</a>
	RNAX1005-EN1-12	<a href="#">36882</a>	<a href="#">36872</a>	<a href="#">36883</a>

Please check availability in current price and stock-list.

### Custom design – No waiting for quotations – Short delivery time

Custom Design is also available for Precifix reamers and tool holders. You can now quote for your own intermediate  $\varnothing$  reamer and tailor made Precifix tool holder using the Seco Custom Design software. Easy to use concept: Just indicate component min/max  $\varnothing$  or use ISO tolerance system available in the software. Precifix head designation is created automatically. Custom Design gives you a number of advantages:

- No waiting for quotations! Price and delivery time available instantly
- Directly visualises your needs. No risk of misinterpretation
- Short delivery time



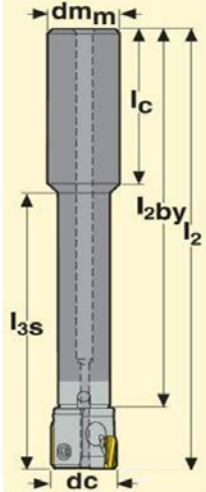
## CUSTOM DESIGN

Version 1.7.9.6

Reaming >> Precifix >> Precifix shanks
Test mode (Exit) Seco mode Feedback

Back
Start Page
Login
English

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Inch:

	Min	Max	
Work piece			A Through hole
Size	dc 11.500 – 17.499		
dmm			10
chamfer			3
l3s	31	172	150
l2			193
l2by			180
lc			40

Previous
Request quotation

**Designation**  
 PM07B-14900-10N1

**Delivery Time**  
 Quantity:  Send request  
 Min Quantity: 1

Please contact your local Seco representative for more information.

389

Cutting data – LNEG...EN1

SMG		a <sub>p</sub> on (Ø) inch	f (in/rev)	V <sub>c</sub> (sf/min)		
				H02	T100R	CM
P1	LNEG...EN1	0.004–0.008	0.004–0.012	130 (100-195)	330 (260-395)	490 (395-820)
P2	LNEG...EN1	0.004–0.008	0.004–0.012	130 (100-195)	330 (260-395)	490 (395-820)
P3	LNEG...EN1	0.004–0.008	0.004–0.012	130 (100-195)	330 (260-395)	490 (395-820)
P4	LNEG...EN1	0.004–0.008	0.004–0.012	100 (65-130)	195 (130-260)	260 (195-490)
P5	LNEG...EN1	0.004–0.008	0.004–0.012	100 (65-130)	195 (130-260)	260 (195-490)
P6	LNEG...EN1	0.004–0.008	0.004–0.012	100 (65-130)	195 (130-260)	260 (195-490)
P7	LNEG...EN1	0.004–0.008	0.004–0.012	100 (65-130)	195 (130-260)	260 (195-490)
P8	LNEG...EN1	0.004–0.008	0.004–0.012	100 (65-130)	130 (100-260)	–
P11	LNEG...EN1	0.004–0.008	0.004–0.012	100 (65-130)	130 (100-260)	–
M1	LNEG...EN1	0.003–0.006	0.004–0.008	80 (65-100)	100 (65-130)	–
M2	LNEG...EN1	0.003–0.006	0.004–0.008	80 (65-100)	100 (65-130)	–
M3	LNEG...EN1	0.003–0.006	0.004–0.008	80 (65-100)	100 (65-130)	–
M4	LNEG...EN1	0.003–0.006	0.004–0.008	65 (50-100)	80 (65-100)	–
M5	LNEG...EN1	0.003–0.006	0.004–0.008	65 (50-100)	80 (65-100)	–
K1	LNEG...EN1	0.008–0.020	0.004–0.012	–	295 (230-395)	–
K2	LNEG...EN1	0.008–0.020	0.004–0.012	–	115 (165-260)	–
K3	LNEG...EN1	0.008–0.020	0.004–0.012	–	295 (230-395)	–
K4	LNEG...EN1	0.008–0.020	0.004–0.012	–	230 (165-330)	330 (195-395)
K5	LNEG...EN1	0.008–0.020	0.004–0.012	–	230 (165-330)	330 (195-395)
K6	LNEG...EN1	0.008–0.020	0.004–0.012	–	295 (230-395)	–
K7	LNEG...EN1	0.008–0.020	0.004–0.012	–	295 (230-395)	–
S11	LNEG...EN1	0.003–0.006	0.004–0.008	50 (35-80)	–	–
S12	LNEG...EN1	0.003–0.006	0.004–0.008	50 (35-80)	–	–
S13	LNEG...EN1	0.003–0.006	0.004–0.008	50 (35-80)	–	–

Cutting data – RNAX...EN1

SMG		a <sub>p</sub> on (Ø) inch	f (in/rev)	V <sub>c</sub> (sf/min)		
				H02	T100R	CM
P1	RNAX...EN1	0.004–0.008	0.004–0.012	130 (100-195)	330 (260-395)	490 (395-820)
P2	RNAX...EN1	0.004–0.008	0.004–0.012	130 (100-195)	330 (260-395)	490 (395-820)
P3	RNAX...EN1	0.004–0.008	0.004–0.012	130 (100-195)	330 (260-395)	490 (395-820)
P4	RNAX...EN1	0.004–0.008	0.004–0.012	100 (65-130)	195 (130-260)	260 (195-490)
P5	RNAX...EN1	0.004–0.008	0.004–0.012	100 (65-130)	195 (130-260)	260 (195-490)
P6	RNAX...EN1	0.004–0.008	0.004–0.012	100 (65-130)	195 (130-260)	260 (195-490)
P7	RNAX...EN1	0.004–0.008	0.004–0.012	100 (65-130)	195 (130-260)	260 (195-490)
P8	RNAX...EN1	0.004–0.008	0.004–0.012	100 (65-130)	130 (100-260)	–
P11	RNAX...EN1	0.004–0.008	0.004–0.012	100 (65-130)	130 (100-260)	–
K1	RNAX...EN1	0.008–0.020	0.004–0.012	–	295 (230-395)	–
K2	RNAX...EN1	0.008–0.020	0.004–0.012	–	115 (165-260)	–
K3	RNAX...EN1	0.008–0.020	0.004–0.012	–	295 (230-395)	–
K4	RNAX...EN1	0.008–0.020	0.004–0.012	–	230 (165-330)	330 (195-395)
K5	RNAX...EN1	0.008–0.020	0.004–0.012	–	230 (165-330)	330 (195-395)
K6	RNAX...EN1	0.008–0.020	0.004–0.012	–	295 (230-395)	–
K7	RNAX...EN1	0.008–0.020	0.004–0.012	–	295 (230-395)	–

SMG = Seco Material Group

a<sub>p</sub> = inch



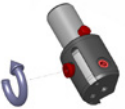
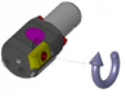
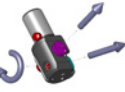
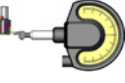
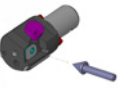
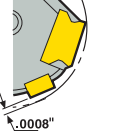

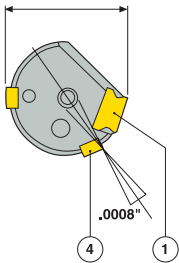
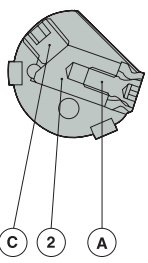
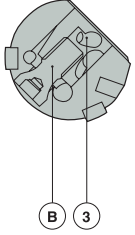
f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

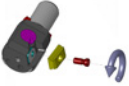
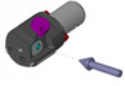
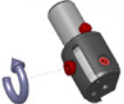


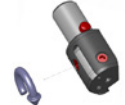


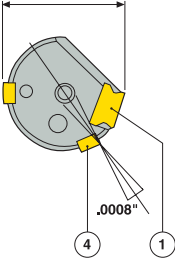
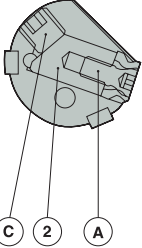
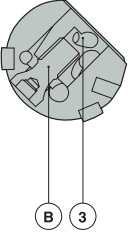
Adjustment instructions

<p><b>1</b> Unscrew blade locking screw 'A' and remove blade '1'.</p> 	<p><b>6</b> Tighten clamping screw 'B'.</p> 	
<p><b>2</b> Loosen clamping screw 'B' 2-3 revolutions.</p> 	<p><b>7</b> Clean the blade seat thoroughly then, index the used blade '1' or replace it.</p> 	
<p><b>3</b> Tighten adjusting screw 'C' to push adjustable cartridge '2' and unlock cylindrical clamp '3'.</p> 	<p><b>8</b> Place clock at front end of blade and set to zero using the cylindrical guiding pads '4'.</p> 	
<p><b>4</b> Push adjustable cartridge '2' fully back in its seat pocket.</p> 	<p><b>9</b> Set the insert to 0.0008" mm above guiding pad '4'.</p> 	
<p><b>5</b> Put cylindrical clamp '3' back in position against adjustable cartridge '2'.</p> 		
		
<p>1 = Insert                  2 = Adjustable cartridge                  3 = Cylindrical clamp                  4 = Guiding pads</p> <p>A = Insert locking screw                  B = Clamping screw                  C = Adjusting screw</p>		

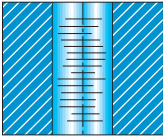
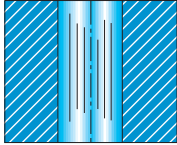
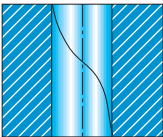
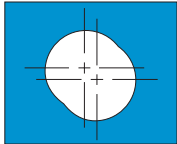
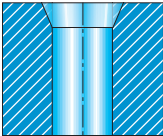
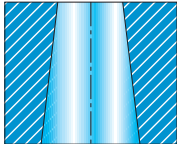
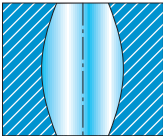
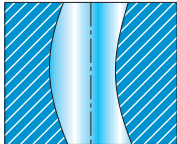
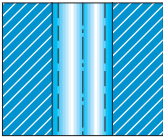

Note: If the required diameter is exceeded during adjustment, start again from the beginning to eliminate backlash on adjustment screws.

Coolant setting instructions


<p>1</p> <p>Unscrew blade locking screw 'A' and remove blade '1'.</p> 	<p>4</p> <p>Push adjustable cartridge '2' fully back in its seat pocket.</p> 
<p>2</p> <p>Loosen clamping screw 'B' 2-3 revolutions.</p> 	<p>5</p> <p>Index and put cylindrical clamp '3' back in position against adjustable cartridge '2':          Mark on clamp facing 'T' index          – Coolant outlet set for THROUGH holes.          Mark on clamp facing 'B' index          – Coolant outlet set for BLIND holes.</p> 
<p>3</p> <p>Tighten adjusting screw 'C' to push adjustable cartridge '2' and unlock cylindrical clamp '3'.</p> 	<p>6</p> <p>Tighten clamping screw 'B'.</p> 

<p>7</p> <p>Proceed to blade setting - Adjustment instructions see previous page.</p>		
		
<p>1 = Insert          2 = Adjustable cartridge          3 = Cylindrical clamp          4 = Guiding pads</p>	<p>A = Insert locking screw          B = Clamping screw          C = Adjusting screw</p>	

Troubleshooting

<p><b>Poor surface finish</b></p> <ul style="list-style-type: none"> <li>• Check material allowance</li> <li>• Improve coolant conditions (outlet type, pressure, quality)</li> <li>• Reduce feed rate</li> <li>• Change blade (wrong lead geometry or wrong rake angles)</li> <li>• Check axial position of blade</li> </ul> 	<p><b>Facets</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> </ul> 
<p><b>Retraction marks</b></p> <ul style="list-style-type: none"> <li>• Improve coolant conditions (outlet type, pressure, quality)</li> <li>• Improve centering (part/tool)</li> </ul> 	<p><b>Off center/Ovality</b></p> <ul style="list-style-type: none"> <li>• Improve clamping (workpiece deformation)</li> <li>• Check material allowance</li> <li>• Improve centering (part/tool)</li> <li>• Check axial position of blade</li> </ul> 
<p><b>Tapered entry</b></p> <ul style="list-style-type: none"> <li>• Reduce feed rate</li> <li>• Improve centering (part/tool)</li> <li>• Reduce radial run-out</li> </ul> 	<p><b>Tapered hole</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> </ul> 
<p><b>Deformed hole</b></p> <ul style="list-style-type: none"> <li>• Improve clamping (workpiece deformation)</li> </ul> 	<p><b>Curved hole</b></p> <ul style="list-style-type: none"> <li>• Change blade (wrong lead geometry)</li> <li>• Check axial position of blade</li> </ul> 
<p><b>Too large diameter</b></p> <ul style="list-style-type: none"> <li>• Improve centering (part/tool)</li> <li>• Adjust diameter (too large)</li> </ul> 	<p><b>Adhesion to pads</b></p> <ul style="list-style-type: none"> <li>• Improve coolant conditions (outlet type, pressure, quality)</li> <li>• Adjust diameter (too small)</li> </ul> 



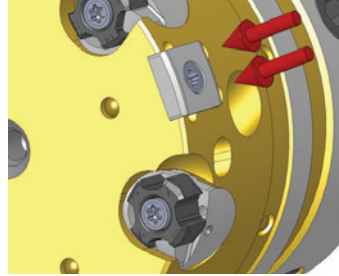
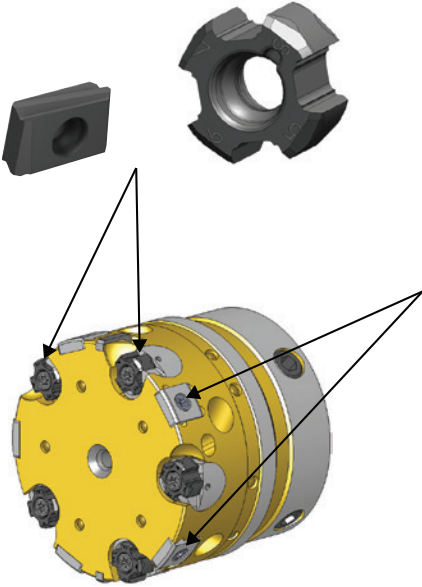
Xfix™	Ø Range	Reaming depth	Hole tolerance	Intermediate diameters	Surface finish
	<p>1.5551-6.0827" (39.500-154.500 mm)</p>	<p>2.5-6.5 x D</p>	<p>IT 6</p>	<p>Yes, available through Custom Design</p>	<p>R<sub>a</sub> 31-47 µin R<sub>a</sub> 0.8-1.2 µm</p>

Xfix™ is a specially developed Seco Reaming program, dedicated for large Ø 1.5551 to 6.0827" (39.5 to 154.5 mm). Design includes adjustable and indexable inserts to achieve IT 6 accurate tolerance, as well as a built in adjustable run-out adapter to guarantee component quality.

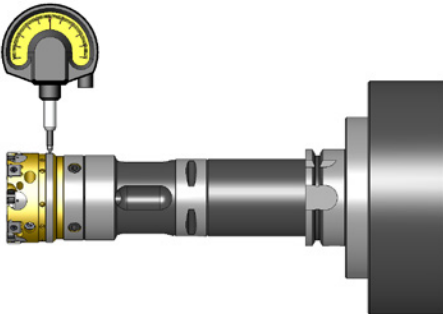
Multi-teeth construction and patented pre-loaded guiding pads offering maximum stability and productivity for large Ø reaming operations.

Feature details

- 4 or 8 cutting edges for optimisation in all materials
- Stable clamping system
- Easy adjustment with 1 adjusting screw for easy setting
- Grade and geometry choice for different applications

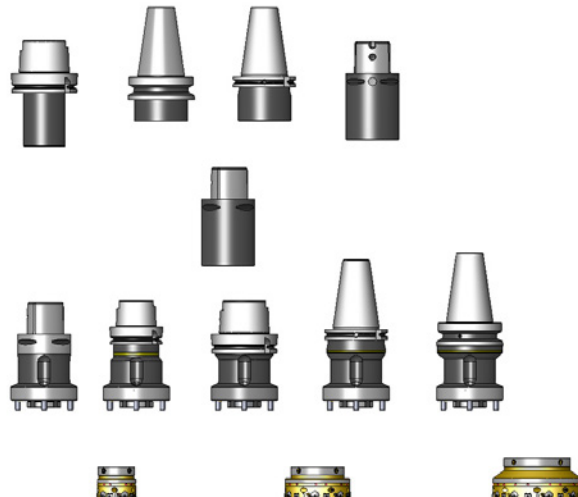


- Patented pre-loaded guiding pads system for application stability
- Pads lubrication for performance and safety

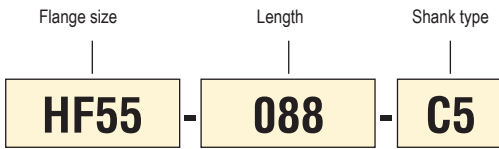


- Integrated adjustable adapter for perfect run-out control

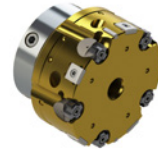
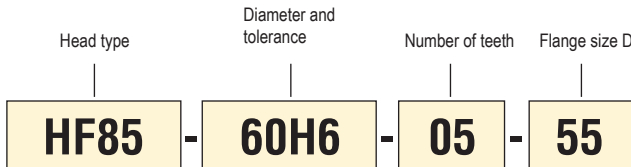
- Shanks and extension program from Seco  
Tooling system catalog offer maximum modularity



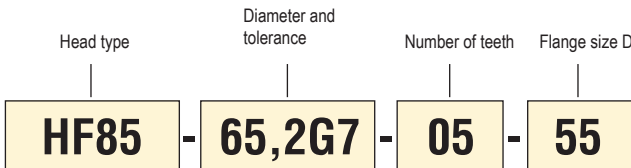
Code key – Adapters



Code key – Standard heads

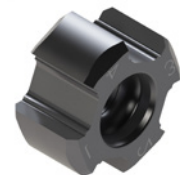
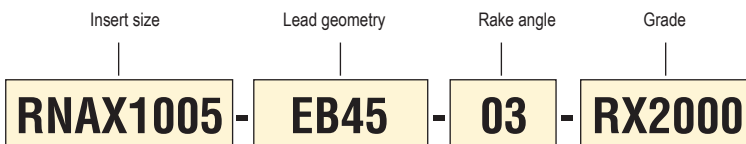


Code key – Heads Intermediate



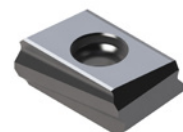
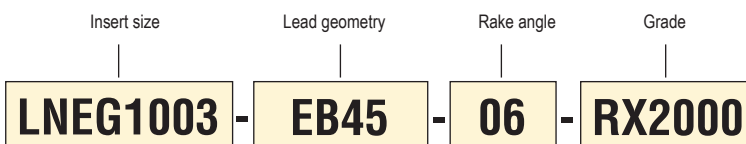
- Head type information:
- HF85, through bore, short chipping material
  - HF85B, blind bore, short chipping material
  - HF86, through bore, all material
  - HF86B, blind bore, all material

Code key – Inserts



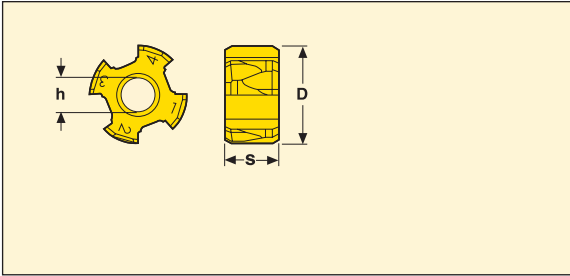
RNAX insert for HF85 & HF85B Xfix heads

Code key – Inserts



LNEG inserts for HF86 & HF86B Xfix heads

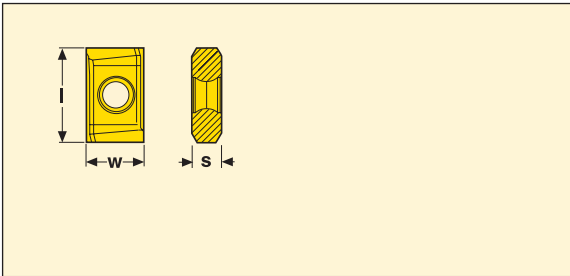
RNAX



Size	Dimensions in inch		
	D	s	h
10	0.394	0.217	0.138

Inserts	Part No.	Grades		rake angle
		RX1500	RX2000	
RNAX	RNAX1005-EB45-03	<a href="#">45311</a>	<a href="#">45359</a>	3°
	RNAX1005-EB845-03	<a href="#">45310</a>	<a href="#">45358</a>	3°
	RNAX1005-EB1570-03	<a href="#">45312</a>	<a href="#">45320</a>	3°

LNEG






Size	Dimensions in inch		
	l	W	s
10	0.394	0.250	0.138

Inserts	Part No.	Grades			rake angle
		RX1500	RX2000	CF	
LNEG	LNEG1003-EB45-03		<a href="#">69911</a>		3°
	LNEG1003-EB45-06	<a href="#">92062</a>	<a href="#">69912</a>	<a href="#">92061</a>	6°
	LNEG1003-EB845-03		<a href="#">69913</a>		3°
	LNEG1003-EB845-06		<a href="#">69914</a>		6°

Please check availability in current price and stock-list.



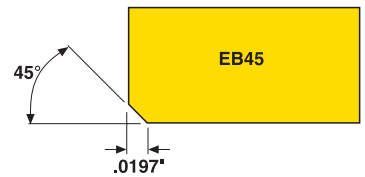
Grades

	<b>RX1500</b>	<b>Coated Cermet</b> A wear resistant coated grade for performance optimization in steel and cast iron.
	<b>RX2000</b>	<b>Coated</b> High performance coated grade suitable for all materials.
	<b>CF</b>	<b>Cermet</b> A wear resistant grade for performance optimization in steel.

Applications

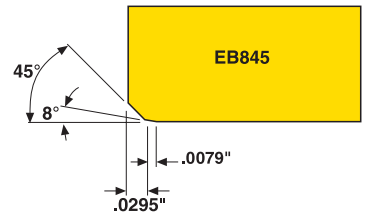
**Lead geometry - EB45**

Chip control +++  
 Surface Finish + ( $R_a$  31 - 47  $\mu$ m)  
 Surface Finish + ( $R_a$  0.8 - 1.2  $\mu$ m)  
 First choice geometry



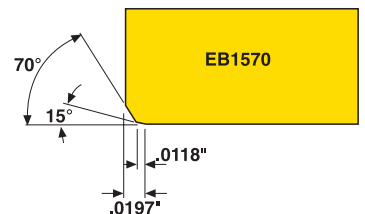
**Lead geometry - EB845**

Chip control ++  
 Surface finish+++ ( $R_a$  8 - 31  $\mu$ m)  
 Surface finish+++ ( $R_a$  0.2 - 0.8  $\mu$ m)

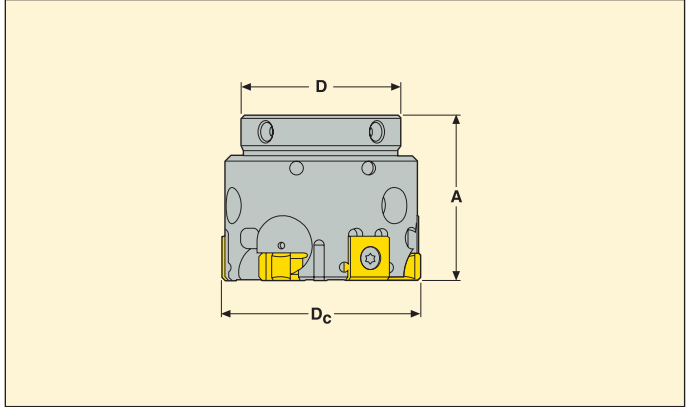
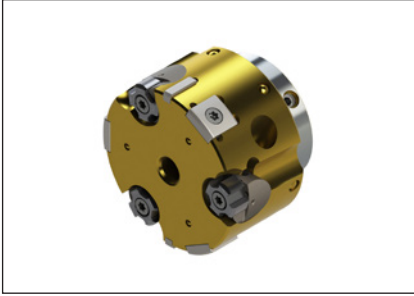


**Lead geometry - EB1570**

Chip control ++  
 Surface finish ++ ( $R_a$  31 - 47  $\mu$ m)  
 Surface finish ++ ( $R_a$  0.8 - 1.2  $\mu$ m)  
 Stability for long reach application +++



Heads for RNAX inserts, through bore  $\varnothing$  1.5551-2.3425" (39.5-59.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

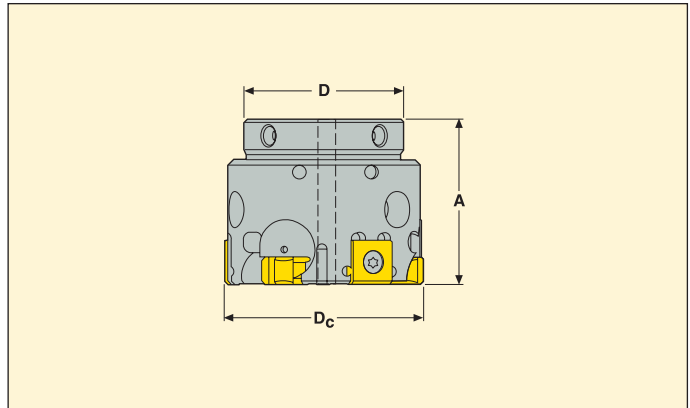
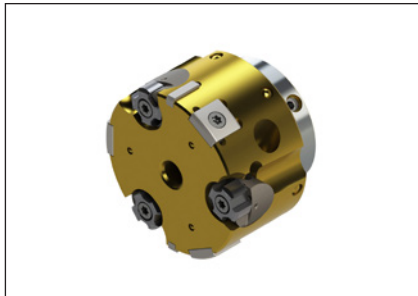
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB845	EB1570	RX2000	RX1500
1.5551-1.7519	39.5-44.499	HF85...03-32	1.299	1.260	3	0.90	RNAX1005...	■	■	■	■	■
1.7520-1.9488	44.5-49.499	HF85...03-32	1.299	1.260	3	1.12						
1.9488-2.1456	49.5-54.499	HF85...03-32	1.299	1.260	3	1.37						
2.1457-2.3425	54.5-59.499	HF85...03-32	1.299	1.260	3	1.63						

Spare parts

<b>Insert screw</b>  C03010-T09P	<b>Clamp screw</b>  LDH4010	<b>Cartridge</b>  CARTCY-HF16	<b>Wedge clamp</b>  B6027	<b>Adjusting screw</b>  SH4075S	<b>Setting screw radial</b>  HCM4 x 08
<b>Torque key</b>  T00-09P20*	<b>Torque key</b>  H00-2020*			<b>Key (Flag)</b>  H2.0-2D	<b>Setting key</b>  2SMS795
Clamping torque (in/lbs) 17.7	Clamping torque (in/lbs) 17.7				

\* To be ordered separately.  
 ■ Stock standard.

**Heads for RNAX inserts, blind bore  $\varnothing$  1.5551-2.3425" (39.5-59.499 mm)**



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
1.5551-1.7519	39.5-44.499	HF85B....03-32	1.299	1.260	3	0.90	RNAX1005....	■	■	■	■	■
1.7520-1.9488	44.5-49.499	HF85B....03-32	1.299	1.260	3	1.12						
1.9488-2.1456	49.5-54.499	HF85B....03-32	1.299	1.260	3	1.37						
2.1457-2.3425	54.5-59.499	HF85B....03-32	1.299	1.260	3	1.63						

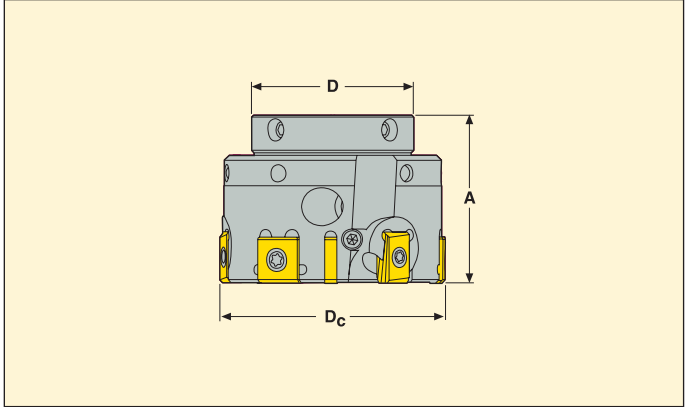
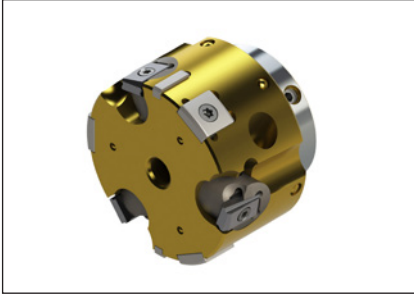
**Spare parts**

	Insert screw	Clamp screw	Cartridge	Wedge clamp	Adjusting screw	Setting screw radial	Plug screw
For dia. (mm)							
39.5-44.499	C03010-T09P	LDH4010	CARTCY-HF16B	B6027	SH4075S	HCM4 x 08	3 x HCM3 x 03
44.5-59.499	C03010-T09P	LDH4010	CARTCY-HF16B	B6027	SH4075S	HCM4 x 08	HCM6 x 06
	<b>Torque key</b> 	<b>Torque key</b> 			<b>Key (Flag)</b> 	<b>Setting key</b> 	
	T00-09P20*	H00-2020*			H2.0-2D	2SMS795	
	Clamping torque (in/lbs)	Clamping torque (in/lbs)					
	17.7	17.7					

\* To be ordered separately.

■ Stock standard.

Heads for LNEG inserts, through bore  $\varnothing$  1.5551-2.3425" (39.5-59.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

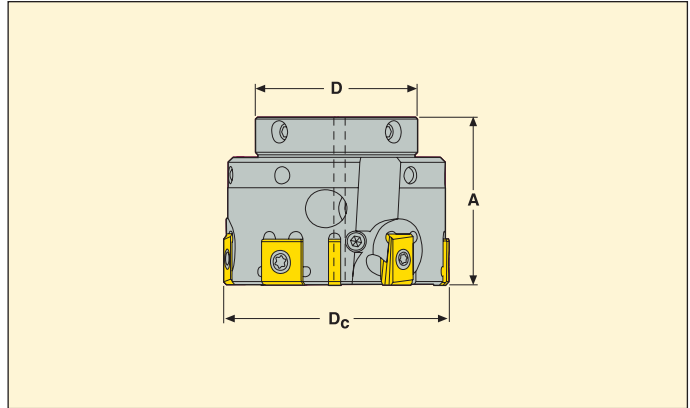
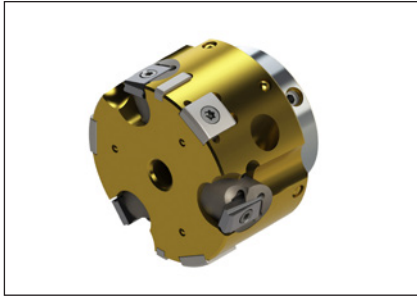
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB845	EB1570	RX2000	RX1500
1.5551-1.7519	39.5-44.499	HF86...03-32	1.299	1.260	3	0.90	LNEG1003...	■	■	■	■	■
1.7520-1.9488	44.5-49.499	HF86...03-32	1.299	1.260	3	1.12						
1.9488-2.1456	49.5-54.499	HF86...03-32	1.299	1.260	3	1.37						
2.1457-2.3425	54.5-59.499	HF86...03-32	1.299	1.260	3	1.63						

Spare parts

<b>Insert screw</b>  C02506-T07P	<b>Clamp screw</b>  LDH4010	<b>Cartridge</b>  CARTCY-LN16	<b>Wedge clamp</b>  B6027	<b>Adjusting screw</b>  SH4075S	<b>Setting screw radial</b>  HCM4 x 08
<b>Torque key</b>  T00-07P09*	<b>Torque key</b>  H00-2020*			<b>Key (Flag)</b>  H2.0-2D	<b>Setting key</b>  2SMS795
Clamping torque (in/lbs) 8.0	Clamping torque (in/lbs) 17.7				

\* To be ordered separately.  
 ■ Stock standard.

Heads for LNEG inserts, blind bore  $\varnothing 1.5551-2.3425''$  (39.5-59.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
1.5551-1.7519	39.5-44.499	HF86B....03-32	1.299	1.260	3	0.90	LNEG1003....	■	■	■	■	■
1.7520-1.9488	44.5-49.499	HF86B....03-32	1.299	1.260	3	1.12						
1.9488-2.1456	49.5-54.499	HF86B....03-32	1.299	1.260	3	1.37						
2.1457-2.3425	54.5-59.499	HF86B....03-32	1.299	1.260	3	1.63						

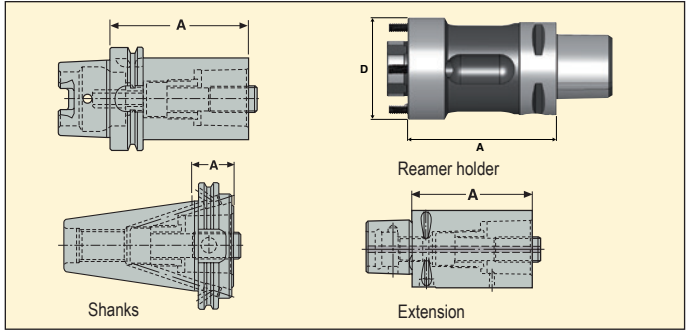
Spare parts

For dia. (mm)	Insert screw	Clamp screw	Cartridge	Wedge calmp	Adjusting screw	Setting screw radial	Plug screw
39.5-44.499							
	C02506-T07P	LDH4010	CARTCY-LN16B	B6027	SH4075S	HCM4 x 08	3 x HCM3 x 03
44.5-59.499	C02506-T07P	LDH4010	CARTCY-LN16B	B6027	SH4075S	HCM4 x 08	HCM6 x 06
	<b>Torque key</b> 	<b>Torque key</b> 			<b>Key (Flag)</b> 	<b>Setting key</b> 	
	T00-07P09*	H00-2020*			H2.0-2D	2SMS795	
	Clamping torque (in/lbs)	Clamping torque (in/lbs)					
	8.0	17.7					

\* To be ordered separately.

■ Stock standard.

Seco-Capto™ shank for  $\varnothing 1.5551-2.3425''$  (39.5-59.499 mm)



	EDP No.	Part No.	A (inch)	Custom Design		Taper	D	Assembly screw	lbs
				A min	A max				
Reamer Holders	45360	HF32-050-C3	1.969	-	-	C3	1.260	4 pieces CHC M3X16	0.57
		HF32...HSKA63	-	2.559	9.646	HSK-A63			-
		HF32...HSKA80	-	3.937	8.228	HSK-A80			-
		HF32...HSKA100	-	2.756	9.646	HSK-A100			-
		HF32...DIN40 ADB	-	2.362	9.921	DIN40 ADB			-
		HF32...DIN50 ADB	-	2.362	12.480	DIN50 ADB			-
		HF32...BT40 ADB	-	2.559	9.921	BT40 ADB			-
		HF32...BT50 ADB	-	2.953	12.480	BT50 ADB			-

Shanks for HF32-050-C3 (see Seco Capto catalog for more details).

	EDP No.	Part No.	A (inch)	Taper	Capto size	lbs
Shank	15705	C3-390.410-63075C	2.953	HSK-A63	C3	1.97
	15707	C3-390.410-100080A	3.150	HSK-A100	C3	5.06
	15597	C3-390.140-40030	1.181	DIN40 AD	C3	1.81
	15598	C3-390.140-40060	2.362	DIN40 AD	C3	2.17
	15624	C3-390.272-40030	1.181	DIN40 B	C3	1.79
	15625	C3-390.272-40060	2.362	DIN40 B	C3	2.65
	28097	C3-390.540-40030	1.181	DIN TF40 AD	C3	1.86
	15642	C3-390.55-40030	1.181	BT30 AD	C3	2.07
	15643	C3-390.55-40060	2.362	BT40 AD	C3	2.65
	28014	C3-390.369-40030	1.181	BT40 B	C3	2.06
	28090	C3-390.555-40030	1.181	BT TF40 AD	C3	2.09
	15601	C3-390.140-50030	1.181	DIN50 AD	C3	5.80
	15602	C3-390.140-50060	2.362	DIN50 AD	C3	6.05
	15626	C3-390.272-50030	1.181	DIN50 B	C3	5.73
	15627	C3-390.272-50060	2.362	DIN50 B	C3	6.17
	28099	C3-390.540-50030A	1.181	DIN TF50 ADB	C3	5.80
	15648	C3-390.58-50040	1.575	BT50 ADB	C3	5.51
	15649	C3-390.58-50070	2.756	BT50 ADB	C3	5.95
	28015	C3-390.369-50040	1.575	BT50 B	C3	7.94
	00003	C3-A390B.45-40030	1.181	CAT40 ADB	C3	1.83
	00004	C3-A390B.45-40060	2.362	CAT40 ADB	C3	2.20
	00005	C3-A390B.45-50030	1.181	CAT50 ADB	C3	5.73
	00007	C3-A390B.45-50060	2.362	CAT50 ADB	C3	5.97
28107	C3-A390.545-40040A	1.580	CAT TF40 (Taper Face)	C3	6.75	
28108	C3-A390.545-50040A	1.580	CAT TF50 (Taper Face)	C3	6.94	

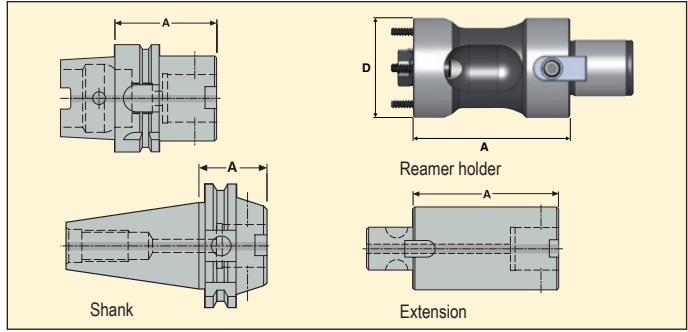
Note: TF = Taper face, Example CAT TF40

Extensions for HF32-050-C3 (see Seco Capto catalog for more details).

Extension	EDP No.	Part No.	A (inch)	Taper	Capto size	lbs
	<a href="#">15933</a>	C3-391.01-32060A		2.362	C3	C3
<a href="#">15932</a>	C3-391.01-32080A		3.150	C3	C3	0.99
<a href="#">15935</a>	C4-391.02-32055A		2.165	C3	C4	0.92
<a href="#">28152</a>	C4-391.02-32070A		2.756	C3	C4	1.23
<a href="#">15936</a>	C5-391.02-32060A		2.362	C3	C5	1.40
<a href="#">15939</a>	C6-391.02-32070A		2.756	C3	C6	2.34
<a href="#">15942</a>	C8-391.02-32060A		2.362	C3	C8	3.80



Graflex® shank for  $\varnothing 1.5551-2.3425''$  (39.5-59.499 mm)



	EDP No.	Part No.	A (inch)	Custom Design		Taper	D	Assembly screw	lbs
				A min	A max				
Reamer Holders	<a href="#">55578</a>	HF32-050-G3	1.969	-	-	G3	1.260	4 pieces CHC M3X16	0.71
		HF32...HSKA63	-	2.559	9.646	HSK-A63			-
		HF32...HSKA80	-	3.937	8.228	HSK-A80			-
		HF32...HSKA100	-	2.756	9.646	HSK-A100			-
		HF32...DIN40 ADB	-	2.362	9.921	DIN40 ADB			-
		HF32...DIN50 ADB	-	2.362	12.480	DIN50 ADB			-
		HF32...BT40 ADB	-	2.559	9.921	BT40 ADB			-
		HF32...BT50 ADB	-	2.953	12.480	BT50 ADB			-

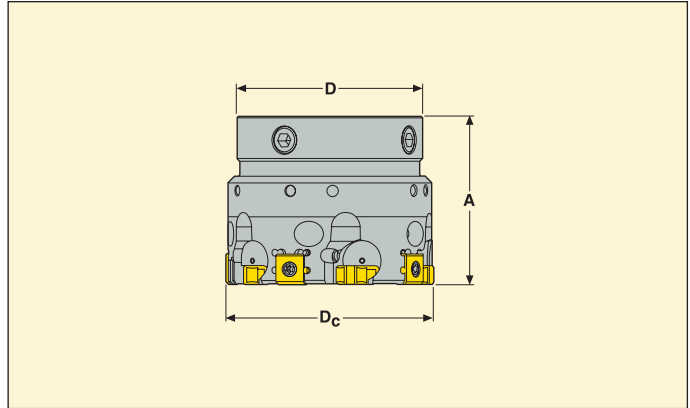
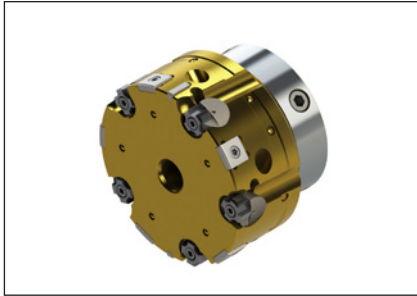
Shanks and extensions for HF32-050-G3 (see Seco Tooling System for more details).

	EDP No.	Part No.	A (inch)	Taper	Graflex size	lbs
Shank	<a href="#">86918</a>	EM93044011850	1.969	HSK-A63	G3	1.61
	<a href="#">86925</a>	EM93064011855	2.165	HSK-A100	G3	4.63
	<a href="#">23321</a>	EM34694011835	1.378	DIN40 ADB	G3	2.00
	<a href="#">23299</a>	EM346940118100	3.937	DIN40 ADB	G3	2.68
	<a href="#">23326</a>	EM34144011840	1.575	BT40 ADB	G3	2.34
	<a href="#">23327</a>	EM341440118100	3.937	BT40 ADB	G3	2.88
	<a href="#">23307</a>	EM34714011835	1.378	DIN50 ADB	G3	5.89
	<a href="#">23336</a>	EM34164011845	1.772	BT50 ADB	G3	7.89
	<a href="#">23337</a>	EM341640118120	4.724	BT50 ADB	G3	8.60

	EDP No.	Part No.	A (inch)	Taper	Graflex size	lbs
Extension	<a href="#">56758</a>	M402330	1.575	G3	G3	0.51
	<a href="#">56759</a>	M402331	2.362	G3	G3	0.78



Heads for RNAX inserts, through bore  $\varnothing$  2.3425-3.3267" (59.5-84.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

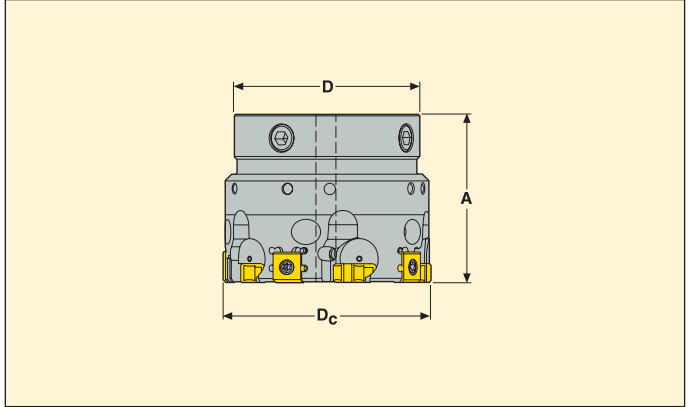
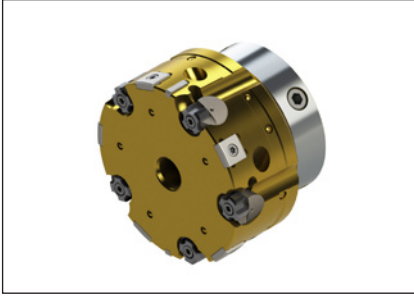
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
2.3425-2.5393	59.5-64.499	HF85...05-55	1.969	2.165	5	2.87	RNAX1005...	■	■	■	■	■
2.5394-2.7362	64.5-69.499	HF85...05-55	1.969	2.165	5	3.31		■	■	■	■	■
2.5787-2.9330	65.5-74.499	HF85...05-55	1.969	2.165	5	3.86		■	■	■	■	■
2.9331-3.1299	74.5-79.499	HF85...05-55	1.969	2.165	5	4.41		■	■	■	■	■
3.1299-3.3267	79.5-84.499	HF85...05-55	1.969	2.165	5	4.85		■	■	■	■	■

Spare parts

Insert screw	Clamp screw	Cartridge	Wedge clamp	Adjusting screw	Setting screw radial
C03010-T09P	LDH4012	CARTCY-HF20	B6027	SH4075S	HCM8 x 12
Torque key	Torque key			Key (Flag)	Setting key
T00-09P20*	H00-2020*			H2.0-2D	4SMS795
Clamping torque (in/lbs)	Clamping torque (in/lbs)				
17.7	17.7				

■ Stock standard.  
\* To be ordered separately.

Heads for RNAX inserts, blind bore  $\varnothing 2.3425\text{-}3.3267''$  (59.5-84.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

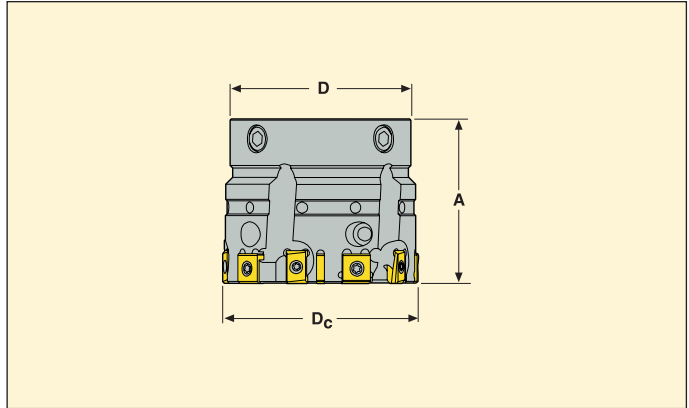
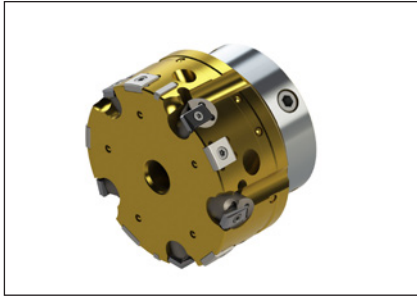
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
2.3425-2.5393	59.5-64.499	HF85B...05-55	1.969	2.165	5	2.87	RNAX1005...					
2.5394-2.7362	64.5-69.499	HF85B...05-55	1.969	2.165	5	3.31		■	■	■	■	■
2.5787-2.9330	65.5-74.499	HF85B...05-55	1.969	2.165	5	3.86						
2.9331-3.1299	74.5-79.499	HF85B...05-55	1.969	2.165	5	4.41						
3.1299-3.3267	79.5-84.499	HF85B...05-55	1.969	2.165	5	4.85						

Spare Parts

Insert screw	Clamp screw	Cartridge	Wedge clamp	Adjusting screw	Adjusting screw	Setting screw radial
C03010-T09P	LDH4012	CARTCY-HF20B	B6027	SH4075S	HCM8 x 12	HCM10 x 10
T00-09P20*	H00-2020*			H2.0-2D	4SMS795	
Clamping torque (in/lbs)	Clamping torque (in/lbs)					
17.7	17.7					

■ Stock standard.  
\* To be ordered separately.

Heads for LNEG inserts, through bore  $\varnothing$  2.3425-3.3267" (59.5-84.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

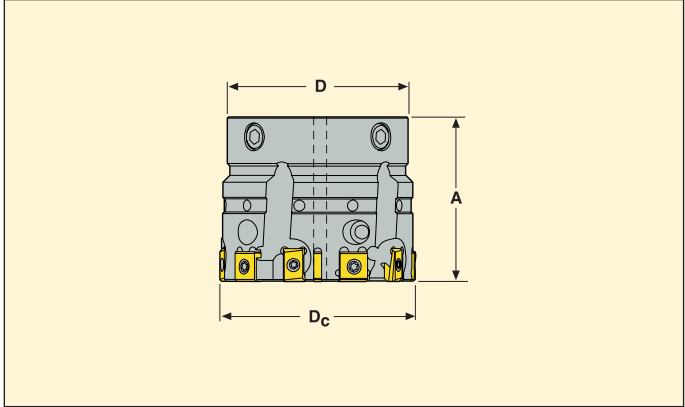
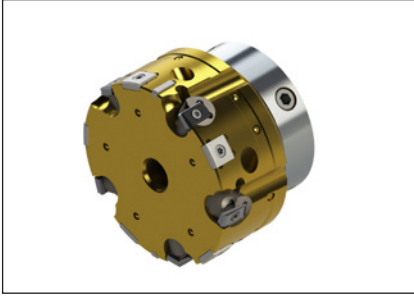
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
2.3425-2.5393	59.5-64.499	HF86...05-55	1.969	2.165	5	2.87	LNEG1003...	■	■	■	■	■
2.5394-2.7362	64.5-69.499	HF86...05-55	1.969	2.165	5	3.31		■	■	■	■	■
2.5787-2.9330	65.5-74.499	HF86...05-55	1.969	2.165	5	3.86		■	■	■	■	■
2.9331-3.1299	74.5-79.499	HF86...05-55	1.969	2.165	5	4.41		■	■	■	■	■
3.1299-3.3267	79.5-84.499	HF86...05-55	1.969	2.165	5	4.85		■	■	■	■	■

Spare parts

Insert screw	Clamp screw	Cartridge	Wedge clamp	Adjusting screw	Setting screw radial
C02506-T07P	LDH4012	CARTCY-LN20	B6027	SH4027S	HCM8 x 12
Torque key	Torque key			Key (Flag)	Setting key
T00-07P09*	H00-2020*			H2.0-2D	4SMS795
Clamping torque (in/lbs)	Clamping torque (in/lbs)				
8.0	17.7				

■ Stock standard.  
\* To be ordered separately.

Heads for LNEG inserts, blind bore  $\varnothing 2.3425-3.3267''$  (59.5-84.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

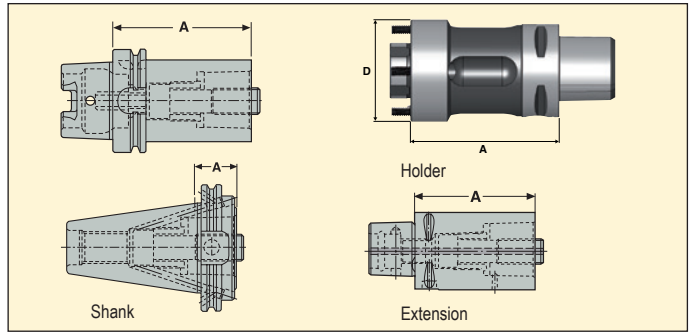
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
2.3425-2.5393	59.5-64.499	HF86B....05-558	1.969	2.165	5	2.87	LNEG1003...	■	■	■	■	■
2.5394-2.7362	64.5-69.499	HF86B....05-558	1.969	2.165	5	3.31		■	■	■	■	■
2.5787-2.9330	65.5-74.499	HF86B....05-558	1.969	2.165	5	3.86		■	■	■	■	■
2.9331-3.1299	74.5-79.499	HF86B....05-558	1.969	2.165	5	4.41		■	■	■	■	■
3.1299-3.3267	79.5-84.499	HF86B....05-558	1.969	2.165	5	4.85		■	■	■	■	■

Spare Parts

 Insert screw	 Clamp screw	 Cartridge	 Wedge clamp	 Adjusting screw	 Setting screw radial	 Plug screw
C02506-T07P	LDH4010	CARTCY-LN20B	B6027	SH4075S	HCM8 x 12	HCM10 x 10
 Torque key	 Torque key			 Key (Flag)	 Setting key	
T00-07P09*	H00-2020*			H2.0-2D	4SMS795	
Clamping torque (in/lbs)	Clamping torque (in/lbs)					
8.0	17.7					

■ Stock standard.  
\* To be ordered separately.

Seco-Capto™ shank for  $\varnothing$  2.3425-3.3267" (59.5-84.499 mm)



	EDP No.	Part No.	Custom Design			Taper	D	Assembly screw	lbs
			A (inch)	A min	A max				
Reamer Holders	45361	HF55-080-C5	3.150	-	-	C5	2.165	4 pieces CHC M5X25	3.14
		HF55...HSAK63	-	3.150	9.409	HSK-A63			-
		HF55...HSAK80	-	3.937	9.409	HSK-A80			-
		HF55...HSAK100	-	3.937	9.409	HSK-A100			-
		HF55...DIN69871/40	-	3.150	9.409	DIN6971/40			-
		HF55...DIN69871/50	-	3.150	11.969	DIN6971/50			-
		HF55...BT40 ADB	-	3.150	9.409	BT40 ADB			-
		HF55...BT50 ADB	-	3.150	11.969	BT50 ADB			-

Shanks for HF55-080-C5 (see Seco Capto catalog for more details).

	EDP No.	Part No.	A (inch)	Taper	Capto size	lbs
Shank	15714	C5-390.410-63090C	3.543	HSK-A63	C5	3.09
	15717	C5-390.410-100100A	3.937	HSK-A100	C5	6.38
	15609	C5-390.140-40030	1.181	DIN40 AD	C5	1.76
	15610	C5-390.140-40070	2.756	DIN40 AD	C5	2.43
	15632	C5-390.272-40040	1.575	DIN40 B	C5	1.98
	15633	C5-390.272-40080	3.150	DIN40 B	C5	3.26
	28102	C5-390.540-40050	1.969	DIN TF40 AD	C5	2.38
	15646	C5-390.55-40030	1.181	BT40 AD	C5	1.81
	15647	C5-390.55-40070	2.756	BT40 AD	C5	3.07
	28019	C5-390.369-40050	1.969	BT40 B	C5	2.40
	28916	C5-390.555-40050	1.969	BT TF40 AD	C5	2.45
	15613	C5-390.140-50030	1.181	DIN50 AD	C5	5.69
	15614	C5-390.140-50070	2.756	DIN50 AD	C5	6.79
	15634	C5-390.272-50030	1.181	DIN50 B	C5	6.08
	15635	C5-390.272-50070	2.756	DIN50 B	C5	7.28
	28103	C5-390.540-50030A	1.181	DIN TF50 ADB	C5	5.72
	15652	C5-390.58-50040	1.575	BT50 AD	C5	7.54
	15653	C5-390.58-50080	3.150	BT50 AD	C5	8.69
	28020	C5-390.369-50040	1.575	BT50 B	C5	2.76
	28093	C5-390.558-50040	1.575	BT TF50 AD	C5	7.63
	00340	C5-A390B.45-40040	1.575	CAT40 ADB	C5	2.05
	00344	C5-A390B.45-40080	3.150	CAT40 ADB	C5	3.31
	00347	C5-A390B.45-50030	1.181	CAT50 ADB	C5	5.73
	00352	C5-A390B.45-50070	2.756	CAT50 ADB	C5	6.76
	28111	C5-A390.545-40050A	1.970	CAT TF40	C5	2.26

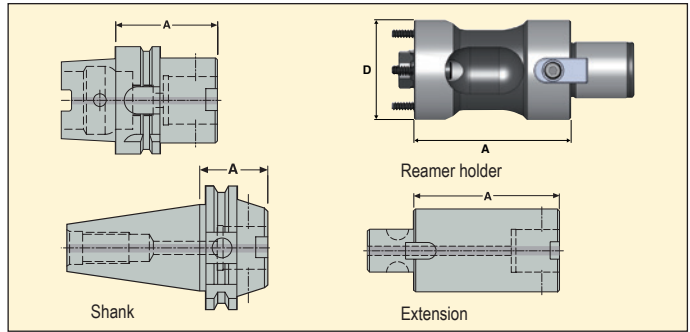
Note: TF = Taper face, Example CAT TF40

Extensions for HF55-080-C5 (see Seco Capto catalog for more details).

Extension	EDP No.	Part No.	A (inch)	Taper	Capto size	lbs
	<a href="#">39886</a>	C5-391.01-50080A	3.150	C5	C5	2.46
<a href="#">04773</a>	C5-391.01-50100A	3.937	C5	C5	3.06	
<a href="#">15941</a>	C6-391.02-50080A	3.150	C5	C6	3.19	
<a href="#">26260</a>	C6-391.02-50110A	4.331	C5	C6	4.74	
15944	C8-391.02-50080A	3.150	C5	C8	4.85	



Graflex® shank for  $\varnothing 2.3425\text{-}3.3267''$  (59.5-84.499 mm)



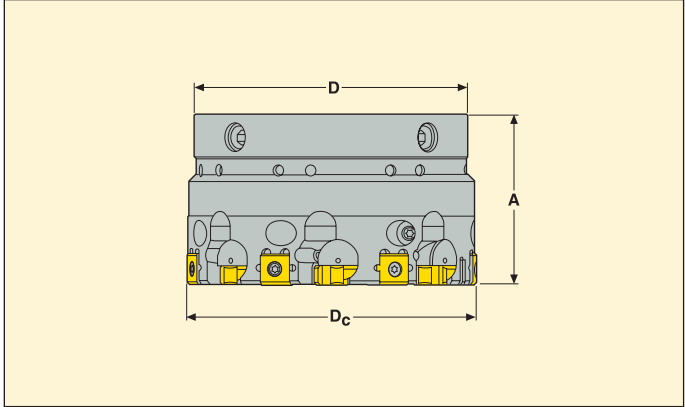
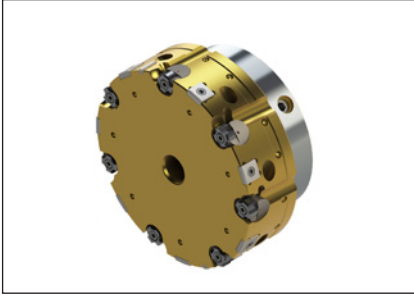
	EDP No.	Part No.	A (inch)	Custom Design		Taper	D	Assembly screw	lbs
				A min	A max				
Reamer Holders	55579	HF55-080-G5	3.150	-	-	G5	2.165	4 pieces CHC M5X25	2.82
		HF55...HSKA63	-	3.150	9.409	HSK-A63			-
		HF55...HSKA80	-	3.937	9.409	HSK-A80			-
		HF55...HSKA100	-	3.937	9.409	HSK-A100			-
		HF55...DIN69871/40	-	3.150	9.409	DIN6971/40			-
		HF55...DIN69871/50	-	3.150	11.969	DIN6971/50			-
		HF55...BT40 ADB	-	3.150	9.409	BT40 ADB			-
		HF55...BT50 ADB	-	3.150	11.969	BT50 ADB			-

Shanks and extensions for HF55-080-G5 (see Seco Tooling System for more details).

	EDP No.	Part No.	A (inch)	Taper	Graflex size	lbs
Shank	86920	EM93044012860	2.362	HSK-A63	G5	2.15
	86921	EM930440128100	3.937	HSK-A63	G5	3.47
	86922	EM930440128140	5.512	HSK-A63	G5	4.81
	86927	EM93064012865	2.559	HSK-A100	G5	5.21
	86928	EM930640128110	4.331	HSK-A100	G5	6.66
	86929	EM930640128150	5.906	HSK-A100	G5	8.10
	20118	EM34694012840	1.575	DIN40 ADB	G5	2.03
	23302	EM34694012880	3.150	DIN40 ADB	G5	3.29
	23303	EM346940128120	4.724	DIN40 ADB	G5	4.59
	20280	EM34144012845	1.772	BT40 ADB	G5	2.45
	23331	EM34144012880	3.150	BT40 ADB	G5	3.40
	23332	EM341440128120	4.724	BT40 ADB	G5	4.67
	23311	EM34714012840	1.575	DIN50 ADB	G5	6.06
	72811	EM44684012840	1.575	DIN50 AD/ CAT50	G5	6.61
	23341	EM341640128100	3.937	BT50 ADB	G5	9.30
	23340	EM34164012855	2.165	BT50 ADB	G5	8.74
23342	EM341640128140	5.512	BT50 ADB	G5	10.58	

	EDP No.	Part No.	A (inch)	Taper	Graflex size	lbs
Extension	56762	M402550	1.969	G5	G5	1.59
	56763	M402551	2.953	G5	G5	2.45
	56764	M402552	3.937	G5	G5	3.25

Heads for RNAX inserts, through bore  $\varnothing$  3.3268-4.7047" (84.5-119.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
3.3268-3.5236	84.5-89.499	HF85....07-80	1.969	3.150	7	3.70	RNAX1005....	■	■	■	■	■
3.5236-3.7204	89.5-94.499	HF85....07-80	1.969	3.150	7	4.08		■	■	■	■	■
3.7205-3.9173	94.5-99.499	HF85....07-80	1.969	3.150	7	4.45		■	■	■	■	■
3.9173-4.1141	99.5-104.499	HF85....07-80	1.969	3.150	7	4.85		■	■	■	■	■
4.1142-4.3110	104.5-109.499	HF85....07-80	1.969	3.150	7	5.29		■	■	■	■	■
4.3110-4.5078	109.5-114.499	HF85....07-80	1.969	3.150	7	5.75		■	■	■	■	■
4.5079-4.7047	114.5-119.499	HF85....07-80	1.969	3.150	7	6.22		■	■	■	■	■

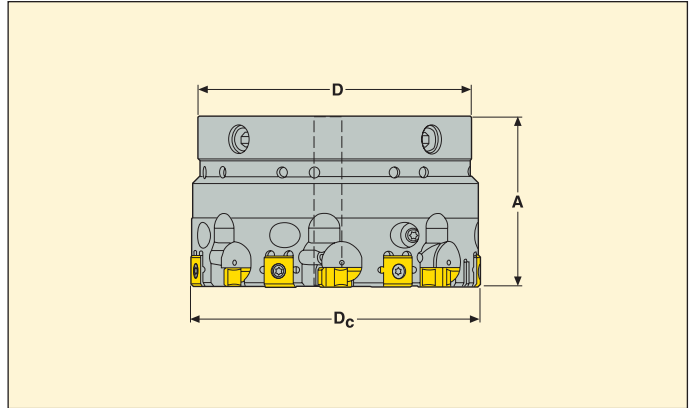
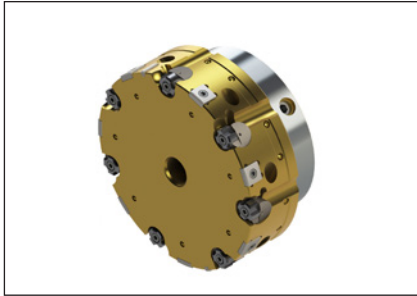
Spare Parts

<p>Insert screw</p> <p>C03010-T09P</p>	<p>Clamp screw</p> <p>LDH4012</p>	<p>Cartridge</p> <p>CARTCY-HF20</p>	<p>Wedge clamp</p> <p>B6027</p>	<p>Adjusting screw</p> <p>SH4075S</p>	<p>Setting screw radial</p> <p>HCM8 x 16</p>
<p>Torque key</p> <p>T00-09P20*</p>	<p>Torque key</p> <p>H00-2020*</p>			<p>Key (Flag)</p> <p>H2.0-2D</p>	<p>Setting key</p> <p>4SMS795</p>
<p>Clamping torque (in/lbs)</p> <p>17.7</p>	<p>Clamping torque (in/lbs)</p> <p>17.7</p>				

■ Stock standard.  
\* To be ordered separately.



Heads for RNAX inserts, blind bore  $\varnothing$  3.3268-4.7047" (84.5-119.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

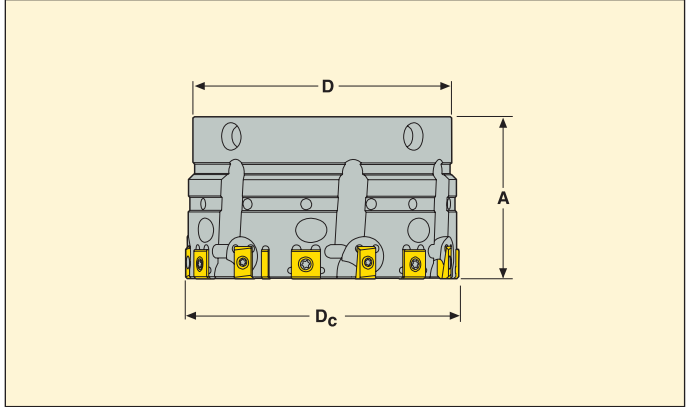
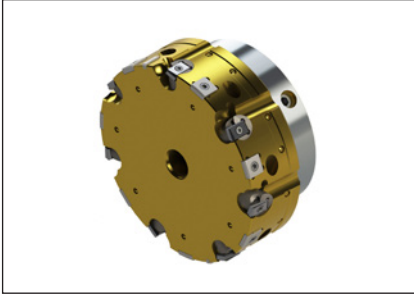
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
3.3268-3.5236	84.5-89.499	HF85B....07-80	1.969	3.150	7	3.70	RNAX1005....	■	■	■	■	■
3.5236-3.7204	89.5-94.499	HF85B....07-80	1.969	3.150	7	4.08		■	■	■	■	■
3.7205-3.9173	94.5-99.499	HF85B....07-80	1.969	3.150	7	4.45		■	■	■	■	■
3.9173-4.1141	99.5-104.499	HF85B....07-80	1.969	3.150	7	4.85		■	■	■	■	■
4.1142-4.3110	104.5-109.499	HF85B....07-80	1.969	3.150	7	5.29		■	■	■	■	■
4.3110-4.5078	109.5-114.499	HF85B....07-80	1.969	3.150	7	5.75		■	■	■	■	■
4.5079-4.7047	114.5-119.499	HF85B....07-80	1.969	3.150	7	6.22		■	■	■	■	■

Spare Parts

<p>Insert screw</p> <p>C03010-T09P</p>	<p>Clamp screw</p> <p>LDH4012</p>	<p>Cartridge</p> <p>CARTCY-HF20B</p>	<p>Wedge clamp</p> <p>B6027</p>	<p>Adjusting screw</p> <p>SH4075S</p>	<p>Setting screw radial</p> <p>HCM8 x 16</p>	<p>Plug screw</p> <p>HCM12 x 10</p>
<p>Torque key</p> <p>T00-09P20*</p> <p>Clamping torque (in/lbs)</p> <p>17.7</p>	<p>Torque key</p> <p>H00-2020*</p> <p>Clamping torque (in/lbs)</p> <p>17.7</p>			<p>Key (Flag)</p> <p>H2.0-2D</p>	<p>Setting key</p> <p>4SMS795</p>	

■ Stock standard.  
\* To be ordered separately.

Heads for LNEG inserts, through bore  $\varnothing$  3.3268-4.7047" (84.5-119.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

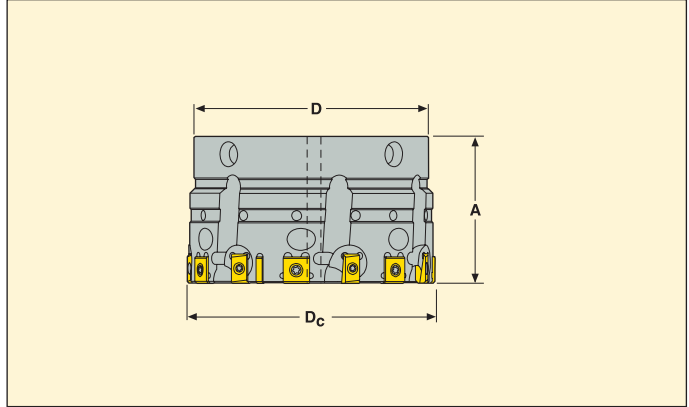
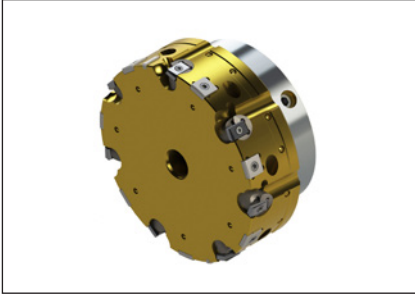
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
3.3268-3.5236	84.5-89.499	HF86....07-80	1.969	3.150	7	3.70	LNEG1003...	■	■	■	■	■
3.5236-3.7204	89.5-94.499	HF86....07-80	1.969	3.150	7	4.08						
3.7205-3.9173	94.5-99.499	HF86....07-80	1.969	3.150	7	4.45						
3.9173-4.1141	99.5-104.499	HF86....07-80	1.969	3.150	7	4.85						
4.1142-4.3110	104.5-109.499	HF86....07-80	1.969	3.150	7	5.29						
4.3110-4.5078	109.5-114.499	HF86....07-80	1.969	3.150	7	5.75						
4.5079-4.7047	114.5-119.499	HF86....07-80	1.969	3.150	7	6.22						

Spare Parts

<b>Insert screw</b>  C02506-T07P	<b>Clamp screw</b>  LDH4012	<b>Cartridge</b>  CARTCY-LN20	<b>Wedge clamp</b>  B6027	<b>Adjusting screw</b>  SH4075S	<b>Setting screw radial</b>  HCM8 x 16
<b>Torque key</b>  T00-07P09* Clamping torque (in/lbs) 8.0	<b>Torque key</b>  H00-2020* Clamping torque (in/lbs) 17.7			<b>Key (Flag)</b>  H2.0-2D	<b>Setting key</b>  4SMS795

■ Stock standard.  
 \* To be ordered separately.

Heads for LNEG inserts, blind bore  $\varnothing$  3.3268-4.7047" (84.5-119.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

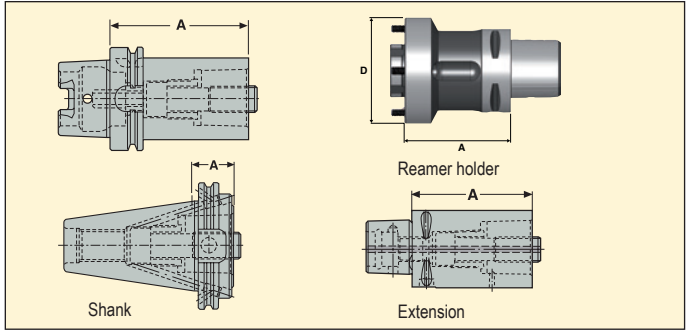
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
3.3268-3.5236	84.5-89.499	HF86B....07-80	1.969	3.150	7	3.70	LNEG1003....	■	■	■	■	■
3.5236-3.7204	89.5-94.499	HF86B....07-80	1.969	3.150	7	4.08						
3.7205-3.9173	94.5-99.499	HF86B....07-80	1.969	3.150	7	4.45						
3.9173-4.1141	99.5-104.499	HF86B....07-80	1.969	3.150	7	4.85						
4.1142-4.3110	104.5-109.499	HF86B....07-80	1.969	3.150	7	5.29						
4.3110-4.5078	109.5-114.499	HF86B....07-80	1.969	3.150	7	5.75						
4.5079-4.7047	114.5-119.499	HF86B....07-80	1.969	3.150	7	6.22						



Spare Parts

<b>Insert screw</b> 	<b>Clamp screw</b> 	<b>Cartridge</b> 	<b>Wedge clamp</b> 	<b>Adjusting screw</b> 	<b>Setting screw radial</b> 	<b>Plug screw</b> 
C02506-T07P	LDH4012	CARTCY-LN20B	B6027	SH4075S	HCM8 x 16	HCM12 x 10
<b>Torque key</b> 	<b>Torque key</b> 			<b>Key (Flag)</b> 	<b>Setting key</b> 	
T00-07P09*	H00-2020*			H2.0-2D	4SMS795	
Clamping torque (in/lbs)	Clamping torque (in/lbs)					
8.0	17.7					


■ Stock standard.  
 \* To be ordered separately.

Seco-Capto™ shank for  $\varnothing$  3.3268-4.7047" (84.5-119.499 mm)



Reamer Holders	EDP No.	Part No.	A (inch)	Custom Design		Taper	D	Assembly screw 	 lbs
				A min	A max				
	<a href="#">45362</a>	HF80-080-C6	3.150	-	-	C6	3.150	4 pieces CHC M6X25	5.35
		HF80...HSKA80	-	3.937	9.409	HSK-A80			-
		HF80...HSKA100	-	3.937	9.409	HSK-A100			-
		HF80...DIN699871/50	-	3.150	11.969	DIN699871/50			-
		HF80...BT50	-	3.150	11.969	BT50			-

Shanks for HF80-080-C6 (see Seco Capto catalog for more details).

Shank	EDP No.	Part No.	A (inch)	Taper	Capto size	 lbs
	28021	C6-390.140-40085	3.346	DIN40 AD	C6	3.96
	28023	C6-390.272-40085	3.346	DIN40 B	C6	3.92
	28104	C6-390.540-40085	3.346	DIN TF40 AD	C6	4.01
	15615	C6-390.140-50030	1.181	DIN50 AD	C6	5.50
	15616	C6-390.140-50080	3.150	DIN50 AD	C6	7.89
	15656	C6-390.272-50030	1.181	DIN50 B	C6	5.73
	15637	C6-390.272-50080	3.150	DIN50 B	C6	8.16
	28105	C6-390.540-50050A	1.969	DIN TF50 ADB	C6	5.29
	26257	C6-390.55-40075	2.953	BT40 AD	C6	5.90
	32602	C6-390.555-40075	2.953	BT TF40 AD	C6	3.75
	15654	C6-390.58-50040	1.575	BT50 AD	C6	7.50
	15655	C6-390.58-50090	3.543	BT50 AD	C6	9.59
	26206	C6-390.369-50050	1.969	BT50 B	C6	7.58
	<a href="#">00440</a>	C6-A390B.45-40085	3.346	CAT40 ADB	C6	4.25
	<a href="#">00445</a>	C6-A390B.45-50030	1.181	CAT50 ADB	C6	5.53
	<a href="#">00451</a>	C6-A390B.45-50080	3.150	CAT50 ADB	C6	7.80
	28113	C6-A390.545-50040A	1.580	CAT TF50 (Taper Face)	C6	6.22

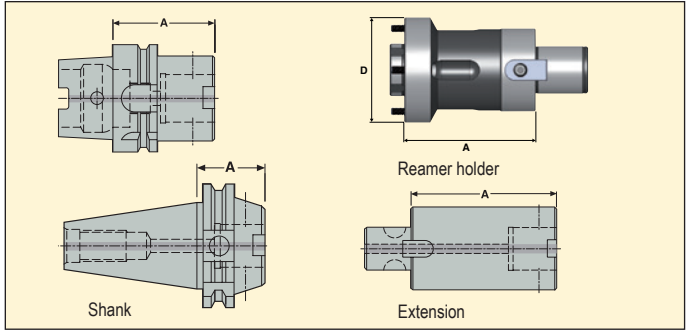
Note: TF = Taper face, Example CAT TF40



Extensions for HF80-080-C6 (see Seco Capto catalog for more details).

Extension	EDP No.	Part No.	A (inch)	Taper	Capto size	lbs
	<a href="#">39887</a>	C6-391.01-63100A	3.937	C6	C6	4.84
<a href="#">04840</a>	C6-391.01-63140A	5.512	C6	C6	6.83	
<a href="#">26220</a>	C6-391.01-63060	2.362	C6	C6	2.87	





Graflex® shank for  $\varnothing 3.3268\text{-}4.7047''$  (84.5-119.499 mm)



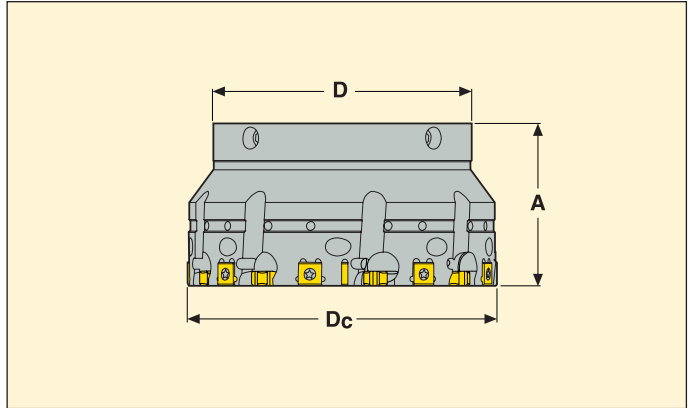
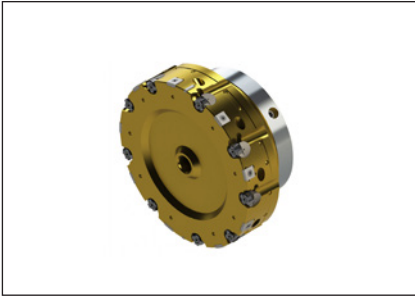
Reamer Holders	EDP No.	Part No.	A (inch)	Custom Design		Taper	D	Assembly screw 	
				A min	A max				
	55580	HF80-080-G6	3.150	-	-	G6	3.150	4 pieces CHC M6X25	6.42
		HF80...HSKA80	-	3.937	9.409	HSK-A80			-
		HF80...HSKA100	-	3.937	9.409	HSK-A100			-
		HF80...DIN699871/50	-	3.150	11.969	DIN69871/50			-
		HF80...BT50	-	3.150	11.969	BT50			-

Shanks and extensions for HF80-080-G6 (see Seco Tooling System for more details).

Shank	EDP No.	Part No.	A (inch)	Taper	Graflex size	
86924	EM930440136120	4.724	HSK-A63	G6	5.25	
86931	EM930640136120	4.724	HSK-A100	G6	8.42	
86932	EM930640136160	6.299	HSK-A100	G6	10.41	
23304	EM34694013660	2.362	DIN40 ADB	G6	2.73	
23305	EM346940136120	4.724	DIN40 ADB	G6	5.83	
76640	EM44664013660	2.362	DIN40 AD/ CAT40	G6	2.67	
23333	EM34144013650	1.969	BT40 ADB	G6	2.48	
23334	EM341440136120	4.724	BT40 ADB	G6	6.13	
23314	EM34714013645	1.772	DIN50 ADB	G6	6.35	
23315	EM347140136100	3.937	DIN50 ADB	G6	8.99	
23316	EM347140136140	5.512	DIN50 ADB	G6	11.00	
72813	EM44684013645	1.772	DIN50 AD/ CAT50	G6	6.57	
72812	EM446840136140	5.512	DIN50 AD/ CAT50	G6	11.24	
23343	EM34164013663	2.480	BT50 ADB	G6	9.26	
23344	EM341640136100	3.937	BT50 ADB	G6	10.08	
23345	EM341640136140	5.512	BT50 ADB	G6	12.21	

Extension	EDP No.	Part No.	A (inch)	Taper	Graflex size	
56766	M402661	3.543	G6	G6	4.62	
56767	M402662	4.724	G6	G6	6.20	

Heads for RNAX inserts, through bore  $\varnothing$  4.7047-6.0826" (119.5-154.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

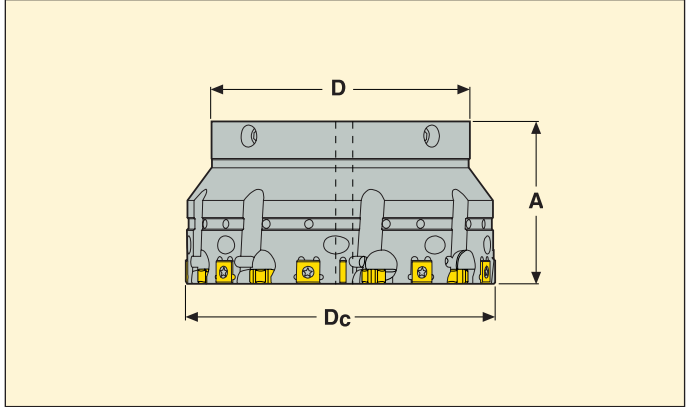
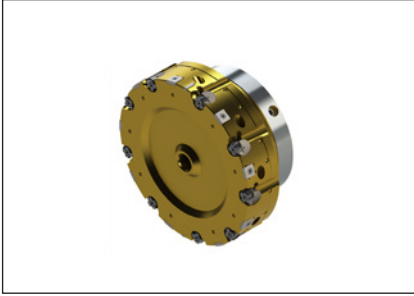
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
4.7047-4.9015	119.5-124.499	HF85...09-100	2.480	3.937	9	8.58	RNAX1005...					
4.9016-5.0984	124.5-129.499	HF85...09-100	2.480	3.937	9	9.15						
5.0984-5.2952	129.5-134.499	HF85...09-100	2.480	3.937	9	9.74						
5.2953-5.4921	134.5-139.499	HF85...09-100	2.480	3.937	9	10.36		■	■	■	■	■
5.4921-5.6889	139.5-144.499	HF85...09-100	2.480	3.937	9	11.00						
5.6890-5.8858	144.5-149.499	HF85...09-100	2.480	3.937	9	11.66						
5.8858-6.0826	149.5-154.499	HF85...09-100	2.480	3.937	9	12.35						

Spare Parts

Insert screw	Clamp screw	Cartridge	Wedge clamp	Adjusting screw	Setting screw radial
C03010-T09P	LDH4012	CARTCY-HF20	B6027	SH4075S	HCM8 x 20
Torque key	Torque key			Key (Flag)	Setting key
T00-09P20*	H00-2020*			H2.0-2D	4SMS795
Clamping torque (in/lbs)	Clamping torque (in/lbs)				
17.7	17.7				

■ Stock standard.  
\* To be ordered separately.

Heads for RNAX inserts, blind bore  $\varnothing 4.7047-6.0826''$  (119.5-154.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
4.7047-4.9015	119.5-124.499	HF85B....09-100	2.480	3.937	9	8.58	RNAX1005...					
4.9016-5.0984	124.5-129.499	HF85B....09-100	2.480	3.937	9	9.15						
5.0984-5.2952	129.5-134.499	HF85B....09-100	2.480	3.937	9	9.74						
5.2953-5.4921	134.5-139.499	HF85B....09-100	2.480	3.937	9	10.36		■	■	■	■	■
5.4921-5.6889	139.5-144.499	HF85B....09-100	2.480	3.937	9	11.00						
5.6890-5.8858	144.5-149.499	HF85B....09-100	2.480	3.937	9	11.66						
5.8858-6.0826	149.5-154.499	HF85B....09-100	2.480	3.937	9	12.35						

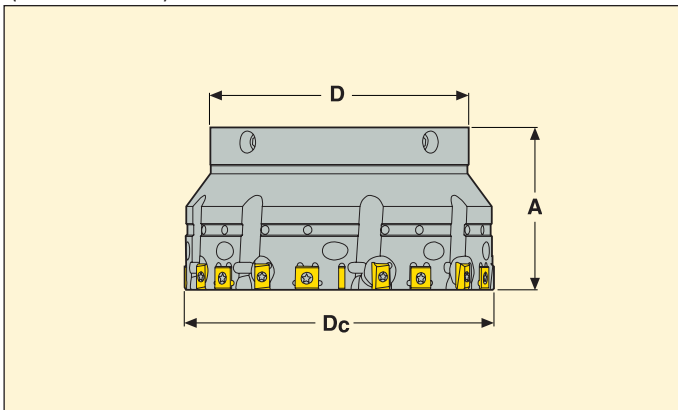
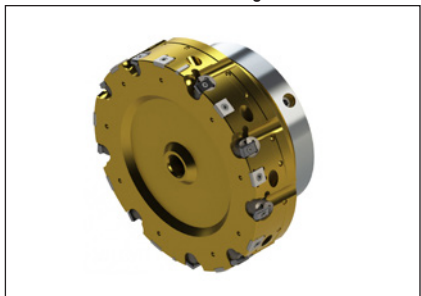
Spare Parts

Insert screw	Clamp screw	Cartridge	Wedge clamp	Adjusting screw	Setting screw radial	Plug screw
C03010-T09P	LDH4012	CARTCY-HF20B	B6027	SH4075S	HCM8 x 20	HCM12 x 10
Torque key	Torque key			Key (Flag)	Setting key	
T00-09P20*	H00-2020*			H2.0-2D	4SMS795	
Clamping torque (in/lbs)	Clamping torque (in/lbs)					
17.7	17.7					

■ Stock standard.  
\* To be ordered separately.



Heads for LNEG inserts, through bore  $\varnothing$  4.7047-6.0826" (119.5-154.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

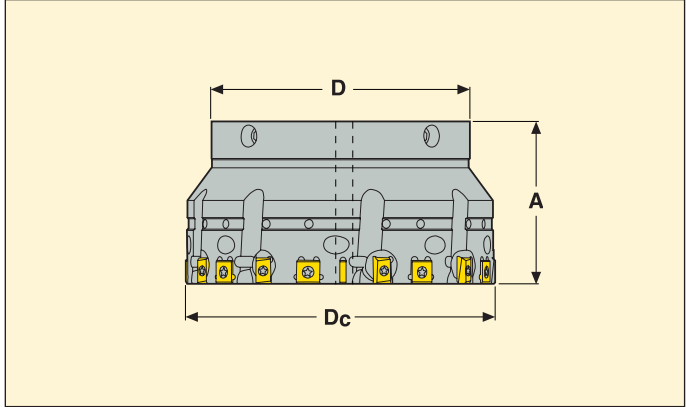
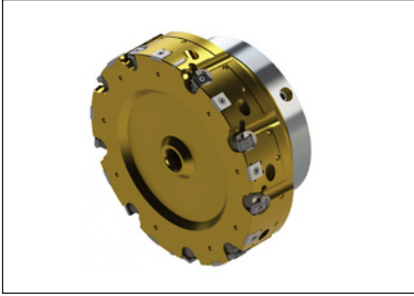
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
4.7047-4.9015	119.5-124.499	HF86...09-100	2.480	3.937	9	8.58	LNEG1003...	■	■	■	■	■
4.9016-5.0984	124.5-129.499	HF86...09-100	2.480	3.937	9	9.15						
5.0984-5.2952	129.5-134.499	HF86...09-100	2.480	3.937	9	9.74						
5.2953-5.4921	134.5-139.499	HF86...09-100	2.480	3.937	9	10.36						
5.4921-5.6889	139.5-144.499	HF86...09-100	2.480	3.937	9	11.00						
5.6890-5.8858	144.5-149.499	HF86...09-100	2.480	3.937	9	11.66						
5.8858-6.0826	149.5-154.499	HF86...09-100	2.480	3.937	9	12.35						

Spare Parts

<p>Insert screw</p> <p>C02506-T07P</p>	<p>Clamp screw</p> <p>LDH4012</p>	<p>Cartridge</p> <p>CARTCY-LN20</p>	<p>Wedge clamp</p> <p>B6027</p>	<p>Adjusting screw</p> <p>SH4075S</p>	<p>Setting screw radial</p> <p>HCM8 x 20</p>
<p>Torque key</p> <p>T00-07P09*</p> <p>Clamping torque (in/lbs) 8.0</p>	<p>Torque key</p> <p>H00-2020*</p> <p>Clamping torque (in/lbs) 17.7</p>			<p>Key (Flag)</p> <p>H2.0-2D</p>	<p>Setting key</p> <p>4SMS795</p>

■ Stock standard.  
\* To be ordered separately.

Heads for LNEG inserts, blind bore  $\varnothing 4.7047-6.0826''$  (119.5-154.499 mm)



- For inserts, grades and geometries see page(s) 398-399
- For cutting data recommendations see page(s) 428-429
- For shanks see page(s) 404, 406, 411, 413, 418, 420, 425, 426

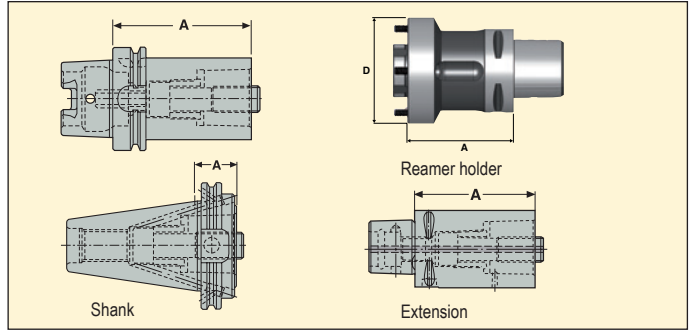
Dia. D <sub>c</sub> (inch)	Dia. D <sub>c</sub> (mm)	Part No.	Dimensions in inch				Insert	Geometries			Grades	
			A	D				EB45	EB45	EB1570	RX2000	RX1500
4.7047-4.9015	119.5-124.499	HF86B....09-100	2.480	3.937	9	8.58	LNEG1003...	■	■	■	■	■
4.9016-5.0984	124.5-129.499	HF86B....09-100	2.480	3.937	9	9.15						
5.0984-5.2952	129.5-134.499	HF86B....09-100	2.480	3.937	9	9.74						
5.2953-5.4921	134.5-139.499	HF86B....09-100	2.480	3.937	9	10.36						
5.4921-5.6889	139.5-144.499	HF86B....09-100	2.480	3.937	9	11.00						
5.6890-5.8858	144.5-149.499	HF86B....09-100	2.480	3.937	9	11.66						
5.8858-6.0826	149.5-154.499	HF86B....09-100	2.480	3.937	9	12.35						

Spare Parts

Insert screw	Clamp screw	Cartridge	Wedge clamp	Adjusting screw	Setting screw radial	Plug screw
C02506-T07P	LDH4012	CARTCY-LN20B	B6027	SH4075S	HCM8 x 20	HCM12 x 10
T00-07P09*	H00-2020*			H2.0-2D	4SMS795	
Clamping torque (in/lbs)	Clamping torque (in/lbs)					
8.0	17.7					

■ Stock standard.  
\* To be ordered separately.

Seco-Capto™ shank for  $\varnothing$  4.7047-6.0826" (119.5-154.499 mm)



Reamer Holders	EDP No.	Part No.	Custom Design			Taper	D	Assembly screw	lbs
			A (inch)	A min	A max				
	<a href="#">45363</a>	HF100-100-C8	3.937	-	-	C8	3.937	4 pieces CHC M8X30	10.67
		HF100...HSKA80	-	3.937	9.370	HSK-A80			-
		HF100...HSKA100	-	3.937	9.370	HSK-A100			-
		HF100...DIN6987/50	-	3.937	9.370	DIN50 ADB			-
		HF100...BT50	-	3.937	9.370	BT50 ADB			-

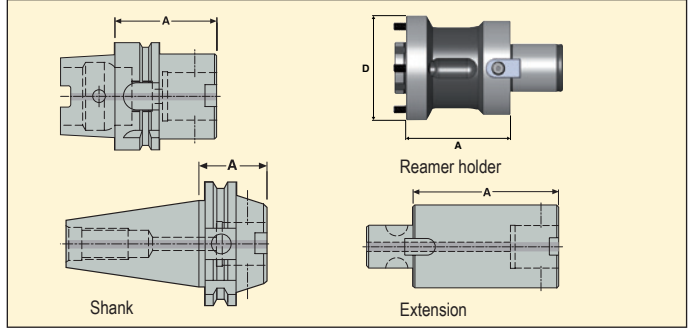
Shanks and extensions for HF100-100-C8 (see Seco Capto catalog for more details).



Shank	EDP No.	Part No.	A (inch)	Taper	Capto size	lbs
	15617	C8-390.140-50070	2.756	DIN50 AD	C8	8.16
	15618	C8-390.140-50120	4.724	DIN50 AD	C8	12.21
	15638	C8-390.272-50070	2.756	DIN50 B	C8	8.11
	15639	C8-390.272-50120	4.724	DIN50 B	C8	12.17
	32601	C8-390.540-50070A	2.756	DIN TF50 ADB	C8	8.20
	15636	C8-390.58-50070	2.756	BT50 AD	C8	8.77
	15657	C8-390.58-50120	4.724	BT50 AD	C8	12.83
	28095	C8-390.558-50070	2.756	BT TF50 AD	C8	8.86

Extension	EDP No.	Part No.	A (inch)	Taper	Capto size	lbs
	<a href="#">26237</a>	C8-391.01-80125A	4.921	C8	C8	10.01


Note: TF = Taper face, Example CAT TF40


Graflex® shank for  $\varnothing 4.7047\text{-}6.0826''$  (119.5-154.499 mm)



Reamer Holders	EDP No.	Part No.	A (inch)	Custom Design		Taper	D	Assembly screw 	 lbs
				A min	A max				
	<a href="#">55581</a>	HF100-100-G7	3.937	-	-	G7	3.937	4 pieces CHC M8X30	11.29
		HF100...HSKA80	-	3.937	9.370	HSK-A80			-
		HF100...HSKA100	-	3.937	9.370	HSK-A100			-
		HF100...DIN6987/50	-	3.937	9.370	DIN50 ADB			-
		HF100...BT50	-	3.937	9.370	BT50 ADB			-

Shanks and extensions for HF100-100-G7 (see Seco Tooling System for more details).


Shank	EDP No.	Part No.	A (inch)	Taper	Graflex size	 lbs
<a href="#">86933</a>	EM930640146160	6.299	HSK-A100	G7	16.91	
86934	EM930640146240	9.449	HSK-A100	G7	25.53	
<a href="#">23317</a>	EM34714014650	1.969	DIN50 ADB	G7	7.12	
<a href="#">23318</a>	EM347140146120	4.724	DIN50 ADB	G7	14.29	
<a href="#">23319</a>	EM347140146200	7.874	DIN50 ADB	G7	22.71	
72814	EM44684014665	2.559	DIN50 AD/ CAT50	G7	8.25	
<a href="#">23346</a>	EM34164014665	2.559	BT50 ADB	G7	9.48	
<a href="#">23347</a>	EM341640146120	4.724	BT50 ADB	G7	14.99	
<a href="#">23348</a>	EM341640146200	7.874	BT50 ADB	G7	23.59	

Extension	EDP No.	Part No.	A (inch)	Taper	Graflex size	 lbs
<a href="#">56769</a>	M402771	3.543	G7	G7	9.48	
<a href="#">56770</a>	M402772	4.724	G7	G7	12.74	

**Custom design – No waiting for quotation - Short delivery time**

Custom Design is also available for Xfix reamers and tool holders. You can now quote for your own intermediate Ø reamer and tailor made Xfix tool holder using the Seco Custom Design software. Easy to use concept: Just indicate component min/max Ø or use ISO tolerance system available in the software. Xfix head designation is created automatically. Custom Design gives you a number of advantages:

- No waiting for quotation! Price and delivery time is available instantly!
- Directly visualize your needs. No risk for misinterpretation
- Short delivery time



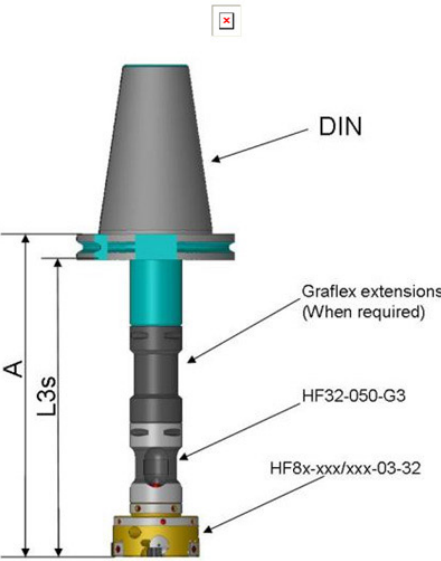
## CUSTOM DESIGN

Version 1.7.9.6

Reaming >> Xfix >> Adapter HF32 (Ø39.5/59.499 - Ø1.5551"/2.3424")
Test mode (Exit) Seco mode Feedback

Back
Start Page
Login
English

[Print this page](#)



**Step 1: Tool Specification**  
Step 2: Request for Quotation

Inch:

	Min	Max	
Tolerance			Stocked standard program <input type="button" value="i"/> Custom <input type="button" value="v"/>
Dc min Xfix	39.5	59.48	<input type="text" value="40"/>
Dc max Xfix	40.016	40.1	<input type="text" value="40.02"/>
L3s max		260	
Adapter size			HF32
Shank type			DIN50ADE <input type="button" value="v"/>
L3s	0	260	<input type="text" value="250"/>
Part No.			Number
Graflex Adapter HF32-050-G3			1
Standard shank EM3471 401 18100			1
Graflex extensions M402 330			1
Graflex extensions M402 331			1
Number of all standard componant			4
Real total length A of Xfix set			293
Maximum total weight of Xfix set in KG			4.7
Note	CHECK MAXIMUM TOOL WEIGHT ACCEPTABLE IN THE MACHINE		

Designation

Delivery Time

Quantity:

427

Cutting data – LNEG...EB45

SMG		a <sub>p</sub> on (Ø) inch	f (in/rev)				V <sub>c</sub> (sf/min)		
			z=3	z=5	z=7	z=9	RX2000	CF	RX1500
P1	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	395 (260-655)	590 (395-820)	720 (395-985)
P2	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	395 (260-655)	590 (395-820)	720 (395-985)
P3	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	395 (260-655)	590 (395-820)	720 (395-985)
P4	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	195 (130-395)	260 (195-490)	330 (260-655)
P5	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	195 (130-395)	260 (195-490)	330 (260-655)
P6	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	195 (130-395)	260 (195-490)	330 (260-655)
P7	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	195 (130-395)	260 (195-490)	330 (260-655)
P8	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	130 (100-230)	195 (165-330)	260 (195-395)
P11	LNEG1003-EB45	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	130 (100-230)	195 (165-330)	260 (195-395)
M1	LNEG1003-EB45	0.004–0.008	0.006–0.012	0.010–0.020	0.014–0.028	0.018–0.035	115 (80-195)	–	–
M2	LNEG1003-EB45	0.004–0.008	0.006–0.012	0.010–0.020	0.014–0.028	0.018–0.035	115 (80-195)	–	–
M3	LNEG1003-EB45	0.004–0.008	0.006–0.012	0.010–0.020	0.014–0.028	0.018–0.035	115 (80-195)	–	–
M4	LNEG1003-EB45	0.004–0.008	0.006–0.012	0.010–0.020	0.014–0.028	0.018–0.035	80 (65-165)	–	–
M5	LNEG1003-EB45	0.004–0.008	0.006–0.012	0.010–0.020	0.014–0.028	0.018–0.035	80 (65-165)	–	–
K1	LNEG1003-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	–	720 (490-985)
K2	LNEG1003-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	165 (115-260)	–	230 (165-395)
K3	LNEG1003-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	–	720 (490-985)
K4	LNEG1003-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	230 (165-395)	330 (195-395)	490 (360-655)
K5	LNEG1003-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	230 (165-395)	330 (195-395)	490 (360-655)
K6	LNEG1003-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	–	720 (490-985)
K7	LNEG1003-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	–	720 (490-985)
H3	LNEG1003-EB45	0.004–0.008	0.004–0.010	0.006–0.016	0.010–0.020	0.012–0.028	65 (35-100)	–	–
H5	LNEG1003-EB45	0.004–0.008	0.004–0.010	0.006–0.016	0.010–0.020	0.012–0.028	65 (35-100)	–	–
H7	LNEG1003-EB45	0.004–0.008	0.004–0.010	0.006–0.016	0.010–0.020	0.012–0.028	65 (35-100)	–	–
H8	LNEG1003-EB45	0.004–0.008	0.004–0.010	0.006–0.016	0.010–0.020	0.012–0.028	65 (35-100)	–	–
H11	LNEG1003-EB45	0.004–0.008	0.004–0.010	0.006–0.016	0.010–0.020	0.012–0.028	65 (35-100)	–	–
H12	LNEG1003-EB45	0.004–0.008	0.004–0.010	0.006–0.016	0.010–0.020	0.012–0.028	65 (35-100)	–	–
H21	LNEG1003-EB45	0.004–0.008	0.004–0.010	0.006–0.016	0.010–0.020	0.012–0.028	65 (35-100)	–	–
H31	LNEG1003-EB45	0.004–0.008	0.004–0.010	0.006–0.016	0.010–0.020	0.012–0.028	65 (35-100)	–	–

Cutting data – LNEG...EB845

SMG		a <sub>p</sub> on (Ø) inch	f (in/rev)				V <sub>c</sub> (sf/min)
			z=3	z=5	z=7	z=9	RX2000
P1	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	395 (260-655)
P2	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	395 (260-655)
P3	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	395 (260-655)
P4	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	195 (130-395)
P5	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	195 (130-395)
P6	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	195 (130-395)
P7	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	195 (130-395)
P8	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	130 (100-230)
P11	LNEG1003-EB845	0.006–0.010	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	130 (100-230)
M1	LNEG1003-EB845	0.004–0.008	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	115 (80-195)
M2	LNEG1003-EB845	0.004–0.008	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	115 (80-195)
M3	LNEG1003-EB845	0.004–0.008	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	115 (80-195)
M4	LNEG1003-EB845	0.004–0.008	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	80 (65-165)
M5	LNEG1003-EB845	0.004–0.008	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	80 (65-165)
K1	LNEG1003-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	330 (195-655)
K2	LNEG1003-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	165 (115-260)
K3	LNEG1003-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	330 (195-655)
K4	LNEG1003-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	230 (165-395)
K5	LNEG1003-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	230 (165-395)
K6	LNEG1003-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	330 (195-655)
K7	LNEG1003-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	330 (195-655)

SMG = Seco Material Group

a<sub>p</sub> = inch

f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

**Cutting data – LNEG...-EB1570**

SMG		a <sub>p</sub> on (Ø) inch	f (in/rev)				V <sub>c</sub> (sf/min)	
			z=3	z=5	z=7	z=9	RX2000	
P4	LNEG1003-EB1570	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	195 (130–395)	
P5	LNEG1003-EB1570	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	195 (130–395)	
P6	LNEG1003-EB1570	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	195 (130–395)	
P7	LNEG1003-EB1570	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	195 (130–395)	
P8	LNEG1003-EB1570	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	130 (100–230)	
P11	LNEG1003-EB1570	0.006–0.010	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	130 (100–230)	
K1	LNEG1003-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195–655)	
K2	LNEG1003-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	165 (115–260)	
K3	LNEG1003-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195–655)	
K4	LNEG1003-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	230 (165–395)	
K5	LNEG1003-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	230 (165–395)	
K6	LNEG1003-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195–655)	
K7	LNEG1003-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195–655)	

**Cutting data – RNAX...-EB45**

SMG		a <sub>p</sub> on (Ø) inch	f (in/rev)				V <sub>c</sub> (sf/min)	
			z=3	z=5	z=6	z=9	RX2000	T100R
K1	RNAX1005-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	720 (490-985)
K2	RNAX1005-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	165 (115-260)	230 (165-395)
K3	RNAX1005-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	720 (490-985)
K4	RNAX1005-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	230 (165-395)	490 (360-655)
K5	RNAX1005-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	230 (165-395)	490 (360-655)
K6	RNAX1005-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	720 (490-985)
K7	RNAX1005-EB45	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	720 (490-985)

**Cutting data – RNAX...-EB845**

SMG		a <sub>p</sub> on (Ø) inch	f (in/rev)				V <sub>c</sub> (sf/min)	
			z=3	z=5	z=6	z=9	RX2000	RX1500
K1	RNAX1005-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	330 (195-655)	720 (490-985)
K2	RNAX1005-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	165 (115-260)	230 (165-395)
K3	RNAX1005-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	330 (195-655)	720 (490-985)
K4	RNAX1005-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	230 (165-395)	490 (360-655)
K5	RNAX1005-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	230 (165-395)	490 (360-655)
K6	RNAX1005-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	330 (195-655)	720 (490-985)
K7	RNAX1005-EB845	0.008–0.020	0.006–0.024	0.010–0.039	0.014–0.055	0.018–0.071	330 (195-655)	720 (490-985)

**Cutting data – RNAX...-EB1570**

SMG		a <sub>p</sub> on (Ø) inch	f (in/rev)				V <sub>c</sub> (sf/min)	
			z=3	z=5	z=6	z=9	RX2000	RX1500
K1	RNAX1005-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	720 (490-985)
K2	RNAX1005-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	165 (115-260)	230 (165-395)
K3	RNAX1005-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	720 (490-985)
K4	RNAX1005-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	230 (165-395)	490 (360-655)
K5	RNAX1005-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	230 (165-395)	490 (360-655)
K6	RNAX1005-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	720 (490-985)
K7	RNAX1005-EB1570	0.008–0.020	0.006–0.018	0.010–0.030	0.010–0.041	0.018–0.053	330 (195-655)	720 (490-985)

SMG = Seco Material Group

a<sub>p</sub> = inch

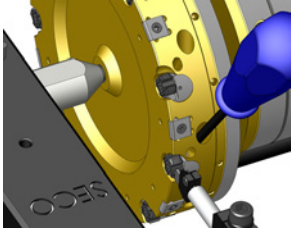
f = in/rev

v<sub>c</sub> = sf/min

All cutting data are start values

Adjusting instructions

1



- Loosen cartridge clamping screw
- Index or replace insert
- Unclamp adjusting screw by 1/4 of a turn and push cartridge back
- Gently re-clamp cartridge clamping screw approx 4.4 in/lbs (0.5 Nm)

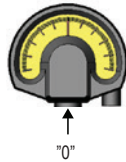
Cartridge clamping screw  
Adjusting screw



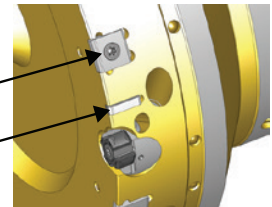
2



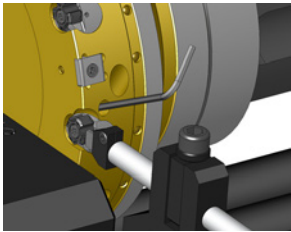
- Set indicator to "zero" on reference pad
- Make sure measuring point is positioned after the lead angle



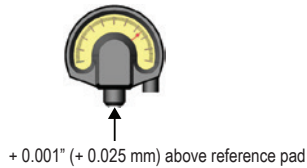
Pre-loaded guiding pad  
Reference pad for adjustment



3



- Set insert 0.001" (0.025 mm) above reference pad using adjusting screw
- Repeat adjusting process for all inserts



Adjusting screw



4

- Final clamp cartridge clamping screw 17.7 in/lbs (2 Nm)

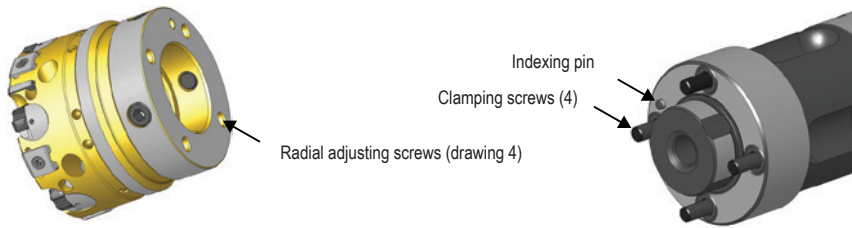
Cartridge clamping screw



Note: If the required diameter is exceeded during adjustment, start again from the beginning to eliminate backlash on adjustment screws.

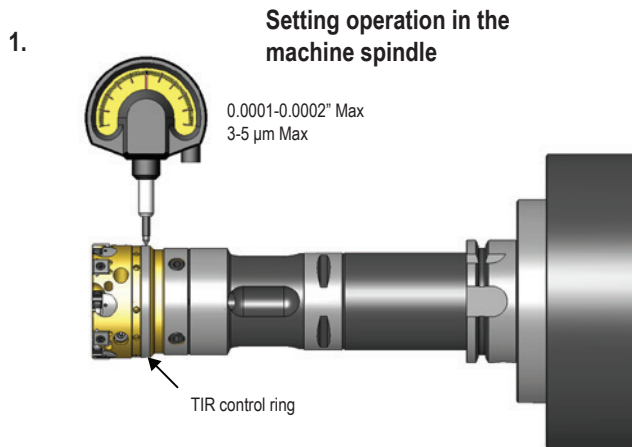


## Adjusting instructions, adapter

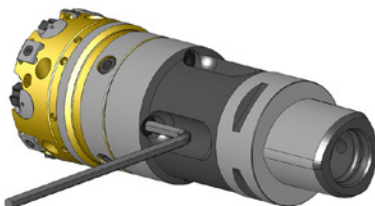


### 1. Assembly

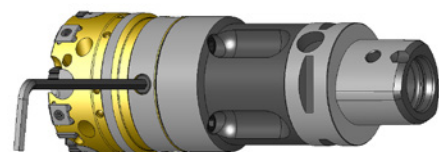
- Thoroughly clean flange contact surface
- Loosen 4 radial adjusting screws so they do not interfere for assembly
- Put reaming head onto adapter (indexing pin) and tighten the 4 clamping screws



### 2. Clamping screws



### 3. Clamping torque table



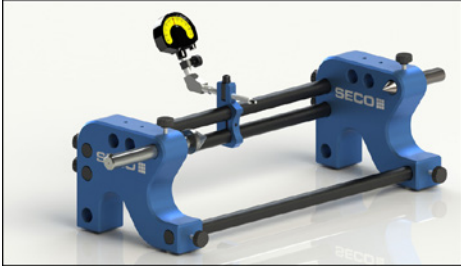
### 2. Setting

- Mount tool in the machine spindle
- Place  $\mu$ m indicator as shown in (drawing 2)
- Unlock spindle so it can rotate freely by hand
- Start run-out correction using 4 adjusting screws (drawing 3)
- Max run-out 0.0002" (5  $\mu$ m)
- When run-out values get lower than 0.0004" (10  $\mu$ m), proceed to final clamping (drawing 1) see clamping torque table for torque recommended values
- Finalize run-out adjustment Max 0.0002" (5  $\mu$ m)

Clamping torque table

Diameters inch	Diameters mm	Adapter size	Clamping screw	Clamping torque in/lbs
1.555-2.342	39.5-59.499	HF32	CHC M3 x 16	24
2.343-3.327	59.5-84.499	HF55	CHC M5 x 25	50
3.327-4.705	84.5-119.499	HF80	CHC M6 x 25	87
4.705-6.083	119.5-154.499	HF100	CHC M8 x 30	212

## Setting fixture – Single indicator fixtures

**SF-210340-C160**

- Horizontal stand
- First choice for Xfix reamers
- 1 Dial indicator
- Maximum tool Ø: 8.268" (210 mm)
- Maximum tool length: 13.386" (340 mm)
- Additional Ø 2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

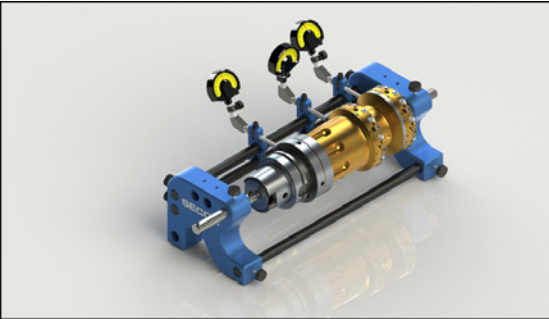
Center point SSC5700 included in delivery

**SF-210290V-C160**

- Vertical stand
- First choice for Xfix reamers
- Maximum tool Ø: 8.268" (210 mm)
- Maximum tool length: 11.417" (290 mm)
- Additional Ø 2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery

Possibilities for multi-indicator set up refer to setting fixture chapter page(s) 432, 457-462 for more details



Tooling overview

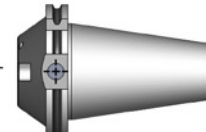
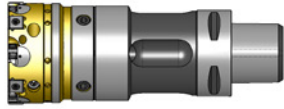


Diameter inch	Diameter mm	Max dia/length ratio
1.555-2.342	39.5-59.499	6.5 x D
2.343-3.327	59.5-84.499	4.5 x D
3.327-4.705	84.5-119.499	3.3 x D
4.705-6.083	119.5-154.499	2.5 x D

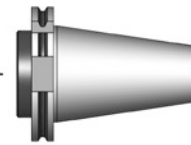
Note: For diameters > 3.937" (100 mm) or L > 3 x D check max tool weight acceptable in the machine.

## Rotating applications

Xfix

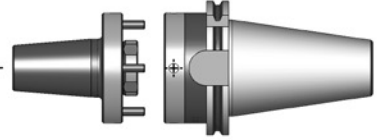


Graflex



Seco Capto

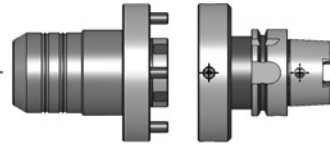
Nanofix



Shrinkfit

Adjustable adapter

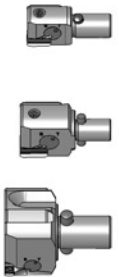
Bifix SR80-SR81



Hydraulic chuck\*

Adjustable adapter

Precifix

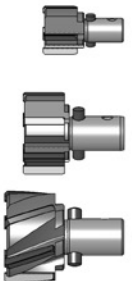


Steel body



Shrinkfit\*

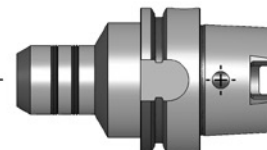
Precimaster



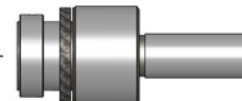
Carbide body



Collet chuck D type precision\*



Hydraulic chuck\*

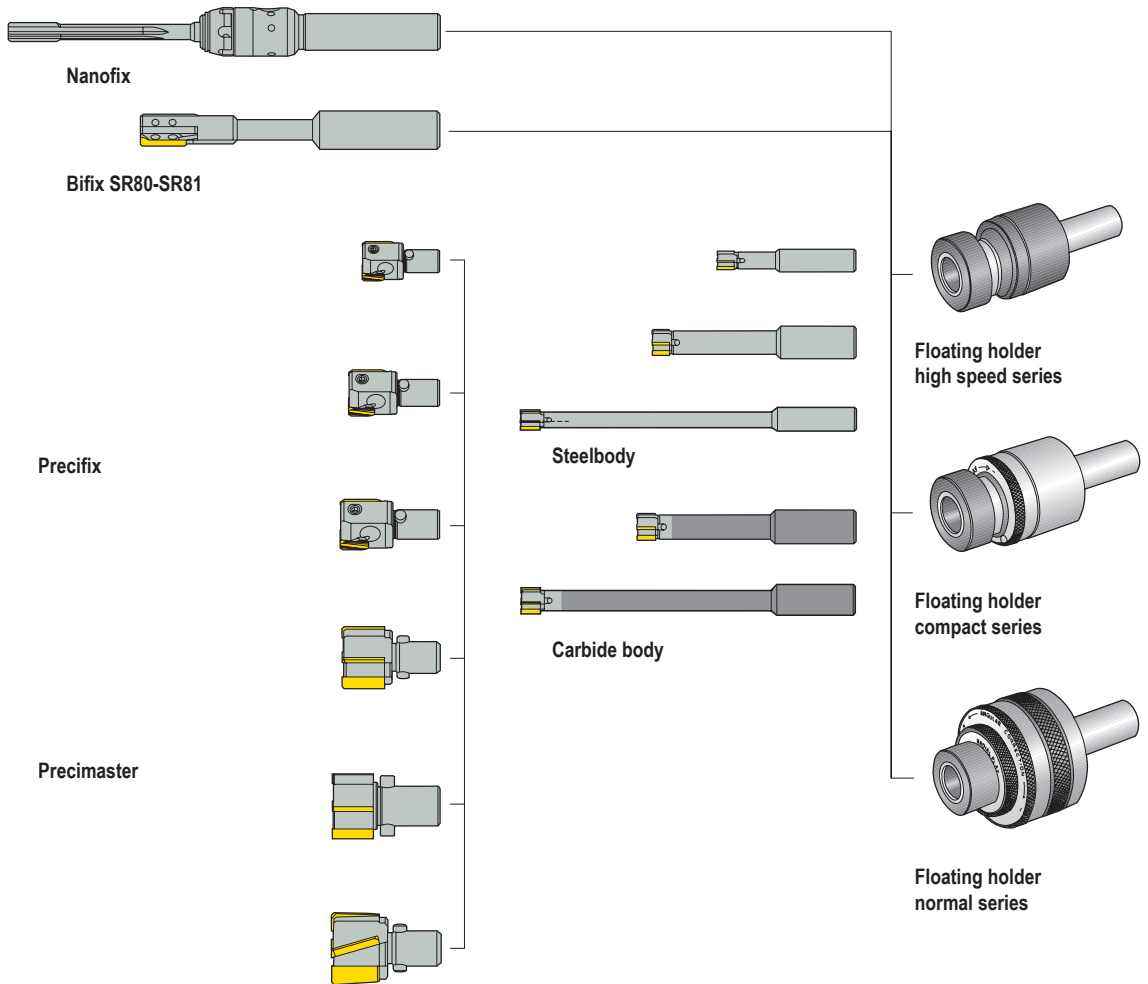


Floating holder high speed series

\*See catalog Seco TOOLING SYSTEMS

Best performance achieved with rigid mounting (Hydraulic chuck, D type or Shrinkfit)

## Static applications



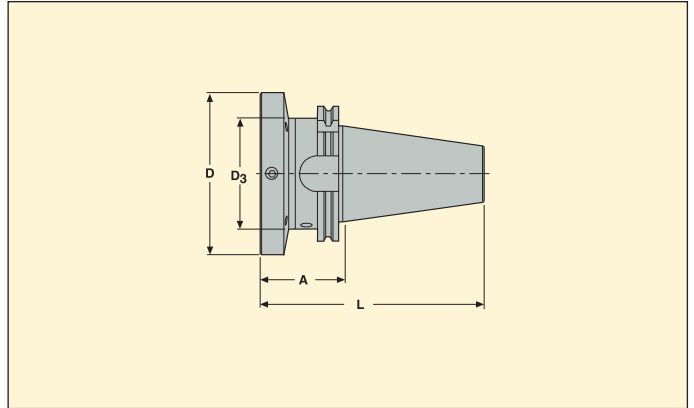


# Adjustable holders

## Back end CAT



• Note: Screws included in delivery

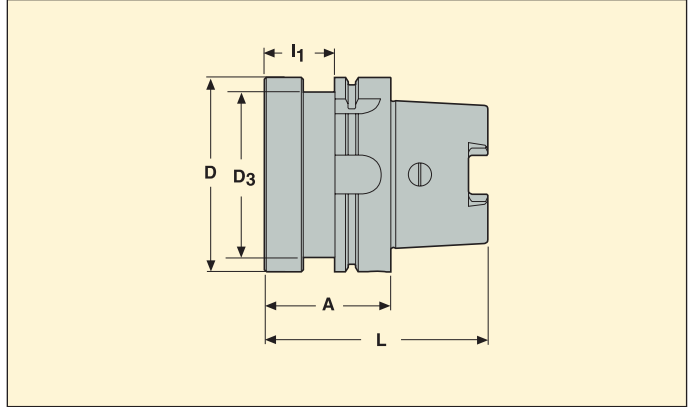


Taper	EDP No.	Part No.	Dimensions in inch				lbs
			D	A	L	D <sub>c2</sub>	
CAT40	<a href="#">12907</a>	SAH-2784940201	2.362	1.969	4.661	1.750	2.43
	<a href="#">12908</a>	SAH-2784940204	2.756	1.969	4.661	1.750	2.65
	<a href="#">12909</a>	SAH-2784940202	3.150	2.165	4.858	1.750	3.31
	<a href="#">12910</a>	SAH-2784940203	3.937	2.362	5.055	1.750	5.07
CAT50	<a href="#">12936</a>	SAH-2784950201	2.362	1.969	5.976	2.362	6.83
	<a href="#">12945</a>	SAH-2784950206	2.756	1.969	5.976	2.750	7.28
	<a href="#">12957</a>	SAH-2784950202	3.150	1.969	5.976	2.750	7.94
	<a href="#">12965</a>	SAH-2784950203	3.937	2.362	6.370	2.750	9.48

## Back end HSK-A



• Note: Coolant tube and screws included in delivery



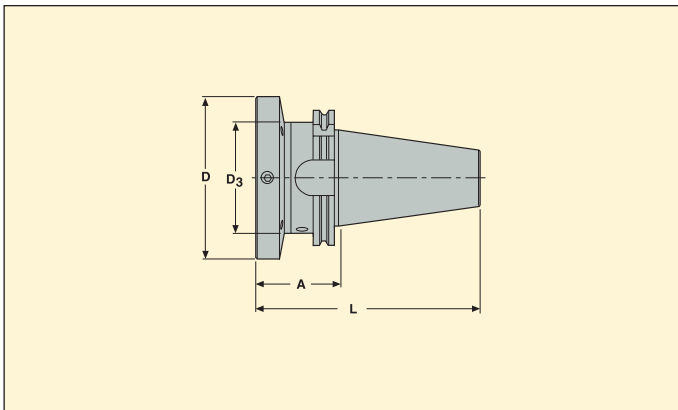
Taper	EDP No.	Part No.	Dimensions in inch					lbs
			D	A	L	L <sub>1</sub>	D <sub>1</sub>	
HSK-A-40	<a href="#">12538</a>	SAH-2340540001	2.362	2.165	2.953	1.378	1.339	1.76
HSK-A-50	<a href="#">12540</a>	SAH-2340550001	2.362	2.362	3.346	1.339	1.654	2.09
	<a href="#">12544</a>	SAH-2340550003	2.756	2.362	3.346	1.339	1.654	2.20
	<a href="#">12545</a>	SAH-2340550002	3.150	2.362	3.346	1.339	1.654	2.65
HSK-A-63	<a href="#">12554</a>	SAH-2340563001	2.362	2.362	3.622	1.339	2.087	2.65
	<a href="#">12568</a>	SAH-2340563003	2.756	2.362	3.622	1.339	2.087	2.87
	<a href="#">12578</a>	SAH-2340563002	3.150	2.362	3.622	1.339	2.087	3.09
	<a href="#">12579</a>	SAH-2340563004	3.937	2.559	3.819	1.535	2.087	4.30
HSK-A-80	<a href="#">12740</a>	SAH-2340580001	2.362	1.969	3.543	0.945	2.362	3.09
	<a href="#">12745</a>	SAH-2340580003	2.756	2.362	3.937	1.339	2.638	3.31
	<a href="#">12747</a>	SAH-2340580002	3.150	2.362	3.937	1.339	2.638	3.53
	<a href="#">84850</a>	SAH-2340580004	3.937	2.559	4.134	1.535	2.638	4.85
HSK-A-100	<a href="#">12805</a>	SAH-23405100001	2.362	2.165	4.134	1.024	2.362	5.51
	<a href="#">12832</a>	SAH-23405100007	2.756	2.165	4.134	1.024	2.756	6.17
	<a href="#">12833</a>	SAH-23405100002	3.150	2.165	4.134	1.024	3.150	6.39
	<a href="#">12834</a>	SAH-23405100003	3.937	2.559	4.528	1.417	3.346	7.72



## Back end DIN 69871



• Note: Screws included in delivery

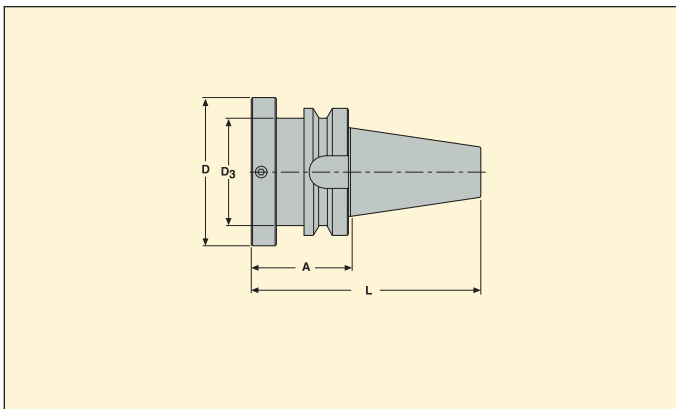


Taper	EDP No.	Part No.	Dimensions in inch				lbs
			D	A	L	D <sub>1</sub>	
DIN40 ADB	<a href="#">12837</a>	SAH-2340640201	2.362	1.969	4.661	1.969	2.425
	<a href="#">12840</a>	SAH-2340640204	2.756	1.969	4.661	1.969	2.646
	<a href="#">12841</a>	SAH-2340640202	3.150	2.165	4.858	1.969	3.307
	<a href="#">12842</a>	SAH-2340640203	3.937	2.362	5.055	1.969	5.071
DIN50 ADB	<a href="#">12844</a>	SAH-2340650201	2.362	1.969	5.976	2.362	6.834
	<a href="#">12898</a>	SAH-2340650206	2.756	1.969	5.976	2.756	7.275
	<a href="#">12900</a>	SAH-2340650202	3.150	1.969	5.976	3.150	7.937
	<a href="#">12903</a>	SAH-2340650203	3.937	2.362	6.370	3.150	9.480

## Back end BT



• Note: Screws included in delivery

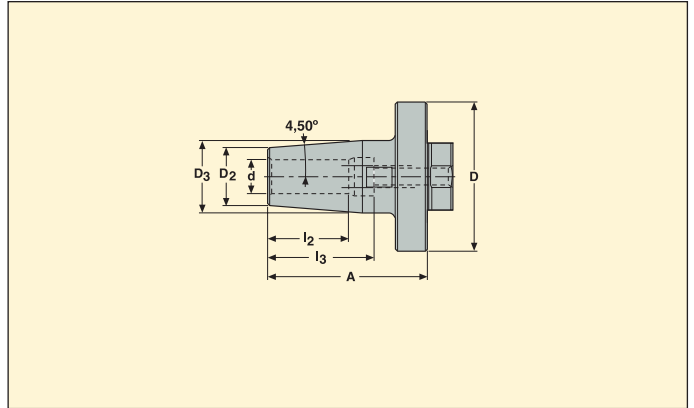


Taper	EDP No.	Part No.	Dimensions in inch				
			D	A	L	D <sub>3</sub>	
BT40 ADB	<a href="#">12984</a>	SAH-2340740001	2.362	2.165	4.740	2.362	3.09
	<a href="#">12990</a>	SAH-2340740004	2.756	2.165	4.740	2.480	3.31
	<a href="#">13000</a>	SAH-2340740002	3.150	2.559	5.134	2.480	4.19
	<a href="#">13006</a>	SAH-2340740003	3.937	2.362	4.937	2.480	5.95
BT50 ADB	<a href="#">13155</a>	SAH-2340750001	2.362	2.756	6.764	2.362	9.26
	<a href="#">13220</a>	SAH-2340750002	2.756	2.756	6.764	2.756	9.70
	<a href="#">13229</a>	SAH-2340750003	3.150	2.756	6.764	3.150	10.14
	<a href="#">13231</a>	SAH-2340750004	3.937	2.756	6.764	3.937	10.80

## Front end Shrink-fit

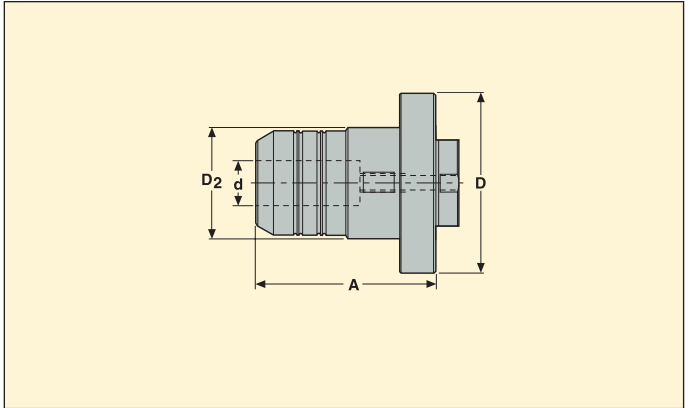
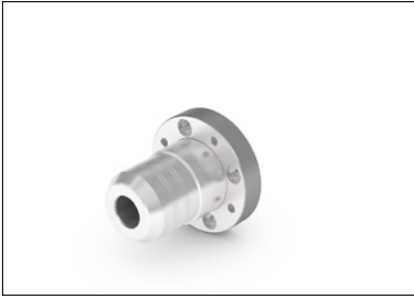


- Note: Adjusting screws included in delivery



d (mm)	EDP No.	Part No.	Dimensions in inch						
			D	A	l <sub>2</sub>	l <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	
6	<a href="#">13270</a>	SAH-2341006235	2.362	2.756	0.866	1.476	0.827	1.063	1.10
10	<a href="#">13273</a>	SAH-2341010237	2.362	2.756	1.220	1.673	0.945	1.260	1.10
12	<a href="#">13274</a>	SAH-2341012238	2.362	2.756	1.339	1.870	0.945	1.260	1.15
16	<a href="#">13275</a>	SAH-2341016241	2.756	2.953	1.535	1.988	1.063	1.339	1.54
20	<a href="#">13280</a>	SAH-2341020251	3.150	3.150	1.614	2.067	1.299	1.654	2.20
25	<a href="#">13285</a>	SAH-2341025260	3.937	3.150	1.850	2.303	1.732	2.087	4.85
32	<a href="#">13295</a>	SAH-2341032261	3.937	3.150	2.008	2.461	1.732	2.087	5.51

## Front end hydraulic chuck

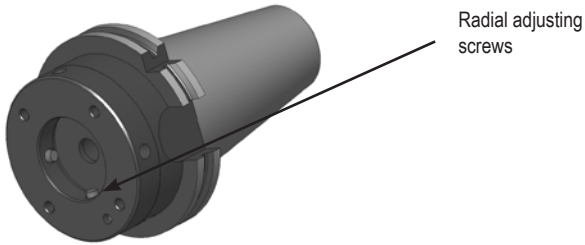


• Note: Adjusting screws included in delivery

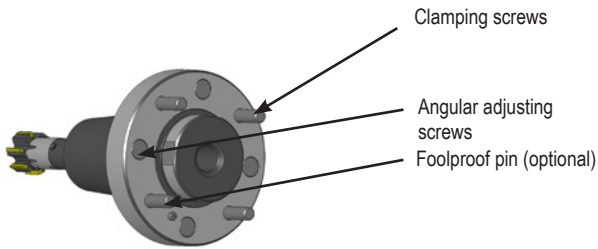
d (mm)	EDP No.	Part No.	Dimensions in inch			lbs
			D	A	D <sub>2</sub>	
16	<a href="#">13298</a>	SAH-2341116253	2.756	1.969	1.496	1.65
12	<a href="#">13305</a>	SAH-2341112255	3.150	3.051	1.260	2.43
16	<a href="#">13462</a>	SAH-2341116256	3.150	3.248	1.496	2.65
20	<a href="#">13468</a>	SAH-2341120257	3.150	3.248	1.654	2.87
25	<a href="#">13490</a>	SAH-2341125258	3.150	3.543	1.969	3.75
12	<a href="#">13510</a>	SAH-2341112259	3.937	3.543	1.260	4.19
25	<a href="#">13514</a>	SAH-2341125260	3.937	3.937	1.969	6.17
32	<a href="#">13527</a>	SAH-2341132261	3.937	4.055	2.362	6.39



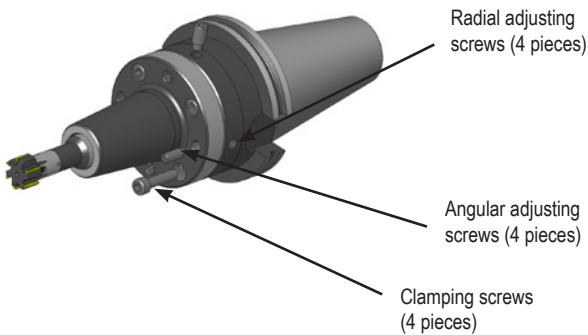
## Assembly instructions



- Clean contact surface
- Make sure radial adjusting screws are not interfering with the assembly

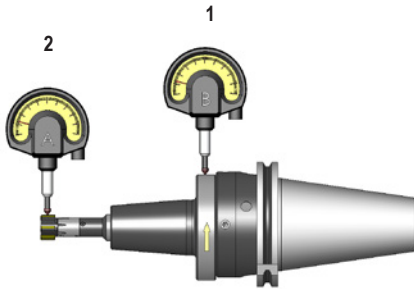


- Make sure angular adjusting screws are not interfering with the assembly

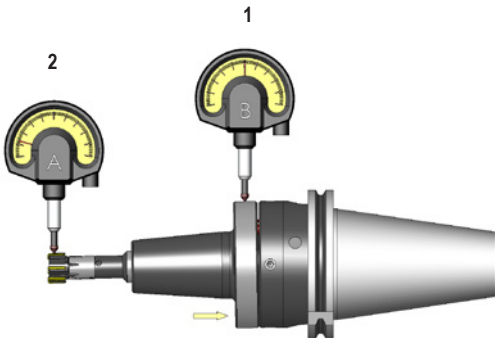


- Proceed to assembly and gently pre-clip clamping screws (x4)

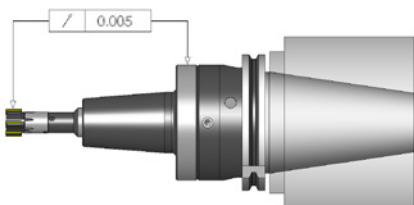
## Adjusting instructions



- Mount tool in the machine spindle
- Set up indicator 1 as shown (indicator 2 not needed at this stage)
- Rotate tool manually until lowest point is reached
- Proceed to radial run-out compensation as shown with arrow
- Check and repeat compensation if necessary



- Set up indicator 2 as shown
- Rotate tool manually until lowest point is reached
- Proceed to radial run-out compensation as shown with arrow
- Check and repeat compensation if necessary



- When finished with adjustment finalize clamping to secure assembly, run-out <math>< 5 \mu\text{m}</math> (0.0002 inch)

### Note:

- Adjustable adapter can be pre-set away from the machine using any tool pre-setting device available in the workshop
- Final adjusting must always be made in the machine spindle
- Micron indicator must be used. It is acceptable to use one indicator for both operations

## Range overview

**The use of a Seco floating holder is recommended**

- When run-out exceeds 0.0008 inch (0.02 mm)
- For stationary tools



**Compact GV high speed series**

- First choice for rotating tools
- No adjustment required (factory preset)
- Rotation up to 3000 rpm depending on application
- Suitable for static applications



**Compact series**

- First choice for stationary tools
- Radial adjustment only
- Suitable for rotating applications – 800 rpm max



**Normal series**

- When both angular and radial correction is required
- Suitable for rotating applications – 800 rpm max

All floating holders for through coolant  
2 types of coolant induction available

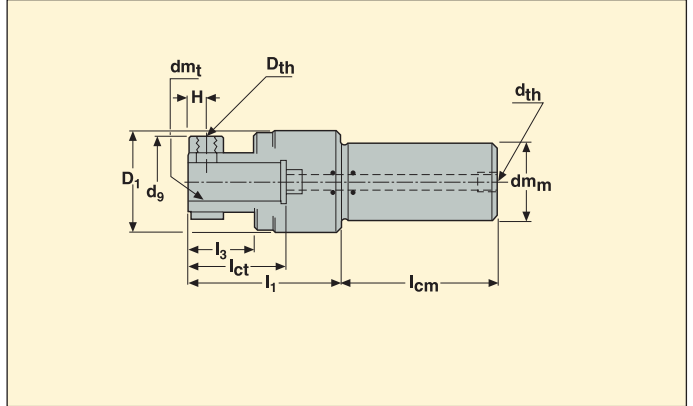
JJL: side inlet  
JJ: through shank

Users manual included in delivery



## Compact GV high speed series

Inch shank



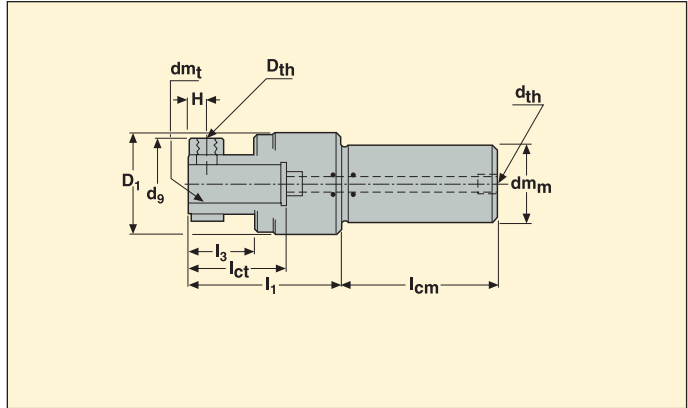
EDP No.	Part No.	dm <sub>t</sub> (mm)	Dimensions in inch										
			dm <sub>m</sub>	l <sub>1</sub>	l <sub>cm</sub>	D <sub>1</sub>	d <sub>g</sub>	l <sub>3</sub>	l <sub>ct</sub>	d <sub>th</sub>	H	D <sub>th</sub>	
<a href="#">88959</a>	SFH-GV11019JJ	10	0.750	1.870	1.575	1.299	1.181	0.453	0.984	1/8	0.217	M6	0.008
<a href="#">76815</a>	SFH-GV21619JJ	16	0.750	2.598	1.969	1.949	1.535	0.965	1.575	1/8	0.315	M8	0.008
<a href="#">76827</a>	SFH-GV22019JJ	20	0.750	2.992	1.969	1.949	1.772	1.358	1.969	1/8	0.315	M8	0.008
<a href="#">76828</a>	SFH-GV32525JJ	25	1.000	3.504	2.362	2.441	2.047	1.713	2.362	1/4	0.433	M10	0.012
<a href="#">88960</a>	SFH-GV325425JJ	25.4	1.000	3.504	2.362	2.441	2.047	1.713	2.362	1/4	0.433	M10	0.012

## Accessories

Part No.	Reduction ring	
	dm <sub>t</sub> (mm)	dm <sub>m</sub> (mm)
SRR-BR11016	10	16
SRR-BR21620	16	20
SRR-BR31625	16	25
SRR-BR32025	20	25

## Compact GV high speed series

Metric shank



EDP No.	Part No.	Dimensions in mm											
		$dm_t$	$dm_m$	$l_1$	$l_{cm}$	$D_1$	$d_9$	$l_3$	$l_{ct}$	$d_{th}$	$H$	$D_{th}$	
<a href="#">88945</a>	SFH-GV11020JJ	10	20	47.5	40	33	30	11.5	25	1/8	5.5	M6	0.2
<a href="#">72133</a>	SFH-GV21620JJ	16	20	66	50	49.5	39	24.5	40	1/8	8	M8	0.2
<a href="#">72134</a>	SFH-GV22020JJ	20	20	76	50	49.5	45	34.5	50	1/8	8	M8	0.2
<a href="#">72135</a>	SFH-GV32525MJJ	25	25	89	60	62	52	43.5	60	1/4	11	M10	0.3
<a href="#">36929</a>	SFH-GV43232JJ	32	32	90	80	72	60	34	60	3/8	9	M10	0.3

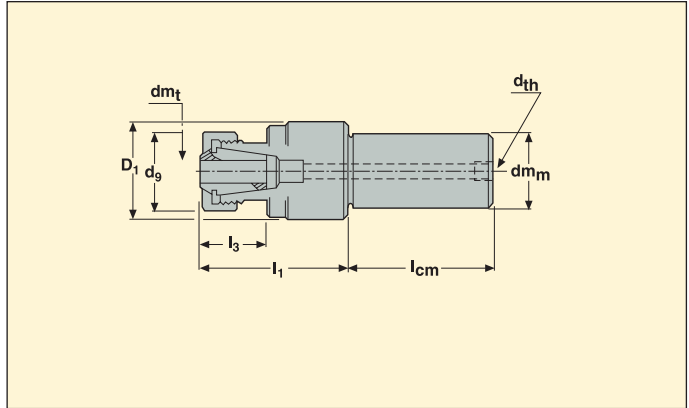
## Accessories

Part No.	Reduction ring	
	$dm_t$ (mm)	$dm_m$ (mm)
SRR-BR11016	10	16
SRR-BR21620	16	20
SRR-BR31625	16	25
SRR-BR32025	20	25
SRR-GV42532	25	32

# Floating holders

Compact GV high speed series with collet chuck

Inch shank



EDP No.	Part No.	Dimensions in inch									
		$dm_t$	$dm_m$	$l_1$	$l_{cm}$	$D_1$	$d_g$	$l_3$	$d_{th}$		
<a href="#">88961</a>	SFH-GV3BC25JJ	ER32	1.000	3.150	2.362	2.441	1.969	1.378	1/4	0.012	
<a href="#">88962</a>	SFH-GV4BC31JJ	ER40	1.250	3.701	3.150	2.835	2.480	1.535	3/8	0.012	

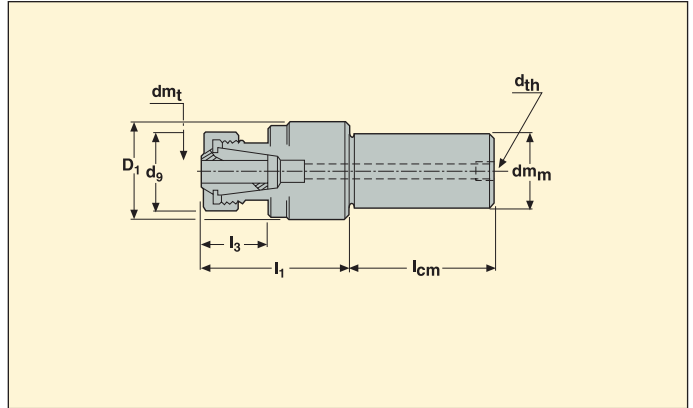
## Accessories

Part No.	Size	Collet			Spanner
		$dm_t$ (mm)	$D_1$	$l_2$	
<a href="#">5880 3210</a>	ER32	10	1.299	1.575	ER32
<a href="#">5880 3216</a>	ER32	16	1.299	1.575	ER40
<a href="#">5880 3220</a>	ER32	20	1.299	1.575	-
<a href="#">5880 4016</a>	ER40	16	1.614	1.811	-
<a href="#">5880 4020</a>	ER40	20	1.614	1.811	-
<a href="#">5880 4025</a>	ER40	25	1.614	1.811	-
<a href="#">5880 4026</a>	ER40	26	1.614	1.811	-

Collet and wrenches are not delivered with chucks.

## Compact GV high speed series with collet chuck

Metric shank



EDP No.	Part No.	Dimensions in mm								
		$dm_t$	$dm_m$	$l_1$	$l_{cm}$	$D_1$	$d_9$	$l_3$	$d_{th}$	
88946	SFH-GV3BC25MJJ	ER32	25	80	60	62	50	35	1/4	0.3
88947	SFH-GV4BC32JJ	ER40	32	94	80	72	63	39	3/8	0.3

## Accessories

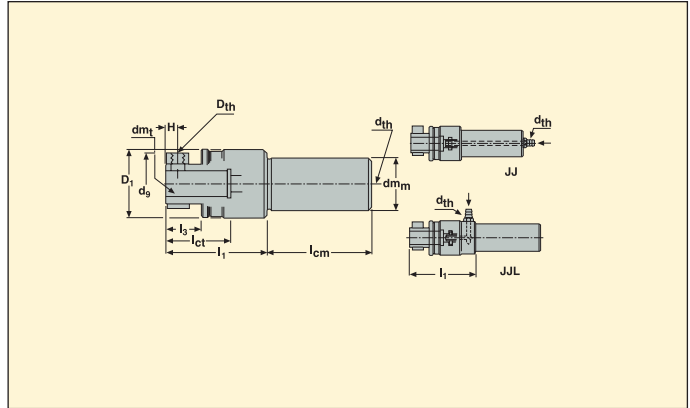
Part No.	Size	Collet			Size	Spanner
		$dm_t$ (mm)	$D_1$ (mm)	$l_2$ (mm)		
5880 3210	ER32	10	33	40	ER32	03B587532
5880 3216	ER32	16	33	40	ER40	03B587540
5880 3220	ER32	20	33	40	-	-
5880 4016	ER40	16	41	46	-	-
5880 4020	ER40	20	41	46	-	-
5880 4025	ER40	25	41	46	-	-
5880 4026	ER40	26	41	46	-	-

Collet and wrenches are not delivered with chucks.

# Floating holders

## Compact series

Inch shank



EDP No.	Part No.	dm <sub>t</sub> (mm)	Dimensions in inch												lbs
			dm <sub>m</sub>	l <sub>1</sub>	l <sub>cm</sub>	D <sub>1</sub>	d <sub>9</sub>	l <sub>3</sub>	l <sub>ct</sub>	d <sub>th</sub>	H	D <sub>th</sub>			
88963	SFH-C01019JJ	10	0.750	1.752	1.575	1.516	1.181	0.433	0.984	1/8	0.236	M6	0.039	1.27	
88964	SFH-C01019JL	10	0.750	2.441	2.362	1.516	1.181	0.433	0.984	1/8	0.236	M6	0.039	1.27	
76829	SFH-C21619CJJ	16	0.750	2.657	1.969	2.028	1.339	0.669	1.575	1/4	0.315	M6	0.059	2.14	
88965	SFH-C21619JL	16	0.750	3.425	2.362	2.028	1.339	0.669	1.575	1/4	0.315	M6	0.059	2.43	
76830	SFH-C22019CJJ	20	0.750	3.051	1.969	2.028	1.732	1.063	1.969	1/4	0.315	M8	0.059	2.14	
88966	SFH-C22019JL	20	0.750	3.819	2.756	2.028	1.732	1.063	1.969	1/4	0.315	M8	0.059	2.43	
76846	SFH-C32525JJ	25	1.000	3.543	4.331	2.343	1.969	1.220	2.362	3/8	0.433	M8	0.059	3.75	
88967	SFH-C32525JL	25	1.000	4.921	2.756	2.343	1.969	1.220	2.362	3/8	0.433	M8	0.059	4.37	

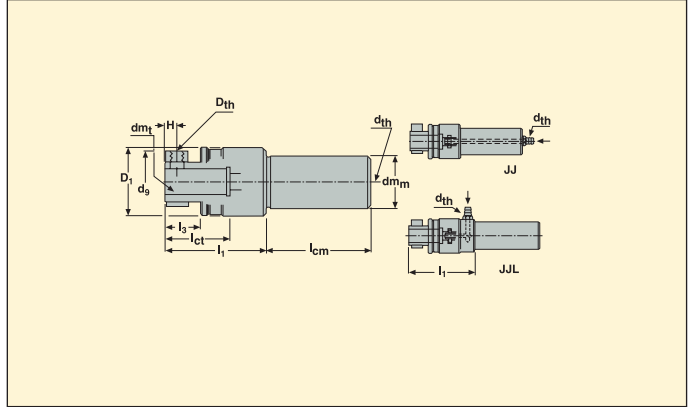
## Accessories

Part No.	Reduction ring	
	dm <sub>t</sub> (mm)	dm <sub>m</sub> (mm)
SRR-BR11016	10	16
SRR-BR21620	16	20
SRR-BR31625	16	25
SRR-BR32025	20	25

Hose adapter is not included in delivery.

## Compact series

## Metric shank



EDP No.	Part No.	Dimensions in mm												lbs
		$dm_t$	$dm_m$	$l_1$	$l_{cm}$	$D_1$	$d_9$	$l_3$	$l_{ct}$	$d_{th}$	H	$D_{th}$		
88948	SFH-C01020JJ	10	20	44.5	40	38.5	30	11	25	1/8	6	M6	1	1.30
88949	SFH-C01020JL	10	20	62	60	38.5	30	11	25	1/8	6	M6	1	1.30
72142	SFH-C21620CJJ	16	20	67.5	50	51.5	34	17	40	1/4	8	M6	1.5	2.14
88950	SFH-C21620JL	16	20	87	60	51.5	34	17	40	1/4	8	M6	1.5	2.43
72145	SFH-C22020CJJ	20	20	77.5	50	51.5	44	27	50	1/4	8	M8	1.5	2.20
88951	SFH-C22020JL	20	20	97	60	51.5	44	27	50	1/4	8	M8	1.5	2.43
72149	SFH-C32525MJL	25	25	90	110	59.5	50	31	60	3/8	11	M8	1.5	3.75
88952	SFH-C32525MJL	25	25	125	70	59.5	50	31	60	3/8	11	M8	1.5	4.37

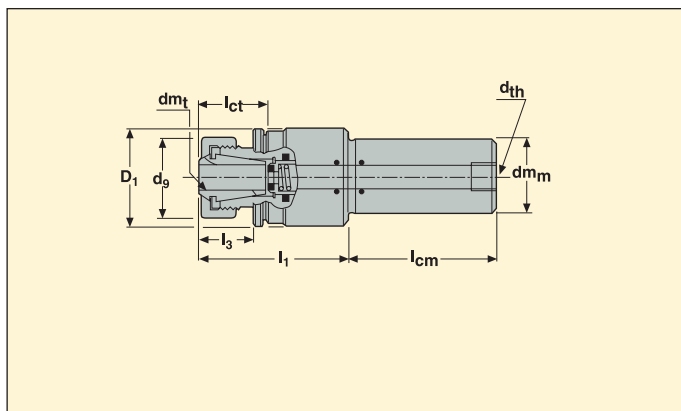
## Accessories

Part No.	Reduction ring	
	$dm_t$ (mm)	$dm_m$ (mm)
SRR-BR11016	10	16
SRR-BR21620	16	20
SRR-BR31625	16	25
SRR-BR32025	20	25

Hose adapter is not included in delivery.

## Compact series with collet chuck

Inch shank



EDP No.	Part No.	Dimensions in inch									
		CZC	$d_{m_m}$	$l_1$	$l_{cm}$	$D_1$	$d_o$	$l_3$	$l_{ct}$	$d_{th}$	
88968	SFH-C65BC25CJJ	ER32	1.000	3.701	1.969	2.539	1.969	1.299	1.654	3/8	0.059

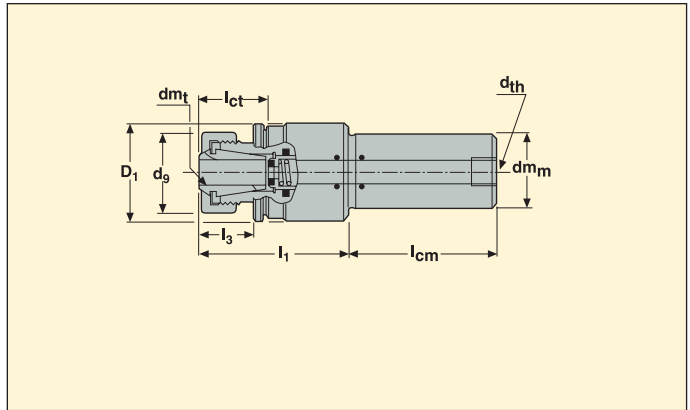
## Accessories

Part No.	Size	Collet			Size	Spanner
		$d_{m_t}$ (mm)	$D_1$	$l_2$		
5880 3210	ER32	10	1.299	1.575	ER32	03B587532
5880 3216	ER32	16	1.299	1.575	ER40	03B587540
5880 3220	ER32	20	1.299	1.575	-	-
5880 4016	ER40	16	1.614	1.811	-	-
5880 4020	ER40	20	1.614	1.811	-	-
5880 4025	ER40	25	1.614	1.811	-	-
5880 4026	ER40	26	1.614	1.811	-	-

Collets and wrenches are not delivered with chucks.

## Compact series with collet chuck

Metric shank



EDP No.	Part No.	Dimensions in mm									
		CZC	dm <sub>m</sub>	l <sub>1</sub>	l <sub>cm</sub>	D <sub>1</sub>	d <sub>g</sub>	l <sub>3</sub>	l <sub>ct</sub>	d <sub>th</sub>	
88953	SFH-C65BC25MCJJ	ER32	25	94	50	64.5	50	33	42	3/8	1.5

## Accessories

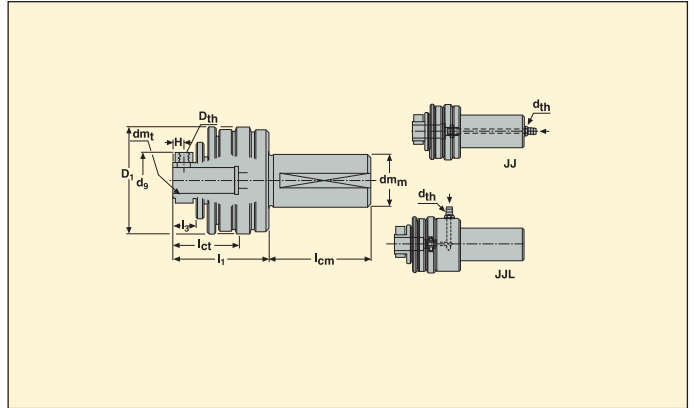
Part No.	Size	Collet			Size	Spanner
		dm <sub>t</sub> (mm)	D <sub>1</sub> (mm)	l <sub>2</sub> (mm)		
5880 3210	ER32	10	33	40	ER32	03B587532
5880 3216	ER32	16	33	40	ER40	03B587540
5880 3220	ER32	20	33	40	-	-
5880 4016	ER40	16	41	46	-	-
5880 4020	ER40	20	41	46	-	-
5880 4025	ER40	25	41	46	-	-
5880 4026	ER40	26	41	46	-	-

Collets and wrenches are not delivered with chucks.



## Normal series

Inch shank



EDP No.	Part No.	dm <sub>t</sub> (mm)	Dimensions in inch												S	P	lbs
			dm <sub>m</sub>	l <sub>1</sub>	l <sub>cm</sub>	D <sub>1</sub>	d <sub>9</sub>	l <sub>3</sub>	l <sub>ct</sub>	d <sub>th</sub>	H	D <sub>th</sub>					
<a href="#">88969</a>	SFH-11619JJ	16	0.750	2.520	1.969	2.441	1.339	0.630	1.575	1/4	0.315	M6	1 °	0.059	1.98		
<a href="#">88970</a>	SFH-11619JL	16	0.750	3.189	1.575	2.441	1.339	0.630	1.575	1/4	0.315	M6	1 °	0.059	2.91		
<a href="#">88971</a>	SFH-22025JJ	20	1.000	2.913	2.559	3.228	1.732	0.630	1.969	3/8	0.315	M8	1 °	0.059	4.19		
<a href="#">88972</a>	SFH-22025JL	20	1.000	3.858	2.756	3.228	1.732	0.630	1.969	1/4	0.315	M8	1 °	0.059	4.85		
<a href="#">88973</a>	SFH-32525JJ	25	1.000	3.248	4.331	3.583	2.047	0.866	2.362	3/8	0.433	M8	1 °	0.079	5.51		

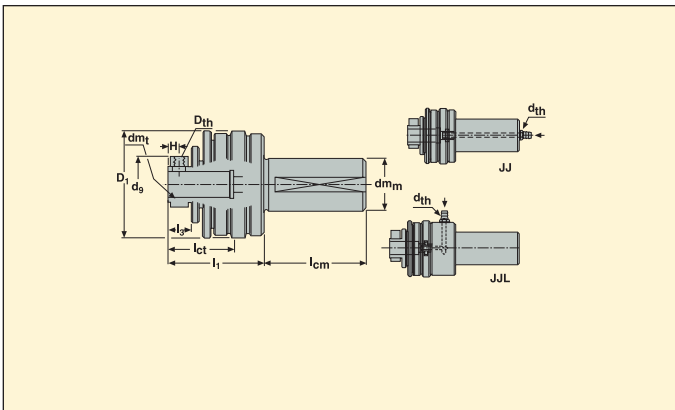
## Accessories

Part No.	Reduction ring	
	dm <sub>t</sub> (mm)	dm <sub>m</sub> (mm)
SRR-BR11016	10	16
SRR-BR21620	16	20
SRR-BR31625	16	25
SRR-BR32025	20	25

Hose adapter is not included in delivery.

## Normal series

## Metric shank



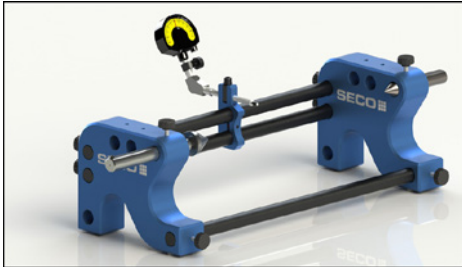
EDP No.	Part No.	Dimensions in mm													
		dm <sub>t</sub>	dm <sub>m</sub>	l <sub>1</sub>	l <sub>cm</sub>	D <sub>1</sub>	d <sub>g</sub>	l <sub>3</sub>	l <sub>ct</sub>	d <sub>th</sub>	H	D <sub>th</sub>			
88954	SFH-11620JJ	16	20	64	50	62	34	16	40	1/4	8	M6	1°	1.5	2.09
88955	SFH-11620JL	16	20	81	40	62	34	16	40	1/4	8	M6	1°	1.5	2.95
88956	SFH-22025MJJ	20	25	74	65	82	44	16	50	3/8	8	M8	1°	1.5	4.19
88957	SFH-22025MJL	20	25	98	70	82	44	16	50	1/4	8	M8	1°	1.5	4.85
88958	SFH-32525MJJ	25	25	82,5	110	91	52	22	60	3/8	11	M8	1°	2	5.51

## Accessories

Part No.	Reduction ring	
	dm <sub>t</sub> (mm)	dm <sub>m</sub> (mm)
SRR-BR11016	10	16
SRR-BR21620	16	20
SRR-BR31625	16	25
SRR-BR32025	20	25

Hose adapter is not included in delivery.

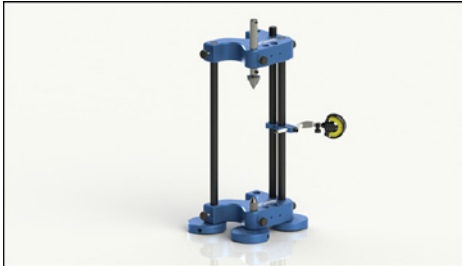
## Setting fixture – Single indicator fixtures



### SF-210340-C160

- Horizontal stand
- First choice for Xfix reamers
- 1 Dial indicator
- Maximum tool Ø: 8.268" (210 mm)
- Maximum tool length: 13.386" (340 mm)
- Additional Ø 2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery

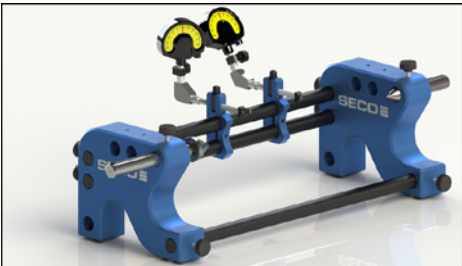


### SF-210290V-C160

- Vertical stand
- First choice for Xfix reamers
- Maximum tool Ø: 8.268" (210 mm)
- Maximum tool length: 11.417" (290 mm)
- Additional Ø 2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery

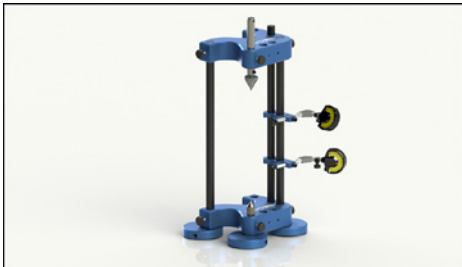
## Dual indicator fixtures



### SF-210340-C160C190

- Horizontal stand
- First choice for Bifix reamers
- 2 Dial indicators
- Maximum tool Ø: 8.268" (210 mm)
- Maximum tool length: 13.386" (340 mm)
- Additional Ø 2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery



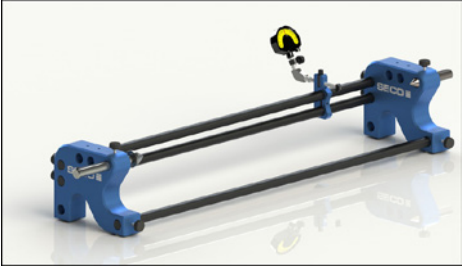
### SF-210290V-C160C190

- Vertical stand
- First choice for Bifix reamers
- 2 Dial indicators
- Maximum tool Ø: 8.268" (210 mm)
- Maximum tool length: 11.417" (290 mm)
- Additional Ø 2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery

For ordering information contact your local Seco representative.

## Single indicator fixtures large capacity



### SF-210740-C160

- Horizontal stand
- First choice for long Xfix reamers
- 1 Dial indicator
- Maximum tool  $\varnothing$ : 8.268" (210 mm)
- Maximum tool length: 29.134" (740 mm)
- Additional  $\varnothing$  2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery

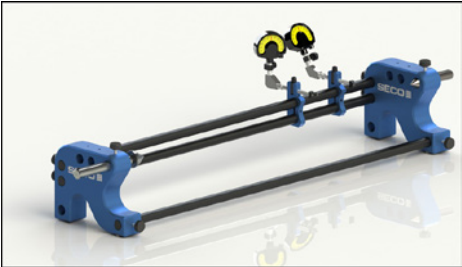


### SF-210690V-C160

- Vertical stand
- First choice for long Xfix reamers
- 1 Dial indicator
- Maximum tool  $\varnothing$ : 8.268" (210 mm)
- Maximum tool length: 27.165" (690 mm)
- Additional  $\varnothing$  2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery

## Dual indicator fixtures large capacity



### SF-210740-C160C190

- Horizontal stand
- First choice for long Bifix reamers
- 2 Dial indicators
- Maximum tool  $\varnothing$ : 8.268" (210 mm)
- Maximum tool length: 29.134" (740 mm)
- Additional  $\varnothing$  2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery



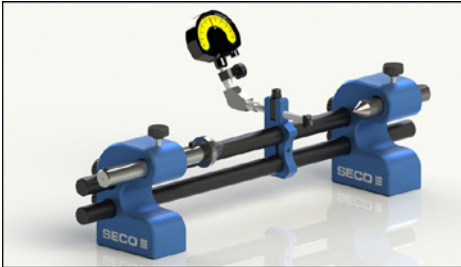
### SF-210690V-C160C190

- Vertical stand
- First choice for long Bifix reamers
- 2 Dial indicators
- Maximum tool  $\varnothing$ : 8.268" (210 mm)
- Maximum tool length: 27.165" (690 mm)
- Additional  $\varnothing$  2.244" (57 mm) spring center for HSK 63/80/100 and Capto C8

Center point SSC5700 included in delivery

For ordering information contact your local Seco representative.

## Compact setting fixtures



### SF-60200-C160

- Horizontal stand
- First choice for  $\varnothing$  smaller than 2.362" (60 mm)
- 1 Dial indicator
- Maximum tool  $\varnothing$ : 2.382" (60.5 mm)
- Maximum tool length: 7.874" (200 mm)



### SF-60200-C160C190

- Horizontal stand
- First choice for  $\varnothing$  smaller than 2.362" (60 mm)
- 2 Dial indicators
- Maximum tool  $\varnothing$ : 2.382" (60.5 mm)
- Maximum tool length: 7.874" (200 mm)

For ordering information contact your local Seco representative.

## Additional measuring arms



### SFB-60

- Measuring arm 60°
- Dial gauge included in delivery
- Measuring point not included, see page 461



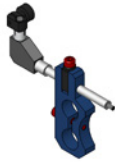
### SFB-60 WC

- Measuring arm 60°
- Dial gauge not included in delivery
- Measuring point not included, see page 461



### SFB-90

- Measuring arm 90°
- Dial gauge included in delivery
- Measuring point not included, see page 461



### SFB-90 WC

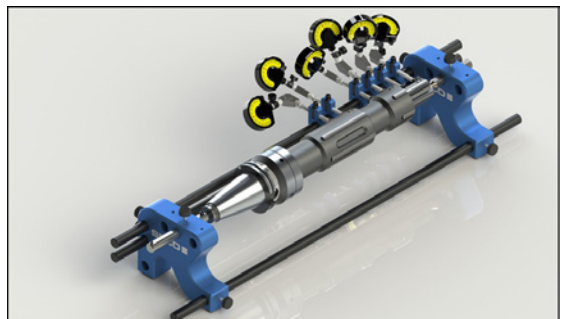
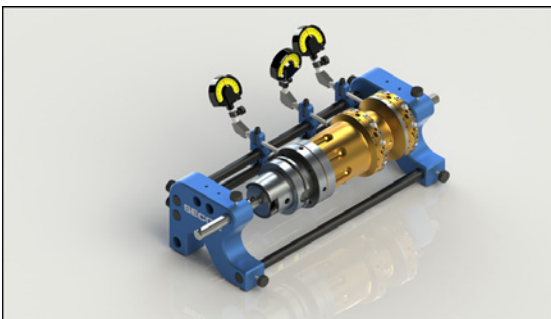
- Measuring arm 90°
- Dial gauge not included in delivery
- Measuring point not included, see page 461



### DG-1

- Dial gauge, 0.00004" (1 μm)

## Examples of multi indicator setting fixture assembly

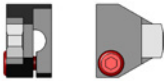


## Accessories



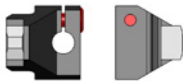
### SMES-406

- Measuring point for Xfix reamers
- Ø 0.157" (4 mm)
- Carbide tipped



### SMES-900

- Measuring point for Bifix & Precifix reamers
- Carbide tipped



### SMES-909

- Measuring point for Bifix & Precifix reamers
- Carbide tipped
- 0.354" (9 mm) offset



### SMES-915

- Measuring point for Bifix & Precifix reamers
- Carbide tipped
- 0.591" (15 mm) offset



### SFHS-20

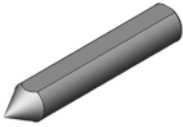
- Hand-screw
- Suitable for the entire setting fixture range



### SFVST- 100

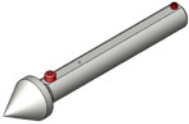
- Steel stand (set of 3)
- Ø 3.937" (100 mm)
- Suitable to convert horizontal setting fixture to vertical position

## Center points



### SFC-2000HM

- Solid carbide fixed center point
- $\varnothing 0.787"$  (20 mm)
- Suitable for Xfix, Precifix and Bifix range standard and special
- To be used at front end of the tool



### SSC-3400

- Spring center point
- $\varnothing 1.339"$  (34 mm)
- Suitable for Xfix, Precifix and Bifix range standard and special
- To be used at back end of the tool
- Not suitable for HSK63/80/100 and Capto C8





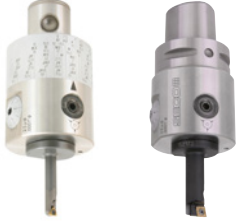

### SSC5700

- Spring center point
- Truncated  $\varnothing 2.244"$  (57 mm)
- Suitable for Xfix, Precifix and Bifix range standard and special
- To be used at back end of the tool
- Suitable for HSK63/80/100 and Capto C8









## Overview

<p><b>EPB 750 boring heads, rough boring</b> Twin cutting heads, with insert holders coupling mechanism</p>  <p>Page(s) 470-479</p>	<ul style="list-style-type: none"> <li>• High metal removal, precise hole geometry and hole position</li> <li>• Both symmetrical and staggered settings</li> <li>• Simultaneous adjustment by an insert holders coupling mechanism</li> <li>• With Graflex® or Seco-Capto™ connections</li> </ul>	<p>∅ range 0.709-8.071" (18-205 mm) IT 9/10</p>
<p><b>EPB 610 boring heads, rough boring</b> Twin cutting heads</p>  <p>Page(s) 480-485</p>	<ul style="list-style-type: none"> <li>• High metal removal, precise hole geometry and hole position</li> <li>• Both symmetrical and staggered settings</li> <li>• With Graflex® connection for Graflex® modular system</li> <li>• With GL connection for Steadyline® vibration damping bars</li> </ul>	<p>∅ range 1.535-4.528" (39-115 mm) IT 9/10</p>
<p><b>EPB 760 boring heads, Axiabore™ type</b> <b>EPB 780 00B kit, axial type</b> Fine boring heads, with axial tools</p>  <p>Page(s) 488-523</p>	<ul style="list-style-type: none"> <li>• Micrometer adjustment for hole precision up to IT5</li> <li>• High tool rigidity for precise hole geometry and position</li> <li>• Nanobore™ head for smaller diameters</li> <li>• Axialibrabore™ and - Axialibrabore™ Plus - are fine balanceable, HSM suitable</li> <li>• Multi-purpose adapter (MPA) for larger boring diameters, OD-overturning and grooving</li> <li>• A780 00B axial fine boring kit, economical solution</li> <li>• With Graflex® or Seco-Capto™ connections</li> </ul>	<p>∅ range 0.012-4.252" (0.3-108 mm) + OD-overturning and face grooving IT 5/6</p>
<p><b>EPB 620, EPB 780 &amp; EPB 790 boring heads, radial type</b> Fine boring heads, with radial insert holder</p>  <p>Page(s) 524-539</p>	<ul style="list-style-type: none"> <li>• Micrometer adjustment for hole precision up to IT5</li> <li>• Precise hole geometry and position</li> <li>• A790 Libraflex® heads are fine balanceable, HSM suitable Insert holder clamping for highest reliability</li> <li>• Long bores achievable, using carbide extensions (up to 7xD) or Steadyline bars (up to 10xD)</li> <li>• Also for chamfering and back-boring</li> <li>• With Graflex® or Seco-Capto™ connections for modular systems</li> <li>• With GL connection for Steadyline® vibration damping bars</li> </ul>	<p>∅ range 0.591-8.071" (15-205 mm) IT 5/6</p>

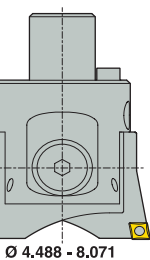
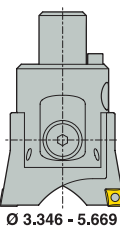
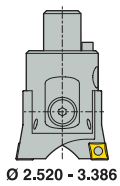
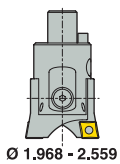
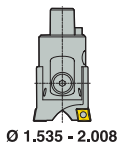
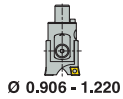
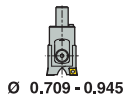
## Overview

<p><b>Bridge bars &amp; Jumbo boring heads</b> For rough and fine boring large diameters</p>  <p>Page(s) 540-563</p>	<ul style="list-style-type: none"> <li>• Boring blocks available for rough and fine boring, OD-overturning and back-boring</li> <li>• Strong design for high metal removal in rough boring</li> <li>• Micrometer adjustment for fine boring</li> <li>• Optimized boring block design and Jumbo Bridge bars made from high tensile aluminum for high speeds</li> <li>• To be fitted onto milling cutter holders, flange mounting type</li> </ul>	<p>Ø range 8.031-126.181” (204-3205 mm) IT 5/6 (fine boring) or 9/10 (rough boring) + OD-overturning IT6</p>
<p><b>Liteline™</b> Low weight fine boring heads and modular holders</p>  <p>Page(s) 564-578</p>	<ul style="list-style-type: none"> <li>• Made from high tensile aluminum, for over 60% weight reduction</li> <li>• Reduced spindle stress due to lower weight allows higher productivity and precision</li> <li>• Suitable for automatic tool changers with limited weight capabilities</li> <li>• With Graflex® connection</li> </ul>	<p>Ø range 2.520-8.071” (64-205 mm) IT 5/6</p>
<p><b>Inserts for boring</b></p>  <p>Page(s) 580-589</p>	<ul style="list-style-type: none"> <li>• For boring applications in all materials</li> <li>• High toughness for rough boring</li> <li>• Positive geometries for fine boring</li> <li>• Grades selected for long life</li> </ul>	
<p><b>Graflex® or Seco-Capto™ modular holding system</b></p>  <p>Page(s) 591-596</p>	<ul style="list-style-type: none"> <li>• The boring heads have a Graflex® or a Seco-Capto™ connection shanks enabling a full range of boring depths and diameters</li> <li>• Select the required Graflex® or Seco-Capto™ arbors and extensions from the SECO-EPB TOOLING SYSTEMS catalog (HSK, DIN, BT, ANSI-CAT, Seco-Capto™) or upper Liteline™ range</li> <li>• Graflex® connections spare parts for boring heads are shown in that chapter</li> </ul>	

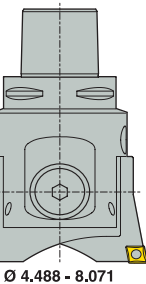
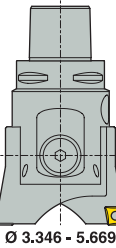
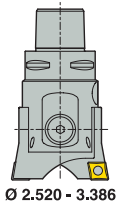
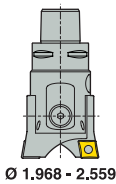
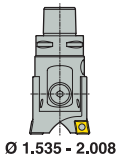


## Rough boring heads EPB 750 - Overview

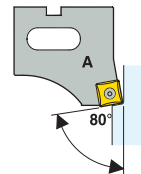
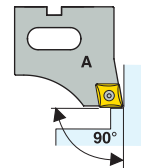
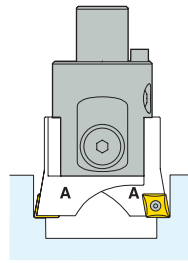
Graflex®



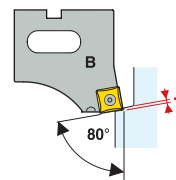
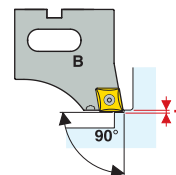
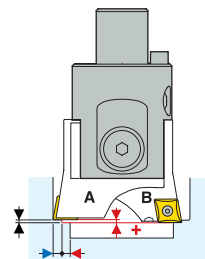
Seco-Capto™



Symmetrical boring:  
2 standard type A insert holders



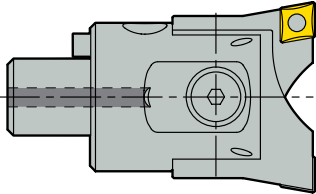
Staggered boring:  
1 extended type B and 1 standard type A insert holders



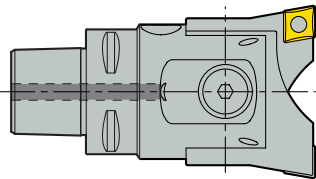
## Features

Rough boring heads for bores  $\varnothing$  0.709-8.071" (18-205 mm)

8 rough boring heads EPB 750 with Graflex® connection for bores  $\varnothing$  0.709-8.071" (18-205 mm)



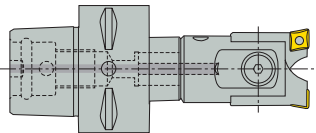
5 rough boring heads EPB 750 with Seco-Capto™ connection for bores  $\varnothing$  1.535-8.071" (39-205 mm)



**Note:** The minimum bore size of the smallest Seco-Capto™ rough boring head is  $\varnothing$  1.535" (39 mm) with the smallest available Seco-Capto™ C3 connection.

For  $\varnothing$  0.709-1.575" (18-40 mm) use Graflex® boring heads with connection sizes G0 to G2 in conjunction with the appropriate Seco-Capto™/Graflex® adaptor.

This offers also boring length modularity when using additional Graflex® extensions.



Seco-Capto™ adapter and Graflex® head:  $\varnothing$  0.709-1.575" (18-40 mm)

**Note: Features, Instructions** (insert holder fitting, diameter setting, back boring instructions, troubleshooting, recommended machining conditions, maximum speeds), **suitable insert holders and suitable inserts** are similar for both types of EPB 750 rough boring heads of similar boring capacity size, regardless of connection type.

## Features

A rough boring head assembly is a combination of 1 body (head) and 2 insert holders.

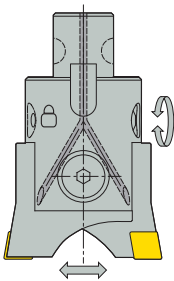
### Simultaneous or independent adjustments of the insert holders are possible:

Simultaneous adjustment by the insert holders coupling mechanism (no coupling mechanism in the smallest head  $\varnothing 0.709-0.945"$  (18-24 mm)).

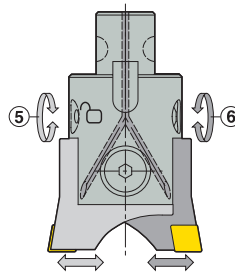
Each adjusting screw moves both insert holders simultaneously (they are gear coupled).

Diameter adjustment is possible without a presetter (1 increment = 0.004" (0.1 mm) on the diameter).

Independent adjustment is also possible: disengage the coupling mechanism so that each adjusting screw acts only on its insert holder.



Simultaneous adjustment



Independent adjustment

### Symmetrical boring:

Symmetrical boring means both cutting edges are set on the same diameter: It requires two identical type A standard insert holders (with identical lead angle).

### Staggered boring:

Staggered boring means one cutting edge is offset as a leading cutting edge operating on a smaller diameter than the second edge set to the finished diameter: It requires one type A standard insert holder and one type B extended insert holder, achieving the required (+) axial offset.

### 90° or 80° lead angle insert holders

A75...CC... and A75...CP... insert holders have a 90° lead angle for rhombic inserts: mostly suitable for blind holes and requiring less spindle torque.

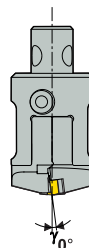
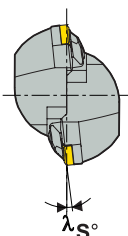
A75...SC... insert holders have an 80° lead angle for square inserts: mostly suitable for through holes and heavy duty.

Angular orientation of the cutting edges according to ISO.

### CC, CP, SC or CN type insert holders

A750...CC..., A750...CP... and A750...SC... insert holders are with 0° rake angle ( $\gamma_0^\circ$ ) and 0° inclination angle ( $\lambda_{S^\circ}$ ).

A750...CN... insert holders are with -6° rake angle ( $\gamma_0^\circ$ ) and -6° inclination angle ( $\lambda_{S^\circ}$ ), allowing use of 'negative' CNMG inserts and particularly multi-edges CNMG inserts with 4 cutting edges. In this case, it is particularly important to select the recommended CN inserts and to respect the recommended cutting data (see page(s) 586). Using other inserts, e.g. with smaller effective cutting angle, and/or incorrect cutting data, could result in high cutting stresses and machine / workpiece damage.

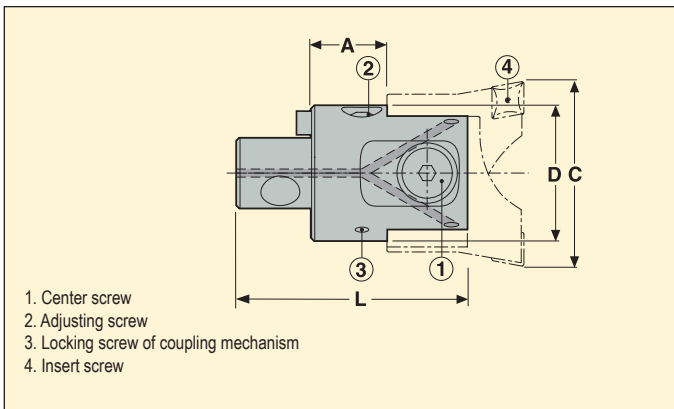


## EPB 750 – Rough boring heads

Graflex®



- Symmetrical and staggered boring is possible
- Simultaneous adjustment by insert holders coupling mechanism



Graflex size	Capacity C Ø inch	EDP No.	Part No.	Simultaneous adjustment mode		Independent adjustment mode		Dimensions in inch			Max. RPM	*
				Yes	No	Yes	No	A	D	L		
G0	0.709-0.945	<a href="#">26687</a>	A75000		■	■		0.492	0.650	1.496	15000	0.07
G1	0.906-1.220	<a href="#">26688</a>	A75010	■		■		0.531	0.846	1.673	12000	0.11
G2	1.181-1.575	<a href="#">26689</a>	A75020	■		■		0.630	1.063	2.008	9500	0.24
G3	1.535-2.008	<a href="#">26690</a>	A75030	■		■		0.945	1.378	2.717	7500	0.60
G4	1.969-2.559	<a href="#">26691</a>	A75040	■		■		1.063	1.693	3.071	5700	1.01
G5	2.520-3.386	<a href="#">26692</a>	A75050	■		■		1.181	2.126	3.622	4500	1.76
G6	3.346-5.669	<a href="#">26693</a>	A75060	■		■		1.457	2.756	4.685	3500	3.73
G7	4.488-8.071	<a href="#">26694</a>	A75070	■		■		1.535	3.740	5.630	2500	7.94

Insert holders have to be ordered separately, see page(s) 472-474.

\*Without insert holder

### Spare parts\*\*

For head	Center screw	Clamp key	Setting key	Driving key	Insert key
A75000	90A75000	03HL03	H1.5-2D	–	T07P-3
A75010	90A75010	03HL03	H1.5-2D	T06P-3	T07P-3
A75020	90A75020	03HL04	H2.0-2D	T07P-3	T07P-3
A75030	90A75030	03HL05	H2.0-2D	T08P-3	T15P-3
A75040	90A75040	03HL05	H2.5-2D	T09P-3	T15P-3
A75050	90A75050	03HL06	03M03C	T15P-3	T15P-3
A75060	90A75060	03HL08	H04-4	T15P-3	T15P-3
A75070	90A75070	03HL10	H04-4	T15P-3	T15P-3

### Accessories\*

Setting gauge
–
CAA75010
CAA75020
CAA75030
CAA75040
CAA75050
CAA75060
CAA75070

Please check availability in current price and stock-list.

\* Accessories not included in delivery.

\*\* Center screw tightening torques, see instructions page(s) 475. Coupling mechanism locking screw tightening torques, see instructions page(s) 477.

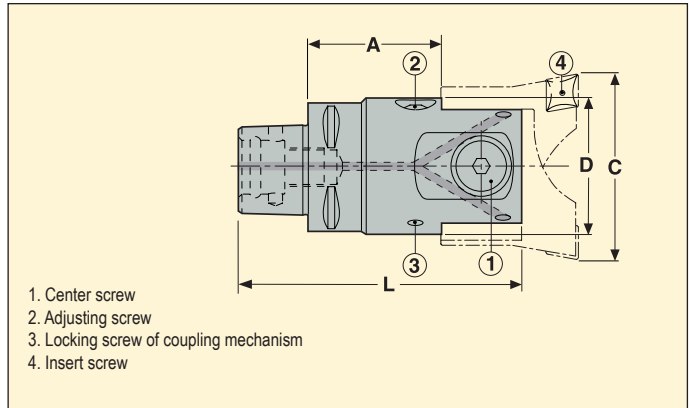


## EPB 750 – Rough boring heads

Seco-Capto™



- Symmetrical and staggered boring is possible
- Simultaneous adjustment by insert holders coupling mechanism



Capto size	Capacity C Ø inch	EDP No.	Part No.	Simultaneous adjustment mode		Independent adjustment mode		Dimensions in inch			* lbs
				Yes	No	Yes	No	A	D	L	
C3	1.535-2.008	<a href="#">75650</a>	<b>C3-391.0750-30</b>	■		■		1.142	1.378	2.878	0.62
C4	1.969-2.559	<a href="#">75657</a>	<b>C4-391.0750-40</b>	■		■		1.457	1.693	3.465	1.15
C5	2.520-3.386	<a href="#">75660</a>	<b>C5-391.0750-50</b>	■		■		1.575	2.126	4.016	2.07
C6	3.346-5.669	<a href="#">75663</a>	<b>C6-391.0750-60</b>	■		■		1.929	2.756	5.079	4.14
C8	4.488-8.071	<a href="#">75666</a>	<b>C8-391.0750-70</b>	■		■		2.244	3.740	6.260	9.13

Insert holders have to be ordered separately, see page(s) 472-474.

\*Without insert holder

### Spare parts\*\*

### Accessories\*

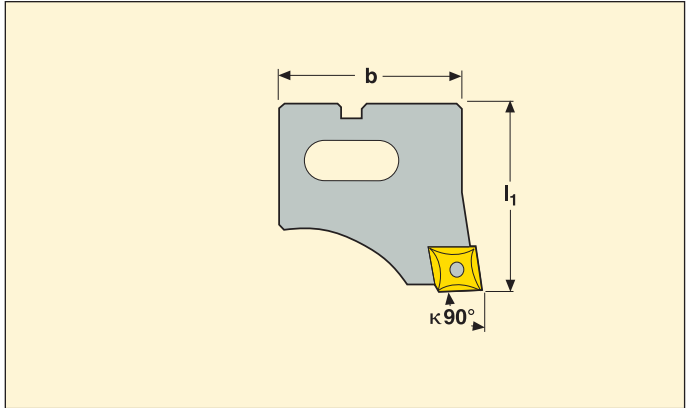
For head	Center screw	Clamp key	Setting key	Driving key	Insert key	Setting gauge
<b>C3-391.0750-30</b>	90A75030	03HL05	H2.0-2D	T08P-3	T15P-3	CAA75030
<b>C4-391.0750-40</b>	90A75040	03HL05	H2.5-2D	T09P-3	T15P-3	CAA75040
<b>C5-391.0750-50</b>	90A75050	03HL06	03M03C	T15P-3	T15P-3	CAA75050
<b>C6-391.0750-60</b>	90A75060	03HL08	H04-4	T15P-3	T15P-3	CAA75060
<b>C8-391.0750-70</b>	90A75070	03HL10	H04-4	T15P-3	T15P-3	CAA75070

Please check availability in current price and stock-list.

\* Accessories not included in delivery.

\*\* Center screw tightening torques, see instructions page(s) 475. Coupling mechanism locking screw tightening torques, see instructions page(s) 477.

## Rough boring insert holders 90°, for CC.. and CP.. inserts, for EPB 750 heads

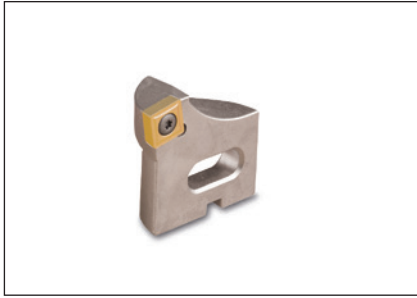


- For fitting onto heads EPB 750
- Symmetrical boring requires two standard type A insert holders
- Staggered boring requires one standard type A and one extended type B insert holders

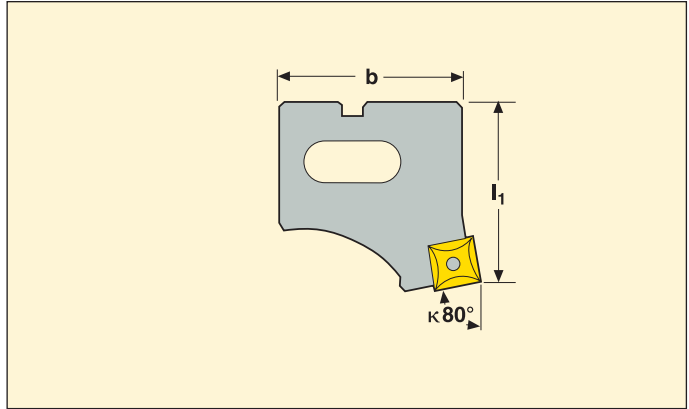
Insert holders type	For head	Capacity C Ø inch	EDP No.	Part No.	κ°	Dimensions in inch		Suitable insert size	lbs
						l <sub>1</sub>	b		
Standard type A	A75000	0.709-0.945	<a href="#">26695</a>	A75000CP0590	90	0.886	0.650	CP..0502..	0.02
	A75010	0.906-1.220	<a href="#">26696</a>	A75010CC0690	90	1.043	0.846	CC..21.5..	0.04
	A75020	1.181-1.575	<a href="#">26697</a>	A75020CC0690	90	1.181	1.063	CC..21.5..	0.09
	A75030	1.535-2.008	<a href="#">26698</a>	A75030CC0990	90	1.614	1.378	CC..32.5..	0.18
	A75040	1.969-2.559	<a href="#">26699</a>	A75040CC1290	90	1.772	1.693	CC..43..	0.31
	A75050	2.520-3.386	<a href="#">26700</a>	A75050CC1290	90	2.047	2.126	CC..43..	0.55
	A75060	3.346-4.528	<a href="#">26701</a>	A75060CC1290	90	2.677	2.756	CC..43..	1.21
	A75060	3.346-4.528	<a href="#">30763</a>	A75060CC1690	90	2.677	2.756	CC..53.5	1.21
	A75060	4.488-5.669	<a href="#">26702</a>	A75065CC1290	90	2.677	3.937	CC..43..	1.96
	A75060	4.488-5.669	<a href="#">30765</a>	A75065CC1690	90	2.677	3.937	CC..53.5	1.98
	A75070	4.488-6.299	<a href="#">26703</a>	A75070CC1290	90	3.189	3.740	CC..43..	2.60
	A75070	4.488-6.299	<a href="#">30766</a>	A75070CC1690	90	3.189	3.740	CC..53.5	2.60
	A75070	6.260-8.071	<a href="#">26704</a>	A75075CC1290	90	3.189	5.551	CC..43..	4.41
A75070	6.260-8.071	<a href="#">30771</a>	A75075CC1690	90	3.189	5.551	CC..53.5	4.41	
Extended type B	A75000	0.709-0.945	<a href="#">26705</a>	A75001CP0590	90	0.898	0.650	CP..0502..	0.02
	A75010	0.906-1.220	<a href="#">26706</a>	A75011CC0690	90	1.057	0.846	CC..21.5..	0.04
	A75020	1.181-1.575	<a href="#">26707</a>	A75021CC0690	90	1.195	1.063	CC..21.5..	0.09
	A75030	1.535-2.008	<a href="#">26708</a>	A75031CC0990	90	1.630	1.378	CC..32.5..	0.18
	A75040	1.969-2.559	<a href="#">26709</a>	A75041CC1290	90	1.791	1.693	CC..43..	0.29
	A75050	2.520-3.386	<a href="#">26710</a>	A75051CC1290	90	2.071	2.126	CC..43..	0.55
	A75060	3.346-4.528	<a href="#">26711</a>	A75061CC1290	90	2.701	2.756	CC..43..	1.21
	A75060	3.346-4.528	<a href="#">30774</a>	A75061CC1690	90	2.701	2.756	CC..53.5	1.21
	A75060	4.488-5.669	<a href="#">26712</a>	A75066CC1290	90	2.701	3.937	CC..43..	2.01
	A75060	4.488-5.669	<a href="#">30775</a>	A75066CC1690	90	2.701	3.937	CC..53.5	2.01
	A75070	4.488-6.299	<a href="#">26713</a>	A75071CC1290	90	3.213	3.740	CC..43..	2.56
	A75070	4.488-6.299	<a href="#">30776</a>	A75071CC1690	90	3.213	3.740	CC..53.5	2.56
	A75070	6.260-8.071	<a href="#">26714</a>	A75076CC1290	90	3.213	5.551	CC..43..	4.41
A75070	6.260-8.071	<a href="#">30778</a>	A75076CC1690	90	3.213	5.551	CC..53.5	4.43	

Please check availability in current price and stock-list.  
 For insert fixing spare screws and torx keys, see page(s) 589.  
 For rough boring recommended inserts, see page(s) 584-586

## Rough boring insert holders 80°, for SC.. inserts, for EPB 750 heads



- For fitting onto heads EPB 750
- Symmetrical boring requires two standard type A insert holders
- Staggered boring requires one standard type A and one extended type B insert holders



Insert holders type	For head	Capacity C Ø inch	EDP No.	Part No.	κ°	Dimensions in inch		Suitable insert size	lbs
						l <sub>1</sub>	b		
Standard type A	A75000	0.709-0.945	<a href="#">26715</a>	A75000SC0580	80	0.886	0.650	SC..0502..	0.02
	A75010	0.906-1.220	<a href="#">26716</a>	A75010SC0680	80	1.043	0.846	SC..21.5..	0.04
	A75020	1.181-1.575	<a href="#">26717</a>	A75020SC0680	80	1.181	1.063	SC..21.5..	0.09
	A75030	1.535-2.008	<a href="#">26718</a>	A75030SC0980	80	1.614	1.378	SC..32.5..	0.18
	A75040	1.969-2.559	<a href="#">26719</a>	A75040SC1280	80	1.772	1.693	SC..43..	0.07
	A75050	2.520-3.386	<a href="#">51986</a>	A75050SC1280	80	2.047	2.126	SC..43..	0.55
	A75060	3.346-4.528	<a href="#">52207</a>	A75060SC1280	80	2.677	2.756	SC..43..	1.23
	A75060	3.346-4.528	<a href="#">39863</a>	A75060SC1580	80	2.677	2.756	SC..53.5	1.23
	A75060	4.488-5.669	<a href="#">51989</a>	A75065SC1280	80	2.677	3.937	SC..43..	2.07
	A75060	4.488-5.669	<a href="#">39865</a>	A75065SC1580	80	2.677	3.937	SC..53.5	2.20
	A75070	4.488-6.299	<a href="#">26723</a>	A75070SC1280	80	3.189	3.740	SC..43..	2.65
	A75070	4.488-6.299	<a href="#">39867</a>	A75070SC1580	80	3.189	3.740	SC..53.5	2.60
	A75070	6.260-8.071	<a href="#">26724</a>	A75075SC1280	80	3.189	5.551	SC..43..	4.61
A75070	6.260-8.071	<a href="#">39869</a>	A75075SC1580	80	3.189	5.551	SC..53.5	4.63	
Extended type B	A75000	0.709-0.945	<a href="#">92946</a>	A75001SC0580	80	0.913	0.650	SC..0502..	0.02
	A75010	0.906-1.220	<a href="#">92947</a>	A75011SC0680	80	1.075	0.846	SC..21.5..	0.04
	A75020	1.181-1.575	<a href="#">92948</a>	A75021SC0680	80	1.217	1.063	SC..21.5..	0.09
	A75030	1.535-2.008	<a href="#">92949</a>	A75031SC0980	80	1.661	1.378	SC..32.5..	0.18
	A75040	1.969-2.559	<a href="#">92961</a>	A75041SC1280	80	1.827	1.693	SC..43..	0.31
	A75050	2.520-3.386	<a href="#">92962</a>	A75051SC1280	80	2.114	2.126	SC..43..	0.57
	A75060	3.346-4.528	<a href="#">92963</a>	A75061SC1280	80	2.748	2.756	SC..43..	1.26
	A75060	3.346-4.528	<a href="#">39864</a>	A75061SC1580	80	2.768	2.756	SC..53.5	1.26
	A75060	4.488-5.669	<a href="#">92964</a>	A75066SC1280	80	2.748	3.937	SC..43..	2.12
	A75060	4.488-5.669	<a href="#">39866</a>	A75066SC1580	80	2.768	3.937	SC..53.5	2.12
	A75070	4.488-6.299	<a href="#">92965</a>	A75071SC1280	80	3.260	3.740	SC..43..	2.67
	A75070	4.488-6.299	<a href="#">39868</a>	A75071SC1580	80	3.280	3.740	SC..53.5	2.67
	A75070	6.260-8.071	<a href="#">92968</a>	A75076SC1280	80	3.260	5.551	SC..43..	4.76
A75070	6.260-8.071	<a href="#">39870</a>	A75076SC1580	80	3.280	5.551	SC..53.5..	4.72	

Please check availability in current price and stock-list.

For insert fixing spare screws and torx keys, see page(s) 589.

For rough boring recommended inserts, see page(s) 585-586.



## Instructions

### Insert holders fitting procedure

Remove central screw (3) and nut (4) (Fig. 1).

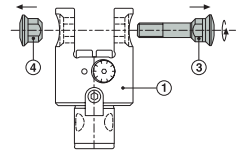


Fig. 1

Simultaneously introduce both insert holders (2) and (2') into the head by locating the grooves onto the adjusting tenons (Fig. 2).

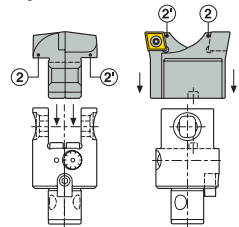


Fig. 2

Insert central screw (3) and nut (4), ensuring that their clamping flats match the head flats (Fig. 3 and Fig. 4). Lightly tighten screw (3): the insert holders are axially and radially in contact with the head, ready to be adjusted in diameter: see diameter setting instruction on page(s) 476

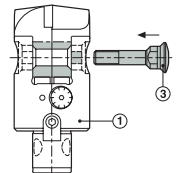


Fig. 3

**Remark:** always make sure the central screw (3) is unlocked before insert holders diameter adjustment. Adjust the insert holders to the required diameter, using screw (5) and/or (6) (Fig. 5). Please refer to symmetrical or staggered methods on page(s) 477.

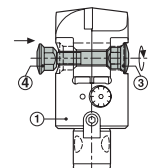


Fig. 4

After diameter setting, tighten the central screw (3) firmly (see recommended torque settings).

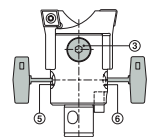


Fig. 5

EPB 750 boring heads - Size	00	10	20	30	40	50	60	70
Central screw (3) tightening torque (ft/lbs)	3.3	6.3	10.7	20.3	22.1	31.0	48.7	70.8

## Instructions

### Diameter setting procedure

#### Diameter setting for symmetrical boring (A+A)

Symmetrical boring requires two identical type A standard insert holders (with identical lead angle) (Fig. 1). Symmetrical positioning of the insert holders is achieved by using the integrated coupling mechanism of the head: simultaneous diameter setting of the insert holders is accessible from both sides of the boring head, using either of two graduated adjusting screws (Fig. 2). Please note there is no coupling mechanism in the smallest head  $\varnothing 0.709-0.945"$  (18-24 mm) (A750 00).

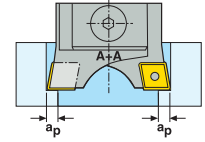


Fig. 1 Symmetrical boring

**Remarks:** The boring heads are delivered with symmetrical positioning of the adjustment tenons and coupling mechanism clamped, for simultaneous setting.

The feed per rev. equals the recommended feed per tooth, times two (two cutting edges on same diameter). A caliper gauge can be used to measure the diameter adjustment if a presetting device is not available.

The graduated adjusting screws allow additional diameter adjustment directly on the machine tool (1 increment = 0.004" (0.1 mm) on the diameter).

For individual diameter setting of the insert holders, the coupling mechanism can be disabled (see below).

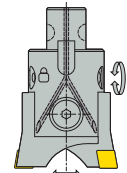


Fig. 2 Simultaneous adjustment

#### Diameter setting for staggered boring (B+A)

In specific cases, staggered boring is more suitable than symmetrical boring:

- When the symmetrical positioning does not allow the required radial depth of cut.
- Insufficient machine power: changing to staggered boring reduces power consumption.
- Both roughing and finishing operations at the same time: in the case of short through holes, it is possible to combine a rough boring insert and a fine boring insert to perform both operations at the same time.

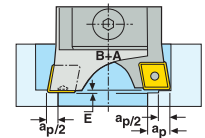


Fig. 3 Staggered boring

The required (E) axial leading offset on the minor diameter is obtained by substitution of one Type A insert holder by an extended Type B (with a distinguishing mark on the front end) of identical lead angle (Fig. 3).

The feed per rev. equals the recommended feed for one tooth.

Maximum feed per rev. when staggered boring (f Max.) is dictated by the type B insert holder and is shown in the table below.

Insert holder size (type B)	01	11	21	31	41	51	61	66	71	76
f Max. (in/rev)	0.010	0.012	0.016	0.020	0.024	0.024	0.024	0.024	0.024	0.024

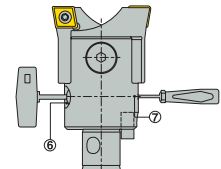


Fig. 4 Disabling the coupling mechanism

In order to individually set the diameters of the insert holders, the coupling mechanism must be disabled, by releasing its locking screw (7) by one turn (using the suitable torx driver - Torxplus) while firmly holding adjusting screw (6) (Fig. 4). Independent setting can then be carried out, adjustment screws (5) and (6) controlling the movement of one related insert holder each (Fig. 5).

The extended insert holder (with a distinguishing mark in the front) must be adjusted to the bore radius minus half the depth of the cut ( $ap/2$ ). The second insert holder must be adjusted to the bore diameter.

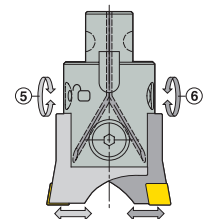


Fig. 5 Independent adjustment

## Instructions

### Returning from staggered to symmetrical insert holders positioning

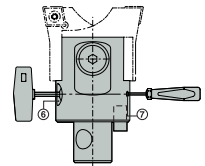
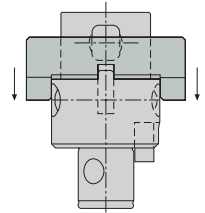
To return from staggered to symmetrical positioning by re-engaging the coupling mechanism, two methods are possible:

- use a pre-setter and two identical insert holders with fitted inserts.
- use the setting gauge to re-set the coupling mechanism (without insert holders in place).

**Setting gauges – Type CAA750...** are available for each head size with coupling mechanism. Shown as Accessories on page(s) 470-471

After setting, lock the coupling mechanism by tightening the locking screw (7) (using a suitable Torx-plus driver) while firmly holding adjusting screw (6).

See below recommended torques.



EPB 750 boring head - Size	00	10	20	30	40	50	60	70
Tightening torque (in/lbs) of coupling system's locking screw (7)	-	3.5	5.3	10.6	13.3	26.5	26.5	26.5

For further application details refer to the instruction sheet supplied with the boring head.

## Instructions

### Recommended machining conditions

#### Spindle power:

As rough boring requires high machine power, we recommend to check that the machine is suitable. Staggered boring is a solution to reduce the power needs, as the feed is divided by two for the same total depth of cut, compared to symmetrical setting.

Optimum performance is obtained with through coolant (higher machining data, better surface finish, better chip evacuation, longer insert life).

### Maximum speeds for rough boring heads

Head	Capacity $\varnothing$ inch	max. RPM (RPM)	Implied max. cutting speed $v_c$ at min. Cap. (sf/min)	Implied max. cutting speed $v_c$ at max. Cap. (sf/min)
<b>Rough boring heads (with two identical insert holders set symmetrically), with Graflex® connection</b>				
A750 00	0.709-0.945	15000	2782	3711
A750 10	0.905-1.220	12000	2844	3835
A750 20	1.181-1.575	9500	2936	3917
A750 30	1.535-2.008	7500	3015	3944
A750 40	1.968-2.559	5700	2936	3819
A750 50	2.520-3.386	4500	2969	3989
A750 60	3.346-4.527	3500	3067	4147
	4.488-5.669	2700	3172	4006
A750 70	4.488-6.299	2500	2936	4124
	6.260-8.071	2000	3278	4226
<b>Rough boring heads (with two identical insert holders set symmetrically), with Seco-capto™ connection</b>				
C3-391.0750-30	1.535-2.008	7500	3015	3944
C4-391.0750-40	1.968-2.559	5700	2936	3819
C5-391.0750-50	2.520-3.386	4500	2969	3989
C6-391.0750-60	3.346-4.527	3500	3067	4147
	4.488-5.669	2700	3172	4006
C8-391.0750-70	4.488-6.299	2500	2936	4124
	6.260-8.071	2000	3278	4226

**Note:** The maximum speeds are related to the boring head's mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. workpiece material, cutting edge (insert), tooling length, machine spindle. At speeds from approx. 8000 RPM and above, the basic holders and the extensions/reducers should be fine balanced.

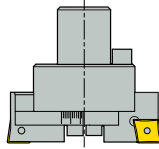


## Instructions Troubleshooting

Position	Possible cause	Solution
<b>Poor chip control</b>	Feed rate too low	Increase feed rate
	Excessive DOC	Use staggered method
<b>Chatter &amp; Vibrations</b>	Excessive speed	Reduce cutting speed, not feed
	Extreme L/D ratio	Shorten tool to increase stiffness
		Increase holding arbor's and intermediate's OD
		Use carbide or heavy metal extensions
	Too large insert radius	Use insert with smaller radius
	Unstable workpiece	Improve fixture and clamping support
Lead angle $\kappa$ is 80°	Change to $\kappa=90^\circ$ , type CC insert	
<b>Insert chipping or breaking</b>	Wrong insert	Change to tougher grade of insert
		Use larger radius if available
	Severe interrupted cut	Decrease speed, decrease feed
	Chips packing and re-cutting	Check for boring bar/bore diameter clearance
Improve chip control, increase feed		
<b>Poor tool life</b>	Wrong insert	Change to higher wear resistant grade
	Excessive cutting speed	Reduce speed
	Insert chipping	Check DOC and feed rate
	Too low coolant pressure	Increase coolant pressure
<b>Chips not evacuating</b>	Boring assembly too large	Reduce to a smaller head with extended insert holders when possible
	Excessive DOC	Use staggered method; prefer CC.. instead of CN.. inserts (particularly when using the boring head at its small diameters).
	Inadequate space below bore	Set the workpiece higher onto the table
	Poor chip control	See above
<b>Insufficient machine power</b>	Excessive feed rate	Reduce feed (not less than 25% of insert radius)
	Excessive DOC	Use staggered method
	Low machine power	RPM in area of low spindle torque: increase speed
		RPM in area of gear change: adjust RPM
		Change insert to higher rake angle (to HSS in extreme cases)
Reduce DOC		
<b>Excessive hole exit burr</b>	Excessive feed rate	Reduce feed
	CC type insert holders 90°	Use 80° square insert holder
	Cutting forces too high	Reduce DOC
		Reduce insert radius

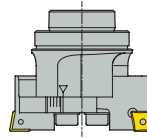
## Rough boring heads EPB 610 - Overview

Graflex® connection

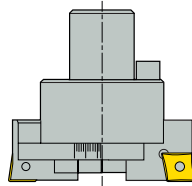


$\text{Ø } 1.535\text{-}2.008''$

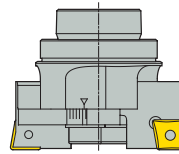
GL connection



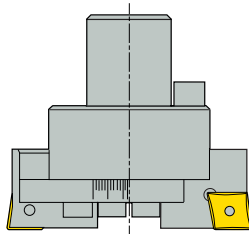
$\text{Ø } 1.417\text{-}1.811''$



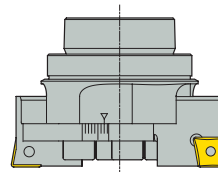
$\text{Ø } 1.969\text{-}2.559''$



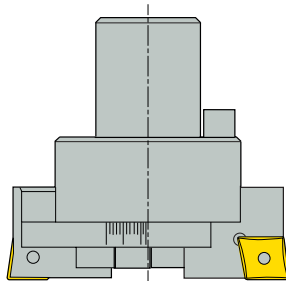
$\text{Ø } 1.772\text{-}2.205''$



$\text{Ø } 2.520\text{-}3.386''$



$\text{Ø } 2.165\text{-}2.717''$



$\text{Ø } 3.346\text{-}4.528''$

## Features

### EPB 610 Graflex®, 4 compact rough boring heads for Ø 1.535-4.528" (39-115 mm)

#### Specific features

##### Compact design with Graflex® connection

- Short body to maximize the rigidity of the boring assembly
- Reduced weight for fast tool changing and spindle acceleration

##### Flexible

- Graflex® Modular System allowing to build up optimal boring assemblies



### EPB 610 GL for Steadyline®, 3 compact rough boring heads for Ø 1.417-2.717" (36-69 mm)

#### Specific features

##### Compact design with GL connection

- Boring head with GL connection. Their compact design achieves best damping performances when used on Steadyline® GL turning and boring bars
- Similar front end design as EPB 610 Graflex® heads in order to use insert holders common to EPB 610 Graflex® and EPB 610 GL heads



#### Specific features when used on Steadyline® GL turning and boring bars

- Boring performances, when used on long Steadyline® GL bars, are similar to non-damped shorter assemblies



## Common features of rough boring heads EPB 610 Graflex® and EPB 610 GL

A rough boring head assembly is a combination of 1 body (head) and 2 insert holders

- Achieving geometrical hole precision starting from cast, flame cut or drilled hole
- Minimized unbalance thanks to a symmetrical design

#### Intuitive and fast setting

- Each insert holder features its push and pull setting mechanism allowing easy and fast setting of the diameter, using a pre-setter
- Diameter scales roughly visualise the insert holders positions

#### Insert holders

- A610...CC... insert holders achieve a 90° lead angle for rhombic inserts, 0° rake angle and 0° inclination angle
- The insert holders are suitable for both EPB 610 Graflex and EPB 610 GL heads

#### Productivity

- High rigidity resulting from a tight fitting of the insert holders into the head's body, and large clamping screws
- Possibility to take a depth of cut  $a_p$  up to half of the insert's width, maximizing the chip removal rate and allowing a total exploitation of the inserts
- Staggered boring using a shim (part of heads delivery contents) to offset one insert holder in order to increase or to split the radial depth of cut
- Through coolant delivery directed towards the cutting edges

## Features

### Symmetrical boring:

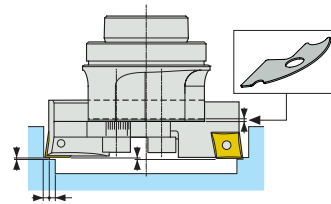
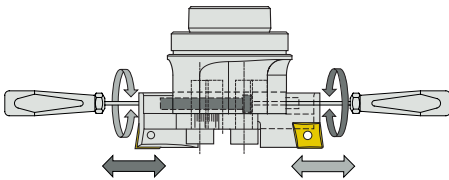
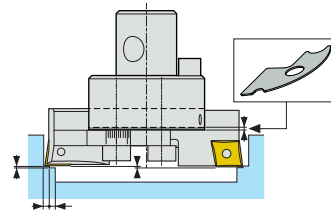
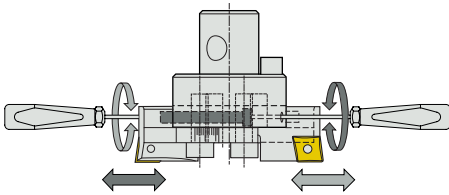
Symmetrical boring means both cutting edges are set on the same diameter and same height.

### Staggered boring:

Staggered boring means one cutting edge is offset as a leading cutting edge, operating on a smaller diameter than the second edge set on the diameter to be realised. It requires a shim (part of the head delivery content) to be fitted between the boring head's body and one insert holder to achieve the (+) axial offset, see table below.

### Shims thicknesses

Shim Part No.	Thickness (inch)	Thickness (mm)
AU6103003	0.016	0.4
AU6104003	0.020	0.5
AU6105003	0.024	0.6
AU6106003	0.024	0.6

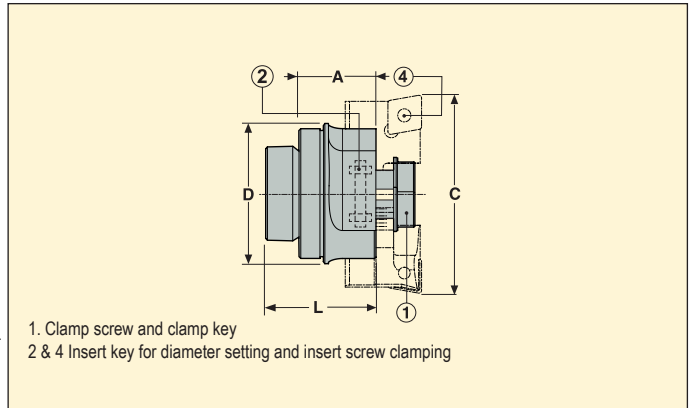


## EPB 610 GL – Rough boring heads, compact, with GL connection, for Steadyline

GL



- Compact design and GL connection for best damping performance when used on Steadyline turning and boring bar GL
- Symmetrical and staggered boring modes are possible
- Individual insert holder adjusting driving mechanism
- Internal coolant supply against cutting edges



Machine side Graflex size	Capacity C ∅ inch	EDP No.	Part No.	Dimensions in inch			Max. RPM **	 * lbs
				A	D	L		
GL32	1.417-1.811	<a href="#">92130</a>	GL32-0610-20	0.831	1.260	1.087	7500	0.22
GL40	1.772-2.205	<a href="#">92132</a>	GL40-0610-30	0.870	1.575	1.244	5700	0.44
GL50	2.165-2.717	<a href="#">92133</a>	GL50-0610-40	0.874	1.969	1.327	4500	0.66

Insert holders have to be ordered separately, see page 485. \*\* Notes about max RPM, see Instruction pages.

\* Without insert holders.

### Spare parts

For head	Shim, staggered boring	Insert key	Clamp key	Assembly screw
GL32-0610-20	AU6102003	T07P-3	03HL03	950DC0412
GL40-0610-30	AU6103003	T15P-3	03HL05	950DC0616
GL50-0610-40	AU6104003	T15P-3	03HL05	950D0616

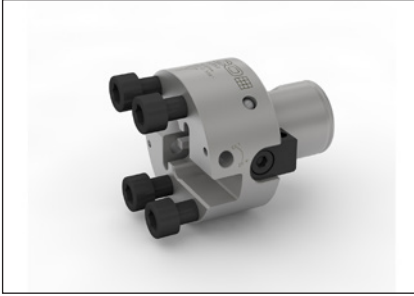
Please check availability in current price and stock-list.

# Rough boring heads, EPB 610

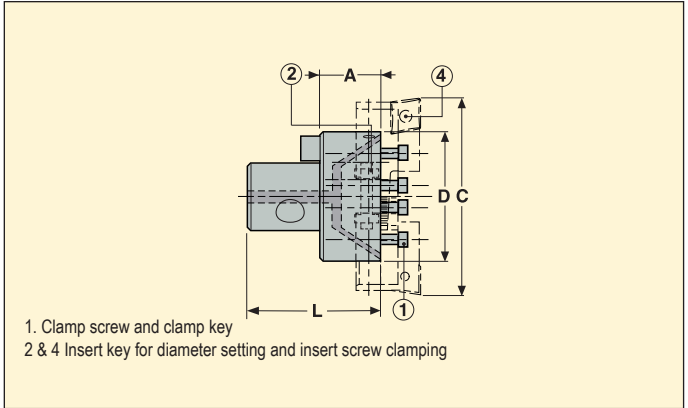


## EPB 610 – Rough boring heads, compact, with Graflex connection

Graflex®



- Symmetrical and staggered boring modes are possible
- Individual insert holder adjusting driving mechanism
- Internal coolant supply against cutting edges



Machine side Graflex size	Capacity C Ø inch	EDP No.	Part No.	Dimensions in inch			Max. RPM **	*
				A	D	L		
G3	1.535-2.008	<a href="#">92108</a>	A61030	0.925	1.339	1.713	7500	0.40
G4	1.969-2.559	<a href="#">92127</a>	A61040	0.846	1.693	1.791	5700	0.60
G5	2.520-3.386	<a href="#">92128</a>	A61050	0.984	2.126	2.165	4500	1.19
G6	3.346-4.528	<a href="#">92129</a>	A61060	1.142	2.480	2.717	3500	2.05

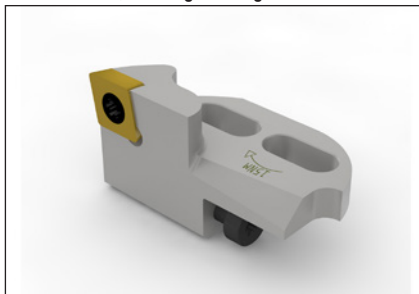
Insert holders have to be ordered separately, see page(s) 485. \*\* Notes about max RPM, see Instruction pages. \*Without insert holders.

### Spare parts

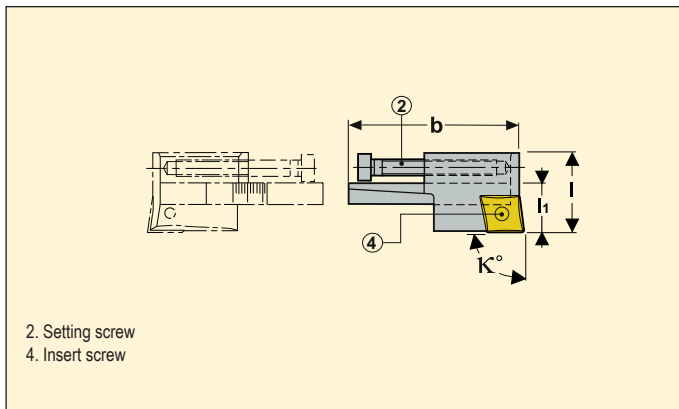
For head	Tenon	Shim, staggered boring	Insert key	Clamp key	Assembly screw
A610 30	90M3	AU6103003	T15P-3	03HL05	950DC0616
A610 40	90M4	AU6104003	T15P-3	03HL05	950D0616
A610 50	90M5	AU6105003	T15P-3	03HL06	950D0820
A610 60	90M6	AU6106003	T15P-3	03HL06	950D0822

Please check availability in current price and stock-list.

## Insert holders, for rough boring heads EPB 610



- Suitable for boring heads EPB 610 with Graflex or Steadyline GL connection



- 2. Setting screw
- 4. Insert screw

For boring head	Capacity C Ø inch	EDP No.	Part No.	κ°	Dimensions in inch			Suitable insert size	lbs
					l	l <sub>1</sub>	b		
GL32-0610-20	1.417-1.811	<a href="#">47416</a>	A61020CC0690	90	0.693	0.429	1.024	CC..21.5.	0.22
A61030/ GL40-0610-30	1.535-2.008/1.772-2.205	<a href="#">92134</a>	A61030CC0990	90	0.850	0.508	1.299	CC..32.5.	0.22
A61040/ GL50-0610-40	1.969-2.559/2.165-2.717	<a href="#">92135</a>	A61040CC0990	90	0.886	0.543	1.724	CC..32.5.	0.22
A61050	2.520-3.386	<a href="#">92136</a>	A61050CC1290	90	1.083	0.681	2.260	CC..43.	0.44
A61060	3.346-4.528	<a href="#">92138</a>	A61060CC1290	90	1.201	0.740	2.953	CC..43.	0.66

## Spare parts

For insert size	Setting screw	Insert screw
A61020/CC..21.5.	19A61020	C02504-T07P
A61030/CC..32.5.	19A61030	C04008-T15P
A61040/CC..32.5.	19A61040	C04008-T15P
A61050/CC..43.	19A61050	C05012-T15P
A61060/CC..43.	19A61060	C05012-T15P

Please check availability in current price and stock-list.  
 Recommended inserts for boring, see page(s) 585-586.  
 Note: A key for insert screw clamping is part of EPB 610 heads delivery contents.

## Instructions

### Boring head assembling

1.1 Recommended tightening torques: Graflex connection, see Graflex Guide pages in Tooling catalog.

1.2 Recommended tightening torques: GL connection, see Operating instructions supplied with the GL bars.



Fig 1.1

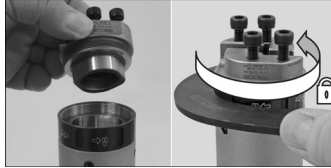


Fig 1.2

### Insert holders fitting procedure



Fig 2.1

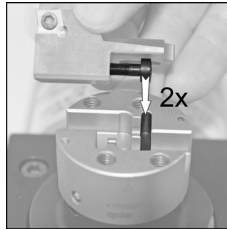


Fig 2.2



Fig 2.3

### Diameter setting procedure

#### Diameter setting for symmetrical boring

3.3 See table "Recommended tightening torques".

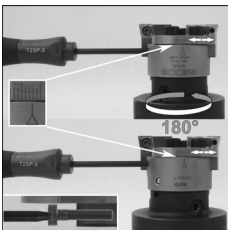


Fig 3.1

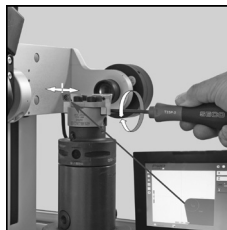


Fig 3.2

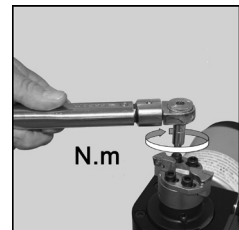


Fig 3.3

#### Diameter setting for staggered boring with a shim

4.1 & 4.3 See table "Recommended tightening torques and maximum feed per rev. when staggered".

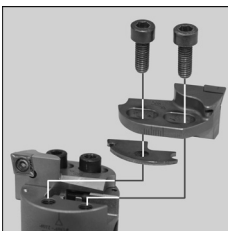


Fig 4.1

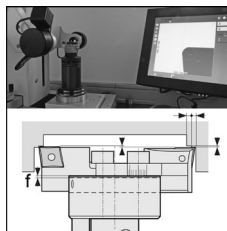


Fig 4.2

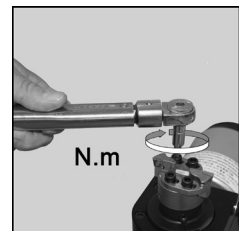


Fig 4.3



## Instructions

### Recommended tightening torques. Maximum feed per rev. when staggered

EPB 610 boring heads	A610 30	A610 40	A610 50	A610 60	GL32-0610-20	GL40-0610-30	GL50-0610-40
Tightening torque of clamp screws for insert holders clamping (N.m)	2 x 25	4 x 25	4 x 40	4 x 40	2 x 25	4 x 25	4 x 40
f Max. feed rate when staggered boring (mm/rev)	0.4	0.5	0.6	0.6	0.4	0.5	0.6

For further application details refer to the Operating instructions supplied with the boring heads and with the GL bars.

## Recommended machining conditions

### Spindle power:

As rough boring requires high machine power, we recommend to check that the machine is suitable. Staggered boring is a solution to reduce the power needs, as the feed is divided by two for the same total depth of cut, compared to symmetrical setting.

Optimum performance is obtained with through coolant (higher machining data, better surface finish, better chip evacuation, longer insert life).

### Maximum speeds for EPB 610 rough boring heads

**Note:** The maximum speeds shown in boring heads Product pages are related to the boring head's mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. workpiece material, cutting edge (insert), tooling length, machine spindle.

By boring applications with Steadyline® bars, make sure not to overpass the max. RPM of the bars : See the Operating instructions supplied with the Steadyline® bars.



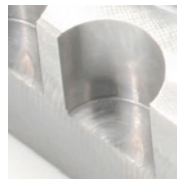
## Overview



OD-overturning



Grooving

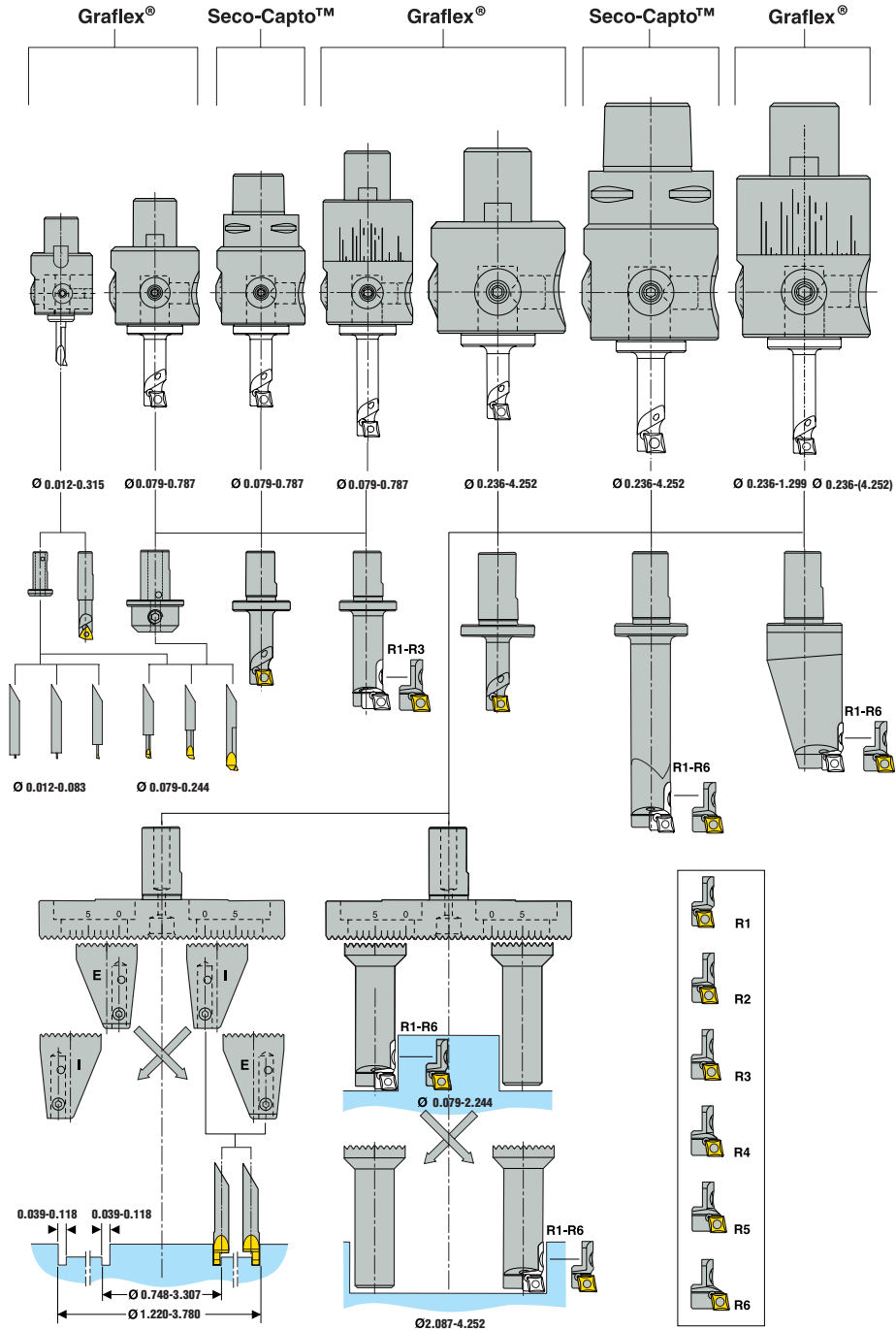


Interrupted cut boring



Boring

## Overview



## Axiabore™ type fine boring heads for bores $\varnothing$ 0.012-4.252" (0.3-108 mm)

An Axiabore™ type head is an assembly of a body (head) and a tool.

### Axiabore™ type head selection

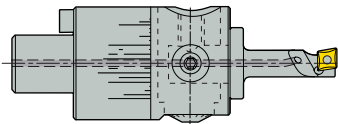
	Capacity	HSM/ Max speeds	Hole geometry	Cost effective	Multipurpose
Nanobore™ A760 01	$\varnothing$ 0.012-0.315	30000 RPM or 4920 sf/min	■ ■	■ ■	
Axiabore™ A760 02	$\varnothing$ 0.079-0.787	12000 RPM or 3280 sf/min	■	■ ■	
Axiabore™ C3-931.0760-02	$\varnothing$ 0.079-0.787	12000 RPM or 3280 sf/min	■	■ ■	
Axialibrabore™ A760 12	$\varnothing$ 0.079-0.787	24000 RPM or 4920 sf/min	■ ■	■	
Axiabore™ Plus - A760 03	$\varnothing$ 0.236-4.252	8000* RPM or 3280 sf/min	■	■ ■ ■ ■	■ ■ ■ ■
Axiabore™ Plus C5-391.0760-03	$\varnothing$ 0.236-4.252	8000* RPM	■	■ ■ ■ ■	■ ■ ■ ■
Axialibrabore™ Plus - A760 13	$\varnothing$ 0.236-1.299	20000 RPM or 4920 sf/min	■ ■	■	

'Libra' heads are fine balanceable. The other heads are pre-balanced on median position.\* Max 5000 RPM when using the multi-purpose adapter.

### Axiabore™ type heads exists with Graflex® or Seco-Capto™ connection:

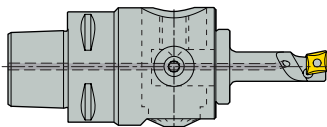
#### 5 Axiabore™ fine boring heads EPB 760 with Graflex® connection for bores $\varnothing$ 0.012-4.252" (0.3-108 mm):

- Nanobore™ A760 01
- Axiabore™ A760 02
- Axialibrabore™ A760 12
- Axiabore™ Plus - A760 03
- Axialibrabore™ Plus - A760 13

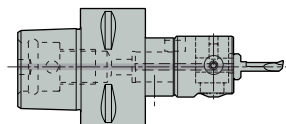


#### 2 Axiabore™ fine boring heads EPB 760 with Seco-Capto™ connection for bores $\varnothing$ 0.079-4.252" (2-108 mm):

- Axiabore™ C3-391.0760-02
- Axiabore™ Plus- C5-391.0760-03



**Note:** The minimum bore size of the smallest Seco-Capto™ fine boring head is  $\varnothing$  0.079" (2 mm) with the smallest available Seco-Capto™ C3 connection. For  $\varnothing$  0.012-0.315" (0.3-8 mm) use Nanobore™ head with connection size G2 in conjunction with the appropriate Seco-Capto™/Graflex® adapter.



#### Seco-Capto™ adapter and Graflex® head: $\varnothing$ 0.012-0.315" (0.3-8 mm)

**Note: Features, Instructions** (tool fitting procedure, diameter setting, MPA assembly procedure, maximum speeds, recommended cutting speeds, troubleshooting), **suitable tools and insert holders** are similar for both types of EPB 760 fine boring heads of similar boring capacity size, regardless of connection type.

## Boring tools

**Note:** In the Product pages, it is clearly mentioned which tools are suitable for which heads.

**Boring tools, solid carbide** (shank  $\varnothing$  4 mm) for the smallest diameters (0.012-0.244"), lead angle 98°. Require reduction bushes to fit into Nanobore™ and Axia(libra)bore™ heads. The tools have an angled back end for cutting edge orientation according to ISO.

**Boring bars, insert type** (shanks  $\varnothing$  6, 12 or 16 mm) for  $\varnothing$  0.236-0.512", 'steel' type for short tools, 'carbide' type for long tools. For WB..0301.. or CC..0602.. inserts and 90° lead angle. Direct fitting into the heads. The locking flat achieves a cutting edge orientation according to ISO.

**Boring bars, modular** composed of a 'shank' and an 'insert holder' for  $\varnothing$  0.512-2.480". Shanks ( $\varnothing$  12 or 16 mm) in 'steel' for short, 'carbide' for long and 'Lightweight / aluminum' for the largest diameters. Direct fitting into the heads.

Six insert holders for CC..21.5.. inserts and 90° lead angle, compatible with all shanks to build up a wide boring capacity on a common shank.

## Multi-purpose adapter (MPA)

MPA for boring and OD-overturning, as well as face grooving on the - Axiabore™ Plus - head.

The MPA and tools have a serrated interface, for precise orientation and positioning increments (0.098" on diameter). Directional through coolant nozzle included.

Select the components to build up an MPA type tool on the MPA tool selection charts. See assembly details in the Instructions chapter.

### Set up a Boring or OD-overturning assembly

Boring and OD-overturning assemblies use the same shank equipped with an insert holder, and a counterweight.

Boring assembly: Select the appropriate insert holder to be assembled onto the boring/OD-overturning shank, using the selection chart 'Boring with MPA' (part of following Product pages).

OD-overturning assembly: Select the appropriate insert holder to be assembled onto the boring/OD-overturning shank, using the selection chart 'OD-overturning with MPA' (part of following Product pages). See assembly details in the Instructions chapter.

### Building a grooving assembly





A grooving assembly requires:

- a pair of grooving tool holders (one E='External' and one I='Internal'),
- one grooving tool 'against Pilot' or 'against Bore'.

When the groove is not against a pilot wall nor against a bore wall, both tool types are suitable.

See the selection charts 'Grooving tool for grooving with MPA'.

## Features

<p><b>Nanobore™ head</b> Part No. A76001</p> 	<p><b>Ultra small head for fine boring <math>\varnothing</math> 0.012-0.315" (0.3-8 mm):</b> External diameter 0.984" (25 mm), length 0.984" (25 mm), with Graflex® connection size G2, tool fitting <math>\varnothing</math> 0.236" (6 mm). Operating speeds up to 30.000 rpm or 4920 sf/min (whichever is reached first without exceeding either of them) allows performance machining of very small diameters.</p> <p><b>The reduction bushing 0.236-0.157" (6-4 mm)</b> with orientation flat and pin for fitting the solid boring tools is part of the head delivery content.</p>
<p><b>Axiabore™ head</b> Part No. A76002 and C3-391.0760-02</p>  	<p><b>Small heads for fine boring <math>\varnothing</math> 0.079-0.787" (2-20 mm):</b> External diameter 1.437" (36.5 mm), length 1.260" (32 mm), with Graflex® connection size G3 and Seco-Capto™ connection size C3, tool fitting <math>\varnothing</math> 0.472" (12 mm). These heads sizes are optimized for difficult-to-access bores.</p> <p><b>The reduction bush 0.472-0.157" (12-4 mm)</b> with orientation flat and pin for fitting the solid boring tools is part of the head delivery content. Note: Smaller tools from Nanobore™ 0.012-0.083" (0.3-2.1 mm) can also be fitted, but the machining speed will be limited to 12000 RPM: Nanobore® head should be preferred.</p>
<p><b>Axialibrabore™ head</b> Part No. A76012</p> 	<p><b>Small balanceable head for fine boring <math>\varnothing</math> 0.079-0.787" (2-20 mm):</b> Same features as the Axiabore™ head, but with fine balancing (body length 1.968" (50 mm)). With Graflex® connection size G3. Fine balanceable heads allow higher speeds up to 24 000 RPM or 4920 sf/min (whichever is reached first without exceeding either of them), improve the hole geometry and reduce the machine spindle stress. 'LibraOne' balancing is performed by setting the graduated balancing ring (in accordance with the balancing code of the tool used, and the diameter to be bored) in line with the mark on the boring head. No chart needed.</p>

## Features

**Axiabore™ Plus - head**  
Part No. A76003 and C5-391.0760-03



**Multi-purpose heads for fine boring  $\varnothing$  0.236-4.252" (6-108 mm), OD-overturning  $\varnothing$  0.079-2.244" (2-57 mm) and grooving  $\varnothing$  0.748-3.780" (19-96 mm):**  
External diameter 2.126" (54 mm), length 1.772" (45 mm), with Graflex® connection size 5 and Seco-Capto™ connection size 5, tool fitting  $\varnothing$  0.630" (16 mm).  
**Suitable tools:** all tools with shank  $\varnothing$  0.630" (16 mm), for direct fitting into the heads.

This head has also been designed to be equipped with the MPA (multi-purpose adapter), to perform large diameter fine boring, OD-overturning and face grooving.

**Axialibrabore™ Plus - head**  
Part No. A76013







**Balanceable head for fine boring  $\varnothing$  0.236-1.299" (6-33 mm):**  
Same features as the - Axiabore™ Plus - head, but with fine balancing (body length 2.559" (65 mm)).  
With Graflex® connection size G5.  
Fine balanceable heads allow higher speeds up to 20 000 RPM or 4920 sf/min (whichever is reached first without exceeding either of them), improve the hole geometry and reduce the machine spindle stress. 'LibraOne' balancing is performed by setting the graduated balancing ring in line with the mark on the boring head (balancing code of the tool used, and the diameter to be bored). No chart needed.  
Fine balancing is only possible for the smallest boring tools ( $\varnothing$  0.236-1.299" (6-33 mm)).

**Note:** if using a larger 'Alu', or a 'MPA' tool from the - Axiabore™ Plus - onto the - Axialibrabore™ Plus - head, fine balancing is not possible and the balancing ring should be set in the head's pre-balancing position (depending on the operation to be performed, see Instructions chapter). The maximum speed becomes the same as for the - Axiabore™ Plus.



## Features

### Axiabore™ type kits

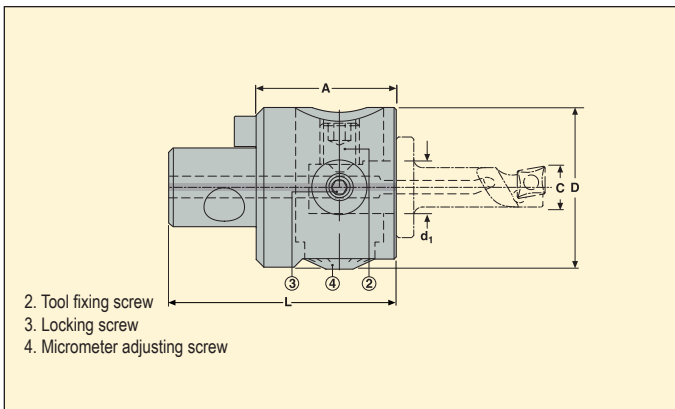
<p><b>Note:</b> The Axiabore™ type heads are available on their own (head + reduction bush, setting keys and operating instruction), or as kits delivered in a protective case. Ten kits are available, see Product page for content details.</p>	
<p><b>Nanobore™ kit:</b></p> 	<p>Includes the head, the reduction bush, a complete set of tools (cap. <math>\varnothing</math> 0.012-0.315" (0.3-8 mm)), setting keys and operating instructions as well as a magnifying glass.</p>
<p><b>Axiabore™ (A &amp; B) kits and Axialibrabore™ (A &amp; B) kits:</b></p> 	<p>Kit A includes the head, a selection of boring tools and insert holders (<math>\varnothing</math> 0.236-0.787" (6-20 mm)), setting keys and operating instructions. Kit B includes the content of kit A with a larger selection of tools (<math>\varnothing</math> 0.079-0.787" (2-20 mm)).</p>
<p><b>Axiabore™ Plus - (A &amp; B) kits and Axialibrabore™ Plus - (A &amp; B) kits:</b></p> 	<p>Kit A includes the head, a selection of boring tools and insert holders (<math>\varnothing</math> 0.236-1.299" (6-33 mm)), setting keys and operating instructions. Kit B includes the content of kit A with a larger selection of tools (<math>\varnothing</math> 0.236-2.480" (6-63 mm)).</p>
<p><b>Face grooving and OD-overturning tools kit:</b></p> 	<p>Includes the MPA (multi-purpose adapter), the serrated shank and two insert holders for boring and OD-overturning, the counterweight and the serrated grooving toolholders 'I' and 'E'. These tools are suitable for the - Axiabore™ Plus - head.</p>

## EPB 760 – Axiabore™ type heads, not balanceable

Graflex®



- With micrometer adjusting increment 0.0004" (0.01 mm) and vernier 0.0001" (2.5 μm), on the diameter
- Axiabore™ Plus – allows boring, as well as OD-overturning and face grooving



Graflex size	Capacity C ∅ inch	***	EDP No.	Part No.	Dimensions in inch				Max operating speed**		****	* lbs
					A	D	L	d <sub>1</sub>	Max rpm	Max sf/min		
G2	0.012-0.315		20612	A76001	0.984	0.984	1.614	0.236	30000	4920		0.22
G3	0.079-0.787		35439	A76002	1.260	1.437	2.047	0.472	12000	4920		0.64
G5	0.236-4.252	***	35442	A76003	1.772	2.126	2.953	0.630	8000	3280	****	1.81

For tools, see page(s) 499-501. \* Without tool. \*\* Maximum speed, whichever is reached first without exceeding either of them.  
 \*\*\*\* Capacities - Axiabore™ Plus - head for boring 0.236-4.252", OD-overturning 0.079-2.244", face grooving 0.748-3.780". \*\*\*\*\* Max 5000 RPM when using MPA.

### Spare parts

### Accessories\*

For head	Tenon	Reduction bush	Locking screw	Key	Assembly screw	Storage case	Magnifying glass
A760 01	90M21	05A7600604	19M4001A	H2.0-2D	950A0406	41B76001	935L01
A760 02	90M3A	05A7601204	19A71030	03M03C	AU7601212	42M06	-
A760 03	90M5A	-	19A71008125	H04-4	AU7601312	42M07	-

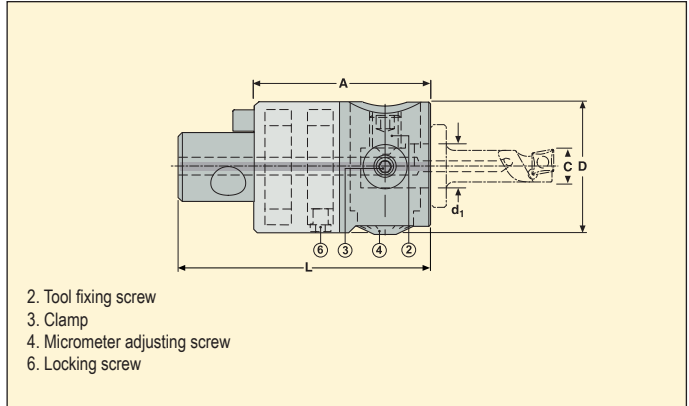
Please check availability in current price and stock-list.  
 \* Accessories not included in delivery.

## EPB 760 – Axiabore™ type heads, balanceable

Graflex®



- LibraOne built-in balancing system based on a single balancing setting ring
- With micrometer adjusting increment 0.0004" (0.01 mm) and vernier 0.0001" (2.5 µm), on the diameter



Graflex size	Capacity C ∅ inch	***	EDP No.	Part No.	Dimensions in inch				Max operating speed**		lbs*
					A	D	L	d <sub>1</sub>	Max rpm	Max sf/min	
G3	0.079-0.787		35453	A76012	1.969	1.437	2.756	0.472	24000	4920	0.86
G5	0.236-1.299	***	35468	A76013	2.559	2.126	3.740	0.630	20000	4920	2.56

For tools, see page(s) 499-501. \* Without tool. \*\* Maximum speed, whichever is reached first without exceeding either of them. \*\*\* Capacities – Axialabore™ Plus -head, with balancing.

### Spare parts

For head	Assembly screw	Key	Locking screw	Locking screw 1	Locking screw 2	Reduction bush	Tenon
A760 12	AU7601212	03M03C	–	19A71030	AU7601218	05A7601204	90M3A
A760 13	AU7601312	H04-4	AU7601218	19A71008125	AU7601318	–	90M5A1

### Accessories\*

Storage case
42M06
42M07

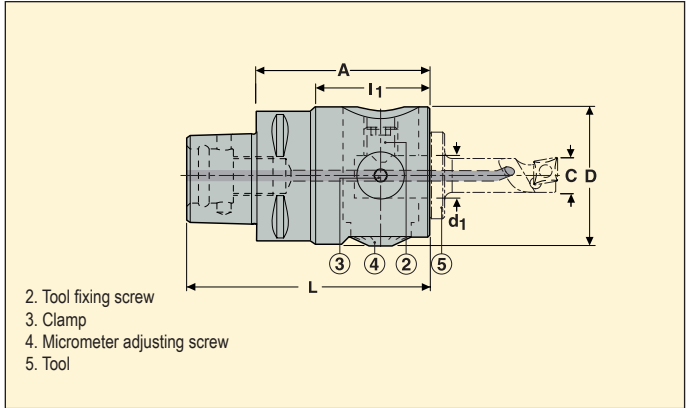
Please check availability in current price and stock-list.  
 \* Accessories not included in delivery.

## EPB 760 – Axiabore™ type heads

Seco-Capto™



- With micrometer adjusting increment 0.0004" (0.01 mm) and vernier 0.0001" (2.5 μm), on the diameter
- Axiabore™ Plus – allows boring, as well as OD-overturning and face grooving



Capto size	Capacity C ∅ inch	**	EDP No.	Part No.	Dimensions in inch					Max operating speed		***	 lbs *
					A	D	L	I <sub>1</sub>	d <sub>1</sub>	Max rpm	Max sf/min		
C3	0.079-0.787		<a href="#">08709</a>	<b>C3-391.0760-02</b>	1.811	1.437	2.559	1.181	0.472	12000	4920		0.73
C5	0.236-4.252	**	<a href="#">08711</a>	<b>C5-391.0760-03</b>	2.559	2.126	3.740	1.732	0.630	8000	4920	***	2.47

For tools (5), see page(s) 499-501. \* Without tool.  
\*\* Capacities - Axiabore™ Plus - head for boring 0.236-4.252", OD-overturning 0.079-2.244", face grooving 0.748-3.780". \*\*\* Max 5000 RPM when using MPA.

### Spare parts

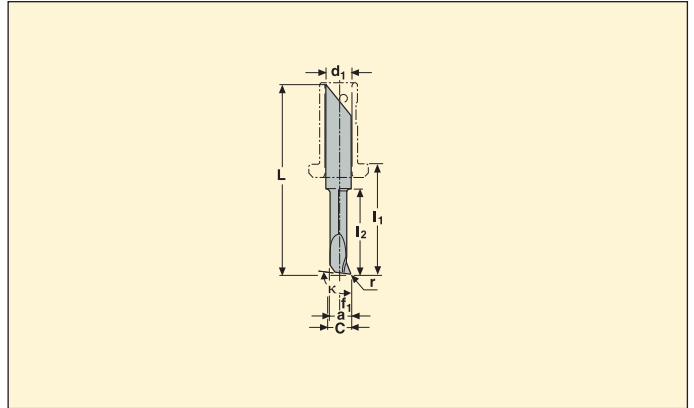
For head	Reduction bush	Locking screw	Key	Assembly screw
<b>C3...02</b>	05A7601204	19A71030	03M03C	AU7601212
<b>C5...03</b>	-	19A71008125	H04-4	AU7601312

Please check availability in current price and stock-list.

### Boring tools, solid carbide, for EPB 760 heads



- Cutting edge orientation ISO
- Coolant along the tool



Tool material*	For head	d <sub>1</sub> (inch)	Capacity C ∅ inch***	EDP No.	Part No.	κ°	Dimensions in inch						Recommended cutting data**		lbs	Balancing code
							L	I <sub>1</sub>	I <sub>2</sub>	a	f <sub>1</sub>	r	a <sub>p</sub> (inch)	f (inch)		
Solid carbide	A76001	0.157	0.012-0.024	<a href="#">20615</a>	A761402	98	1.209	0.610	0.047	0.010	0.004	—	0.001	—	0.02	—
	A76001	0.157	0.020-0.043	<a href="#">20617</a>	A761412	98	1.209	0.610	0.079	0.018	0.008	—	0.001	—	0.02	—
	A76001/02/12	0.157	0.039-0.083	<a href="#">20618</a>	A761422	98	1.209	0.610	0.197	0.037	0.018	0.004	0.001	0.001	0.02	—
	A76001/02/12	0.157	0.079-0.126	<a href="#">20619</a>	A761432	98	1.209	0.610	0.315	0.071	0.035	0.004	0.002	0.001	0.02	E13
	A76001/02/12	0.157	0.118-0.185	<a href="#">20620</a>	A761442	98	1.209	0.610	0.394	0.108	0.053	0.006	0.002	0.001	0.02	E14
	A76001/02/12	0.157	0.177-0.244	<a href="#">20621</a>	A761452	98	1.406	0.807	0.591	0.156	0.077	0.006	0.003	0.001	0.02	E15

Please check availability in current price and stock-list.

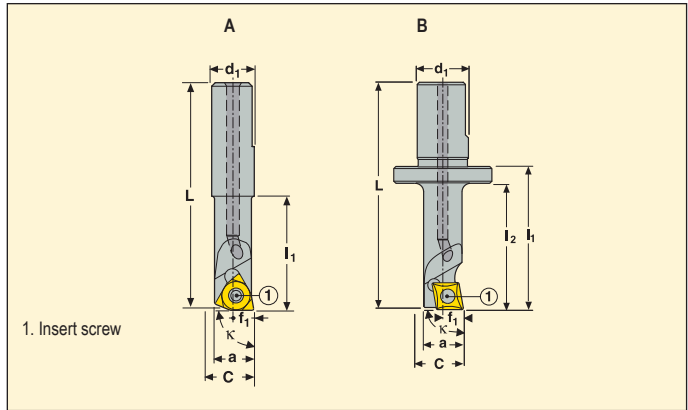
\* These tools with shank dia 0.157" require the use of a reduction bush, delivered with the suitable heads and kits. \*\* For cutting speeds, see page(s) 587-588.

\*\*\* +0.004 inch complementary capacity achievable.

## Boring bars, insert type, for EPB 760 heads




- Cutting edge orientation ISO
- Through coolant
- Only two insert sizes for all tools



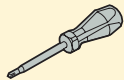
Tool material	For head	Capacity C Ø inch**	EDP No.	Part No.	κ°	Dimensions in inch						Suitable insert size	Design	lbs	Balancing code
						L	l <sub>1</sub>	l <sub>2</sub>	d <sub>1</sub>	a	f <sub>1</sub>				
Steel, indexable insert type	A76001	0.236-0.315	<a href="#">20622</a>	A762001	90	1.248	0.630	—	0.236	0.217	0.114	WB..0301..	A	0.02	—
	A76002/12	0.236-0.315	<a href="#">35475</a>	A762002	90	1.563	0.787	0.630	0.472	0.217	0.114	WB..0301..	B	0.07	S21
	A76003/13	0.236-0.315	<a href="#">35571</a>	A762003	90	1.976	0.827	0.630	0.630	0.217	0.114	WB..0301..	B	0.15	S31
	A76002/12	0.315-0.394	<a href="#">35476</a>	A763002	90	1.799	1.024	0.866	0.472	0.291	0.154	WB..0301..	B	0.09	S22
	A76003/13	0.315-0.394	<a href="#">35572</a>	A763003	90	2.213	1.063	0.866	0.630	0.291	0.154	WB..0301..	B	0.18	S32
	A76002/12	0.394-0.512	<a href="#">35477</a>	A765002	90	2.106	1.339	1.181	0.472	0.368	0.189	CC..21.5.	B	0.09	S23
	A76003/13	0.394-0.512	<a href="#">35573</a>	A765003	90	2.520	1.378	1.181	0.630	0.368	0.189	CC..21.5.	B	0.18	S33
Carbide, indexable insert type	A76001	0.236-0.315	<a href="#">20623</a>	A762201	90	1.642	1.024	—	0.236	0.217	0.114	WB..0301..	A	0.04	—
	A76002/12	0.236-0.315	<a href="#">35478</a>	A762202	90	1.996	1.220	1.063	0.472	0.217	0.114	WB..0301..	B	0.13	E21
	A76003/13	0.236-0.315	<a href="#">35582</a>	A762203	90	2.409	1.260	1.063	0.630	0.217	0.114	WB..0301..	B	0.29	E31
	A76002/12	0.315-0.394	<a href="#">35479</a>	A763202	90	2.390	1.614	1.457	0.472	0.291	0.154	WB..0301..	B	0.15	E22
	A76003/13	0.315-0.394	<a href="#">35628</a>	A763203	90	2.803	1.654	1.457	0.630	0.291	0.154	WB..0301..	B	0.31	E32
	A76002/12	0.394-0.512	<a href="#">35488</a>	A765202	90	3.091	2.323	2.165	0.472	0.368	0.189	CC..21.5.	B	0.20	E23
	A76003/13	0.394-0.512	<a href="#">35629</a>	A765203	90	3.504	2.362	2.165	0.630	0.368	0.189	CC..21.5.	B	0.37	E33

\*\* +0.008" complementary capacity achievable.

### Spare parts

For insert size	Insert screw
	
CC..21.5.	C02504-T07P
WB..0301..	C02504-T07P

### Accessories\*

Insert key

T07P-3
T06P-3

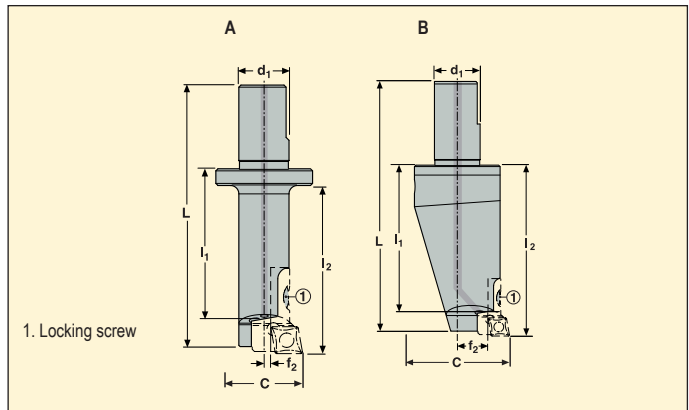
Please check availability in current price and stock-list.

\* Accessories not included in delivery.

## Boring shanks, for modular fine boring bars, for EPB 760 heads



- Several capacities achievable by interchangeable insert holders
- Shank types 'steel' for short bars, 'carbide' for long bars, 'aluminum' for large bars
- Through coolant



Modular boring shank type	For head	***	Capacity C ∅ inch**	EDP No.	Part No.	Dimensions in inch					Design	lbs*
						L	L <sub>1</sub>	L <sub>2</sub>	d <sub>1</sub>	f <sub>2</sub>		
Steel	A76002/12		0.512-0.787	<a href="#">35512</a>	<a href="#">A760S20</a>	2.461	1.339	1.575	0.472	0.055	A	0.13
	A76003/13		0.512-0.709	<a href="#">35630</a>	<a href="#">A760S30</a>	2.874	1.378	1.575	0.630	0.055	A	0.22
	A76003/13		0.709-1.299	<a href="#">35632</a>	<a href="#">A760S31</a>	3.268	1.772	2.165	0.630	0.154	A	0.29
Carbide	A76002/12		0.512-0.787	<a href="#">35541</a>	<a href="#">A760E20</a>	3.248	2.126	2.362	0.472	0.055	A	0.44
	A76003/13		0.512-0.709	<a href="#">35560</a>	<a href="#">A760E30</a>	4.055	2.559	2.953	0.630	0.055	A	0.46
	A76003/13		0.709-1.299	<a href="#">35570</a>	<a href="#">A760E31</a>	4.449	2.953	3.346	0.630	0.154	A	0.66
Aluminum	A76003	***	1.299-1.890	<a href="#">35633</a>	<a href="#">A760A32</a>	3.465	1.969	2.362	0.630	0.453	B	0.31
	A76003	***	1.890-2.480	<a href="#">35634</a>	<a href="#">A760A33</a>	4.252	2.756	3.150	0.630	0.748	B	0.75

\* Without insert holder. \*\* +0.008" complementary capacity achievable. \*\*\* When used on A760 13, no fine balancing possible. Select the required shank and insert holder(s) combination(s) using the selection chart on page(s) 503.

### Spare parts

For	Locking screw
All boring shanks	C04008-T15P

### Accessories\*

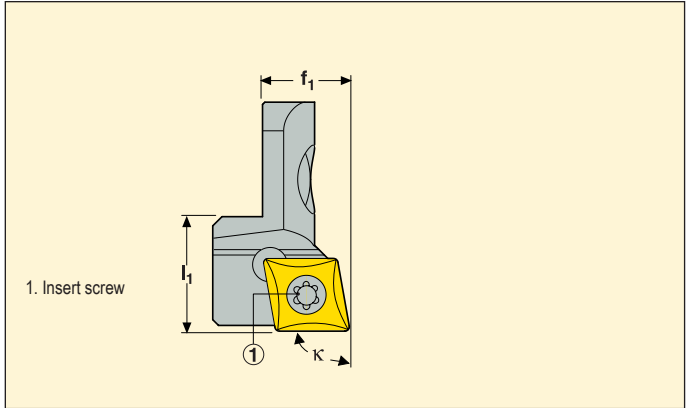
Locking key
T15P-3

Please check availability in current price and stock-list.  
 \* Accessories not included in delivery.

## Insert holders, for modular fine boring bars, for EPB 760 heads



- Single fitting size suitable for all boring (and OD-overturning) shanks
- One insert size for all insert holders




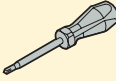
	EDP No.	Part No.	Dimensions in inch		Suitable insert size	$\kappa^\circ$	lbs
			$l_1$	$f_1^*$			
Insert holder	<a href="#">35637</a>	A765R1	0.394	0.195	CC..21.5.	90	0.02
	<a href="#">35641</a>	A765R2	0.394	0.244	CC..21.5.	90	0.02
	<a href="#">35643</a>	A765R3	0.394	0.293	CC..21.5.	90	0.02
	<a href="#">35644</a>	A765R4	0.394	0.343	CC..21.5.	90	0.02
	<a href="#">35645</a>	A765R5	0.394	0.393	CC..21.5.	90	0.02
	<a href="#">35646</a>	A765R6	0.394	0.441	CC..21.5.	90	0.02

\*  $f_1$  when fitted with insert type CC..21.5.  
 Select the required shank and insert holder(s) combination(s) using the selection chart page(s) 503.

### Spare parts

### Accessories\*

For insert size	Insert screw
	
CC..21.5.	C02504-T07P

Insert key

T07P-3

Please check availability in current price and stock-list.  
 \* Accessories not included in delivery.



## Selection chart: Boring tools and insert holders suitable for EPB 760 heads

For head	Boring capacity C Ø inch	Boring length l inch	EDP No.	Part No. Boring tool	EDP No.	Part No. Insert holder	d <sub>1</sub> (inch)	Suitable insert size	Tool type
A760 01	0.012-0.024	0.047	<a href="#">20615</a>	A761 402		–	0.157	–	Solid carbide
	0.020-0.043	0.079	<a href="#">20617</a>	A761 412		–	0.157	–	Solid carbide
	0.039-0.083	0.197	<a href="#">20618</a>	A761 422		–	0.157	–	Solid carbide
	0.079-0.126	0.315	<a href="#">20619</a>	A761 432		–	0.157	–	Solid carbide
	0.118-0.185	0.394	<a href="#">20620</a>	A761 442		–	0.157	–	Solid carbide
	0.177-0.244	0.590	<a href="#">20621</a>	A761 452		–	0.157	–	Solid carbide
	0.236-0.315	0.630	<a href="#">20622</a>	A762 001		–	0.236	WB..0301..	Steel, insert type
	0.236-0.315	1.024	<a href="#">20623</a>	A762 201		–	0.236	WB..0301..	Carbide, insert type
A760 02/ A760 12	0.079-0.126	0.315	<a href="#">20619</a>	A761 432		–	0.157	–	Solid carbide
	0.118-0.185	0.394	<a href="#">20620</a>	A761 442		–	0.157	–	Solid carbide
	0.177-0.244	0.590	<a href="#">20621</a>	A761 452		–	0.157	–	Solid carbide
	0.236-0.315	0.630	<a href="#">35475</a>	A762 002		–	0.472	WB..0301..	Steel, insert type
	0.236-0.315	1.063	<a href="#">35478</a>	A762 202		–	0.472	WB..0301..	Carbide, insert type
	0.315-0.394	0.866	<a href="#">35476</a>	A763 002		–	0.472	WB..0301..	Steel, insert type
	0.315-0.394	1.457	<a href="#">35479</a>	A763 202		–	0.472	WB..0301..	Carbide, insert type
	0.394-0.512	1.181	<a href="#">35477</a>	A765 002		–	0.472	CC..21.5..	Steel, insert type
	0.394-0.512	2.165	<a href="#">35488</a>	A765 202		–	0.472	CC..21.5..	Carbide, insert type
	0.512-0.610	1.575	<a href="#">35512</a>	A760 S20	<a href="#">35637</a>	A765 R1	0.472	CC..21.5..	Steel shank with insert holder
	0.512-0.610	2.362	<a href="#">35541</a>	A760 E20	<a href="#">35637</a>	A765 R1	0.472	CC..21.5..	Carbide shank with insert holder
	0.610-0.709	1.575	<a href="#">35512</a>	A760 S20	<a href="#">35641</a>	A765 R2	0.472	CC..21.5..	Steel shank with insert holder
	0.610-0.709	2.362	<a href="#">35541</a>	A760 E20	<a href="#">35641</a>	A765 R2	0.472	CC..21.5..	Carbide shank with insert holder
	0.709-0.787	1.575	<a href="#">35512</a>	A760 S20	<a href="#">35643</a>	A765 R3	0.472	CC..21.5..	Steel shank with insert holder
0.709-0.787	2.362	<a href="#">35541</a>	A760 E20	<a href="#">35643</a>	A765 R3	0.472	CC..21.5..	Carbide shank with insert holder	
A760 03/ A760 13	0.236-0.315	0.630	<a href="#">35571</a>	A762 003		–	0.630	WB..0301..	Steel, insert type
	0.236-0.315	1.260	<a href="#">35582</a>	A762 203		–	0.630	WB..0301..	Carbide, insert type
	0.315-0.394	0.866	<a href="#">35572</a>	A763 003		–	0.630	WB..0301..	Steel, insert type
	0.315-0.394	1.457	<a href="#">35628</a>	A763 203		–	0.630	WB..0301..	Carbide, insert type
	0.394-0.512	1.181	<a href="#">35573</a>	A765 003		–	0.630	CC..21.5..	Steel, insert type
	0.394-0.512	2.165	<a href="#">35629</a>	A765 203		–	0.630	CC..21.5..	Carbide, insert type
	0.512-0.610	1.575	<a href="#">35630</a>	A760 S30	<a href="#">35637</a>	A765 R1	0.630	CC..21.5..	Steel shank with insert holder
	0.512-0.610	2.756	<a href="#">35660</a>	A760 E30	<a href="#">35637</a>	A765 R1	0.630	CC..21.5..	Carbide shank with insert holder
	0.610-0.709	1.575	<a href="#">35630</a>	A760 S30	<a href="#">35641</a>	A765 R2	0.630	CC..21.5..	Steel shank with insert holder
	0.610-0.709	2.756	<a href="#">35660</a>	A760 E30	<a href="#">35641</a>	A765 R2	0.630	CC..21.5..	Carbide shank with insert holder
	0.709-0.807	1.968	<a href="#">35632</a>	A760 S31	<a href="#">35637</a>	A765 R1	0.630	CC..21.5..	Steel shank with insert holder
	0.709-0.807	3.150	<a href="#">35570</a>	A760 E31	<a href="#">35637</a>	A765 R1	0.630	CC..21.5..	Carbide shank with insert holder
	0.807-0.906	1.968	<a href="#">35632</a>	A760 S31	<a href="#">35641</a>	A765 R2	0.630	CC..21.5..	Steel shank with insert holder
	0.807-0.906	3.150	<a href="#">35570</a>	A760 E31	<a href="#">35641</a>	A765 R2	0.630	CC..21.5..	Carbide shank with insert holder
	0.906-1.004	1.968	<a href="#">35632</a>	A760 S31	<a href="#">35643</a>	A765 R3	0.630	CC..21.5..	Steel shank with insert holder
	0.906-1.004	3.150	<a href="#">35570</a>	A760 E31	<a href="#">35643</a>	A765 R3	0.630	CC..21.5..	Carbide shank with insert holder
	1.004-1.102	1.968	<a href="#">35632</a>	A760 S31	<a href="#">35644</a>	A765 R4	0.630	CC..21.5..	Steel shank with insert holder
	1.004-1.102	3.150	<a href="#">35570</a>	A760 E31	<a href="#">35644</a>	A765 R4	0.630	CC..21.5..	Carbide shank with insert holder
	1.102-1.201	1.968	<a href="#">35632</a>	A760 S31	<a href="#">35645</a>	A765 R5	0.630	CC..21.5..	Steel shank with insert holder
	1.102-1.201	3.150	<a href="#">35570</a>	A760 E31	<a href="#">35645</a>	A765 R5	0.630	CC..21.5..	Carbide shank with insert holder
	1.201-1.299	1.968	<a href="#">35632</a>	A760 S31	<a href="#">35646</a>	A765 R6	0.630	CC..21.5..	Steel shank with insert holder
	1.201-1.299	3.150	<a href="#">35570</a>	A760 E31	<a href="#">35646</a>	A765 R6	0.630	CC..21.5..	Carbide shank with insert holder
	1.299-1.319*	2.362	<a href="#">35633</a>	A760 A32	<a href="#">35637</a>	A765 R1	0.630	CC..21.5..	Aluminum shank with insert holder
	1.398-1.496*	2.362	<a href="#">35633</a>	A760 A32	<a href="#">35641</a>	A765 R2	0.630	CC..21.5..	Aluminum shank with insert holder
	1.496-1.594*	2.362	<a href="#">35633</a>	A760 A32	<a href="#">35643</a>	A765 R3	0.630	CC..21.5..	Aluminum shank with insert holder
	1.594-1.693*	2.362	<a href="#">35633</a>	A760 A32	<a href="#">35644</a>	A765 R4	0.630	CC..21.5..	Aluminum shank with insert holder
	1.693-1.791*	2.362	<a href="#">35633</a>	A760 A32	<a href="#">35645</a>	A765 R5	0.630	CC..21.5..	Aluminum shank with insert holder
	1.791-1.890*	2.362	<a href="#">35633</a>	A760 A32	<a href="#">35646</a>	A765 R6	0.630	CC..21.5..	Aluminum shank with insert holder
	1.890-1.988*	3.150	<a href="#">35634</a>	A760 A33	<a href="#">35637</a>	A765 R1	0.630	CC..21.5..	Aluminum shank with insert holder
	1.988-2.087*	3.150	<a href="#">35634</a>	A760 A33	<a href="#">35641</a>	A765 R2	0.630	CC..21.5..	Aluminum shank with insert holder
	2.087-2.185*	3.150	<a href="#">35634</a>	A760 A33	<a href="#">35643</a>	A765 R3	0.630	CC..21.5..	Aluminum shank with insert holder
	2.185-2.283*	3.150	<a href="#">35634</a>	A760 A33	<a href="#">35644</a>	A765 R4	0.630	CC..21.5..	Aluminum shank with insert holder
2.283-2.382*	3.150	<a href="#">35634</a>	A760 A33	<a href="#">35645</a>	A765 R5	0.630	CC..21.5..	Aluminum shank with insert holder	
2.382-2.480*	3.150	<a href="#">35634</a>	A760 A33	<a href="#">35646</a>	A765 R6	0.630	CC..21.5..	Aluminum shank with insert holder	

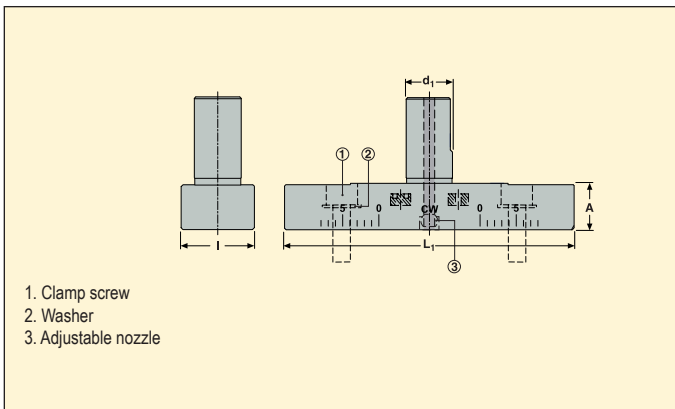
For larger diameters, see Multi-purpose adapter (MPA) section.

\* When used on A760 13, no fine balancing is possible.

## Multi-purpose adapter (MPA), for EPB 760 heads



- Suitable for - Axiabore™ Plus - A760 03 head only\*
- Designed to hold a shank and a counterweight (for boring or OD-overturning) or two grooving tool holders (for face grooving)
- Through coolant with an adjustable nozzle (3)



Capacity C Ø inch			d <sub>1</sub> (inch)	EDP No.	Part No.	Dimensions in inch			lbs
For boring	For OD-overturning	For grooving				L <sub>1</sub>	I	A	
2.087-4.252	0.079-2.244	0.748-3.780	0.630	35647	BDA16BS25100	3.937	0.984	0.630	0.62

\* When used on an - Axialibrabore™ Plus - A760 13 head, no fine balancing possible, see page(s) 494.  
Select the required components to realise boring, OD-overturning or grooving assemblies, using following page(s) 508-513.

### Spare parts

For	Washer	Assembly screw
BDA16 BS25100	940ZC06	950D0618

### Accessories\*

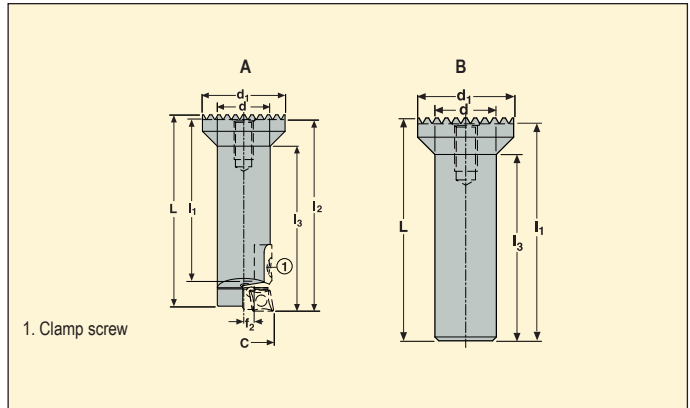
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Please check availability in current price and stock-list.  
\* Accessories not included in delivery.

## Shank & counterweight, for boring or OD-overturning on a MPA, for EPB 760 heads



- For fitting on to the MPA
- Shank can be used for boring or OD-overturning
- Takes the same insert holders as the modular boring shanks



Type	Capacity C ∅ inch**		d (inch)	d <sub>1</sub> (inch)	EDP No.	Part No.	Dimensions in inch					Design	lbs
	For boring	For OD-overturning					L	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	f <sub>2</sub>		
Shank*	2.087-4.252	0.079-2.244	0.630	0.984	35650	BAS25MH1660	2.303	1.909	2.303	1.969	0.157	A	0.22
Counterweight	2.087-4.252	0.079-2.244	0.630	0.984	35648	BAS25CW1660	2.283	2.228	–	1.909	–	B	0.24

\* Insert holders to be ordered separately, see page(s) 502. \*\* Capacities in boring and OD-overturning are related to the selected insert holder and the setting position of the shanks using the 'Insert holders for boring or OD-overturning selection chart' on page(s) 508-513.

### Spare parts

For	Assembly screw
BAS25 MH1660	C04008-T15P

### Accessories\*

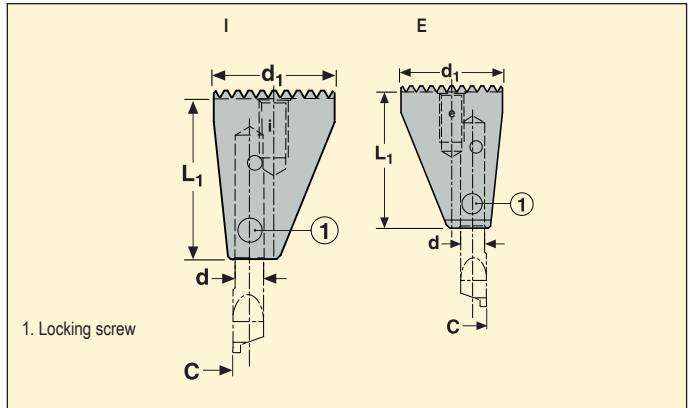
Clamp key
T15P-3

Please check availability in current price and stock-list.  
\* Accessories not included in delivery.

## Grooving tool holders, for face grooving on a MPA, for EPB 760 heads



- For fitting on the MPA
- A grooving tool holder is used either to hold a grooving tool, or to act as a counterweight



Type	Capacity C Ø inch**	d <sub>1</sub> (inch)	EDP No.	Part No.	Dimensions in inch		Design	lbs
					d	L <sub>1</sub>		
Grooving tool holder I (internal)*	0.748-2.992	0.984	35652	BAS25FGI35	0.236	1.339	I (Internal)	0.22
Grooving tool holder E (external)*	1.535-3.780	0.984	35651	BAS25FGE35	0.236	1.339	E (External)	0.22

\* Grooving tools to be ordered separately, see page(s) 507. \*\* Capacity in grooving is related to the selected grooving tool, the setting position and orientation of the grooving tool holder, using the 'Grooving tool against pilot (or against bore) selection charts' see page(s) 508-513.

### Spare parts

### Accessories\*

For	Locking screw
BAS25 FGI35	950L0607T15P
BAS25 FGI35	950L0607T15P

Locking key
T15P-3
T15P-3

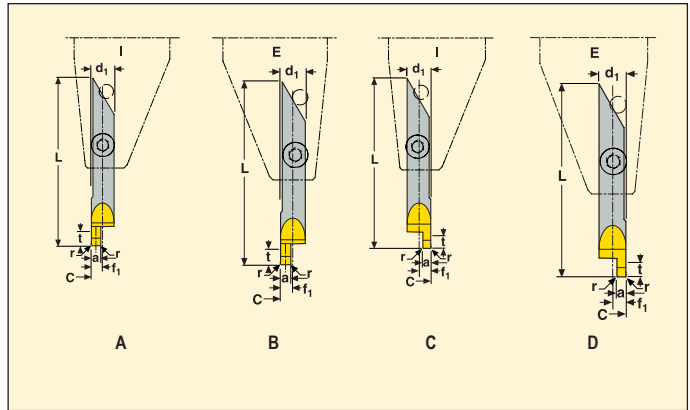
Please check availability in current price and stock-list.

\* Accessories not included in delivery.

## Grooving tools, for EPB 760 heads

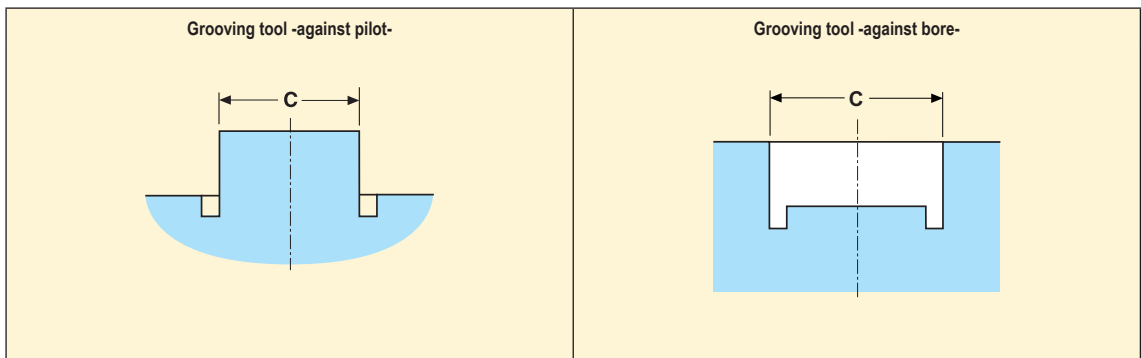


- Can be used for either 'external' or 'internal' grooving tool holders, depending on capacity



	Capacity C Ø inch*				a	d <sub>1</sub> (inch)	EDP No.	Part No.	Dimensions in inch			Groove max. depth t inch	
	Design A	Design B	Design C	Design D					L	f <sub>1</sub>	r		
Grooving tool -against pilot-	0.748-2.520	1.535-3.307	-	-	0.039	0.236	<a href="#">35658</a>	<a href="#">AFG0629101582</a>	1.654	0.116	0.006	0.079	0.15
	0.748-2.520	1.535-3.307	-	-	0.059	0.236	<a href="#">35659</a>	<a href="#">AFG0629151582</a>	1.654	0.116	0.006	0.118	0.15
	0.748-2.520	1.535-3.307	-	-	0.079	0.236	<a href="#">35660</a>	<a href="#">AFG0629201582</a>	1.654	0.116	0.006	0.197	0.15
	0.748-2.520	1.535-3.307	-	-	0.098	0.236	<a href="#">35661</a>	<a href="#">AFG0629251582</a>	1.654	0.116	0.006	0.197	0.15
	0.748-2.520	1.535-3.307	-	-	0.118	0.236	<a href="#">35662</a>	<a href="#">AFG0629301582</a>	1.654	0.116	0.006	0.236	0.15
Grooving tool -against bore-	-	-	1.220-2.992	2.008-3.780	0.039	0.236	<a href="#">35653</a>	<a href="#">AFG0629101581</a>	1.654	0.116	0.006	0.079	0.04
	-	-	1.220-2.992	2.008-3.780	0.059	0.236	<a href="#">35654</a>	<a href="#">AFG0629151581</a>	1.654	0.116	0.006	0.118	0.15
	-	-	1.220-2.992	2.008-3.780	0.079	0.236	<a href="#">35655</a>	<a href="#">AFG0629201581</a>	1.654	0.116	0.006	0.157	0.15
	-	-	1.220-2.992	2.008-3.780	0.098	0.236	<a href="#">35656</a>	<a href="#">AFG0629251581</a>	1.654	0.116	0.006	0.197	0.15
	-	-	1.220-2.992	2.008-3.780	0.118	0.236	<a href="#">35657</a>	<a href="#">AFG0629301581</a>	1.654	0.116	0.006	0.236	0.15

\* Capacity in grooving is related to the selected grooving tool and the setting position and orientation of the grooving tool holder, using the 'Grooving tool against pilot (or against bore) selection charts' see page(s) 508-513.

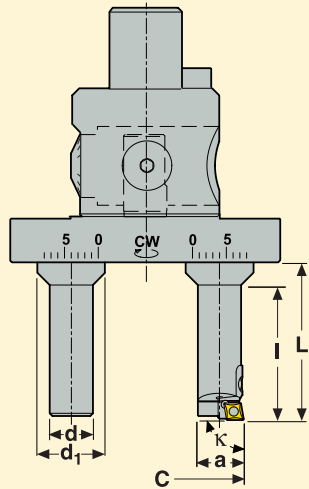


Please check availability in current price and stock-list.

## Selection chart: Insert holders for boring with MPA for EPB 760 heads

Select a suitable insert holder, and note the shank position on the MPA to obtain the required bore capacity.

- Note : A boring assembly requires :**
- an - Axiabore™ Plus - head (A760 03)
  - a MPA (BDA16BS25100)
  - a shank (BAS25MH1660)
  - a counterweight (BAS25CW1660).
  - an insert holder (A765R.) to be selected in the chart
  - an insert

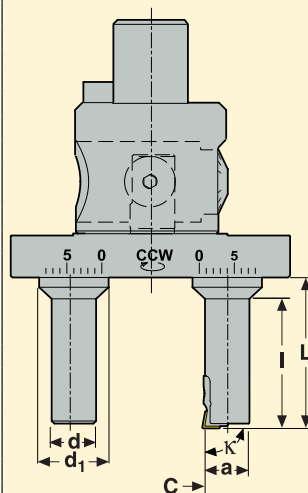


Capacity C Ø inch*	EDP No.	Insert holder Part No.	Shank position	Dimensions in inch					Lead angle k°	Suitable insert size
				d	d <sub>1</sub>	L	l	a		
2.087-2.185	35637	A765 R1	0	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
2.185-2.283	35641	A765 R2	0	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
2.283-2.382	35637	A765 R1	1	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
	35643	A765 R3	0	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
2.382-2.480	35641	A765 R2	1	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	35644	A765 R4	0	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
2.480-2.579	35637	A765 R1	2	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
	35643	A765 R3	1	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	35645	A765 R5	0	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
2.579-2.677	35641	A765 R2	2	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	35644	A765 R4	1	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	35646	A765 R6	0	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
2.677-2.776	35637	A765 R1	3	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
	35643	A765 R3	2	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	35645	A765 R5	1	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
2.776-2.874	35641	A765 R2	3	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	35644	A765 R4	2	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	35646	A765 R6	1	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
2.874-2.972	35637	A765 R1	4	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
	35643	A765 R3	3	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	35645	A765 R5	2	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
2.972-3.071	35641	A765 R2	4	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	35644	A765 R4	3	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	35646	A765 R6	2	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
3.071-3.169	35637	A765 R1	5	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
	35643	A765 R3	4	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	35645	A765 R5	3	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
3.169-3.268	35641	A765 R2	5	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	35644	A765 R4	4	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	35646	A765 R6	3	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
3.268-3.366	35637	A765 R1	6	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
	35643	A765 R3	5	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	35645	A765 R5	4	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
3.366-3.465	35641	A765 R2	6	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	35644	A765 R4	5	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	35646	A765 R6	4	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
3.465-3.563	35637	A765 R1	7	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
	35643	A765 R3	6	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	35645	A765 R5	5	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
3.563-3.661	35641	A765 R2	7	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	35644	A765 R4	6	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	35646	A765 R6	5	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
3.661-3.760	35637	A765 R1	8	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
	35643	A765 R3	7	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	35645	A765 R5	6	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
3.760-3.858	35641	A765 R2	8	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	35644	A765 R4	7	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	35646	A765 R6	6	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
3.858-3.957	35643	A765 R3	8	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	35645	A765 R5	7	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	35644	A765 R4	8	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
3.957-4.055	35646	A765 R6	7	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	35645	A765 R5	8	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
4.055-4.154	35645	A765 R5	8	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
4.154-4.252	35646	A765 R6	8	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..

\* +0.008" complementary capacity achievable.  
Detailed description of insert holders, see page(s) 502.

## Selection chart: Insert holders for OD-overturning with MPA, for EPB 760 heads

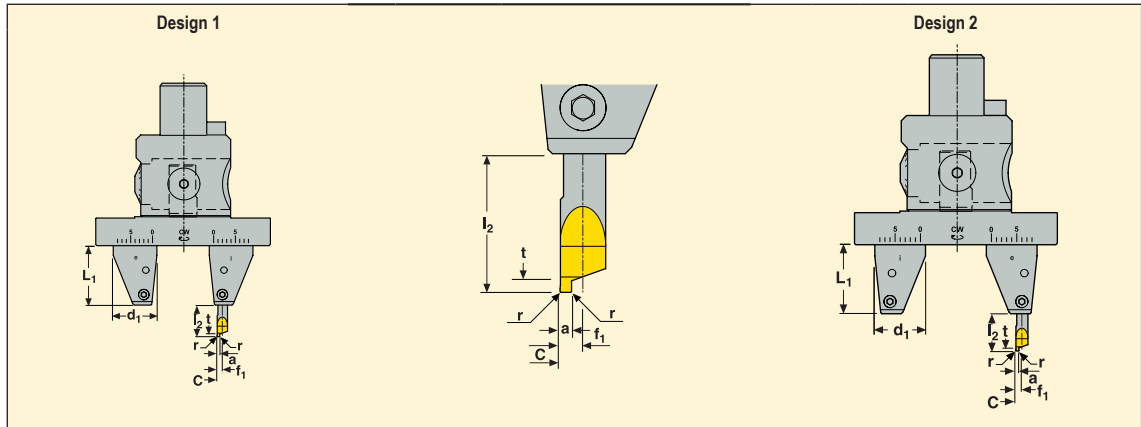
Select a suitable insert holder, and note the shank position on the MPA to obtain the required OD-overturning capacity.  
 Note : A boring assembly requires :  
 - an - Axiabore™ Plus - head (A760 03)  
 - a MPA (BDA16BS25100)  
 - a shank (BAS25MH1660)  
 - a counterweight (BAS25CW1660).  
 - an insert holder (A765R.) to be selected in the chart  
 - an insert



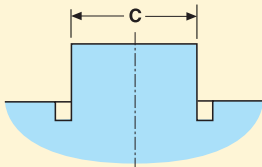
Capacity C ∅ inch*	EDP No.	Insert holder Part No.	Setting position	Dimensions in inch					Lead angle κ°	Suitable insert size
				d	d <sub>1</sub>	L	l	a		
0.079-0.177	<a href="#">35646</a>	A765 R6	0	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
0.177-0.276	<a href="#">35645</a>	A765 R5	0	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
0.276-0.374	<a href="#">35646</a>	A765 R6	1	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	<a href="#">35644</a>	A765 R4	0	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
0.374-0.472	<a href="#">35645</a>	A765 R5	1	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	<a href="#">35643</a>	A765 R3	0	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
0.472-0.571	<a href="#">35646</a>	A765 R6	2	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	<a href="#">35644</a>	A765 R4	1	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	<a href="#">35641</a>	A765 R2	0	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
0.571-0.669	<a href="#">35645</a>	A765 R5	2	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	<a href="#">35643</a>	A765 R3	1	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	0	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
0.669-0.768	<a href="#">35646</a>	A765 R6	3	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	<a href="#">35644</a>	A765 R4	2	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	<a href="#">35641</a>	A765 R2	1	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
0.768-0.866	<a href="#">35645</a>	A765 R5	3	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	<a href="#">35643</a>	A765 R3	2	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	1	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
0.866-0.965	<a href="#">35646</a>	A765 R6	4	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	<a href="#">35644</a>	A765 R4	3	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	<a href="#">35641</a>	A765 R2	2	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
0.965-1.063	<a href="#">35645</a>	A765 R5	4	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	<a href="#">35643</a>	A765 R3	3	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	2	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
1.063-1.161	<a href="#">35646</a>	A765 R6	5	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	<a href="#">35644</a>	A765 R4	4	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	<a href="#">35641</a>	A765 R2	3	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
1.161-1.260	<a href="#">35645</a>	A765 R5	5	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	<a href="#">35643</a>	A765 R3	4	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	3	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
1.260-1.358	<a href="#">35646</a>	A765 R6	6	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	<a href="#">35644</a>	A765 R4	5	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	<a href="#">35641</a>	A765 R2	4	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
1.358-1.457	<a href="#">35645</a>	A765 R5	6	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	<a href="#">35643</a>	A765 R3	5	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	4	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
1.457-1.555	<a href="#">35646</a>	A765 R6	7	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	<a href="#">35644</a>	A765 R4	6	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	<a href="#">35641</a>	A765 R2	5	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
1.555-1.654	<a href="#">35645</a>	A765 R5	7	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	<a href="#">35643</a>	A765 R3	6	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	5	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
1.654-1.752	<a href="#">35646</a>	A765 R6	8	0.630	0.984	2.303	1.968	0.913	90°	CC..21.5..
	<a href="#">35644</a>	A765 R4	7	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	<a href="#">35641</a>	A765 R2	6	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
1.752-1.850	<a href="#">35645</a>	A765 R5	8	0.630	0.984	2.303	1.968	0.866	90°	CC..21.5..
	<a href="#">35643</a>	A765 R3	7	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	6	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
1.850-1.949	<a href="#">35644</a>	A765 R4	8	0.630	0.984	2.303	1.968	0.815	90°	CC..21.5..
	<a href="#">35641</a>	A765 R2	7	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
1.949-2.047	<a href="#">35643</a>	A765 R3	8	0.630	0.984	2.303	1.968	0.768	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	7	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
2.047-2.146	<a href="#">35641</a>	A765 R2	8	0.630	0.984	2.303	1.968	0.716	90°	CC..21.5..
	<a href="#">35637</a>	A765 R1	8	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..
2.146-2.244	<a href="#">35637</a>	A765 R1	8	0.630	0.984	2.303	1.968	0.669	90°	CC..21.5..

\* +0.008" complementary capacity achievable.  
 Detailed description of insert holders, see page(s) 502.

## Selection chart: Grooving tool -against pilot- for grooving with MPA, for EPB 760 heads



Select the suitable grooving tool, and note the grooving tool holder position on the MPA to obtain the required groove capacity.



Note : An -against pilot- grooving assembly requires :

- an - Axiabore™ Plus - head (A760 03)
- a MPA (BDA16BS25100)
- an I (internal position) and an E (external position) grooving tool holder (BAS25FGI35 and BAS25FGE35) to either hold a grooving tool or act as a counterweight (see setting position in the chart)
- an -against pilot- grooving tool (AFG...82) to be selected from the chart, related to groove width and diameter.

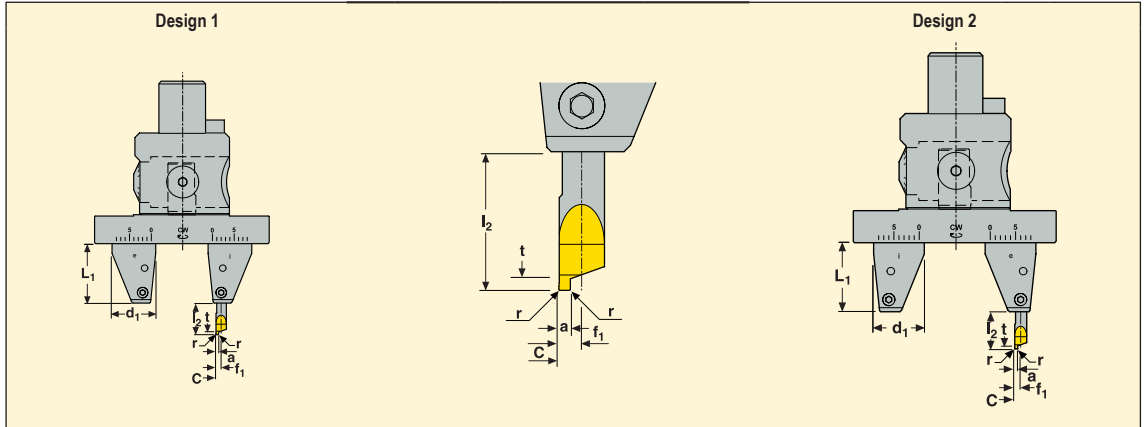
a	Capacity C Ø inch*	against pilot grooving tool Part No. / EDP No.	Grooving toolholder position**	Design	Dimensions in inch					Groove max. depth t inch
					d <sub>1</sub>	L <sub>1</sub>	l <sub>2</sub>	f <sub>1</sub>	r	
0.039	0.748-0.945	AFG0629 10 1582 / EDP No. 35658	0-I	1	0.984	1.339	0.709	0.116	0.006	0.079
0.039	0.945-1.142		1-I	1	0.984	1.339	0.709	0.116	0.006	0.079
0.039	1.142-1.339		2-I	1	0.984	1.339	0.709	0.116	0.006	0.079
0.039	1.339-1.535		3-I	1	0.984	1.339	0.709	0.116	0.006	0.079
0.039	1.535-1.732		0-E / 4-I	1/2	0.984	1.339	0.709	0.116	0.006	0.079
0.039	1.732-1.929		1-E / 5-I	1/2	0.984	1.339	0.709	0.116	0.006	0.079
0.039	1.929-2.126		2-E / 6-I	1/2	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.126-2.323		3-E / 7-I	1/2	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.323-2.520		4-E / 8-I	1/2	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.520-2.716		5-E	2	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.716-2.913		6-E	2	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.913-3.110		7-E	2	0.984	1.339	0.709	0.116	0.006	0.079
0.039	3.110-3.307		8-E	2	0.984	1.339	0.709	0.116	0.006	0.079
0.059	0.748-0.945		AFG0629 15 1582 / EDP No. 35659	0-I	1	0.984	1.339	0.709	0.116	0.006
0.059	0.945-1.142	1-I		1	0.984	1.339	0.709	0.116	0.006	0.118
0.059	1.142-1.339	2-I		1	0.984	1.339	0.709	0.116	0.006	0.118
0.059	1.339-1.535	3-I		1	0.984	1.339	0.709	0.116	0.006	0.118
0.059	1.535-1.732	0-E / 4-I		1/2	0.984	1.339	0.709	0.116	0.006	0.118
0.059	1.732-1.929	1-E / 5-I		1/2	0.984	1.339	0.709	0.116	0.006	0.118
0.059	1.929-2.126	2-E / 6-I		1/2	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.126-2.323	3-E / 7-I		1/2	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.323-2.520	4-E / 8-I		1/2	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.520-2.716	5-E		2	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.716-2.913	6-E		2	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.913-3.110	7-E		2	0.984	1.339	0.709	0.116	0.006	0.118
0.059	3.110-3.307	8-E		2	0.984	1.339	0.709	0.116	0.006	0.118
0.079	0.748-0.945	AFG0629 20 1582 / EDP No. 35660		0-I	1	0.984	1.339	0.709	0.116	0.006
0.079	0.945-1.142		1-I	1	0.984	1.339	0.709	0.116	0.006	0.157
0.079	1.142-1.339		2-I	1	0.984	1.339	0.709	0.116	0.006	0.157
0.079	1.339-1.535		3-I	1	0.984	1.339	0.709	0.116	0.006	0.157
0.079	1.535-1.732		0-E / 4-I	1/2	0.984	1.339	0.709	0.116	0.006	0.157
0.079	1.732-1.929		1-E / 5-I	1/2	0.984	1.339	0.709	0.116	0.006	0.157
0.079	1.929-2.126		2-E / 6-I	1/2	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.126-2.323		3-E / 7-I	1/2	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.323-2.520		4-E / 8-I	1/2	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.520-2.716		5-E	2	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.716-2.913		6-E	2	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.913-3.110		7-E	2	0.984	1.339	0.709	0.116	0.006	0.157
0.079	3.110-3.307		8-E	2	0.984	1.339	0.709	0.116	0.006	0.157

\* +0.008" complementary capacity achievable. \*\* Recommended values in bold.

Detailed description of the grooving tools, see page(s) 507.



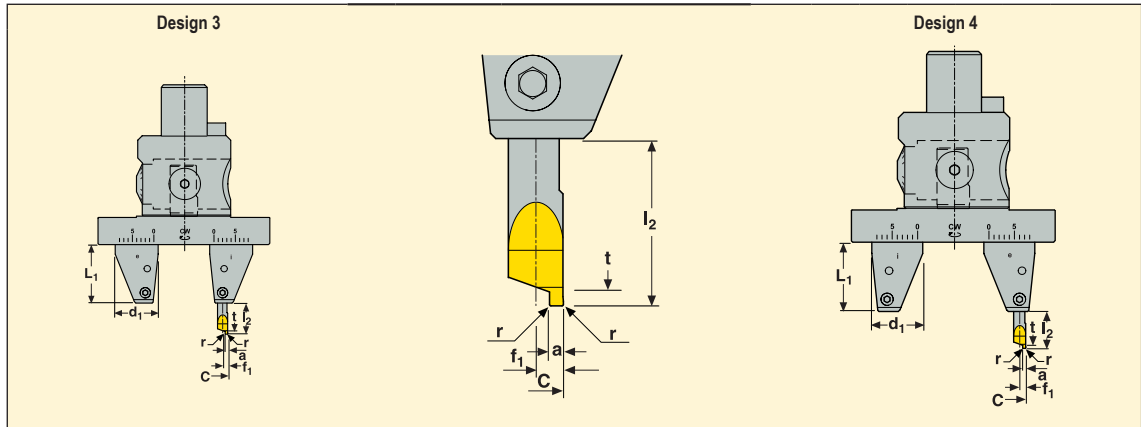
## Selection chart: Grooving tool -against pilot- for grooving with MPA, for EPB 760 heads (cont.)



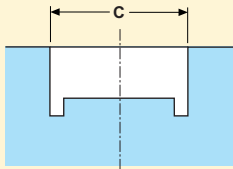
Select the suitable grooving tool, and note the grooving tool holder position on the MPA to obtain the required groove capacity.	a	Capacity C ∅ inch*	against pilot grooving tool Part No. / EDP No.	Grooving toolholder position**	Design	Dimensions in inch					Groove max depth t inch
						d <sub>1</sub>	L <sub>1</sub>	l <sub>2</sub>	f <sub>1</sub>	r	
<p>Note : An -against pilot- grooving assembly requires :</p> <ul style="list-style-type: none"> <li>- an - Axiabore™ Plus - head (A760 03)</li> <li>- a MPA (BDA16BS25100)</li> <li>- an I (internal position) and an E (external position) grooving tool holder (BAS25FG135 and BAS25FGE35) to either hold a grooving tool or act as a counterweight (see setting position in the chart)</li> <li>- an -against pilot- grooving tool (AFG...82) to be selected from the chart, related to groove width and diameter.</li> </ul>	0.098	0.748-0.945	AFG0629 25 1582 / EDP No. 35661	0-I	1	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	0.945-1.142		1-I	1	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	1.142-1.339		2-I	1	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	1.339-1.535		3-I	1	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	1.535-1.732		<b>0-E / 4-I</b>	1/2	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	1.732-1.929		<b>1-E / 5-I</b>	1/2	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	1.929-2.126		<b>2-E / 6-I</b>	1/2	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	2.126-2.323		<b>3-E / 7-I</b>	1/2	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	2.323-2.520		<b>4-E / 8-I</b>	1/2	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	2.520-2.716		5-E	2	0.984	1.339	0.709	1.116	0.006	0.197
	0.098	2.716-2.913	6-E	2	0.984	1.339	0.709	1.116	0.006	0.197	
	0.098	2.913-3.110	7-E	2	0.984	1.339	0.709	1.116	0.006	0.197	
	0.098	3.110-3.307	8-E	2	0.984	1.339	0.709	1.116	0.006	0.197	
	0.118	0.748-0.945	AFG0629 30 1582 / EDP No. 35662	0-I	1	0.984	1.339	0.709	1.116	0.006	0.236
	0.118	0.945-1.142		1-I	1	0.984	1.339	0.709	1.116	0.006	0.236
	0.118	1.142-1.339		2-I	1	0.984	1.339	0.709	1.116	0.006	0.236
	0.118	1.339-1.535		3-I	1	0.984	1.339	0.709	1.116	0.006	0.236
	0.118	1.535-1.732		<b>0-E / 4-I</b>	1/2	0.984	1.339	0.709	1.116	0.006	0.236
	0.118	1.732-1.929		<b>1-E / 5-I</b>	1/2	0.984	1.339	0.709	1.116	0.006	0.236
	0.118	1.929-2.126		<b>2-E / 6-I</b>	1/2	0.984	1.339	0.709	1.116	0.006	0.236
0.118	2.126-2.323	<b>3-E / 7-I</b>		1/2	0.984	1.339	0.709	1.116	0.006	0.236	
0.118	2.323-2.520	<b>4-E / 8-I</b>		1/2	0.984	1.339	0.709	1.116	0.006	0.236	
0.118	2.520-2.716	5-E		2	0.984	1.339	0.709	1.116	0.006	0.236	
0.118	2.716-2.913	6-E	2	0.984	1.339	0.709	1.116	0.006	0.236		
0.118	2.913-3.110	7-E	2	0.984	1.339	0.709	1.116	0.006	0.236		
0.118	3.110-3.307	8-E	2	0.984	1.339	0.709	1.116	0.006	0.236		

\* +0.008" complementary capacity achievable. \*\* Recommended values in bold.  
Detailed description of the grooving tools, see page(s) 507.

## Selection chart: Grooving tool -against bore- for grooving with MPA, for EPB 760 heads



Select the suitable grooving tool, and note the grooving tool holder position on the MPA to obtain the required groove capacity.



Note : An -against bore- grooving assembly requires :

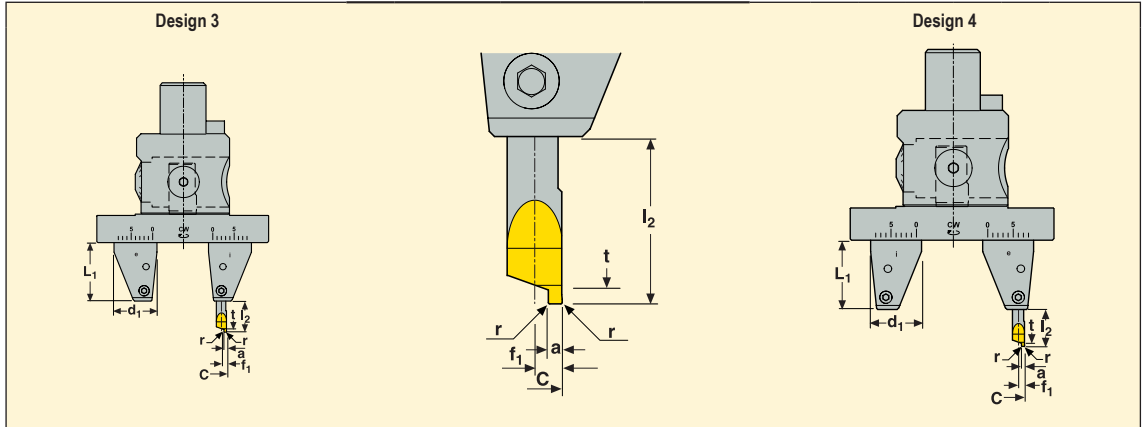
- an - Axiabore™ Plus - head (A760 03)
- a MPA (BDA16BS25100)
- an I (internal position) and an E (external position) grooving tool holder (BAS25FGI35 and BAS25FGE35) to either hold a grooving tool or act as a counterweight (see setting position in the chart)
- an -against bore- grooving tool (AFG...81) to be selected from the chart, related to groove width and diameter.

a	Capacity C Ø inch*	against bore grooving tool Part No. / EDP No.	Grooving toolholder position**	Design	Dimensions in inch					Groove max depth t inch
					d <sub>1</sub>	L <sub>1</sub>	l <sub>2</sub>	f <sub>1</sub>	r	
0.039	1.220-1.417	AFG0629 10 1581 / EDP No. 35653	0-I	3	0.984	1.339	0.709	0.116	0.006	0.079
0.039	1.417-1.614		1-I	3	0.984	1.339	0.709	0.116	0.006	0.079
0.039	1.614-1.811		2-I	3	0.984	1.339	0.709	0.116	0.006	0.079
0.039	1.811-2.008		3-I	3	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.008-2.205		0-E / 4-I	3/4	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.205-2.402		1-E / 5-I	3/4	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.402-2.598		2-E / 6-I	3/4	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.598-2.795		3-E / 7-I	3/4	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.795-2.992		4-E / 8-I	3/4	0.984	1.339	0.709	0.116	0.006	0.079
0.039	2.992-3.189		5-E	4	0.984	1.339	0.709	0.116	0.006	0.079
0.039	3.189-3.386		6-E	4	0.984	1.339	0.709	0.116	0.006	0.079
0.039	3.386-3.583		7-E	4	0.984	1.339	0.709	0.116	0.006	0.079
0.039	3.583-3.779		8-E	4	0.984	1.339	0.709	0.116	0.006	0.079
0.059	1.220-1.417		AFG0629 15 1581 / EDP No. 35654	0-I	3	0.984	1.339	0.709	0.116	0.006
0.059	1.417-1.614	1-I		3	0.984	1.339	0.709	0.116	0.006	0.118
0.059	1.614-1.811	2-I		3	0.984	1.339	0.709	0.116	0.006	0.118
0.059	1.811-2.008	3-I		3	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.008-2.205	0-E / 4-I		3/4	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.205-2.402	1-E / 5-I		3/4	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.402-2.598	2-E / 6-I		3/4	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.598-2.795	3-E / 7-I		3/4	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.795-2.992	4-E / 8-I		3/4	0.984	1.339	0.709	0.116	0.006	0.118
0.059	2.992-3.189	5-E		4	0.984	1.339	0.709	0.116	0.006	0.118
0.059	3.189-3.386	6-E		4	0.984	1.339	0.709	0.116	0.006	0.118
0.059	3.386-3.583	7-E		4	0.984	1.339	0.709	0.116	0.006	0.118
0.059	3.583-3.779	8-E		4	0.984	1.339	0.709	0.116	0.006	0.118
0.079	1.220-1.417	AFG0629 20 1581 / EDP No. 35655		0-I	3	0.984	1.339	0.709	0.116	0.006
0.079	1.417-1.614		1-I	3	0.984	1.339	0.709	0.116	0.006	0.157
0.079	1.614-1.811		2-I	3	0.984	1.339	0.709	0.116	0.006	0.157
0.079	1.811-2.008		3-I	3	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.008-2.205		0-E / 4-I	3/4	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.205-2.402		1-E / 5-I	3/4	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.402-2.598		2-E / 6-I	3/4	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.598-2.795		3-E / 7-I	3/4	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.795-2.992		4-E / 8-I	3/4	0.984	1.339	0.709	0.116	0.006	0.157
0.079	2.992-3.189		5-E	4	0.984	1.339	0.709	0.116	0.006	0.157
0.079	3.189-3.386		6-E	4	0.984	1.339	0.709	0.116	0.006	0.157
0.079	3.386-3.583		7-E	4	0.984	1.339	0.709	0.116	0.006	0.157
0.079	3.583-3.779		8-E	4	0.984	1.339	0.709	0.116	0.006	0.157

\* +0.008" complementary capacity achievable. \*\* Recommended values in bold.

Detailed description of the grooving tools, see page(s) 507.

## Selection chart: Grooving tool -against bore- for grooving with MPA, for EPB 760 heads (cont.)



a	Capacity C ∅ inch*	against bore grooving tool Part No. / EDP No.	Grooving toolholder position**	Design	Dimensions in inch					Groove max depth t inch
					d <sub>1</sub>	L <sub>1</sub>	l <sub>2</sub>	f <sub>1</sub>	r	
0.098	1.220-1.417	AFG0629 25 1581 / EDP No. 35656	0-I	3	0.984	1.339	0.709	0.116	0.006	0.197
0.098	1.417-1.614		1-I	3	0.984	1.339	0.709	0.116	0.006	0.197
0.098	1.614-1.811		2-I	3	0.984	1.339	0.709	0.116	0.006	0.197
0.098	1.811-2.008		3-I	3	0.984	1.339	0.709	0.116	0.006	0.197
0.098	2.008-2.205		0-E / 4-I	3/4	0.984	1.339	0.709	0.116	0.006	0.197
0.098	2.205-2.402		1-E / 5-I	3/4	0.984	1.339	0.709	0.116	0.006	0.197
0.098	2.402-2.598		2-E / 6-I	3/4	0.984	1.339	0.709	0.116	0.006	0.197
0.098	2.598-2.795		3-E / 7-I	3/4	0.984	1.339	0.709	0.116	0.006	0.197
0.098	2.795-2.992		4-E / 8-I	3/4	0.984	1.339	0.709	0.116	0.006	0.197
0.098	2.992-3.189		5-E	4	0.984	1.339	0.709	0.116	0.006	0.197
0.098	3.189-3.386		6-E	4	0.984	1.339	0.709	0.116	0.006	0.197
0.098	3.386-3.583		7-E	4	0.984	1.339	0.709	0.116	0.006	0.197
0.098	3.583-3.779		8-E	4	0.984	1.339	0.709	0.116	0.006	0.197
0.118	1.220-1.417		AFG0629 30 1581 / EDP No. 35657	0-I	3	0.984	1.339	0.709	0.116	0.006
0.118	1.417-1.614	1-I		3	0.984	1.339	0.709	0.116	0.006	0.236
0.118	1.614-1.811	2-I		3	0.984	1.339	0.709	0.116	0.006	0.236
0.118	1.811-2.008	3-I		3	0.984	1.339	0.709	0.116	0.006	0.236
0.118	2.008-2.205	0-E / 4-I		3/4	0.984	1.339	0.709	0.116	0.006	0.236
0.118	2.205-2.402	1-E / 5-I		3/4	0.984	1.339	0.709	0.116	0.006	0.236
0.118	2.402-2.598	2-E / 6-I		3/4	0.984	1.339	0.709	0.116	0.006	0.236
0.118	2.598-2.795	3-E / 7-I		3/4	0.984	1.339	0.709	0.116	0.006	0.236
0.118	2.795-2.992	4-E / 8-I		3/4	0.984	1.339	0.709	0.116	0.006	0.236
0.118	2.992-3.189	5-E		4	0.984	1.339	0.709	0.116	0.006	0.236
0.118	3.189-3.386	6-E		4	0.984	1.339	0.709	0.116	0.006	0.236
0.118	3.386-3.583	7-E		4	0.984	1.339	0.709	0.116	0.006	0.236
0.118	3.583-3.779	8-E		4	0.984	1.339	0.709	0.116	0.006	0.236

\* +0.008" complementary capacity achievable. \*\* Recommended values in bold.






Detailed description of the grooving tools, see page(s) 507.

## EPB 760 – Axiabore™ - Delivery content

	EDP No.	Part No.	Delivery content					Insert holder	Reduction bushings & key	lbs
			Head	Boring bar						
				Tool	C Ø inch	Material	l inch			
<b>Nanobore™ Kit B</b> cap. Ø 0.012-0.315" (with all tools) 	20614	A760 01B	A760 01	A761 402	0.012-0.020	Solid carbide	0.047	–	935L01 *	1.6
				A761 412	0.020-0.039	Solid carbide	0.079	–	05A7600604 **	
				A761 422	0.039-0.078	Solid carbide	0.197	–	H2.0-2D ***	
				A761 432	0.079-0.118	Solid carbide	0.315	–	T06P-2 ***	
				A761 442	0.118-0.177	Solid carbide	0.394	–		
				A761 452	0.177-0.236	Solid carbide	0.590	–		
				A762 001	0.236-0.315	Steel	0.630	–		
				A762 201	0.236-0.315	Carbide	1.02	–		
<b>Axiabore™ Kit A</b> cap. Ø 0.236-0.787" 	35440	A760 02A	A760 02	A762 002	0.236-0.315	Steel	0.630	A765 R1	03M03C ***	2.6
				A763 002	0.315-0.394	Steel	0.866	A765 R2	T06P-2 ***	
				A765 002	0.394-0.512	Steel	1.181	A765 R3	T07P-2 ***	
				A760 S20	0.512-0.787	Steel, modular	1.575			
<b>Axiabore™ Kit B</b> cap. Ø 0.079-0.787" 	35441	A760 02B	A760 02	A761 432	0.079-0.118	Solid carbide	0.315	A765 R1	05A7601204 **	3.5
				A761 442	0.118-0.177	Solid carbide	0.394	A765 R2	03M03C ***	
				A761 452	0.177-0.236	Solid carbide	0.590	A765 R3	T06P-2 ***	
				A762 002	0.236-0.315	Steel	0.630		T07P-2 ***	
				A762 202	0.236-0.315	Carbide	1.063			
				A763 002	0.315-0.394	Steel	0.866			
				A763 202	0.315-0.394	Carbide	1.457			
				A765 002	0.394-0.512	Steel	1.181			
				A765 202	0.394-0.512	Carbide	2.166			
				A760 S20	0.512-0.787	Steel, modular	1.575			
				A760 E20	0.512-0.787	Carbide, modular	2.756			
<b>Axialibrabore™ Kit A</b> cap. Ø 0.236-0.787" 	35454	A760 12A	A760 12	A762 002	0.236-0.315	Steel	0.630	A765 R1	03M03C ***	2.9
				A763 002	0.315-0.394	Steel	0.866	A765 R2	T06P-2 ***	
				A765 002	0.394-0.512	Steel	1.181	A765 R3	T07P-2 ***	
				A760 S20	0.512-0.787	Steel, modular	1.575			
<b>Axialibrabore™ Kit B</b> cap. Ø 0.079-0.787" 	35455	A760 12B	A760 12	A761 432	0.079-0.118	Solid carbide	0.315	A765 R1	05A7601204 **	3.7
				A761 442	0.118-0.177	Solid carbide	0.394	A765 R2	03M03C ***	
				A761 452	0.177-0.236	Solid carbide	0.590	A765 R3	T06P-2 ***	
				A762 002	0.236-0.315	Steel	0.630		T07P-2 ***	
				A762 202	0.236-0.315	Carbide	1.063			
				A763 002	0.315-0.394	Steel	0.866			
				A763 202	0.315-0.394	Carbide	1.457			
				A765 002	0.394-0.512	Steel	1.181			
				A765 202	0.394-0.512	Carbide	2.165			
				A760 S20	0.512-0.787	Steel, modular	1.575			
				A760 E20	0.512-0.787	Carbide, modular	2.756			

All kits are delivered in a storage case. \* Magnifying glass. \*\* Reduction bushing. \*\*\* Key.  
 Please check availability in current price and stock-list.

## EPB 760 – Axiabore™ - Delivery content

	EDP No.	Part No.	Delivery content					Insert holder	Reduction bushing & key	lbs
			Head	Boring bar						
				Tool	C Ø inch	Material	l inch			
<b>Axiabore™ Plus - Kit A</b> cap. Ø 0.236-1.299" 	35446	A760 03A	A760 03	A762 003	0.236-0.315	Steel	0.630	A765 R1	H04-4 ***	5.7
			A762 203	0.236-0.315	Carbide	1.063	A765 R2	T06P-3 ***		
			A763 003	0.315-0.394	Steel	0.866	A765 R3	T07P-3 ***		
			A763 203	0.315-0.394	Carbide	1.063	A765 R4	T15P-3 ***		
			A765 003	0.394-0.512	Steel	1.181	A765 R5			
			A765 203	0.394-0.512	Carbide	2.165	A765 R6			
<b>Axiabore™ Plus - Kit B</b> cap. Ø 0.236-2.480" 	35452	A760 03B	A760 03	A762 003	0.236-0.315	Steel	0.630	A765 R1	H04-4 ***	8.8
			A762 203	0.236-0.315	Carbide	1.063	A765 R2	T06P-3 ***		
			A763 003	0.315-0.394	Steel	0.866	A765 R3	T07P-3 ***		
			A763 203	0.315-0.394	Carbide	1.063	A765 R4	T15P-3 ***		
			A765 003	0.394-0.512	Steel	1.181	A765 R5			
			A765 203	0.394-0.512	Carbide	2.165	A765 R6			
			A760 S30	0.512-0.709	Steel, modular	1.575				
			A760 E30	0.512-0.709	Carbide, modular	2.756				
			A760 S31	0.709-1.30	Steel, modular	1.968				
			A760 E31	0.709-1.30	Carbide, modular	3.150				
			A760 A32	1.30-1.89	Aluminum, modular	2.362				
A760 A33	1.89-2.48	Aluminum, modular	3.150							
<b>Axialibrabore™ Plus - Kit A</b> cap. Ø 0.236-1.299" 	35470	A760 13A	A760 13	A762 003	0.236-0.315	Steel	0.630	A765 R1	H04-4***	6.4
			A762 203	0.236-0.315	Carbide	1.063	A765 R2	T06P-3***		
			A763 003	0.315-0.394	Steel	0.866	A765 R3	T07P-3***		
			A763 203	0.315-0.394	Carbide	1.457	A765 R4	T15P-3***		
			A765 003	0.394-0.512	Steel	1.181	A765 R5			
<b>Axialibrabore™ Plus - Kit B</b> cap. Ø 0.236-2.480" 	35471	A760 13B	A760 13	A762 003	0.236-0.315	Steel	0.630	A765 R1	H04-4 ***	9.5
			A762 203	0.236-0.315	Carbide	1.063	A765 R2	T06P-3 ***		
			A763 003	0.315-0.394	Steel	0.866	A765 R3	T07P-3 ***		
			A763 203	0.315-0.394	Carbide	1.457	A765 R4	T15P-3 ***		
			A765 003	0.394-0.512	Steel	1.181	A765 R5			
			A765 203	0.394-0.512	Carbide	2.165	A765 R6			
			A760 S30	0.512-0.709	Steel, modular	1.575				
			A760 E30	0.512-0.709	Carbide, modular	2.756				
			A760 S31	0.709-1.30	Steel, modular	1.968				
			A760 E31	0.709-1.30	Carbide, modular	3.150				
			A760 A32	1.30-1.89	Aluminum, modular	2.362				
A760 A33	1.89-2.48	Aluminum, modular	3.150							
<b>Face grooving &amp; overturning tools Kit C</b> 	35472	A760 03C	-	BDA16 BS25100	-	MPA	-	A765 R1	T15P-3 ***	3.3
				BAS25 MH1660	-	Shank	-	A765 R2	T07P-2 ***	
				BAS25 CW1660	-	Counterweight	-		03HL05 ***	
				BAS25 FGI35	-	Grooving tool holder	-			
				BAS25 FGE35	-	Grooving tool holder	-			

All kits are delivered in a storage case. \* Magnifying glass. \*\* Reduction bush. \*\*\* Key.  
 Please check availability in current price and stock-list.

## Instructions

### Tool fitting procedure

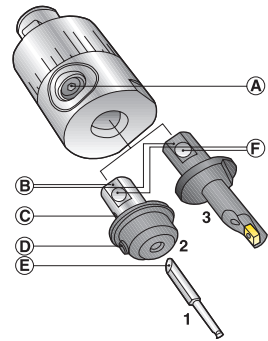
**Note:** with the exception of the smallest head Nanobore™, the Axiabore™ type heads have a 'cylinder & flange' tool fitting design, for superior tool rigidity.

The tool clamping screw orientates and secures the tool into the adjusting barrel. The clamping screw has a spring loaded plunger which is designed to pre-load the tool flange against the boring head face. Once located and clamped, diameter adjustment can still be carried out. All heads achieve cutting edge orientation according to ISO.

### Tool fitting procedure

#### Boring tool, solid carbide (1):

Fit the carbide tool into the reduction bushing. The angled back end (E) has to be pushed against the pin (C) for cutting edge orientation. The reduction bushing's tool fixing screw (D) clamps onto the tool to lock the tool into the reduction bushing. The tool fixing screw (A) clamps onto reduction bushing's flat (B) to orientate and lock the reduction bushing into the head body.



#### Boring bar, insert type (2):

Direct fitting, the screw (A) has to be locked onto the tool's flat (B): this also achieves ISO cutting edge orientation.

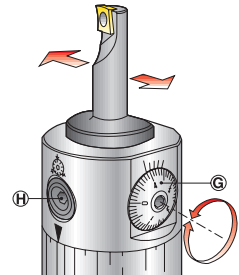
#### Boring bar, modular:

Select the suitable combination shank and insert holder on the selection chart page(s) 503. Assemble the bar with insert holder onto the head, see previous note.

## Diameter setting procedure

Axiabore™ type heads have indirect barrel locking: the barrel locking screw action does not influence the set diameter.

- 1) Unlock the barrel locking screw (H), to allow the barrel with the tool to be moved for diameter adjustment.
- 2) Set the diameter using the micrometer adjusting screw (G).
- 3) Tighten locking screw (H), to lock the barrel in the set position.



### Adjustment precision

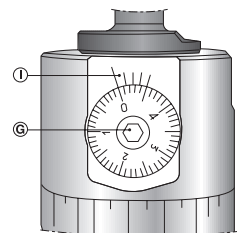
- Setting dial (G): 1 increment = 0.0004" (0.01 mm) on diameter.

- Vernier fine adjustment (I): 0.0001" (2.5 μm) resolution on diameter.

Clockwise adjustment = diameter increase (counterclockwise = diameter reduction).

**Note:** Best component bore diameter precision is obtained by presetting the head (on a presetter) at a smaller diameter e.g. -0.001" (-20 μm), running a test bore, and correcting to the required diameter. Heads are designed for best setting reliability (for reaching the required diameter) by adjusting clockwise out to diameter.

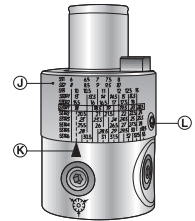
Therefore for diameter reduction total setting reliability is obtained by a preliminary 1/2 to 1 rotation counterclockwise, then setting clockwise to the required diameter.



## Instructions

### Balancing procedure

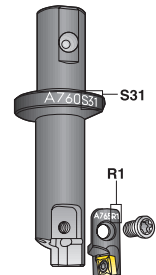
The Axialibrabore™ (A760 12) and - Axialibrabore™ Plus - (A760 13) heads feature the LibraOne system: one balancing ring only, with direct ring reading, no chart needed.



- Unlock head's balancing ring locking screw (L).
- Balancing is performed by setting the graduated balancing ring in line with the mark (K) on the body of the head (in accordance with the balancing code of the tool used, and the diameter to be bored):

S30R2	15.5	16	16.5	17
S31R1	18	18.5	19	19.5
S31R2	20.5	21	21.5	22
S31R3	23	23.5	24	24
S31R4	25.5	26	26.5	27
S31R5	28	28.5	29	29
S31R6	30.5	31	31.5	

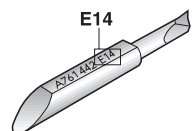
- For solid carbide and indexable insert tools, the balancing code is engraved on the tool body.
- For modular boring bars, the balancing code is a combination of the Part No. suffixes of the shank and of the insert holder (e.g. shank A760S31 + insert holder A765R5 = balancing code S31R5).
- Boring heads balancing ring increments are 0.0196" (0.5 mm); set to the nearest value.
- Tighten the locking screw (L), to lock the ring in position.



**Note:** If using 'Alu' bars or an MPA assembly with the - Axialibrabore™ Plus - head, fine balancing is not possible and the balancing ring has to be set to the following positions:

- MPA for boring: set to the boring symbol
- MPA for OD-overturning: set to the OD-overturning symbol
- MPA for grooving: set to the grooving symbol
- 'Alu' bar: set balancing ring according to shank's engraved balancing code (irrespective of fitted insert holder and setting diameter).

Balancing quality can be optimized using a balancing machine.



## Instructions

### MPA (multi-purpose adapter) assembly procedure

The - Axiabore™ Plus - head can be equipped with the MPA to perform boring (Fig.1), OD-overturning (Fig.2) and face grooving (Fig.6, see next page).

The MPA is delivered with 2 screws to enable the assembly of the component parts. The adapter and components have double serrated interfaces, for diametrically opposite orientation and diameter multi-positioning (increment 0.098 inch on diameter). The adapter features an adjustable nozzle to direct coolant towards the cutting edge.

#### Boring or OD-overturning

Both boring (Fig.1) and OD-overturning (Fig.2) assemblies use the same boring shank (2) equipped with an insert holder (5), and a counterweight (3).

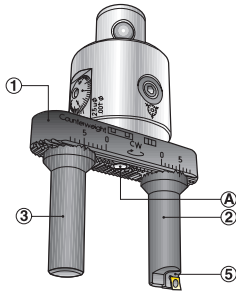


Fig. 1

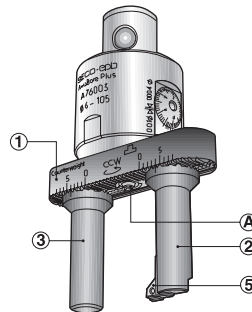


Fig. 2

#### MPA boring assembly (Fig.1)

Select the appropriate insert holder (5) to be assembled onto the shank (2), using the 'Selection chart: Insert holders for boring with MPA' (see Product page(s) 508).

Position the MPA with shank uppermost and the boring and grooving symbols visible (Fig.3): lock the shank with insert holder on the right hand side of the MPA (its diameter position is shown in the 'Selection chart: Insert holders for boring with MPA' page(s) 508) and lock the counterweight symmetrically on the left hand side (Fig.5, bottom).

Assemble the MPA onto the boring head and proceed to the fine diameter adjustment.

**CAUTION:** Boring requires clockwise spindle rotation, as indicated by the symbol.

#### MPA OD-overturning assembly (Fig.2)

Select the appropriate insert holder (5) to be assembled onto the shank (2), using the 'Selection chart: Insert holders for OD-overturning with MPA' see Product page(s) 509.

Position the MPA with shank uppermost and the OD-overturning symbol visible (Fig.4): lock the shank with insert holder on the right hand side of the MPA (its diameter position is shown in the 'Selection chart: Insert holders for OD-overturning with MPA' page(s) 509, 509) and lock the counterweight symmetrically on the left hand side (Fig.5, top).

Assemble the MPA onto the boring head and proceed to the fine diameter adjustment.

**CAUTION:** OD-overturning requires counter-clockwise spindle rotation, as indicated by the symbol.

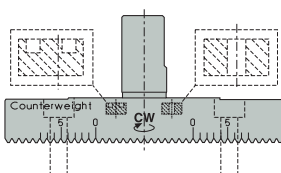


Fig. 3

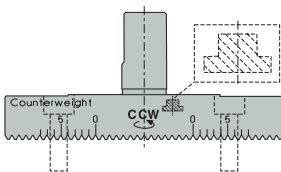


Fig. 4

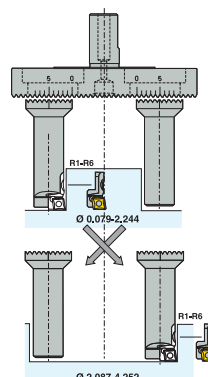


Fig. 5



## Instructions

### MPA (multi-purpose adapter) assembly procedure (cont:)

#### MPA grooving tool assembly (Fig.6)

A grooving assembly requires:

- A pair of grooving tool holders (one E='External' (7) and one I='Internal' (6)),
  - One grooving tool 'against Pilot' (8) or 'against Bore' (9).
- Both tool types can be mounted onto an 'E' or 'I' holder.

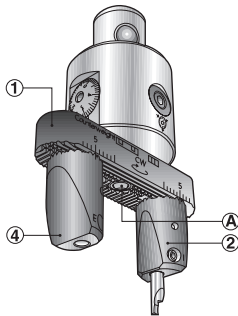


Fig. 6

Depending on the groove width and position (against pilot wall (8) / against bore (9)), select the appropriate grooving tool, using the selection charts: 'Grooving tool' see page(s) 510-513. When there is no wall, both tool types are suitable.

Depending on the required diameter and workpiece accessibility, assemble the grooving tool into the tool holder 'I' or 'E' ('I' holder is shaped for inner tool position; 'E' for outer tool position).

Tool's angled back end (B) locates against the tool holder's pin (C) for cutting edge orientation.

Clamp the tool with screw (D).

Position the MPA with shank uppermost and the boring and grooving symbols visible (Fig.7): lock the tool holder with tool on the right hand side of the MPA (its diameter position is shown in the 'Selection charts: Grooving tool') and lock the toolholder without tool as a counterweight symmetrically on the left hand side.

Assemble the MPA onto the boring head and proceed to the fine diameter adjustment.

**CAUTION:** Grooving requires clockwise spindle rotation, as indicated by the symbol.

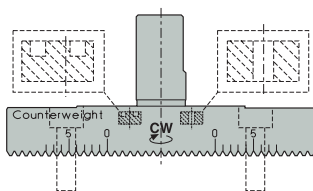


Fig. 7

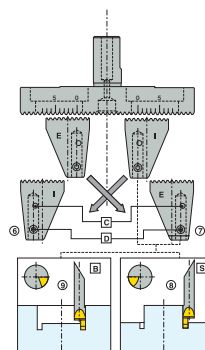


Fig. 8

## Instructions

### Maximum speeds for Axiabore™ type heads

Head	Capacity $\varnothing$ (inch)	Max. RPM with tool (RPM)	Max. RPM with MPA (RPM)	Max. cutting speed $v_c$ at min. Cap. (sf/min)	Max. cutting speed $v_c$ at max. Cap. (sf/min)
<b>Axiabore™ type with Graflex® connection</b>					
A76001	0.012-0.315	30000	–	92*	2475*
A76002	0.079-0.787	12000	–	245*	2475*
A76003	0.236-4.252	8000**	5000	495*	3280***
A76012	0.079-0.787	24000**	–	495*	4920***
A76013	0.236-1.299	20000**	5000	1235*	4920***
<b>Axiabore™ type with Seco-Capto™ connection</b>					
C3-391.0760-02	0.079-0.787	12000	–	245*	2475*
C5-391.0760-03	0.236-4.252	8000**	5000	495*	3280**

**Note:** The maximum speeds are related to the boring head's mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. workpiece material, cutting edge (tools and inserts), tooling length, machine spindle. At speeds from approx. 8000 RPM and above, the holding arbors and intermediates should be fine balanced. Using balanceable heads and fine balanced holders improves the tool life and the boring performances even at lower speeds.

\* Implied max. cutting speed with max. RPM.

\*\* Not reachable with all tools, see \*\*\*.

\*\*\* Max. cutting speed not to be exceeded.

## Troubleshooting

Problem	Possible cause	Solution
Poor tool life	Wrong insert grade	Change to more wear resistant grade
	Excessive cutting speed	Reduce cutting speed
	Excessive DOC	Decrease DOC
Chatter & Vibrations	Excessive cutting speed	Reduce cutting speed
	High L/D ratio	Shorten tool to increase stiffness
		Use stronger boring tool
		Use carbide or heavy metal extensions
	Wrong insert	Reduce nose radius of insert
Use ground geometry inserts		
Incorrect stock allowance	Change pre-hole diameter	
Poor hole diameter tolerance & repeatability	Inaccurate tool changes	Worn and damaged tool shank: replace
		Clean spindle and tool shank
	Variation of stock allowance	Add semi-finishing boring step
	Low spindle stability	Use sharper ground geometry inserts
Poor roundness	Excessive boring tool imbalance	Check the spindle runout
		Change to LIBRAFLEX® boring head
		Check balance ring setting
		Reduce speed
	Excessive cutting forces	Check stock allowance and feed rate
	Insufficient workpiece clamping	Check for uniform workpiece clamping
	Workpiece non-symmetrical	Reduce cutting forces, change to ground insert
Increase cutting speed, reduce feed		
Poor positional tolerance	Original bore misaligned	Add a semi-finishing boring step
	Excessive DOC	Decrease DOC, make two passes
Poor surface finish	Wrong insert radius	Use larger insert radius
	Excessive feed rate	Reduce feed to be max. 30% of insert nose radius
	Poor chip evacuation	Apply through coolant
		Change insert to higher rake angle (HSS: please enquire)
		Check DOC
Tapered bore	Premature	Change to more wear resistant grade
		Modify cutting speed
		Increase coolant flow

Troubleshooting advice is also valid for the fine boring heads, radial type.

## EPB 780 – Axial fine boring kit, capacity 0.394-1.260" (10-32 mm), Graflex®

Simple and flexible: 1 Graflex® fine boring head with only 3 tools, covering a large boring capacity from  $\varnothing$  0.394-1.260" (10-32 mm).  
 Precise micrometer adjusting: increment 0.0004" (0.01 mm) and vernier 0.0001" (2.5  $\mu$ m), on the diameter.  
 Boring head is dust proof and lubricated for life.  
 One insert size (CC..21.5.) suits all boring bars.  
 Coolant through directed towards cutting edge.  
 Delivered in a protective case.  
 Cutting edge orientation according to ISO.



### Instructions

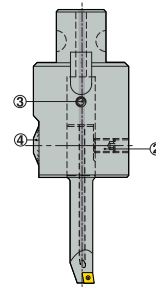
#### Tool fitting procedure

The tool clamping screw (2) orientates and secures the tool into the adjusting barrel.  
 Head design and locking flat on the boring bar's shank achieves a cutting edge orientation according to ISO.  
 Once located and clamped, diameter adjustment can be carried out.

#### Diameter setting procedure

The boring head has indirect barrel locking: the barrel locking screw action does not influence the set diameter.

- 1) Unlock the barrel locking screw (3), to allow the barrel with the tool to be moved for diameter adjustment.
- 2) Set the diameter using the micrometer adjusting screw (4).
- 3) Tighten locking screw (3), to lock the barrel in the set position.



#### Adjustment precision

- Setting dial (G): 1 increment = 0.0004" (0.01 mm) on diameter.
- Vernier fine adjustment (I): 0.0001" (2.5  $\mu$ m) resolution on diameter.

Clockwise adjustment = diameter increase (counterclockwise = diameter reduction).  
 Note: Best component bore diameter precision is obtained by presetting the head (on a presetter) at a smaller diameter (e.g. 0.001" (-20  $\mu$ m)), running a test bore, and correcting to the required diameter. Head is designed for best setting reliability (for reaching the required diameter) by adjusting clockwise out to diameter. Therefore for diameter reduction total setting reliability is obtained by a preliminary 1/2 to 1 rotation counterclockwise, then setting clockwise to the required diameter.

### Maximum speeds for boring heads and boring bars

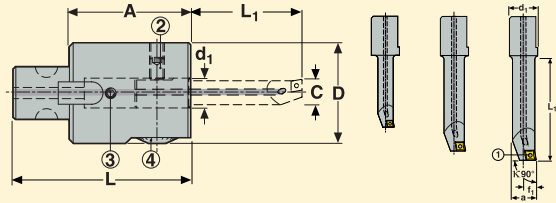
Head	Capacity $\varnothing$ (inch)	Max. RPM (RPM)	Max cutting speed $v_c$ (sf/min)
<b>Axial fine boring kit</b>			
A78000B	0.394-1.260	8000*	–
A78502	0.394-0.531	–	820
	0.531-0.670	–	575
A78504	0.650-0.807	–	820
	0.807-0.965	–	575
A78506	0.945-1.102	–	820
	1.102-1.260	–	575

**Note:** The maximum speeds are related to the boring head's mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. boring bar, workpiece material, tooling length, machine spindle.  
 \* This maximum speed will not be exceeded when respecting the max.  $V_c$  of the kit's boring bars, see table.

### Troubleshooting

Please refer to troubleshooting advice, in current Holemaking catalog, chapter Axiabore™.

## EPB 780 – Axial fine boring kit, capacity 0.394-1.260” (10-32 mm), Graflex®



- Simple and flexible: 1 fine boring head with only 3 tools, covering a large boring capacity from  $\varnothing$  0.394-1.260” (10-32 mm)
- Precise micrometric adjusting: increment 0.0004” (0.01 mm) and vernier 0.0001” (2.5  $\mu$ m), on the diameter
- Boring head is dust proof and lubricated for life
- One insert size suits all boring bars
- Coolant through directed towards cutting edge
- Delivered in a protective case

**Note:** for other fine boring applications, see the Axiabore 0.012-4.252” (0.3-108 mm) and radial type 0.600-8.071” (15-205 mm) fine boring heads.

Fine boring kit												
EDP No.	Kit Part No.	Kit capacity $\varnothing$ C inch	Head features and weight							Case dimensions W x D x H (mm)	lbs	
			A (inch)	D (inch)	d (size/inch)	d <sub>1</sub> (inch)	L (inch)	Max. Rpm*	Head (lbs)			
65847	A780 00B	0.394-1.260	2.560	2.126	Graflex G5/28	0.630	3.740	8000	2.9	291x252x100	4.7	

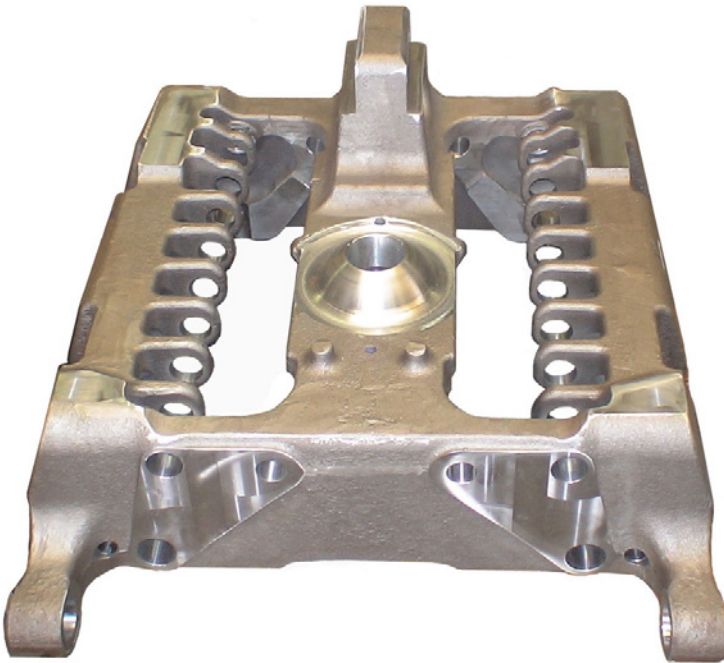
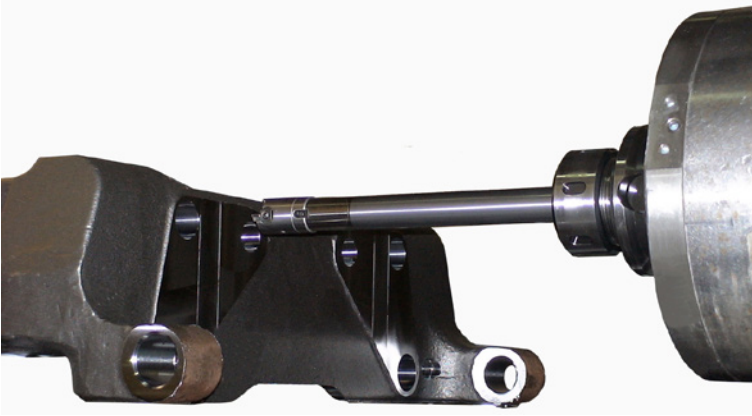
Kit delivery content: 1 boring head, 3 boring bars, 2 keys for head and insert screw, operating instructions, protective case.

\* This maximum speed must not be exceeded when respecting the max.  $V_c$  of the kit's boring bars, see below.

Fine boring kit - boring bars' features and maximum speeds for head with boring bar fitted										
EDP No.	Part No.	Capacity & dimensions					Maximum speeds			lbs
		$\varnothing$ C (inch)	L (inch)	f <sub>1</sub> (inch) -with gauge insert r = 0.016 inch	a (inch)	d <sub>1</sub> (inch)	Suitable insert size	When capacity (inch)	v <sub>c</sub> max. (sf/min)	
65848	A785 02	0.394-1.260	1.575	0.200	0.374	0.630	CC..21.5.	0.393-0.531	820	0.44
								0.531-0.670	575	
65849	A785 04	0.650-0.965	2.560	0.344	0.630	0.630	CC..21.5.	0.650-0.807	820	0.66
								0.807-0.965	575	
65850	A785 06	0.945-1.260	2.756	0.500	0.797	0.630	CC..21.5.	0.945-1.102	820	0.88
								1.102-1.260	575	

### Spare parts

	Boring bars	Insert locking screw (1)	Torx driver for insert locking screw	Boring bar fixing screw (2)	Barrel locking screw (3)	Key for head setting (2) (3) (4)	
For kit							
A78000B	A785 02	C02504-T07P	T07P-3	950A0812	AU7901100	H04-4	S
	A785 04						4
	A785 06						



## EPB 620 Fine boring heads - Guide

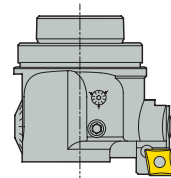
### EPB 620 GL for Steadyline®, 3 compact fine boring heads for Ø 1.339-2.717" (34-69 mm)

#### Compact design with GL connection

- Boring head with GL connection. Their compact design achieves best damping performances when used on Steadyline® GL turning and boring bars
- Boring performances, when used on long Steadyline® GL bars, are similar to non-damped shorter assemblies



GL connection

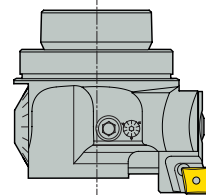


Ø 1.339-1.811"

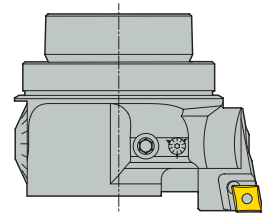
### Common features of radial types fine boring heads EPB 620 and EPB 780/ 790

A radial type fine boring head is an assembly of a body (head) and a radially fitted insert holder.

- Similar front end design in order to use the same range of insert holders
- Micrometric adjustment:  
Insert holder setting mechanism with a micrometric adjusting screw (1 increment = 0.0004" (0.01 mm) on the diameter) and a vernier scale (resolution of 2.5 µm on the diameter)  
The precision of the mechanism guarantees repeatable accuracy
- Angular orientation of the cutting edge according to DIN 69871/ISO 7388 for SA and ISO 12164 for HSK
- Coolant through the head directed towards the cutting edge
- Heads with insert holders are pre-balanced on median diameter setting



Ø 1.654-2.205"



Ø 2.047-2.717"



#### Insert holders

The wide range of fine boring, chamfering and back boring insert holders are suitable for EPB 780, EPB 790 and EPB 620 fine boring heads, radial types.

## Fine boring heads EPB 780 and EPB 790 - Overview

### Graflex®



Ø 0.591-0.728



Ø 0.709-0.925



Ø 0.906-1.220



Ø 1.181-1.575



Ø 1.535-2.008



Ø 1.969-2.559



Ø 2.520-3.386



Ø 3.346-5.669



Ø 4.488-8.071

### Graflex®



Ø 1.181-1.575



Ø 1.535-2.008



Ø 1.969-2.559



Ø 2.520-3.386



Ø 3.346-4.528

### Seco-Capto™



Ø 1.535-2.008



Ø 1.969-2.559



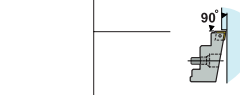
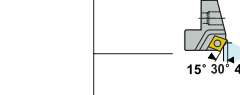
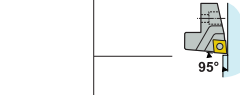
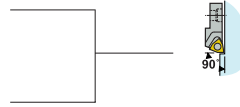
Ø 2.520-3.386



Ø 3.346-5.669



Ø 4.488-8.071



Note: For low weight fine boring assemblies Ø 2.520-8.071" (64-205 mm), see the Liteline™ boring heads chapter.



## Features

### EPB 780 Fine boring heads, radial types

A radial type fine boring head is an assembly of a body (head) and an insert holder.

#### 9 precision boring heads with Graflex® connection for fine boring $\varnothing$ 0.591-8.071", using radially fitted insert holders.

Pre-balanced on median diameter setting.

#### 5 precision boring heads with Seco-Capto™ connection for fine boring $\varnothing$ 1.535-8.071".

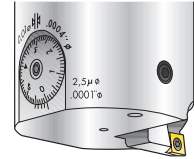
#### Micrometer adjustment

Insert holder setting mechanism with a micrometer adjusting screw (1 increment = 0.0004" (0.01 mm) on the diameter) and a vernier scale (resolution of 0.0001" (2.5  $\mu$ m) on the diameter).

The precision of the mechanism guarantees repeatable accuracy.

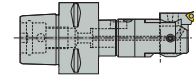
Angular orientation of the cutting edge according to DIN 69871/ISO 7388 for SA and ISO 12164 for HSK.

Coolant through the head directed towards the cutting edge.



#### Seco-Capto™ adapter and Graflex® head: $\varnothing$ 0.591-1.575" (15-40 mm)

Note: The minimum bore size of the smallest Seco-Capto™ fine boring head is  $\varnothing$  1.535" (39 mm) with the smallest available Seco-Capto™ C3 connection. For  $\varnothing$  0.591-1.575" (15-40 mm) use Graflex® boring heads with connection sizes G0 to G2 in conjunction with the appropriate Seco-Capto™/Graflex® adaptor. This offers also boring length modularity when using additional Graflex® extensions.



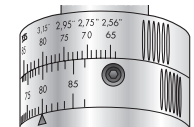
**Note: Features, Instructions** (insert holder fitting, diameter setting, back boring instructions, trouble-shooting, recommended machining conditions, maximum speeds), **suitable insert holders and suitable inserts** are similar for both types of EPB 780 fine boring heads of similar boring capacity size, regardless of connection type.

### EPB 790 heads, balanceable fine boring heads, radial type

#### 5 balanceable 'Libraflex®' boring heads for fine boring $\varnothing$ 1.181-4.528", at high speeds (up to 4920 sf/min), using radially fitted insert holders.

Balancing reduces spindle stress, cutting parameters can be optimized, better machining qualities are achieved even at conventional speeds.

Balancing is performed by setting both graduated rings in accordance with the diameter to be bored. No chart needed.



## Features

### Insert holders

A radial type fine boring head is an assembly of a body (head) and an insert holder.

The wide range of fine boring, chamfering and back boring insert holders are suitable for both EPB 780 and EPB 790 fine boring heads, radial types.

### Fine boring insert holders

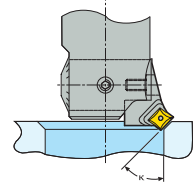
EPB 782: lead angle 90° for WB inserts

EPB 724: lead angle 90° for TC inserts

EPB 725: lead angle 90° for CC inserts

EPB 726: lead angle 95° for CC inserts

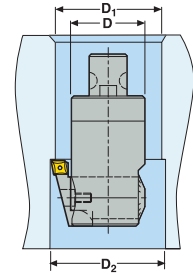
**Note:** 95° lead angle insert holders should be used to avoid face contact when boring up a shoulder.



### Chamfering insert holders, $\varnothing$ 0.906-6.299"

EPB 729: available with a 15°, 30° or 45° lead angle for CC inserts.

Libraflex® balancing can also be achieved when using chamfering insert holders.



### Back-boring insert holders, $\varnothing$ 1.043-6.457"

EPB A789: lead angle 90° for WB and CC inserts..

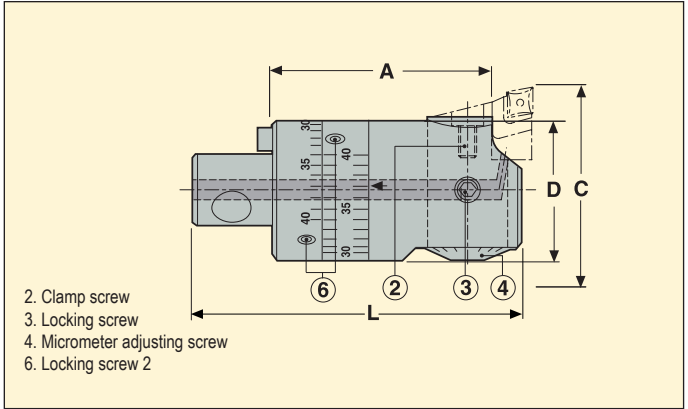
Libraflex® balancing is not possible when using back-boring insert holders. In this case, the highest unbalance reduction is obtained when both balancing rings are set on their largest graduation.

For D1 minimum access bore checking, see page(s) 538.









- With micrometer adjusting (increment 0.0004" (0.01 mm) and vernier 0.0001" (2.5 μm), on the diameter)
- Balancing by setting both rings in accordance with the diameter to be bored
- For speeds  $v_c$  up to 4920 sf/min and more, see page(s) 539.

Graflex size	Capacity C Ø inch	EDP No.	Part No.	Dimensions in inch			Insert holder size	Max. residual unbalance g.mm	
				A	D	L			
G2	1.181-1.575	55932	A79020	1.476	1.063	2.343	20	10	0.42
G3	1.535-2.008	56005	A79030	2.146	1.378	3.228	30	10	0.99
G4	1.969-2.559	56006	A79040	2.421	1.693	3.661	40	15	1.72
G5	2.520-3.386	56007	A79050	2.815	2.126	4.291	50	20	3.13
G6	3.346-4.528	01451	A79060	3.484	2.756	5.512	60	50	6.33

Insert holders have to be ordered separately, see page(s) 529-535.

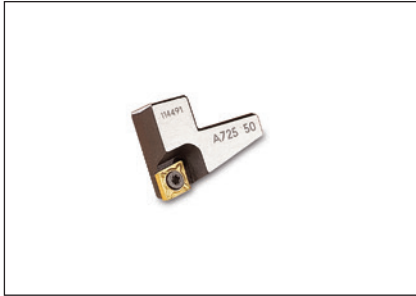
\*Without insert holder

### Spare parts

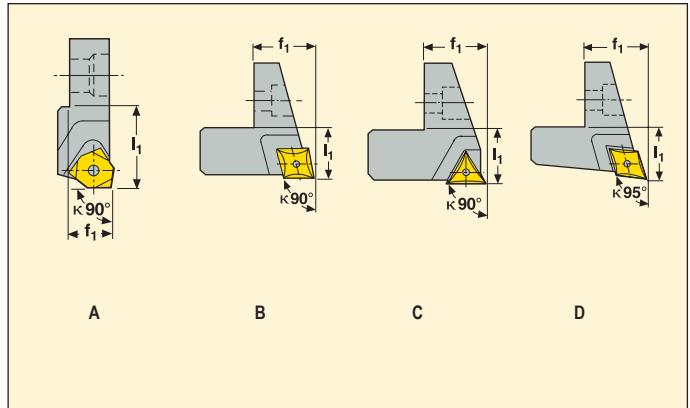
For head	Tenon 	Locking screw 2 	Locking screw 1 	Key 	Assembly screw 
A790 20	90M2	96D30045S	950L0406	H2.0-2D	19TB0305
A790 30	90M3	AU7901030	950L0608	03M03C	19TB04075
A790 40	90M4	AU7901040	950L0612	03M03C	19TB04075
A790 50	90M51	AU7901050	950L0616	03M03C	950D0410
A790 60	90M6	AU7901060	950L1016	H05-4	950D0612

Please check availability in current price and stock-list.

## Insert holders, for fine boring heads EPB 620/ 780/ 790



• Suitable for radial boring heads EPB 620/ 780/ 790



Insert holders type	For boring head	*	**	Insert holder size	Capacity C Ø inch	EDP No.	Part No.	Dimensions in inch		Suitable insert size	Design	lbs
								l <sub>1</sub>	f <sub>1</sub>			
90° for WB inserts	A78008 / A78009			09	0.59-0.93	56634	A78209	0.28	0.16	WB...0301...	A	0.02
90° for CC inserts	A78010			10	0.91-1.22	56580	A72510	0.41	0.18	CC..21.5.	B	0.02
	A78020 & A79020/ GL32-0620-20			20	1.18-1.57/1.34-1.81	56581	A72520	0.33	0.20	CC..21.5.	B	0.04
	A78030 & A79030/ GL40-0620-30			30	1.54-2.01/1.65-2.20	56582	A72530	0.41	0.31	CC..21.5.	B	0.04
	A78040 & A79040/ GL50-0620-40			40	1.97-2.56/2.05-2.72	56583	A72540	0.41	0.37	CC..21.5.	B	0.04
	A78050 / A79050 / A7805AL	*		50	2.52-3.39	56584	A72550	0.41	0.49	CC..21.5.	B	0.04
	A78060 / A79060	*		60	3.35-4.53	56585	A72560	0.65	0.74	CC..32.5.	B	0.18
	A78060 / A79060	*	**	65	4.49-5.67	56587	A72565	0.65	1.33	CC..32.5.	B	0.20
	A78070			70	4.49-6.30	56588	A72570	0.65	0.74	CC..32.5.	B	0.20
90° for TC inserts	A78070			75	6.26-8.07	56589	A72575	0.65	1.64	CC..32.5.	B	0.26
	A78030 & A79030/ GL40-0620-30			30	1.54-2.01/1.65-2.20	56572	A72430	0.41	0.31	TC..21.5.	C	0.02
	A78040 & A79040/ GL50-0620-40			40	1.97-2.56/2.05-2.72	56573	A72440	0.41	0.37	TC..21.5.	C	0.04
	A78050 / A79050			50	2.52-3.39	56574	A72450	0.41	0.49	TC..21.5.	C	0.04
	A78060 / A79060	*		60	3.35-4.53	56575	A72460	0.64	0.74	TC..21.5.	C	0.18
	A78060 / A79060	*	**	65	4.49-5.67	56577	A72465	0.65	1.33	TC..21.5.	C	0.20
	A78070			70	4.49-6.30	56578	A72470	0.64	0.74	TC..21.5.	C	0.22
	A78070			75	6.26-8.07	56579	A72475	0.65	1.64	TC..21.5.	C	0.29
95° for CC inserts	A78010			10	0.91-1.22	56590	A72610	0.41	0.18	CC..21.5.	D	0.02
	A78020 & A79020/ GL32-0620-20			20	1.18-1.57/1.34-1.81	56591	A72620	0.33	0.20	CC..21.5.	D	0.02
	A78030 & A79030/ GL40-0620-30			30	1.54-2.01/1.65-2.20	56592	A72630	0.41	0.31	CC..21.5.	D	0.02
	A78040 & A79040/ GL50-0620-40			40	1.97-2.56-2.05-2.72	56593	A72640	0.41	0.37	CC..21.5.	D	0.04
	A78050 / A79050			50	2.52-3.39	56594	A72650	0.41	0.49	CC..21.5.	D	0.04
	A78060 / A79060	*		60	3.35-4.53	56595	A72660	0.65	0.74	CC..32.5.	D	0.15
	A78060 / A79060	*	**	65	4.49-5.67	56597	A72665	0.65	1.33	CC..32.5.	D	0.20
	A78070			70	4.49-6.30	56598	A72670	0.65	0.74	CC..32.5.	D	0.20
	A78070			75	6.26-8.07	56599	A72675	0.65	1.64	CC..32.5.	D	0.26

Please check availability in current price and stock-list.  
 \* The insert holders size 60 and 65 also fit onto the fine boring block for Bridge bar boring heads.  
 \*\* The precision balancing of EPB A790 heads is not possible when using the large insert holders. For spare insert screws and spare indert keys, see page(s) 589.

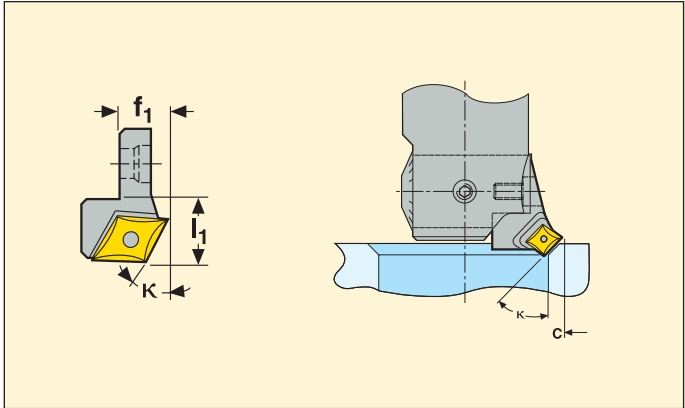
# Fine boring heads, radial type



## Chamfering insert holders, for fine boring heads EPB 620/ 780/ 790



• Suitable for radial boring heads EPB 620/ 780/ 790



κ°	For boring head	Insert holder size	Capacity C ∅ inch	EDP No.	Part No.	Dimensions in inch		Suitable insert size	lbs
						l <sub>1</sub>	f <sub>1</sub>		
30°	A78010	10	0.91-1.22	86885	A72910CC0630	0.425	0.177	CC..21.5.	0.02
	A78020 & A79020/ GL32-0620-20	20	1.18-1.57-1.34-1.42	86888	A72920CC0630	0.394	0.193	CC..21.5.	0.02
	A78030 & A79030/ GL40-0620-30	30	1.54-2.01-1.65-2.20	86891	A72930CC0630	0.413	0.319	CC..21.5.	0.02
	A78040 & A79040/ GL50-0620-40	40	1.97-2.56/2.05-2.72	86894	A72940CC0630	0.413	0.374	CC..21.5.	0.04
	A78050 / A79050	50	2.52-3.39	86897	A72950CC0630	0.413	0.492	CC..21.5.	0.04
	A78060 / A79060	60	3.35-4.53	86900	A72960CC0930	0.650	0.752	CC..32.5.	0.18
	A78070	70	4.49-6.30	86903	A72970CC0930	0.646	0.740	CC..32.5.	0.20
45°	A78010	10	0.91-1.22	86886	A72910CC0645	0.453	0.177	CC..21.5.	0.02
	A78020 & A79020/ GL32-0620-20	20	1.18-1.57/1.34-1.81	86889	A72920CC0645	0.394	0.197	CC..21.5.	0.02
	A78030 & A79030/ GL40-0620-30	30	1.54-2.01/1.65-2.20	86892	A72930CC0645	0.413	0.319	CC..21.5.	0.02
	A78040 & A79040/ GL50-0620-40	40	1.97-2.56/2.05-2.72	86895	A72940CC0645	0.413	0.374	CC..21.5.	0.04
	A78050 / A79050	50	2.52-3.39	86898	A72950CC0645	0.406	0.488	CC..21.5.	0.04
	A78060 / A79060	60	3.35-4.53	86901	A72960CC0945	0.650	0.752	CC..32.5.	0.15
	A78070	70	4.49-6.30	86904	A72970CC0945	0.646	0.740	CC..32.5.	0.20

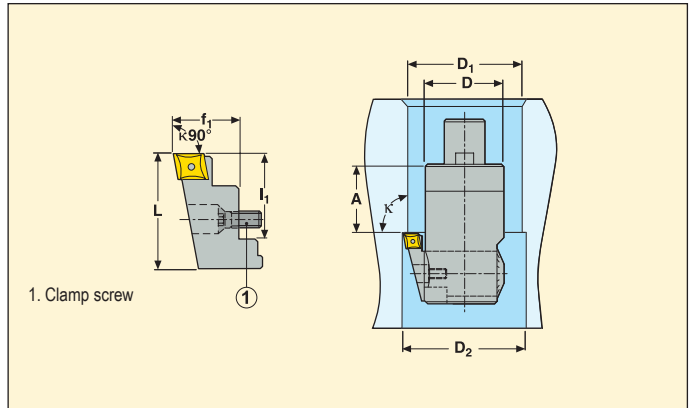
Please check availability in current price and stock-list.  
 For spare insert screws and spare insert keys, see page(s) 589.



## Fine back boring insert holders, for fine boring heads EPB 620/ 780/ 790



- Suitable for radial boring heads EPB 620/ 780/ 790
- The precision balancing of EPB 790 heads is not possible when using back-boring insert holders



For head	Back-boring capacity D2 Ø inch	κ°	EDP No.	Part No.	Dimensions in inch					Suitable insert size	lbs
					A	D	L	l <sub>1</sub>	f <sub>1</sub>		
A78010 // A78020 & A79020 // GL32-0620-20	1.56-1.87 // 1.81-2.20 // 1.96-2.43	90	<a href="#">86907</a>	A789X10CC0690	0.65 // 0.85 // 0.31	0.85 // 1.06 // 1.26	0.87	0.63	0.50	CC..21.5.	0.02
A78030 & A79030 // A78040 & A79040 // A78050 & A79050 // GL40-0620-30 // GL50-0620-40	2.09-2.56 // 2.40-2.99 // 2.72-3.58 // 2.27-2.76 // 2.66-3.16	90	<a href="#">86910</a>	A789X30CC0690	1.26 // 1.54 // 1.93 // 0.07 // 0.11	1.38 // 1.69 // 2.13 // 1.57 // 1.97	1.18	0.91	0.59	CC..21.5.	0.07
A78060 & A79060	3.50-4.69	90	<a href="#">86909</a>	A789X60CC0690	1.97	2.76	1.97	1.52	0.83	CC..21.5.	0.20
A78070	4.65-6.46	90	<a href="#">86911</a>	A789X70CC0690	2.36	3.74	1.97	1.52	0.83	CC..21.5.	0.22

For the minimum access diameter D<sub>1</sub> mini calculation, see page(s) 538.

### Spare parts

For	Assembly screw	
A789X10CC0690	950F0308	
A789X30CC0690	950F0410	
A789X60CC0690	950F0620	
A789X70CC0690	950F0620	

Please check availability in current price and stock-list.  
 For spare insert screws and spare insert keys, see page(s) 589.

## EPB 620 Fine boring heads - Instructions

### Boring head assembling

1.2 Recommended tightening torques: GL connection, see Operating instructions supplied with the GL bars.



Fig 1.1

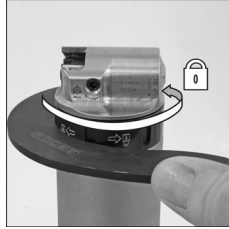


Fig 1.2

### Insert holders fitting procedure

2.4 See table "Tightening torque of clamp screws for insert holders clamping".

2.5 Fit the insert with screw: tightening torque: 0.9 N.m.

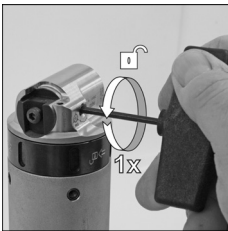


Fig 2.1

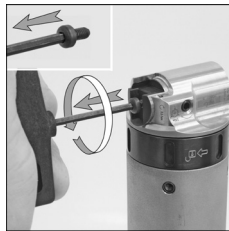


Fig 2.2



Fig 2.3



Fig 2.4

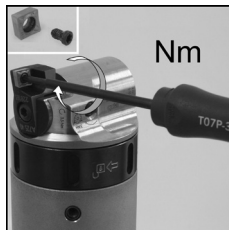


Fig 2.5

### Diameter pre-setting procedure

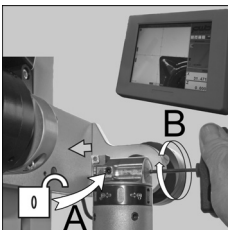


Fig 3.1

## EPB 620 Fine boring heads - Instructions

### Diameter fine setting procedure

4.2 See table “Tightening torque of locking screws for barrel position locking”.

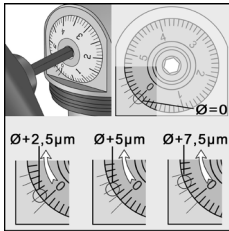


Fig 4.1



Fig 4.2

### Recommended tightening torques

EPB 620 GL fine boring heads	GL32-0620-20	GL40-0620-30	GL50-0620-40
Tightening torque of clamp screws for insert holders clamping (N.m)	2	3.5	3.5
Tightening torque of locking screws for barrel position locking (N.m)	1	3.5	3.5

For further application details refer to the Operating instructions supplied with the boring heads and with the GL bars.

### Back-boring instructions

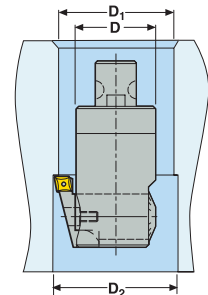
When using back-boring insert holders, please note the minimum access diameter ( $D_1 \text{ min}$ )\* and the counterclockwise cutting action required. The back boring insert holders are delivered with a screw to fix them on the head; this has to replace the standard screw already fitted on the head.

\* For head sizes 20 to 70:  $D_1 \text{ min}$

$$= \frac{D_2 + D}{2} + 0,5$$

\* For head sizes 08, 09 and 10:  $D_1 \text{ min}$

$$= \frac{D_2 + D}{2} + 1$$



### Recommended machining conditions

Best performances are obtained with through coolant (higher machining data, better surface, better chip evacuation).

### Maximum speeds for EPB 620 fine boring heads

**Note:** The maximum speeds shown in boring heads Product pages are related to the boring head’s mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. workpiece material, cutting edge (insert), tooling length, machine spindle.

By boring applications with Steadylin<sup>®</sup> bars, make sure not to overpass the max. RPM of the bars : See the Operating instructions supplied with the Steadylin<sup>®</sup> bars.

## EPB 780 and EPB 790 Fine boring heads - Instructions

### Insert holder fitting procedure

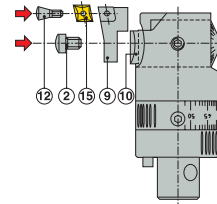
Remove the fixing screw

Make sure the barrel locking screw is unlocked, to slightly free the insert holder's housing barrel (10).

Fit the insert holder (9) onto the barrel (10).

Fasten screw (2).

Fit an insert (15) with screw (12).



### Diameter setting procedure

- Unlock the barrel locking screw (3).

- Set the diameter by the micrometer adjusting screw R, using the dial and vernier.

- Tighten screw (3) to lock the barrel in set position.

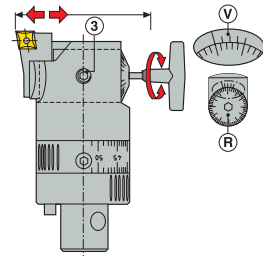
#### Adjustment precision (Fig. 2)

-Setting dial (R): 1 increment = 0.0004" on diameter.

-Vernier fine adjustment (V): 0.0001" resolution on diameter.

Clockwise adjustment = diameter increase (counterclockwise = diameter reduction).

**Note:** Best component bore diameter precision is obtained by presetting the head (on a presetter) at a smaller diameter (e.g. -0.0001"), running a test bore, and correcting to the required diameter. Heads are designed for best setting reliability (for reaching the required diameter) by adjusting clockwise out to diameter. Therefore for diameter reduction total setting reliability is obtained by a preliminary 1/2 to 1 rotation counterclockwise, then setting clockwise to the required diameter.



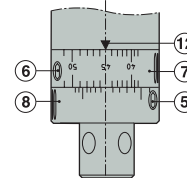
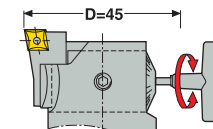
### Balancing procedure, EPB 790 heads

When the diameter of the head is set, the two balancing rings (7) and (8) have to be adjusted, so that their graduation markings (corresponding to the diameter value) are in line with the reference mark (12) (increment on rings is 1 mm; set to the nearest value).

Lock both ring screws (5) and (6), in order to lock the rings in the set positions.

**Note:** Libraflex® balancing can also be achieved when using chamfering insert holders.

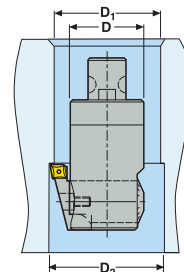
Libraflex® precision balancing is not possible when using back-boring insert holders. In this case, the highest unbalance reduction is obtained when both balancing rings are set on their largest graduation markings.



### Back-boring instructions

When using back-boring insert holders, please note the minimum access diameter (D<sub>1</sub> min)\* and the counterclockwise cutting action required.

The back boring insert holders are delivered with a screw to fix them on the head; this has to replace the standard screw already fitted on the head.



$$* \text{ For head sizes 08, 09 and 10: } D_1 \text{ min} = \frac{D_2 + D}{2} + 0.020''$$

$$* \text{ For head sizes 20 to 70: } D_1 \text{ min} = \frac{D_2 + D}{2} + 0.040''$$

## EPB 780 and EPB 790 Fine boring heads - Instructions

### Recommended machining conditions

Best performances are obtained with through coolant (higher machining data, better surface, better chip evacuation).

Always select the shortest tooling assembly possible, for best reliability and productivity: longer tools = lower speed.

For high performances (e.g. over 6000 RPM), we recommend the balanceable heads: balanceable heads improve the geometrical hole quality also at lower speeds e.g. 4000 RPM.

The five smallest heads covering  $\varnothing$  0.590-2.01", when mounted onto carbide extensions, enable high performance fine boring, also in extremely long reach applications.

### Troubleshooting

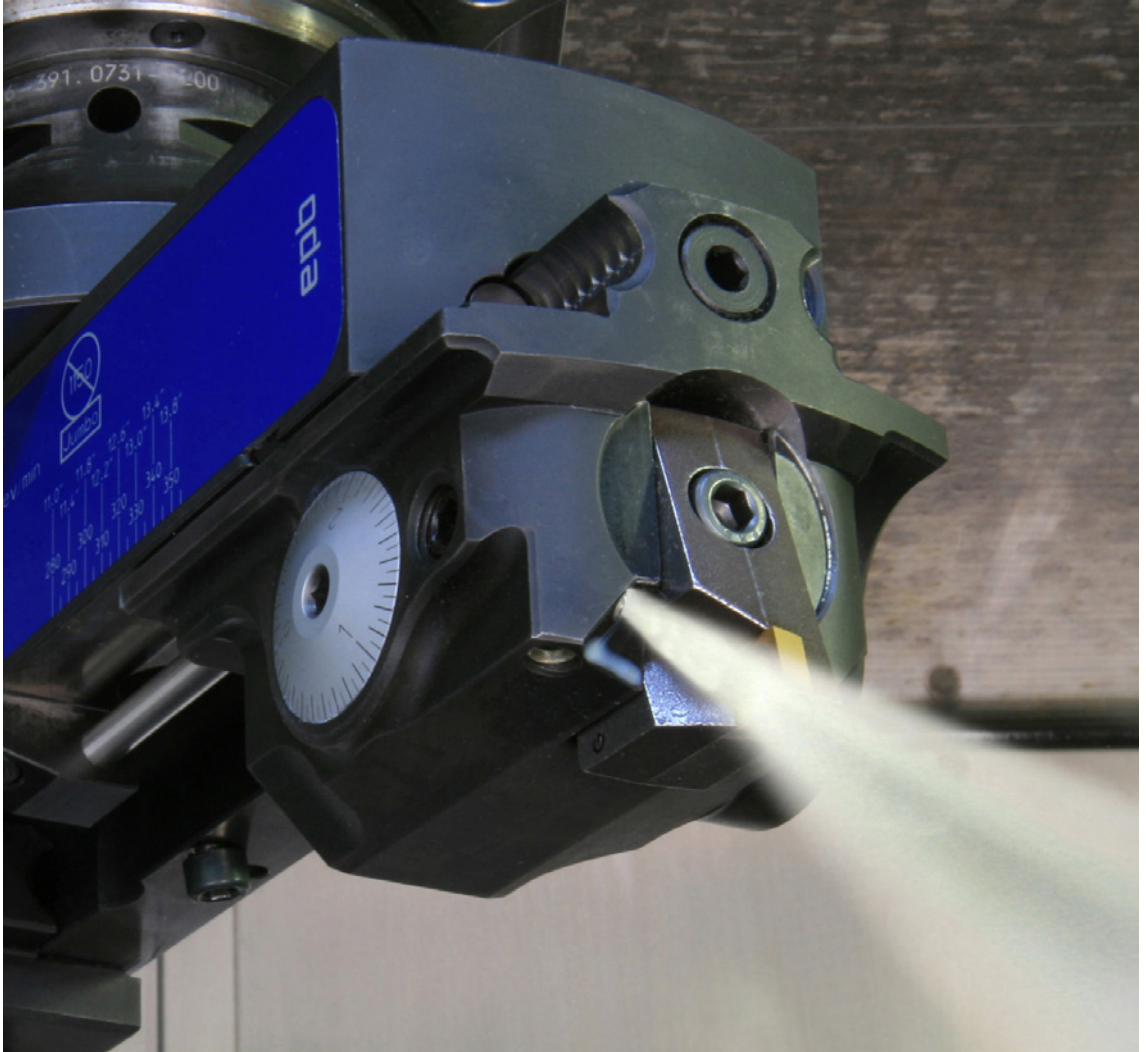
Please refer to fine boring troubleshooting advice, in chapter Axiabore™, page(s) 521.

### Maximum speeds for fine boring heads, radial type

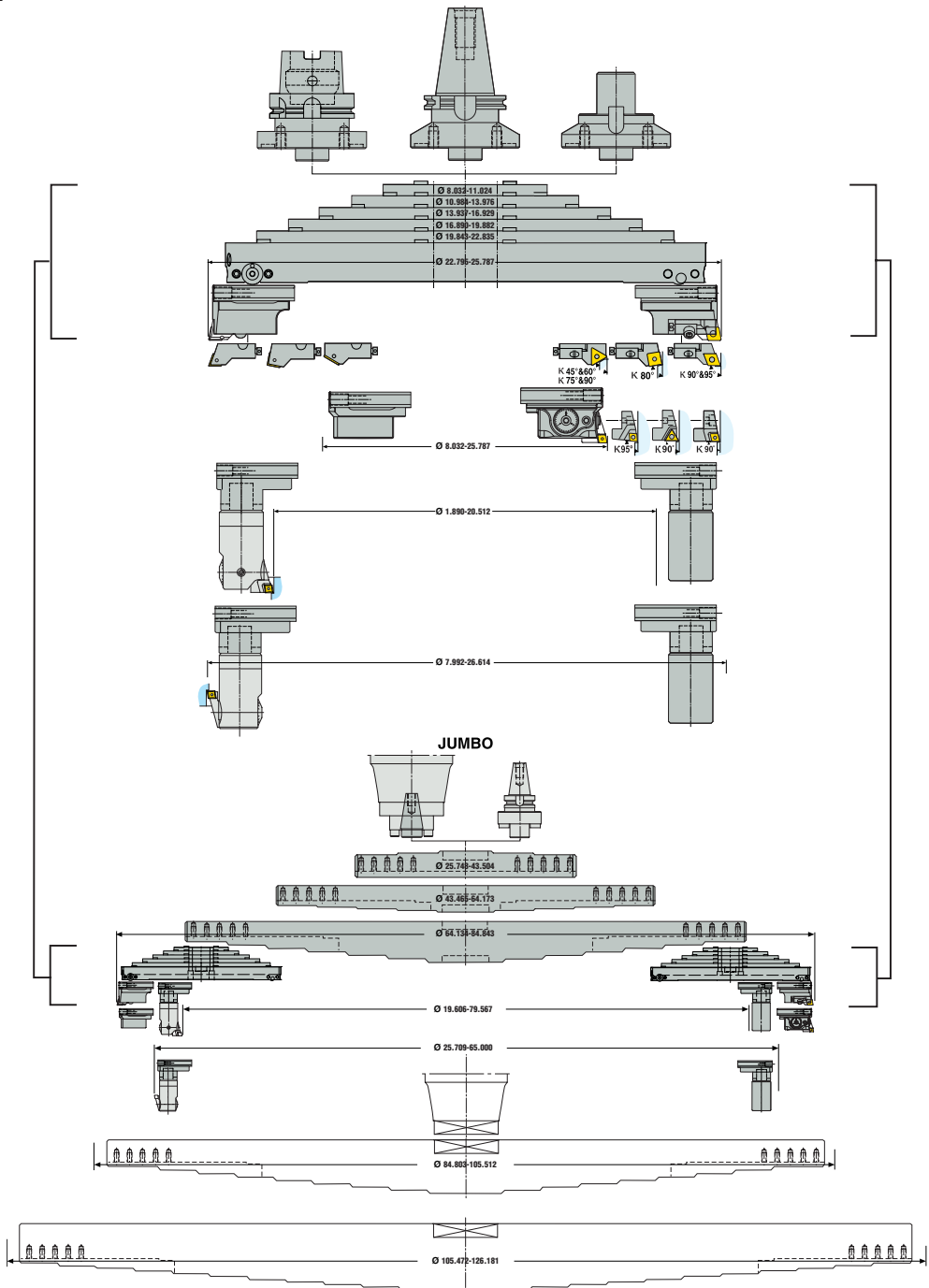
Below max. RPM are for boring heads equipped with boring insert holders or chamfering insert holders. When using back boring insert holders on holders on EPB 790 or EPB 780 heads type heads, use max. rpm for A780.. type, similar size.

Head	Capacity $\varnothing$ inch	Max. RPM (RPM)	Implied max. cutting speed $v_c$ at min. Cap. (sf/min)	Implied max. cutting speed $v_c$ at max. Cap. (sf/min)
<b>Libraflex® balanceable fine boring heads</b>				
A79020	1.18-1.57	16000	4945	6595
A79030	1.53-2.01	12250	4925	6440
A79040	1.97-2.56	10000	5155	6700
A79050	2.52-3.39	7500	4945	6645
A79060	3.35-4.53	5600	4905	6635
<b>Fine boring heads, with Graflex® connection</b>				
A78008	0.59-0.73	16000	2475	3050
A78009	0.71-0.92	13000	2410	3150
A78010	0.90-1.22	10000	2370	3195
A78020	1.18-1.57	8000	2475	3295
A78030	1.53-2.01	6000	2410	3155
A78040	1.97-2.56	5000	2575	3350
A78050	2.52-3.39	3700	2440	3280
A78060	3.35-4.53	2700	2365	3200
	4.49-5.67	2200	2585	3265
A78070	4.49-6.30	2000	2350	3295
	6.26-8.07	1600	2620	3380
<b>Fine boring heads with Seco-Capto™ connection</b>				
C3-391.0780-30	39-51	6000	2410	3155
C4-391.0780-40	50-65	5000	2575	3350
C5-391.0780-50	64-86	3700	2440	3280
C6-391.0780-60	85-115	2700	2365	3200
	114-144	2200	2585	3265
C8-391.0780-70	114-160	2000	2350	3295
	159-205	1600	2620	3380

**Note:** The maximum speeds are related to the boring head's mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. workpiece material, cutting edge (insert), tooling length, machine spindle. At speeds from approx. 8000 RPM and above, the holding arbors and intermediates should be fine balanced. Using balanceable heads and fine balanced holders improves the tool life and the boring performances even at lower speeds.



## Overview







## Features

**5 Jumbo Bridge bars for boring  $\varnothing$  25.748-126.181” (also OD-overturning  $\varnothing$  19.606-120.906 inch and back-boring  $\varnothing$  25.709-127.008 inch).**

Jumbo Bridge bars made of high tensile aluminum with spindle steel interfaces, are designed to hold two classic Bridge bars in several positions.

Sizes A731S001, 002, 003 are delivered with 4 locking screws to be fitted onto a milling cutter holder, flange mounting Type 569, pilot  $\varnothing$  60 mm - or to be fitted directly onto the machine spindle (DIN 2079/50 front end), using the centering pilot shown in accessories.

Jumbo Bridge bars are delivered with two lifting rings.

Sizes A731S004-...\* and A731S005-...\* are available on request, with standard or specific spindle fitting possibilities, according to the machine:

Capacity C $\varnothing$ inch	Part No.	Dimensions in inch (see drawing on Product page)							
		$d_1$	A	I	$l_1$	$l_2$	$L_1$	$D_1$	
84.803-105.512	A731S004-...*	*	2.756	11.811	6.299	*	84.252	*	*
105.472-126.181	A731S005-...*	*	4.331	15.748	7.874	*	104.921	*	*

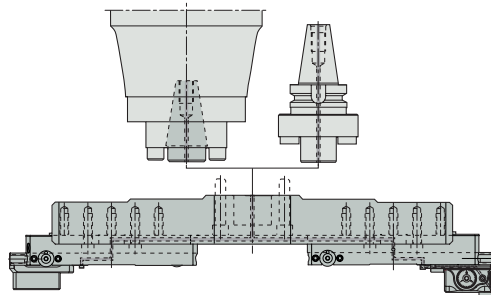
\* designation code and dimensions will be completed related to the spindle fitting type.

## Main new features

The new Jumbo Bridge bars 'S' feature through coolant channels to feed the coolant from the holder or the flange mount towards the two standard Bridge bars, and have a complementary locking screw of the standard Bridge bars.

**Note:** These new Jumbo Bridge bars 'S' can hold all classic Bridge bars (the new 'S', or the previous ones): when using the previous ones, the complementary clamping screw cannot be used. Through coolant to the cutting edge is only possible when using 'S' Jumbo Bridge bars and 'S' standard Bridge bars.

In order to keep balance, do not mix new and previous standard Bridge Bars and blocks on the same Jumbo Bridge bar.



## Features

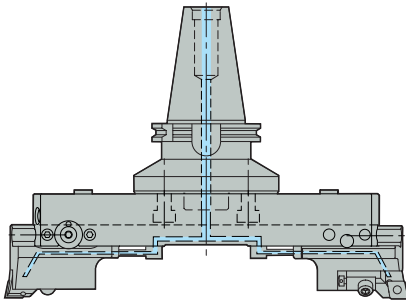
### 6 Bridge bars for boring $\varnothing$ 8.032-25.787" (also OD-overturning $\varnothing$ 1.890-20.512" and back-boring)

Bridge bars have a back end connection  $\varnothing$  130 mm for direct fitting onto arbors for Bridge bars (SA and HSK) or onto the Graflex® adapter. When using the Graflex® adapter, extensions are possible as well as spindle flange clamping, see Graflex® modular system. Angular position of the Bridge bar every 30° onto the arbors or Graflex® adapter, for optimized magazine storage.

Bridge bars can hold rough, fine, counterweight or Graflex® boring blocks.

The boring blocks are locked onto the Bridge bar by means of two cylinders actuated by three clamping screws: One of the clamping screws has a stop disc, which limits the block's sliding stroke inside its setting capacity and stops the block from sliding out of the Bridge bar. Precise and step free block sliding for diameter adjustment (1.5" stroke on radius), using the block's adjusting screw which is linked to the retaining pin of the Bridge bar.

Coolant through the Bridge bars and the boring blocks, towards the cutting edges.



Assembling procedures and max RPM, see Instructions page(s) 547-552.

**Note:** These new Bridge bars (Part No. A731S 0\_0) cannot hold previous types of boring blocks (Part No. A731 \_00 -without S-).

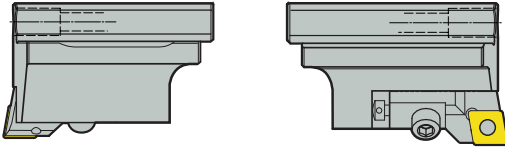
For the Bridge bar and Jumbo Bridge bar selection, related to the boring, OD-overturning or back-boring diameter to be produced, see Bridge bar selection charts, page(s) 547-552.

Assembling procedures and max RPM, see Instructions pages.

## Features

### Rough boring block

A large twin rough boring head requires two rough boring blocks, each equipped with a cartridge. Rough boring block through coolant, towards the cutting edge.



### Cartridges

A large range of cartridges is available:

- Cartridges with 90° lead angle, recommended in most of the boring applications for a lower power consumption,
- Cartridges with 80° lead angle, recommended for through hole boring (and chamfering), particularly in cast iron to avoid exit failure.

The power consumption is higher.

- Other cartridges with ISO5611/h1 = 16 mm fitting interface are suitable.

**Note:** The two cartridges can be set on the same diameter (symmetrical boring) or in a staggered position (staggered boring). A cartridge raising corner shim is available as an accessory (Part No. 18LS0316).

Assembling and setting procedures, see Instructions pages.

### Fine boring block and counterweight block

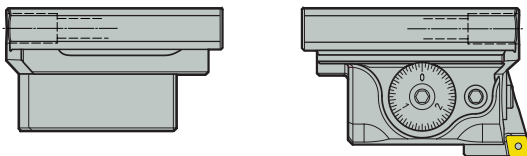
A large fine boring head requires one fine boring block equipped with an insert holder and one counterweight block. Diameter setting mechanism of the fine boring block with a micrometric setting screw (1 increment = 0.0002" (5 µm) on the diameter).

The setting system is protected and lubricated for life.

The precision of the mechanism guarantees repeatable accuracy.

The diameter adjusting screw is located on the side of the block to offer easy access.

Fine boring block through coolant, towards the cutting edge.



**Suitable fine boring insert holders A72460, A72560 or A72660** have to be ordered separately: they are the same as on radial type fine boring heads, see page(s) 533.

Assembling and setting procedures, see Instructions page.

## Features

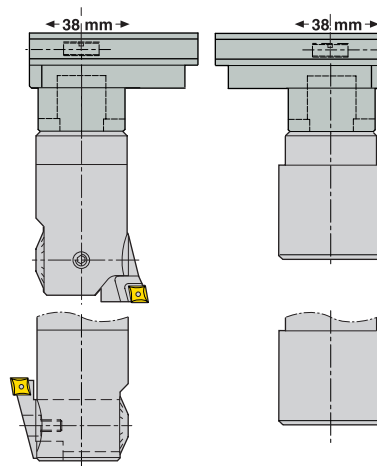
### Graflex® boring blocks, for OD-overturning or back-boring

This block has a female Graflex front connection size G5. Any Graflex boring head, special tool or standard Graflex module size G5 can be mounted onto the Bridge bars, e.g. the drawing showing set-ups for OD-overturning or back-boring using two Graflex boring blocks fitted with a Graflex fine boring head A78050 with insert holder (e.g. A72550 for back-boring) a back-boring insert holder (e.g. A789X30CC0690) and a Graflex counterweight (e.g. Part No. BM050W78050).

Two positions of the Graflex module are possible on the block, as it has 2 x 2 ball nose screw positions, and two tenon notches placed at 180°.

Block and boring head through coolant, towards the cutting edge.

Assembling and setting procedures, see Instructions pages.



### Note: These new boring blocks can also be fitted onto the previous type of Bridge bars

These new boring blocks (Part No. A731S 400, A731S 500, A731S 600, A731S 40128) can also be fitted onto the previous type of Bridge bars (Part No. A731 0\_0 -without S-).

Assembling and max. RPM instructions of the previous type of Bridge bars being valid. In order to keep balance, do not mix new and previous blocks on the same Bridge bar.

### Advice for 'through coolant' accessories selection

#### Roughing (Bridge bar with 2 rough boring blocks):

For directable coolant supply onto both cutting edges, use 2 coolant pipe connectors (Part No. AU731S00700), to be mounted onto the Bridge Bar, and 2 directable coolant supply nozzle sets (Part No. AU731S40700), to be mounted onto each rough boring block.

For normal through coolant from the block's channel, use 2 coolant pipe connectors (Part No. AU731S00700), to be mounted onto the Bridge Bar.

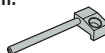
#### Fine boring (Bridge bar with 1 fine boring block & 1 counterweight):

Use 1 coolant pipe connector (Part No. AU731S00700), to be mounted onto the Bridge Bar in order to connect the fine boring block. As the fine boring block originally features a coolant supply nozzles, directable coolant supply is directly obtained.

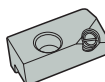
OD-overturning (e.g. Bridge bar with 2 Graflex boring blocks equipped with one fine boring head and one counterweight):

Use 1 coolant pipe connector (Part No. AU731S00700), to be mounted onto the Bridge bar in order to connect the Graflex boring block with fitted boring head. Graflex boring block's central coolant channel will feed coolant into the fitted boring head.

**Note: Allowable coolant pressure = 1000 PSI (70 Bars) maximum.**



Coolant pipe connector  
(Part No. AU731S00700)



Directive coolant supply nozzle set  
(Part No. AU731S40700)

## Building Bridge bar boring assemblies:

A rough boring assembly up to  $\varnothing 25.787''$  requires: 1 Bridge bar (A731S 0\_0) + 2 rough boring blocks (2x A731S 400) with cartridges\*.

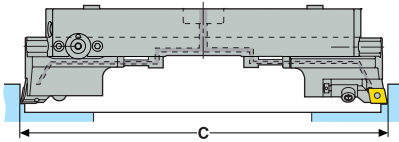


Fig.1

A fine boring assembly up to  $\varnothing 25.787''$  requires: 1 Bridge bar (A731S 0\_0) + 1 fine boring block (A731S 500) with insert holder\*\* + 1 counterweight block (A731S 600).

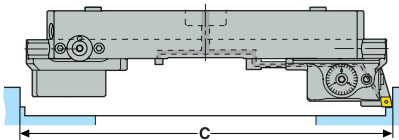


Fig. 2

A rough boring assembly up to  $\varnothing 126.181''$  requires: 1 Jumbo Bridge bar (A731S 00\_) + 2 Bridge bars (A731S 0\_0) + 2 rough boring blocks (2x A731S 400) with cartridges\*.

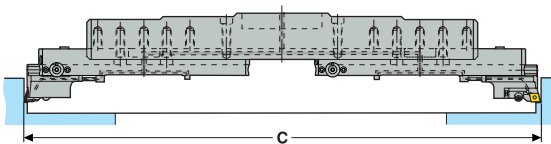


Fig. 3

A fine boring assembly up to  $\varnothing 126.181''$  requires: 1 Jumbo Bridge bar (A731S 00\_) + 2 Bridge bars (A731S 0\_0) + 1 fine boring block (A731S 500) with insert holder\*\* + 1 counterweight block (A731S 600).

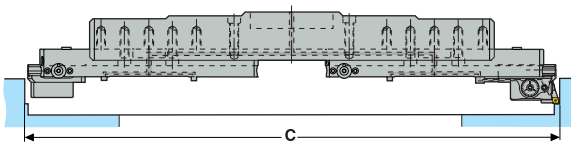


Fig. 4

\* Cartridges to be ordered separately, see page 557 .

\*\* Insert holders to be ordered separately, see MN Tooling or Holemaking.

## Building Bridge bar boring assemblies:

Bridge bar(s) selection chart to build a required BORING diameter

For boring C Ø (inch)	Jumbo Bridge bar	Classic Bridge bar(s)	For rough boring		For fine boring	
				Fig.		Fig.
8.03-11.02	–	A731S 010	2x A731S 400	1	A731S 500 + A731S 600	2
10.98-13.98	–	A731S 020				
13.94-16.93	–	A731S 030				
16.89-19.88	–	A731S 040				
19.84-22.83	–	A731S 050				
22.80-25.79	–	A731S 060				
25.75-31.69	A731S 001	2x A731S 010	2x A731S 400	3	A731S 500 + A731S 600	4
25.75-34.65		2x A731S 020				
31.65-37.60		2x A731S 030				
34.61-40.55		2x A731S 040				
40.51-43.50		2x A731S 050				
43.46-49.41	A731S 002	2x A731S 010	2x A731S 400	3	A731S 500 + A731S 600	4
43.46-52.36		2x A731S 020				
46.42-55.31		2x A731S 030				
49.37-58.27		2x A731S 040				
52.32-61.22		2x A731S 050				
55.28-64.17	2x A731S 060					
64.13-70.08	A731S 003	2x A731S 010	2x A731S 400	3	A731S 500 + A731S 600	4
64.13-73.03		2x A731S 020				
67.09-75.98		2x A731S 030				
70.04-78.94		2x A731S 040				
72.99-81.89		2x A731S 050				
75.94-84.84	2x A731S 060					
84.80-90.75	A731S 004	2x A731S 010	2x A731S 400	3	A731S 500 + A731S 600	4
84.80-93.70		2x A731S 020				
87.76-96.65		2x A731S 030				
90.71-99.61		2x A731S 040				
93.66-102.56		2x A731S 050				
96.61-105.51	2x A731S 060					
105.47-111.42	A731S 005	2x A731S 010	2x A731S 400	3	A731S 500 + A731S 600	4
105.47-114.37		2x A731S 020				
108.43-117.32		2x A731S 030				
111.38-120.28		2x A731S 040				
114.33-123.23		2x A731S 050				
117.28-126.18	2x A731S 060					

## Building Bridge bar OD-overturning assemblies:

A fine OD-overturning assembly up to  $\varnothing 20.512''$  requires: 1 Bridge bar (A731S 0\_0) + 2 Grafflex® blocks (2x A731S 40128) + e.g. 1 fine boring head (A780 50) with insert holder\* + 1 counterweight (BM050W78050).

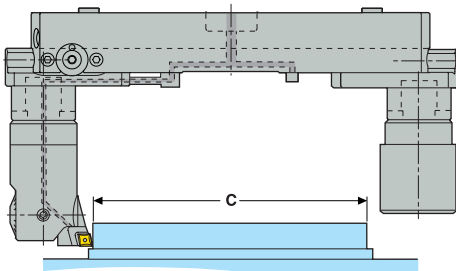


Fig.1

A fine OD-overturning assembly up to  $\varnothing 120.906''$  requires: 1 Jumbo Bridge bar (A731S 00\_) + 2 Bridge bars (A731S 0\_0) + e.g. 1 fine boring head (A780 50) with insert holder\* + 1 counterweight (BM050W78050).

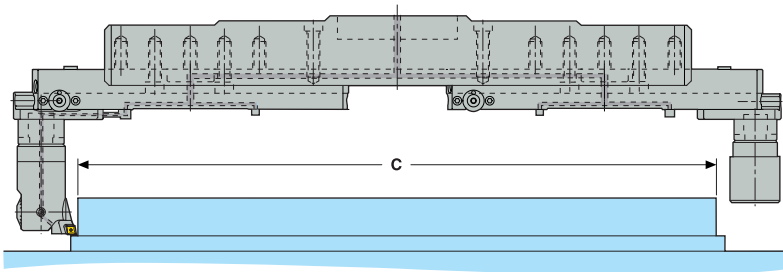


Fig. 2

\* Insert holders to be ordered separately, see MN Tooling or Holemaking.

## Building Bridge bar OD-overturning assemblies:

Bridge bar(s) selection chart to build a required OD-overturning diameter

For OD-overturning C Ø (inch)	Jumbo Bridge bar	Classic Bridge bar(s)	For fine OD-overturning	Fig.
1.89-5.75	–	A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	1
4.84-8.70	–	A731S 020		
7.80-11.65	–	A731S 030		
10.75-14.61	–	A731S 040		
13.70-17.56	–	A731S 050		
16.65-20.51	–	A731S 060		
19.61-26.42	A731S 001	2x A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
19.61-29.37		2x A731S 020		
25.51-32.32		2x A731S 030		
28.46-35.28		2x A731S 040		
34.37-38.23		2x A731S 050		
37.32-44.13	A731S 002	2x A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
37.32-47.09		2x A731S 020		
43.23-50.04		2x A731S 030		
46.18-52.99		2x A731S 040		
52.09-55.94		2x A731S 050		
55.04-58.90		2x A731S 060		
57.99-64.80	A731S 003	2x A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
57.99-67.76		2x A731S 020		
63.90-70.71		2x A731S 030		
66.85-73.66		2x A731S 040		
72.76-76.61		2x A731S 050		
75.71-79.57	2x A731S 060			
78.66-85.47	A731S 004	2x A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
78.66-88.43		2x A731S 020		
84.57-91.38		2x A731S 030		
87.52-94.33		2x A731S 040		
93.43-97.28		2x A731S 050		
96.38-100.24		2x A731S 060		
99.33-106.14	A731S 005	2x A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
99.33-109.09		2x A731S 020		
117.05-112.05		2x A731S 030		
108.19-115.00		2x A731S 040		
114.09-117.95		2x A731S 050		
117.04-120.90		2x A731S 060		



## Building Bridge bar back-boring assemblies:

A fine back-boring assembly up to  $\varnothing 26.614''$  requires: 1 Bridge bar (A731S 0\_0) + 2 Graflex® blocks (2x A731S 40128) + e.g. 1 fine boring head (A780 50) with insert holder\* + 1 counterweight (BM050W78050).

### Determination of minimum access diameter (D1 min)

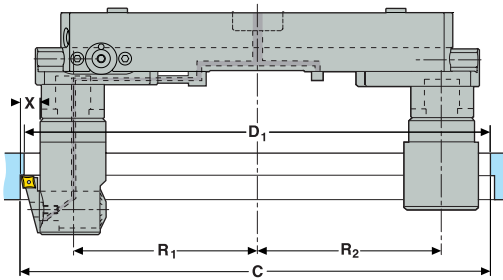


Fig.1

**Balancing condition:  $R1 = R2$**

$$D1 \text{ min} = C + 5 \text{ mm} - X$$

X = distance between insert's cutting edge and fitted boring head's A78050 body (7.5 mm < X < 18.5 mm).

The two extreme cases:

- Boring head A78050 set to capacity mini:  
D1 min = C - 2.5 mm
- Boring head A78050 set to capacity maxi:  
D1 min = C - 13.5 mm

A fine back-boring assembly up to  $\varnothing 127.008''$  requires: 1 Jumbo Bridge bar (A731S 00\_) + 2 Bridge bars (A731S 0\_0) + e.g. 1 fine boring head (A780 50) with insert holder\* + 1 counterweight (BM050W78050).

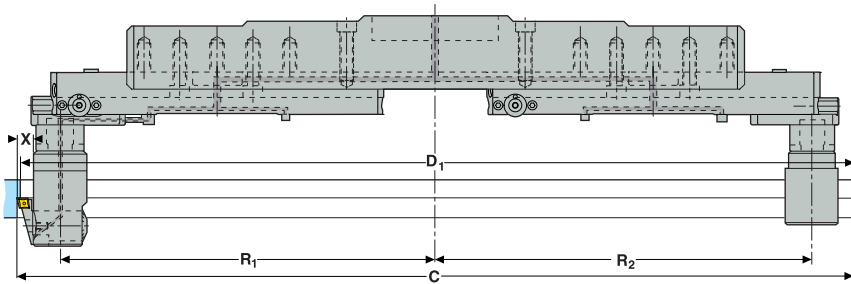


Fig. 2

\* Insert holders to be ordered separately, see MN Tooling or Holmaking.

## Building Bridge bar back-boring assemblies:

Bridge bar(s) selection chart to build a required BACK-BORING diameter

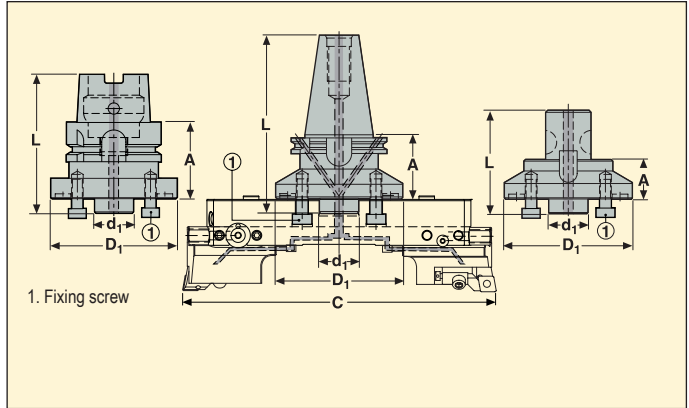
For backboring C Ø (inch)	Jumbo Bridge bar	Classic Bridge bar(s)	For fine back-boring	Fig.
7.99-11.85	–	A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	1
10.94-14.80	–	A731S 020		
13.90-17.76	–	A731S 030		
16.85-20.71	–	A731S 040		
19.80-23.66	–	A731S 050		
22.76-26.61	–	A731S 060		
25.71-32.52	A731S 001	2x A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
25.71-35.47		2x A731S 020		
31.61-38.43		2x A731S 030		
34.57-41.38		2x A731S 040		
40.47-44.33		2x A731S 050		
43.43-50.24	A731S 002	2x A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
43.43-53.19		2x A731S 020		
49.33-56.14		2x A731S 030		
52.28-59.09		2x A731S 040		
58.19-62.05		2x A731S 050		
61.14-65.00		2x A731S 060		
64.09-70.91	A731S 003	2x A731S 010	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
64.09-73.86		2x A731S 020		
70.00-76.81		2x A731S 030		
72.95-79.76		2x A731S 040		
78.86-82.72		2x A731S 050		
81.81-85.67	A731S 004	2x A731S 060	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2
84.76-91.57		2x A731S 010		
84.76-94.53		2x A731S 020		
90.67-97.48		2x A731S 030		
93.62-100.43		2x A731S 040		
99.53-103.39		2x A731S 050		
102.48-106.34	2x A731S 060	2x A731S 40128 + 1x A780 50 + 1x BM050W78050	2	
105.43-112.24	2x A731S 010			
105.43-115.20	2x A731S 020			
111.34-118.15	2x A731S 030			
114.29-121.10	2x A731S 040			
120.20-124.06	2x A731S 050			
123.15-127.01	A731S 005	2x A731S 060		

# Bridge bar boring heads

## EPB 731 200 – Holders and adapter for Bridge bars



- HSK and SA holders for short assemblies
- Graflex® adapter for extended assemblies
- Angular position of the Bridge bar every 30°
- Delivered with a pilot sealing o'ring  $\varnothing 58 \times 3$  mm



Back end	Size	Capacity C $\varnothing$ inch	EDP No.	Part No.	Dimensions in inch				lbs
					A	D <sub>1</sub>	d <sub>1</sub>	L	
DIN 69871-ADB	DIN50 ADB	8.031-25.787	<a href="#">23350</a>	E3471731200	2.559	5.118	1.575	6.565	12.65
BT JIS B 6339-ADB	BT50 ADB	8.031-25.787	<a href="#">23351</a>	E3416731200	2.559	5.118	1.575	6.565	12.43
DIN 2080	DIN50	8.031-25.787	<a href="#">84068</a>	E0050731200	2.559	5.118	1.575	6.565	13.10
ISO 12164-1/ DIN 69893-A	HSK-A100	8.031-25.787	<a href="#">16026</a>	E9306731200	2.559	5.118	1.575	4.528	10.41
GRAFLEX	G7	8.031-25.787	<a href="#">56616</a>	A731200	1.575	5.118	1.575	3.543	8.33

### Spare parts\*

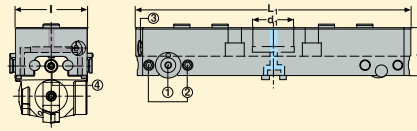
For Capacity C	Tenon	Key	Fixing screw
8.031-25.787	–	10SMS795	950D1230
8.031-25.787	90M7	10SMS795	950D1230

Please check availability in current price and stock-list.  
 \* Tightening torque 59 ft/lbs. For application details, refer to the operating instructions supplied with the Bridge bars and Boring blocks.

## EPB 731S0 – Bridge bars



• Coolant through the Bridge bar



1. Locking screw with stop disc
2. Clamp screw
3. Retaining pin
4. Diameter setting screw

Capacity C Ø inch Boring*	EDP No.	Part No.	Dimensions in inch				lbs
			$d_1$	A	I	$L_1$	
8.031-11.024	<a href="#">66672</a>	A731S010	1.575	1.850	2.756	7.677	7.56
10.984-13.976	<a href="#">66673</a>	A731S020	1.575	1.850	2.756	10.591	10.85
13.937-16.929	<a href="#">66674</a>	A731S030	1.575	1.850	2.756	13.543	14.11
16.890-19.882	<a href="#">66675</a>	A731S040	1.575	1.850	2.756	16.496	17.42
19.843-22.835	<a href="#">66678</a>	A731S050	1.575	1.850	2.756	19.449	22.93
22.795-25.787	<a href="#">66680</a>	A731S060	1.575	1.850	2.756	22.402	27.12

Max RPM, see page(s) 563. \* For OD-overturning capacities, see Guide page(s) 549-550. For larger diameters, see Jumbo Bridge bars on page(s) 555.

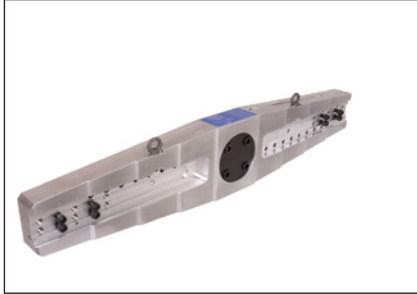
### Spare parts\*\*

For Capacity C	Locking screw 	Locking key 	Key 
8.031-25.787	19A71060	03HL05	H05-4

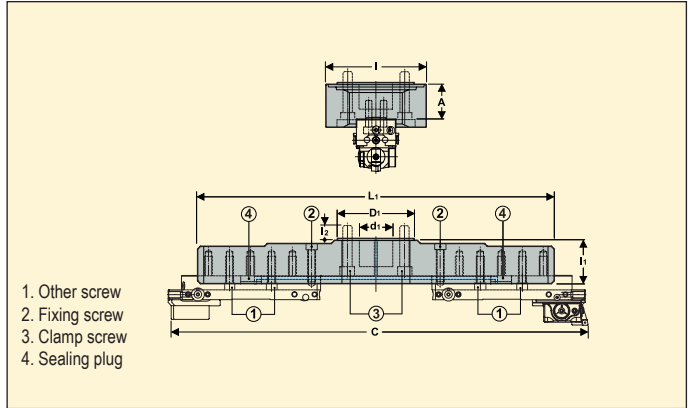
**Please check availability in current price and stock-list.**  
 \*\* Tightening torque 15 ft/lbs of the clamp screws (2) and locking screw with stop disc (1).  
 Before diameter setting, make sure retaining pin is engaged. For application details, refer to the operating instructions supplied with the Bridge bars and boring blocks.

# Bridge bar boring heads

## EPB 731S00 – Jumbo Bridge bars



- Jumbo Bridge bars are designed to hold two classic Bridge bars in several positions
- Through coolant Jumbo Bridge bars



Capacity C ∅ inch	**	EDP No.	Part No.	Dimensions in inch							
				d <sub>1</sub>	A	l	l <sub>1</sub>	l <sub>2</sub>	L <sub>1</sub>	D <sub>1</sub>	
25.748-43.504		09584	A731S001	2.362	2.480	7.087	3.031	0.945	25.197	5.315	44.64
43.465-64.173		09585	A731S002	2.362	1.969	7.874	3.150	0.945	42.913	5.315	76.06
64.134-84.843	**	92054	A731S003	2.362	1.969	7.874	3.150	0.945	63.583	5.315	127.87

\* Boring, OD-overturning and back-boring capacities for Jumbo and Bridge bars combinations, see guide page(s) 547-548.  
 \*\* Larger sizes A731S004-... (∅ 84.80-105.51") and A731S005-... (∅ 105.47-126.18") available on request, see Guide page(s) 543.

### Spare parts\*\*\*

### Accessories\*

For Capacity C	Sealing plugs	O-ring	Locking screw	Lever screw	Fixing screw	Assembly screw	Centering spigot
25.748-43.504	AU731S01100	90JT02	950D1250	90AS03	950D1670	950D1240	E447153960
43.465-64.173	AU731S01100	90JT02	950D1250	90AS03	950D1680	950D1240	E447153960
64.134-84.843	AU731S01100	90JT02	950D1250	90AS03	950D16120	950D1240	E447153960

Please check availability in current price and stock-list.

\* Accessories not included in delivery.

\*\*\* Set of O-ring seals contains 6 O-ring seals ∅ 0.236" for the coolant channels and 1 O-ring seal ∅ 2.362" for the holding bore of Jumbo Bridge bars.

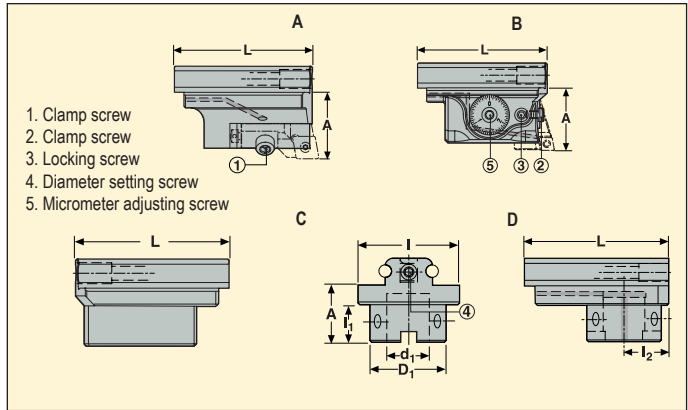
# Bridge bar boring heads



## Boring blocks, for Bridge bars EPB 731S0



- For fitting onto Bridge bars
- Coolant through the rough, fine and Graflex boring blocks



Type of boring block	EDP No.	Part No.	Dimensions in inch							Design	lbs
			A	L	I	I <sub>1</sub>	I <sub>2</sub>	D <sub>1</sub>	d <sub>1</sub>		
Rough boring block*	66681	A731S400	1.850	3.819	2.756	-	-	-	-	A	2.93
Fine boring block**	66683	A731S500	1.850	3.819	2.756	-	-	-	-	B	3.11
Counterweight	66685	A731S600	-	3.819	2.756	-	-	-	-	C	3.28
Graflex size G5***	66686	A731S40128	1.496	3.819	2.756	0.984	1.181	1.969	1.102	D	2.16

\* Cartridges to be ordered separately, see page(s) 557. \*\* Fine boring insert holders size 60 to be ordered separately, see page(s) 533.

\*\*\* When using boring head A78050, use the counterweight mass BM050W78050, see Accessories below.

### Spare parts\*\*\*\*

For	O-ring	Locking key	Key	Assembly screw
A731S400	90JT01	-	H05-4	950CB0830
A731S500	90JT01	-	H05-4	950D0612
A731S600	-	-	H05-4	-
A731S40128	90JT01	03H05	H05-4	90F5(SETOF2)

### Accessories\*

Corner shim	Coolant kit	Connecting pipe
18LS0316	AU731S40700	AU731S00700
-	-	AU731S00700
-	-	-
-	-	AU731S00700

Please check availability in current price and stock-list.

\* Accessories not included in delivery.

\*\*\*\* Set of O-ring seals contains 6 O-ring seals  $\varnothing 0.236''$  for the coolant channels and 1 O-ring seal  $\varnothing 2.362''$  for the holding bore of Jumbo Bridge bars.

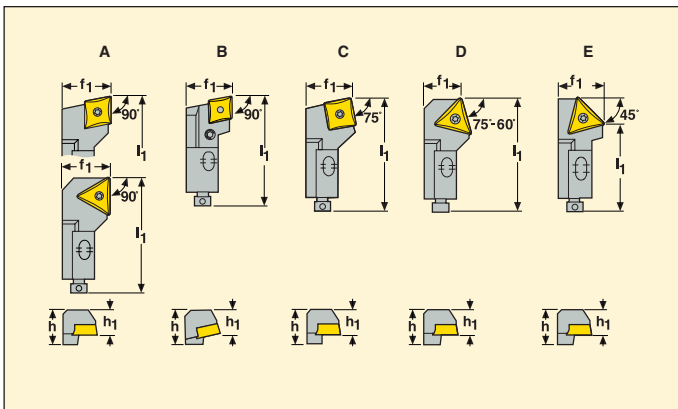
# Bridge bar boring heads



## Cartridges, for Bridge bars rough boring block A731S400



• For fitting onto the rough boring block



EDP No.	Part No.	Dimensions in inch				Suitable insert size	Design	lbs
		$l_1$	$f_1$	$h$	$h_1$			
39871	SCGCL16CA-16	2.165	0.984	0.787	0.630	CC..53.5.	A	0.44
09197	STGCL16CA-16	2.165	0.984	0.984	0.630	TC..32.5.	A	0.44
36182	STGCL16CA-22	2.165	0.984	0.787	0.630	TC..43.	A	0.44
75774	PCGNL16CA-12	2.480	0.984	0.984	0.630	CN..43.	B	0.44
39872	SSRCL16CA-15	2.480	0.984	0.787	0.630	SC..53.	C	0.44
08750	STRCL16CA-16	2.165	0.984	0.984	0.630	TC..32.5.	D	0.44
33525	STRCL16CA-22	2.165	0.984	0.787	0.630	TC..43.	D	0.44
09194	STTCL16CA-16	2.165	0.591	0.984	0.630	TC..32.5.	D	0.44
09193	STSCL16CA-16	1.772	0.984	0.984	0.630	TC..32.5.	E	0.44

Please check availability in current price and stock-list.  
 For spare parts for cartridges, see MN Turning.

## Instructions

### Bridge bar boring heads, assembling and setting procedures, summary

Below are summarized the main assembly, setting and operating instructions. Due to their large sizes, Bridge bar boring heads require special care. For application details of Bridge bars, boring blocks, cartridges and insert holders, please refer to and respect the detailed operating instructions Ref. 60A731SE../.. supplied with the Bridge bars and boring blocks, as well as Ref. 60A73100XE../.. supplied with Jumbo Bridge bars. If missing, order a copy from your Seco contact.

**Unsuitable setting and operating of the components or programming of the machine (respect max RPM) could cause unpredictable damage.**

#### 1. Assembling a Bridge bar onto a holder

- 1.1 Bridge bar can be fitted directly onto holders for Bridge bars or onto the Graflex® adapter.
- 1.2 Angular position of the Bridge bar every 30° onto the holder, for optimized magazine storage.
- 1.3 Bridge bar locking

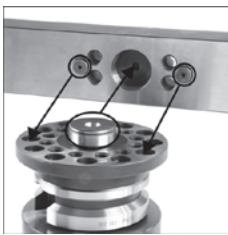


Fig. 1.1

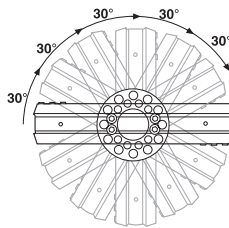


Fig. 1.2



Fig. 1.3

#### 2. Assembling, setting and locking a boring block onto a Bridge bar

This procedure is valid for every type of boring block : fine boring, rough boring, counterweight and Graflex® types.

##### 2.1. Boring block assembling

2.1.1 On the Bridge bar, loosen the three locking screws: totally unscrew the stop disc screw (A) until stop; only slightly unscrew both classic screws (B) (do not fully unscrew).

2.1.2 Slide the boring block into the Bridge bar until the block engages ('click fits') into Bridge bar's retaining pin (C). Check that this retains the boring block from free sliding in and out (for diameter setting, its further sliding will be controlled by its diameter adjusting screw).

Screw in the stop disc screw (A) until its disc fits into boring block's recess groove, without tightening.

**The boring block is now ready for diameter setting and locking procedures, see 2.3 and 2.4.**

##### 2.2 Note: Boring block dismounting

On the Bridge bar, loosen the three locking screws (A) & (B), see 2.1.

Twist and hold the pin's driving cam (D) approx ½ revolution (clockwise or counterclockwise) from its neutral position in order to retract the retaining pin (C) to disengage it from the boring block, thus enabling the sliding out of the boring block from the Bridge bar. While the pin is being retracted, maintain control of the block that is sliding out, to prevent accidents.

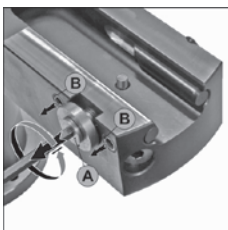


Fig. 2.1.1

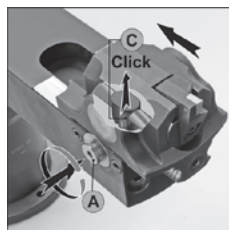


Fig. 2.1.2

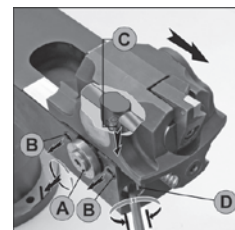


Fig. 2.2



## Instructions

### Bridge bar boring heads, assembling and setting procedures, summary (cont:)

#### 2.3 Boring block diameter setting

Note: before setting, make sure the retaining pin is engaged.

2.3.1 Set boring block on required diameter using boring block's diameter setting screw.

2.3.2 Set symmetrically (same graduation).

#### 2.4 Boring block locking

Note: before locking, make sure the retaining pin is engaged.

Tighten the three locking screws starting by the stop disc screw (rank 1, 2, 3, see Fig 2.4).

Make sure the tightening torque is effective on all 3 locking screws (3 x 15 ft/lbs (3 x 20 Nm)).

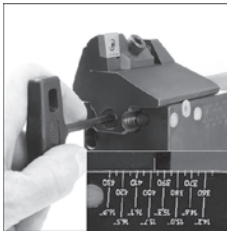


Fig. 2.3.1

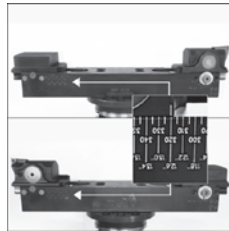


Fig. 2.3.2

3 x 15 ft/lbs (20 Nm)

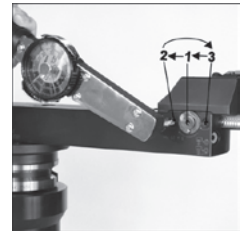


Fig. 2.4

### 3. Rough boring assembly (two rough boring blocks).

#### 3.1 Cartridge fitting.

Fit the cartridge onto the rough boring block so that the length (L) from the insert cutting edge to the block's inner face is set at 3.209" (81.5 mm) (this will allow you to control the cutting edge diameter using the graduated scale on the Bridge bar).

Set and lock the block on the required boring diameter, see 2.3 and 2.4.

**Note:** Cartridge fitting with corner shim (for staggered boring).

For staggered boring, the cutting edge operating on the minor diameter must be advanced to a leading position. Its minimum advanced value is equal to half the feed per revolution. For staggered boring with 90° lead angle cartridge, the raising of the leading cartridge (e.g. 0.020-0.039" (0.5-1 mm)) can be achieved by the cartridge's height adjustment screw or by setting a shim under it. With smaller lead angle cartridges, a higher cutting edge offset should be used (eg. 0.039-0.118" (1-3 mm)).

This should not be achieved by raising a standard cartridge, as the cartridge's oblique fixing screw would not clamp properly: therefore a 0.118" (3 mm) corner shim is available as accessories (Part No. 18LS0316).

1 x 15 ft/lbs (20 Nm)



Fig. 3.1

## Instructions

### Bridge bar boring heads, assembling and setting procedures, summary (cont:)

#### 4. Fine boring assembly (one fine boring and one counterweight block).

##### 4.1 Insert holder fitting.

Preset insert holder so that the length (L) from the insert cutting edge to the block's inner face is set at 3.209" (81.5 mm) (this will allow you to control the cutting edge diameter using the graduated scale on the Bridge bar).

Preset and lock boring block on required boring diameter, see 2.3 and 2.4.

##### 4.2 Diameter fine setting (after boring block approximate diameter setting and locking).

###### 4.2.1 Barrel unlocking.

###### 4.2.2 Diameter fine adjusting.

###### 4.2.3 Barrel locking.

1 x 7.4 ft/lbs (10 Nm)

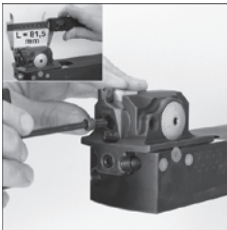


Fig. 4.1

1 x 7.4 ft/lbs (10 Nm)

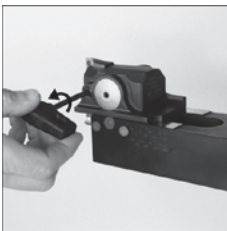


Fig. 4.2.1



Fig. 4.2.2

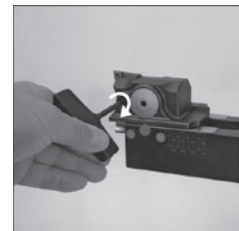


Fig. 4.2.3

#### 5. Graflex® blocks assembly for OD-overturning or back-boring (two Graflex® blocks equipped with a Graflex® boring head and a counterweight mass).

For block's diameter setting and locking, see 2.3 and 2.4.

Note: Remember that OD-overturning requires counterclockwise spindle rotation.

#### Note: Use of through coolant accessories for Bridge bars

Instructions related to the use of through coolant accessories for Bridge bars boring heads are delivered with the through coolant accessories.

## Instructions

### Bridge bar boring heads, assembling and setting procedures, summary (cont).

#### Bridge bar boring heads using Jumbo Bridge bars

#### 6. Assembling two standard Bridge bars onto a Jumbo

- 6.1 Select two identical Bridge bars.
- 6.2 Place the sealing rings ( $\varnothing 0.236 \times 0.0591"$  (6 x 1.5 mm)) in each Jumbo body counterbore (part of Set of 'O' ring seals delivered with Jumbo).
- 6.3 Remove the sealing cap on the Bridge bar to access to the threaded hole of the lateral fixing screw.
- 6.4 Place the sealing plug in central bore  $\varnothing 1.575"$  (40 mm) of each Bridge bar.
- 6.5.1 After locking, the coolant holes between Bridge bar and Jumbo will be connected.
- 6.5.2 Place each Bridge bar in position onto the Jumbo plate in accordance to the chart attached on the Jumbo. Two identical Bridge bars in symmetrical position.
- 6.6 Lock each Bridge bar by tightening the 4 central Bridge fixing screws (tightening torque: 37 ft/lbs) and the lateral Bridge fixing screw (tightening torque: 37 ft/lbs).

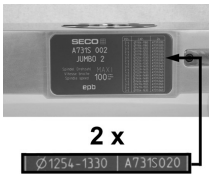


Fig. 6.1

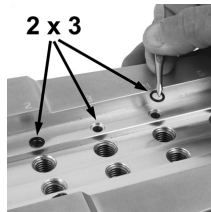


Fig. 6.2



Fig. 6.3



Fig. 6.4



Fig. 6.5.1

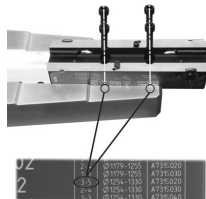


Fig. 6.5.2

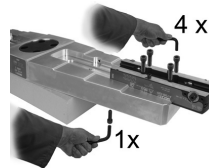


Fig. 6.6

## Instructions

### Bridge bar boring heads, assembling and setting procedures, summary (cont).

#### 7. Jumbo Bridge bar holding.

Jumbo Bridge bars sizes A731S001, 002, 003 have two spindle fitting possibilities:

7.1 Fitting onto a milling cutter holder (flange mounting Type 569, pilot  $\varnothing$  60 mm).

7.2 Fitting directly onto the machine spindle: DIN2079/50 spindle front end (1) with a centering pilot available as accessories (2) (Part No. E447153960).

7.3 Locking the 4 Jumbo locking screws (tightening torque: 37 ft/lbs).

**Sizes A731S004-... and A731S005-... available on request - will only have one fitting possibility according to the machine spindle.**

#### 8. Handling/Transport.

8.1 Fit the two lifting rings into the Jumbo's lateral or back face, to be suitable for horizontal or vertical spindle fitting.



Fig. 7.1

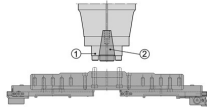


Fig. 7.2



Fig. 7.3



Fig. 8.1

## Recommended machining conditions

Best performances are obtained with through coolant (higher machining data, better surface finish, better chip evacuation).  
 Rough boring depends on the priorities: higher feed or larger chip removal use symmetrical setting of the cartridges (most common method, double feed compared to staggered setting), or staggered setting (double depth of cut).  
 In fine boring in steel, with good conditions, we recommend to use Cermet inserts (CMP grade), for high speeds and long life.

## Troubleshooting

Please refer to troubleshooting advice, in rough boring chapter page(s) 479, or fine boring chapter page(s) 521.

## Maximum speeds for Bridge bars

Due to the large sizes of Bridge bar boring heads, unsuitable RPM programming could cause unpredictable damage.  
 Below max. RPM are for present Bridge bar boring assemblies using present Bridge bar types (Part No. A731S 0\_0) rough boring, fine boring and counterweight boring blocks (Part No. A731S \_00) and Jumbo Bridge bar (Part No. A731 00\_). For other assemblies, please contact your local Seco representative.

**Note:** when using present boring blocks (Part No. A731S 400, A731S 500, A731S 600, A731S 40128) onto previous type Bridge bars (Part No. A731 0\_0 -without S-), the max RPM to consider are the ones recommended for the previous type Bridge Bars. To maintain balance, do not mix new and previous blocks on the same Bridge bar.

Head based on	Capacity $\varnothing$	Max. RPM	Implied max cutting speed $v_c$ at min. Cap.	Implied max cutting speed $v_c$ at max. Cap.
	inch	(RPM)	(sf/min)	(sf/min)
<b>Bridge bar boring heads (with two boring blocks set symmetrically)</b>				
A731S010	8.03 - 11.02	1600	3365	4615
A731S020	10.98 - 13.98	1150	3305	4205
A731S030	13.94 - 16.93	900	3280	3985
A731S040	16.89 - 19.88	750	3315	3900
A731S050	19.84 - 22.83	650	3375	3885
A731S060	22.79 - 25.79	550	3280	3710
<b>Jumbo bridge bars (with two identical Bridge bars and boring blocks set symmetrically)</b>				
A731S 001	25.75-43.50	170	1145	1935
A731S 002	43.46-64.17	100	1135	1680
A731S 003	64.13-84.84	70	1175	1550
A731S 004	84.80-105.51	50	1110	1380
A731S 005	105.47-126.18	40	1102	1319

**Note:** The maximum speeds are related to the boring head's mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. workpiece material, cutting edge (insert), tooling length, machine spindle.



## Range overview

Classic  
EPB 780



Ø 0.591- 0.728



Ø 0.709- 0.925



Ø 0.906- 1.220



Ø 1.181- 1.575



Ø 1.535- 2.008



Ø 1.969- 2.559



Ø 2.520- 3.386



Ø 2.520- 3.386



Ø 3.346- 4.528



Ø 3.346- 5.669



Ø 4.488- 6.299



Ø 4.488- 8.071



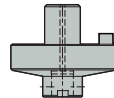
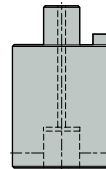
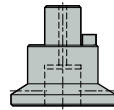
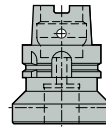
Ø 6.260- 8.071



Libraflex®  
EPB 790

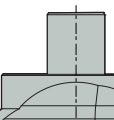
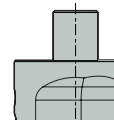
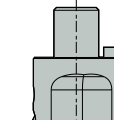
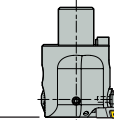


Liteline™ arbors, intermediates  
and adapters.



Liteline™  
EPB 780..L

Liteline™ boring heads: a low weight  
alternative vs. the classic and  
Libraflex® radial type fine boring heads.



## Features

### Liteline™ fine boring heads

**Graflex® Liteline™ radial type fine boring heads: made from low weight high tensile aluminum.**  
4 heads for boring capacity  $\varnothing$  2.520-8.070" (64-205 mm) (as weight reduction is mainly required in the large boring assembly sizes).  
With Graflex® connection back end G.A or G.B (large flange OD\* and expandable tenon).  
Liteline™ boring heads are pre-balanced.

#### Micrometer adjustment

Insert holder setting mechanism with a micrometer adjusting screw (1 increment = 0.0004" (0.01 mm) on the diameter) and a vernier scale (resolution of 0.0001" on the diameter).  
The precision of the mechanism guarantees repeatable accuracy.  
Angular orientation of the cutting edge according to DIN 69871/ISO 7388 for SA and ISO 12164 for HSK.  
Coolant through the head directed towards the cutting edge.

**Suitable insert holders to be ordered separately.**

**For Liteline™ boring heads operating instructions and maximum speeds, see Instructions page(s) 578.**

\* OD means outer diameter.



### Liteline™ intermediates\*\*

**Graflex® Liteline™ extensions and reducers: made from low weight high tensile aluminum.**  
With Graflex® connection back end G.A or G.B (large flange OD and expandable tenon).  
With Graflex® connection front end G.A or G.B (large flange OD).



### Liteline™ arbors and adapters\*\*

**Graflex® Liteline™ arbors: made from steel.**  
To realize integral Liteline™ assemblies, directly from the spindle.  
With back end tapers HSK-A, DIN, BT, Ansi-CAT Imperial, Seco-Capto™.  
With Graflex® connection front end G.A or G.B (large flange OD).



**Graflex® Liteline™ adapters: made from steel.**  
To hold Graflex® Liteline™ boring heads and intermediates onto Graflex® classic arbors and intermediates.  
With classic Graflex® connection back end sizes (classic flange OD and tenon).  
With Graflex® connection front end G.A or G.B (large flange OD).



\*\* The balancing quality of the Liteline™ intermediates, arbors and adapters is shown in the Product pages: 1 = Fine balanced, 2 = Pre-balanced.  
For detailed balancing information, see General guide in the Seco Tooling Systems catalog. The balancing qualities are suitable for Liteline™ boring heads use.



## Features

### Liteline™ items Graflex® connections G.A or G.B: with large OD and expandable tenon

The Graflex® connection design (sizes G5A, G6A, G6B, G7A) guarantees rigidity and long life to the Liteline™ modules mainly made from aluminum.

The differences with the classic Graflex® connection design are:

- Graflex® front ends G.A or G.B are with larger outer diameter vs. classic:

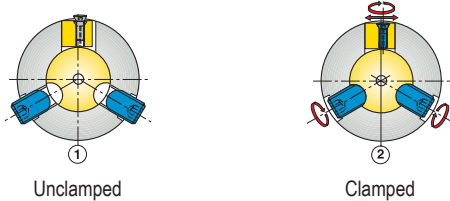
G5A 2.165" (55mm) // G5 1.969" (50); G6B 2.756" (70) // G6 2.480" (63); G6B 3.937" (100) // G6 2.480" (63); G7A 4.724" (120) // G7 (90).

Connection bores, ball nose screws and tenon slots are similar to classic Graflex®.

- Graflex® back ends G.A or G.B are with larger outer diameter (see above) and have an expandable tenon. Connection shanks are similar to classic Graflex®.

By tightening the tenon's expanding screw, the tenon/slot clearance is eliminated and bi-lateral plain-face tenon/slot clamping is achieved.

For detailed Graflex® connections G.A or G.B description, assembly procedure and locking torques, see Graflex® connection page(s) 595.



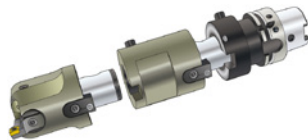
## Liteline™ assemblies: integral, or using classic Graflex® arbors

### Integral Liteline™ assemblies

Best weight reduction and rigidity are obtained with integral Liteline™ Graflex® assemblies, using exclusively modules from the Liteline™ range: Liteline™ Graflex® boring heads, extensions and reducers are made from aluminum and have larger outer diameters than classic Graflex® modules.

Their connection onto short Liteline™ arbors, in steel, with same large OD achieves high assembled rigidity.

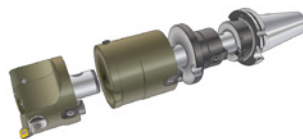
Note: There are no Liteline™ Graflex® arbors size G5A available: Liteline™ Graflex® boring heads and intermediates size G5A have to be fitted onto existing classic Graflex® arbors size G5.



### Assemble Liteline™ items with Graflex® connection G.A or G.B onto classic Graflex®

There are Graflex® Liteline™ adapters size G6/ G6A; G6/ G6B; G7/ G6B and G7/ G7A available to fit Liteline™ Graflex® boring heads or intermediates (with large Liteline™ Graflex® OD) onto classic Graflex® arbors (with classic Graflex® OD): an economical solution when customers still have classic Graflex® arbors available.

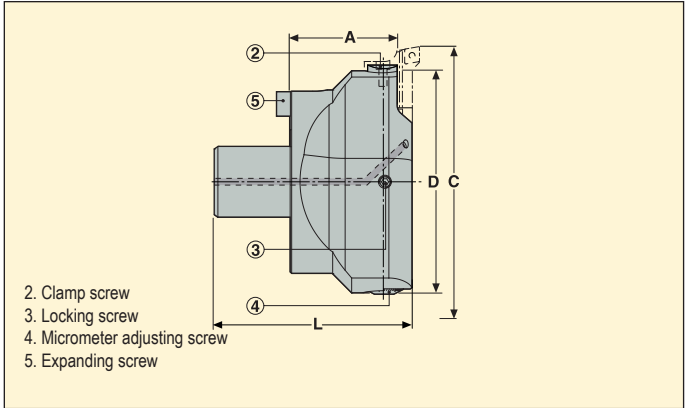
Note : There is no Liteline™ adapter size G5/ G5A available: Liteline™ Graflex® boring heads and intermediates size G5A have to be fitted directly onto existing classic Graflex® arbors size G5.



## EPB 780..L – Graflex® Liteline™ fine boring heads



- Made from low weight high tensile aluminum
- With micrometer adjusting : increment 0.0004" (0.01 mm) and vernier 0.0001" (2.5 μm) on the diameter
- With Graflex® back end G.A or G.B.



Graflex size	Capacity C ∅ inch	EDP No.	Part No.	Dimensions in inch			Insert holder size	
				A	D	L		
G5A	2.520-3.386	54136	A7805AL	1.957	2.126	3.453	50	1.26
G6A	3.346-4.528	52631	A7806AL	2.579	2.756	4.528	6A	3.15
G6B	4.488-6.299	52639	A7806BL	2.579	3.937	4.528	6B	4.63
G7A	6.260-8.071	52647	A7807AL	2.776	5.709	5.118	6B	6.83

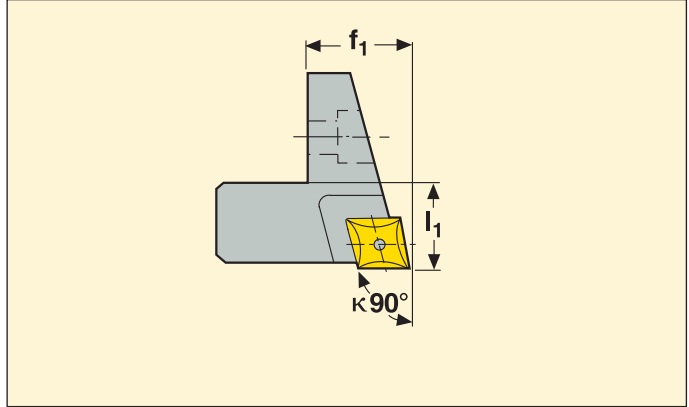
Insert holders have to be ordered separately, see page(s) 569 \*Without insert holder

### Spare parts

For	Tenon	Stop screw	Locking screw	Key (T-handle)	Key	Assembly screw
A780 5AL	90M5L	C04510-T20P	950L0612	03M03C	T20P-4	950D0410
A780 6AL	90M6L	C05010-T20P	950L0816	H04-4	T20P-4	950D0514
A780 6BL	90M6L	C05010-T20P	950L0816	H04-4	T20P-4	950D0514
A780 7AL	90M7L	C05010-T20P	950L0816	H04-4	T20P-4	950D0514

Please check availability in current price and stock-list.

## Fine boring insert holders, for EPB 780..L Liteline™ boring heads



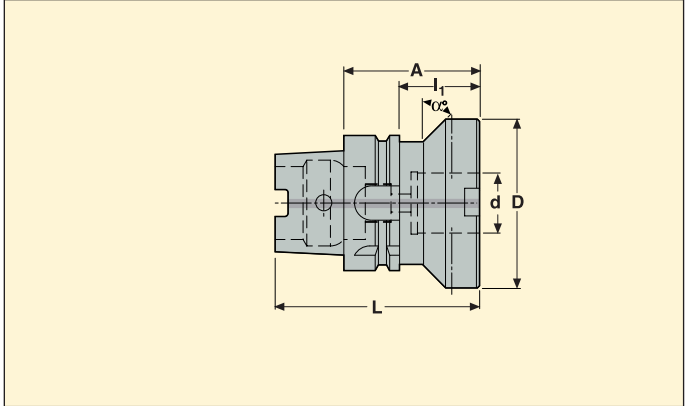
κ°	For Liteline boring head	*	Insert holder size	Capacity C ∅ inch	EDP No.	Part No.	Dimensions in inch		Suitable insert size	lbs
							l <sub>1</sub>	f <sub>1</sub>		
90° for CC inserts	A78050 / A79050 / A7805AL	*	50	2.520-3.386	<a href="#">56584</a>	<b>A72550</b>	0.406	0.492	CC..21.5.	0.04
	A7806AL		6A	3.346-4.528	<a href="#">52649</a>	<b>A7256A</b>	0.571	0.728	CC..32.5.	0.11
	A7806BL / A7807AL		6B	4.488-8.071	<a href="#">52651</a>	<b>A7256B</b>	0.571	0.728	CC..32.5.	0.11

\* All existing insert holders from existing heads A780 50 and A790 50 are suitable for Liteline™ head A780 5AL, e.g. insert holder A725 50 (90°) shown (other types see page(s) 533).

### Spare parts

For insert size	Insert screw	Insert key
CC..21.5.	C02504-T07P	T07P-3
CC..32.5.	C04008-T15P	T15P-3

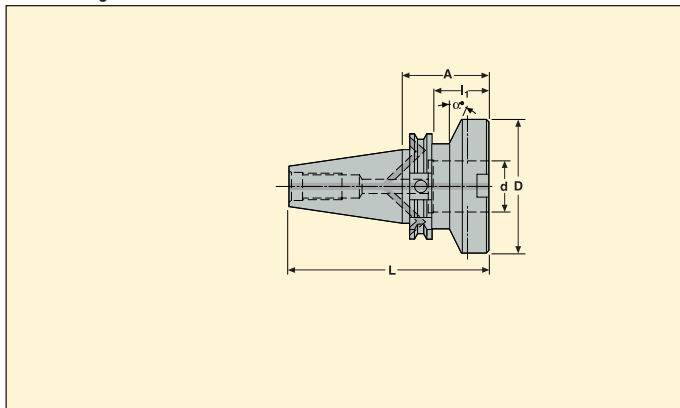
Please check availability in current price and stock-list.



- With Graflex® front end G.A or G.B to hold Liteline™ heads and intermediates

Taper	Graflex bore	d (mm)	*	EDP No.	Part No.	Dimensions in inch				α°	Balancing	lbs
						A	D	L	I <sub>1</sub>			
HSK-A63	G5	28	*	<a href="#">86920</a>	<a href="#">EM93044012860</a>	2.362	1.969	3.622	1.339	–	1	2.16
	G6A	36		54270	<a href="#">EM930440136A70</a>	2.756	2.756	4.016	1.732	15	2	2.93
	G6B	36		54272	<a href="#">EM930440136B70</a>	2.756	3.937	4.016	1.732	–	2	4.72
HSK-A100	G5	28	*	<a href="#">86927</a>	<a href="#">EM93064012865</a>	2.559	1.969	4.528	1.417	–	1	5.22
	G6A	36		54273	<a href="#">EM930640136A75</a>	2.953	2.756	4.921	1.811	–	2	6.50
	G6B	36		54274	<a href="#">EM930640136B75</a>	2.953	3.937	4.921	1.811	60	2	8.82
	G7A	46		54276	<a href="#">EM930640146A85</a>	3.346	4.724	5.315	2.205	45	2	11.11

Please check availability in current price and stock-list.  
 \* To hold Liteline™ heads and intermediates with Graflex® size G5A, use existing Graflex® arbors with size G5, eg. the short arbors shown above (other arbor lengths, see Seco Tooling Systems catalog).

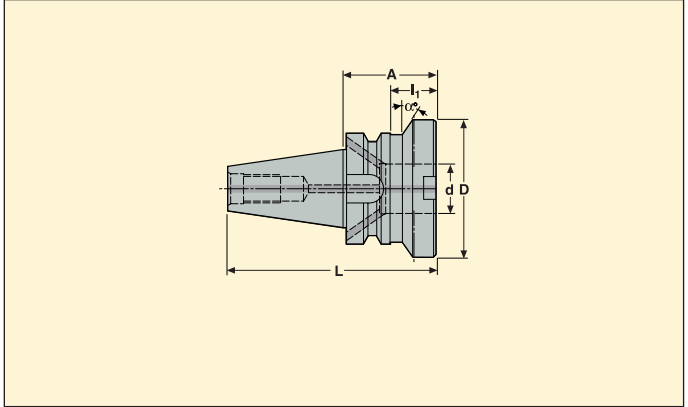


- With Graflex® front end G.A or G.B to hold Liteline™ heads and intermediates

Taper	Graflex size	d (mm)	*	EDP No.	Part No.	Dimensions in inch				α°	Balancing	lbs
						A	D	L	I <sub>1</sub>			
DIN40 ADB	G5	28	*	<a href="#">20118</a>	EM34694012840	1.575	1.969	4.268	0.823	-	1	2.05
	G6A	36		54283	EM346940136A60	2.362	2.756	5.055	1.610	-	2	3.02
	G6B	36		54284	EM346940136B60	2.362	3.937	5.055	1.610	-	2	4.56
DIN50 ADB	G5	28	*	<a href="#">23311</a>	EM34714012840	1.575	1.969	5.579	0.823	-	1	6.06
	G6A	36		52632	EM347140136A45	1.772	2.756	5.776	1.020	-	2	6.53
	G6B	36		52652	EM347140136B50	1.969	3.937	5.972	1.217	45	2	8.07
	G7A	46		52653	EM347140146A60	2.362	4.724	6.366	1.610	65	2	9.39

Please check availability in current price and stock-list.

\* To hold Liteline™ heads and intermediates with Graflex® size G5A, use existing Graflex® arbors with size G5, eg. the short arbors shown above (other arbor lengths, see Seco Tooling Systems catalog).



• With Graflex® front end G.A or G.B to hold Liteline™ heads and intermediates

Taper	Graflex size	d (mm)	*	EDP No.	Part No.	Dimensions in inch				$\alpha^\circ$	Balancing	lbs
						A	D	L	I <sub>1</sub>			
BT40 ADB	G5	28	*	<a href="#">20280</a>	EM34144012845	1.772	1.969	4.346	0.709	–	1	2.47
	G6A	36		54285	EM341440136A55	2.165	2.756	4.740	1.102	45	2	2.95
	G6B	36		54286	EM341440136B55	2.165	3.937	4.740	1.102	–	2	4.23
BT50 ADB	G5	28	*	<a href="#">23340</a>	EM34164012855	2.165	1.969	6.173	0.669	–	1	8.75
	G6A	36		54290	EM341640136A63	2.480	2.756	6.488	0.984	45	2	8.64
	G6B	36		54293	EM341640136B63	2.480	3.937	6.488	0.984	–	2	10.19
	G7A	46		54294	EM341640146A65	2.559	4.724	6.567	1.063	30	2	10.85

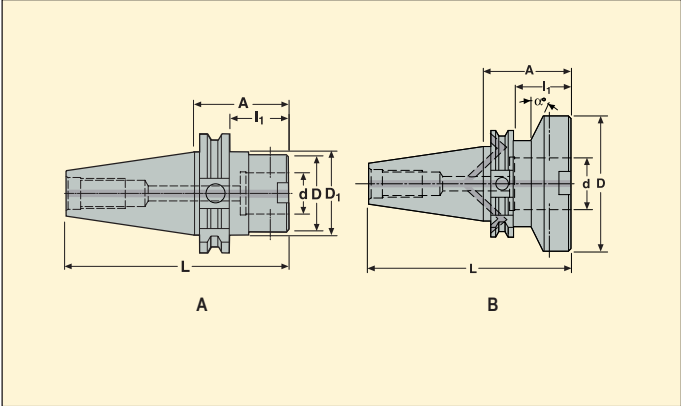
Please check availability in current price and stock-list.  
 \* To hold Liteline™ heads and intermediates with Graflex® size G5A, use existing Graflex® arbors with size G5, eg. the short arbors shown above (other arbor lengths, see Seco Tooling Systems catalog).

EPB EM..A/B – Arbors CAT ADB, for Graflex® Liteline™ boring heads and intermediates

CAT ANSI B5.50 ADB



- With Graflex® front end G.A or G.B to hold Liteline™ heads and intermediates

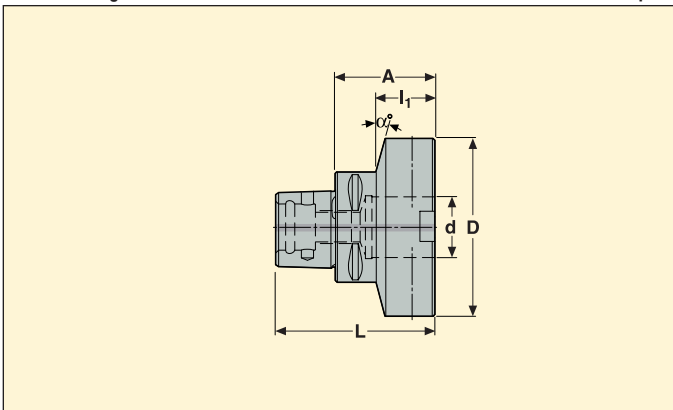


Taper	Graflex size	d (mm)	*	EDP No.	Part No.	Dimensions in inch					$\alpha^\circ$	Design	Balancing	lbs
						A	D	D <sub>1</sub>	L	L <sub>1</sub>				
CAT40 ADB	G5	28	*	56663	EM25024012840	1.570	1.970	1.750	4.270	0.820	–	A	1	1.98
	G6A	36.068		54277	EM250240136A60	2.360	2.750	1.750	5.050	1.020	–	B	2	2.91
	G6B	36.068		54278	EM250240136B60	2.360	3.941	1.750	5.050	1.020	–	B	2	4.48
CAT50 ADB	G5	28	*	56669	EM25044012840	1.570	1.970	2.750	5.580	0.820	–	A	1	6.59
	G6A	36.068		54279	EM250440136A45	1.770	2.752	–	5.780	1.020	–	B	2	6.48
	G6B	36.068		54280	EM250440136B50	1.970	3.941	2.750	5.980	1.218	–	B	2	7.76
	G7A	45.974		54281	EM250440146A70	2.750	4.720	2.750	6.760	1.998	35	B	2	10.74

Please check availability in current price and stock-list.  
 \* To hold Liteline™ heads and intermediates with Graflex® size G5A, use existing Graflex® arbors with size G5, eg. the short arbors shown above (other arbor lengths, see Seco Tooling Systems catalog).



- With Graflex® front end G.A or G.B to hold Liteline™ heads and intermediates



Seco-Capto™ size	Graflex size	d (mm)	*	EDP No.	Part No.	Dimensions in inch				$\alpha^\circ$	Balancing	lbs
						A	D	L	$l_1$			
C5	G5	28	*	<a href="#">27270</a>	C5-391.0401-28045	1.772	1.969	2.953	–	–	1	1.41
C6	G5	28	*	<a href="#">27274</a>	C6-391.0401-28050	1.969	1.969	3.465	0.984	–	1	2.29
	G6A	36		54812	C6-391.0401-36A55	2.165	2.756	3.661	1.299	60	2	2.93
	G6B	36		54883	C6-391.0401-36B55	2.165	3.937	3.661	1.299	15	2	4.85
C8	G5	28	*	<a href="#">27277</a>	C8-391.0401-28050	1.969	1.969	3.858	0.669	–	1	4.23
	G7A	46		54903	C8-391.0401-46A65	2.559	4.724	4.449	1.378	45	2	7.58

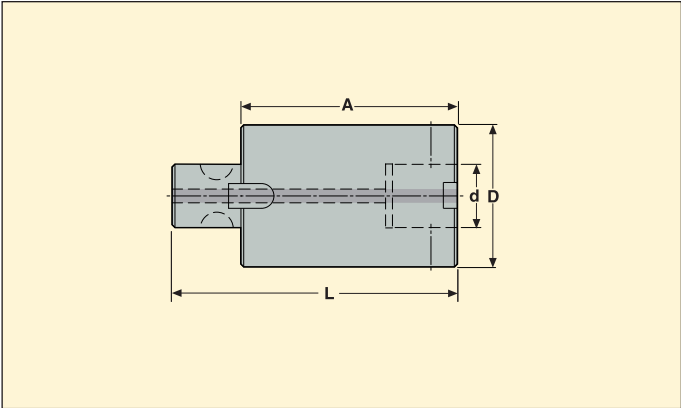
Please check availability in current price and stock-list.

\* To hold Liteline™ heads and intermediates with Graflex® size G5A, use existing Graflex® arbors with size G5, eg. the short arbors shown above (other arbor lengths, see Seco Tooling Systems catalog).



**EPB M402..A/B – Graflex® Liteline™ extensions**

**Graflex®**



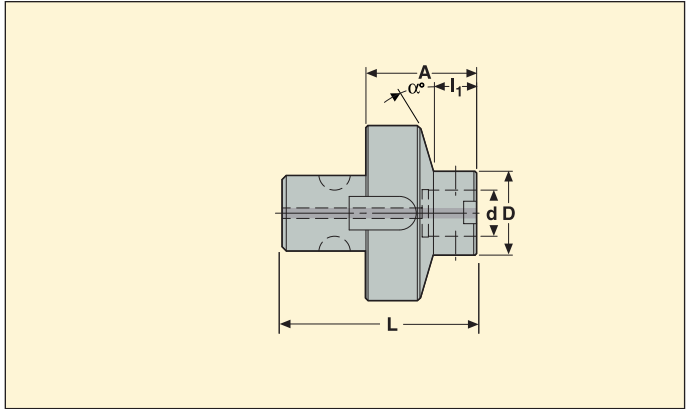
- Low weight extensions
- With Graflex® front and back ends G.A or G.B.

Taper	Graflex size	d (mm)	EDP No.	Part No.	Dimensions in inch			Balancing	lbs
					A	D	L		
G5A	G5A	28	52633	M4025A5A060L	2.362	2.165	3.543	2	1.10
	G5A	28	52655	M4025A5A090L	3.543	2.165	4.724	2	1.50
	G5A	28	52656	M4025A5A135L	5.315	2.165	6.496	2	2.12
G6A	G6A	36	54528	M4026A6A080L	3.150	2.756	4.724	2	2.29
	G6A	36	52657	M4026A6A120L	4.724	2.756	6.299	2	3.20
	G6A	36	52658	M4026A6A180L	7.087	2.756	8.661	2	4.59
G6B	G6B	36	52659	M4026B6B100L	3.937	3.937	5.512	2	5.20
	G6B	36	52661	M4026B6B150L	5.906	3.937	7.480	2	7.50
	G6B	36	52662	M4026B6B225L	8.858	3.937	10.433	2	11.11
G7A	G7A	46	54530	M4027A7A120L	4.724	4.724	6.693	2	9.04
	G7A	46	52675	M4027A7A180L	7.087	4.724	9.055	2	13.14
	G7A	46	52676	M4027A7A270L	10.630	4.724	12.598	2	18.56

Please check availability in current price and stock-list.

## EPB M403..A/B – Graflex® Liteline™ reducers

Graflex®



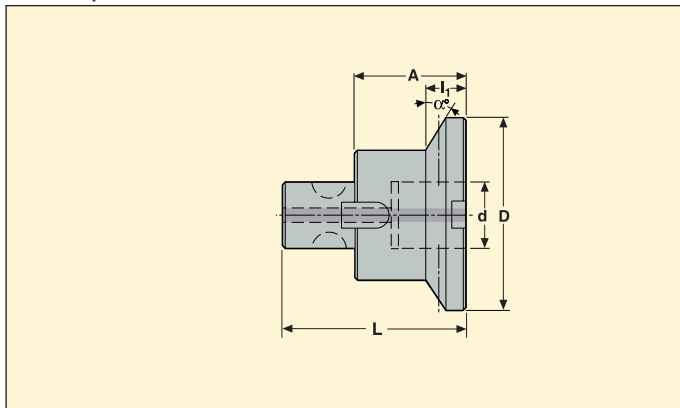
- Low weight reducers
- With Graflex® front and back ends G.A or G.B.

Taper	Graflex size	d (mm)	EDP No.	Part No.	Dimensions in inch				$\alpha^\circ$	Balancing	
					A	D	L	L <sub>1</sub>			
G6A	G5A	28	54537	M4036A5A065L	2.559	2.165	4.134	1.024	55	2	1.83
G6B	G5A	28	54541	M4036B5A065L	2.559	2.165	4.134	1.024	26	2	2.62
	G6A	36	54577	M4036B6A075L	2.953	2.756	4.528	1.260	45	2	3.02
G7A	G5A	28	52677	M4037A5A075L	2.953	2.165	4.921	1.024	33	2	4.25
	G6A	36	52681	M4037A6A085L	3.346	2.756	5.315	1.260	51	2	4.83
	G6B	36	52683	M4037A6B095L	3.740	3.937	5.709	1.260	74	2	6.44

Please check availability in current price and stock-list.

## EPB M402/M403..A/B – Graflex® classic to Graflex® G.A or G.B adapters

Graflex®



- With Graflex® front end G.A or G.B and Graflex® classic back end
- To fit Liteline™ intermediates and heads (with Graflex® connection G.A or G.B) onto existing Graflex® arbors and intermediates (with classic Graflex® connection sizes)

Taper	Graflex size*	d (mm)	EDP No.	Part No.	Dimensions in inch				α°	Balancing	lbs
					A	D	L	I <sub>1</sub>			
G6	G6A	36	52684	<b>M40266A</b>	2.362	2.756	3.937	0.531	30	2	3.20
	G6B	36	52688	<b>M40266B</b>	2.362	3.937	3.937	0.925	30	2	4.34
G7	G6B	36	52689	<b>M40376B</b>	2.362	3.937	4.331	0.531	30	2	7.28
	G7A	46	52690	<b>M40277A</b>	2.756	4.724	4.724	0.657	30	2	8.55

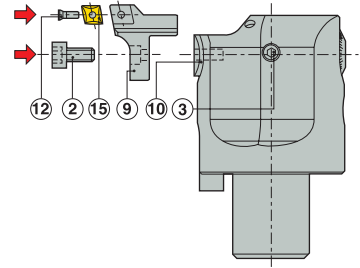
Please check availability in current price and stock-list.

\* Liteline™ heads and intermediates with Graflex® size G5A have to be held directly onto Graflex® arbors with size G5 (see page(s) 570-574).

## Instructions

### Liteline™ boring heads, insert holder fitting procedure

- Remove the fixing screw (2).
- Make sure the barrel locking screw (3) is unlocked, to slightly free barrel's orientation during insert holder fitting (9).
- Fit the insert holder (9) onto the barrel (10).
- Pre-fasten screw (2).
- Tighten screw (3) to immobilize the barrel (10).
- Fasten screw (2).
- Fit an insert (15) with screw (12).

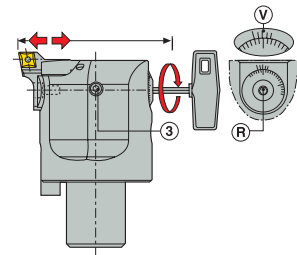


### Liteline™ boring heads, diameter setting procedure

- Unlock the barrel locking screw (3).
- Set the diameter by the micrometer adjusting screw (R), using the dial and vernier.
- Tighten screw (3) to lock the barrel in set position.

#### Adjustment precision

- Setting dial (R): 1 increment = 0.01 mm (0.0004") on diameter.
- Vernier fine adjustment (V): 0.0001" resolution on diameter.
- Clockwise adjustment = diameter increase (counterclockwise = diameter reduction).



**Note:** Best component bore diameter precision is obtained by presetting the head (on a presetter) at a smaller diameter (e.g. -0.0008"), running a test bore, and correcting to the required diameter. Heads are designed for best setting reliability (for reaching the required diameter) by adjusting clockwise out to diameter.

Therefore for diameter reduction, total setting reliability is obtained by a preliminary 1/2 to 1 rotation counterclockwise, then setting clockwise to the required diameter.

## Troubleshooting

Please refer to fine boring troubleshooting advice, in chapter Axiabore™, page(s) 521.

## Maximum speeds for Liteline™ type heads

Head	Capacity $\varnothing$ (inch)	Max. RPM (RPM)	Max. cutting speed $v_c$ at min. Cap. (sf/min)	Max. cutting speed $v_c$ at max. Cap. (sf/min)
<b>Liteline™ type</b>				
A7805AL	2.520-3.386	7500	4946	6645
A7806AL	3.346-4.528	5600	4904	6635
A7806BL	4.488-6.299	4000	4697	6593
A7807AL	6.260-8.071	3000	4913	6337

**Note:** The maximum speeds are related to the boring head's mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. workpiece material, cutting edge (insert), tooling length, machine spindle.

## Custom made boring solutions, examples:

- Multi-edge boring bars
- Special extensions, e.g. insert holder A7. with guiding pads
- Bars combining drilling, boring, chamfering, reaming, threading,...

Please enquire



## A selection of inserts for boring

This is a selection of inserts from the total Seco range, which are particularly suitable for boring. The selected insert sizes are those suitable for the range of boring heads.

Inserts for rough boring have high toughness to guarantee high metal removal and positive geometries to minimize spindle torque requirement. Inserts for fine boring have positive geometries and sharp edge wear resistant grades for accurate control of the bore tolerance, geometry and surface finish.

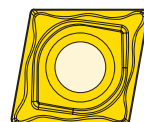
## Code key, examples

<b>CCMT 432</b>	<b>F2</b>	<b>TP3500</b>
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Size (ANSI designation)

Seco geometry

Seco grade



<b>CCGT 32.51</b>	<b>03</b>	<b>G3</b>
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Size (ANSI designation)

EPB grade

EPB geometry

<b>CCMT120408</b>	- <b>F2</b>	<b>TP3500</b>
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Size (ISO designation)

Seco geometry

Seco grade

<b>CCGT09T304</b>	- <b>03</b>	<b>G3</b>
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Size (ISO designation)

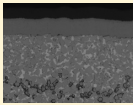
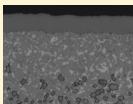
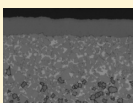
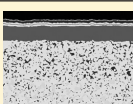
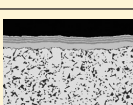
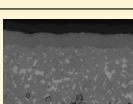

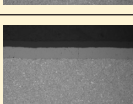
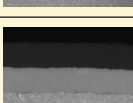
EPB grade

EPB geometry

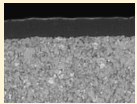

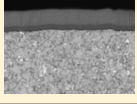
## Insert grades for boring – ISO workpiece material classification

		P					M				K				N			S			H								
		P01	P10	P20	P30	P40	P50	M01	M10	M20	M30	M40	K01	K10	K20	K30	K40	N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30
CVD	TP1501	○					○				○																		
	TP2501	○					○				○																		
	TP3500	○					○				○																		
	TP200	○					○				○																		
	TP40	○					○				○																		
	TM4000	○					○				○																		
	TK2001	○					○				○																		
	TK1001	○					○				○																		
	TH1500	○					○				○																		
PVD	25	○					○				○																		
	TS2000	○					○				○				○			○											
	TH1000	○					○				○				○			○											
Uncoated	CP500	○					○				○																		
	26	○					○				○																		
	KX	○					○				○							○											
Cermel	HX	○					○				○																		
	03	○					○				○				○			○											
PCBN	TP1020	○					○				○																		
	TP1030	○					○				○																		
	51	○					○				○																		
	CBN10	○					○				○							○											
PCD	CBN010	○					○				○							○											
	CBN200	○					○				○							○											
	81	○					○				○							○											
	82	○					○				○							○											
	CBN060K	○					○				○							○											
	PCD20	○					○				○							○											
	91	○					○				○							○											

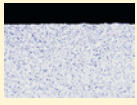
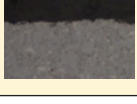
## CVD coated grades recommended for boring

	<b>TP1501</b>	Duratomic® technology coated grade. Highly heat and wear resistant grade extremely well suited for productive general turning of steels and a useful backup in other material groups.  Ti(C,N) + Al <sub>2</sub> O <sub>3</sub> + ...
	<b>TP2501</b>	Duratomic® technology coated grade. Designed with high wear resistance and edge strength applicable in a wide range of turning applications in steels as well as many stainless steels and cast irons.  Ti(C,N) + Al <sub>2</sub> O <sub>3</sub> + ...
	<b>TP3500</b>	TP3500 is intended for boring operations where the primary demand is toughness and reliability in machining steels and stainless steels. Ti(C,N) + Al <sub>2</sub> O <sub>3</sub> DURATOMIC®
	<b>TP200</b>	TP200 is a universal grade with high versatility. The grade is intended for a wide range of turning applications in both steel and stainless steel and is also a good choice for cast iron. Ti(C,N) + Al <sub>2</sub> O <sub>3</sub> + TiN
	<b>TP40</b>	TP40 is the basic grade for turning in the P40 range. Very tough grade for demanding operations on steel castings and forging, and on all types of stainless steel. TiC/Ti(C,N) + TiN
	<b>TM4000</b>	TM4000 is intended for machining of stainless steel. The wear resistance together with the superior edge toughness make the grade the first choice in stainless steel applications. Ti(C,N) + Al <sub>2</sub> O <sub>3</sub> DURATOMIC®
	<b>TK1001</b>	DURATOMIC® technology coated grade. A extremely wear resistant optimized grade choice for machining of grey cast iron and easier ductile cast irons.  Ti(C,N) + Al <sub>2</sub> O <sub>3</sub>
	<b>TK2001</b>	DURATOMIC® technology coated grade. A highly wear resistant grade for cast irons in general as well as in steels and the grade is particularly capable in machining of ductile (nodular) cast irons also in more demanding setups and interrupted cuts.  Ti(C,N) + Al <sub>2</sub> O <sub>3</sub>
	<b>TH1500</b>	DURATOMIC® technology coated grade. An extremely hard super micrograin grade intended for machining of partly hardened steels and provide an alternative for cast iron finishing.  Ti(C,N) + Al <sub>2</sub> O <sub>3</sub>
	<b>25 (EPB)</b>	Universal grade. The grade is intended for a wide range of boring applications in steel, stainless steel and cast iron. Good combination of wear resistance and toughness. Ti (C, N) + Al <sub>2</sub> O <sub>3</sub> .

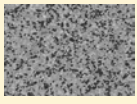


## PVD coated grades recommended for boring

	<b>TS2000</b>	Hard micrograin principally intended for finishing operations in superalloys and titanium alloys. Also performs well in finishing operations on stainless steel. (Ti,Al)N + TiN
	<b>CP500 &amp; 26 (EPB)</b>	A very tough micrograin intended for finishing and medium roughing of stainless steel. Can handle intermittent cutting operations very well. CP500 is also an alternative for aluminium alloys. (Ti,Al)N + TiN
	<b>TH1000</b>	Very hard supermicrograin grade intended for partly hardened steel components as well as generally workpiece materials such as superalloys and due to remarkable edge toughness it also provides high performance in interrupted cuts and hard-surface removal.

## Uncoated grades recommended for boring

	<b>KX &amp; 03 (EPB)</b>	Micrograin intended for machining aluminum and other non-ferrous materials.
	<b>HX</b>	Universal uncoated grade intended for machining of cast iron and hardened steels useful also in non-ferrous materials.

## Cermet recommended for boring

	<b>TP1020</b>	Cermet with very high wear resistance intended for highest surface finish requirements with predictability and control in steel and stainless steel.
	<b>TP1030</b>	PVD-coated Cermet with very high wear resistance intended for high surface finish and productivity requirements with predictability in steel and stainless steel mainly. Ti-Al-Si-N nanolaminate coating.
	<b>51 (EPB)</b>	Cermet with very high wear resistance. Intended for finishing operations on steels, in which strict demands are made on surface finish.



## CBN and PCD grades recommended for boring

	<b>82 (EPB)</b>	CBN, cubic boron nitride grade for fine boring in grey cast iron. Grade with high strength and wear resistance.
	<b>CBN010</b>	Format: Solid, full-face brazed layer and brazed tips (single and double sided). Composition: 50% CBN content grade with an average grain size of 2 µm and a TiC ceramic binder. Coating: No coating.
	<b>CBN10 &amp; 81 (EPB)</b>	CBN, Cubic boron nitride grade, for light continuous to moderate interrupted cuts. Intended for fine boring in hardened steel and in superalloys.
	<b>CBN060K</b>	Solid, brazed tips (single and double sided) or sintered layer First choice for continuous to moderate interrupted cuts in hardened steel ( $a_p < 0.020$ inch). New (Ti,Si,Al)N PVD coating developed for high speed machining. New unique superalloy binder.
	<b>CBN200</b>	CBN, Cubic boron nitride grade, for finishing of pearlitic cast iron, and sintered iron.
	<b>PCD20 &amp; 91 (EPB)</b>	PCD, polycrystalline diamond, for boring in aluminum and Al-alloys, copper, brass, bronze and synthetic materials.

## Inserts, recommended for fine boring, with cutting data

Part No.	Uncoated	Coated								Cermet			CBN				PCD		Cutting data*		
	03G3	TP1501	TS2000	TK2001	CP500	26G6	TH1000	TH1500	L-UX CP500	51G1	TP1020	TP1030	CBN010	CBN060K	CBN200	81B1	82B2	PCD20	91J3	Depth of cut a <sub>p</sub> (in/ft)	Feed f (in/rev)
CCGT 060200	99637									83915											
CCGT 21.50.0-F1					06790																
CCGT 21.50-F1					06791																
CCGT 21.50.5	83916					39546				96634											
CCGT 21.51	99779					81826			07556	48334											
CCMT 21.50.5-F1		15858	38464		96853					66790	66772										
CCMT 21.51-F1		19554	38941		96854		18950	18940		66795	66797										
CCMW 21.50.5																13732					
CCMW 21.50.5F-L1																				89760	
CCMW 21.51F-L1																				05684	
CCGW 21.50.5S-01020-LF															20902						
CCGW 21.51S-01020-LF												94733			20903						
CCGW 21.51E-L1-B												76110									
CCGT 32.50-F1					06792																
CCGT 32.50.5	48336					48337				48339											
CCGT 32.51	00829					77338			07558	48344											
CCMT 32.50.5-F1		19369			96856					66810	66811										
CCMT 32.51-F1		19405	38942	69568	96857		63959			66816	66817										
CCMT 32.52-F1		19550	38945	69571	96858						66826										
CCMW 32.51F-L1																				05686	
CCMW 32.52F-L1																				34757	
CCMW 32.51E-L1-B															44142						
CCMW 32.52E-L1-B															44148						
CCGW 32.51E-L1-B												76113									
CCGW 32.51S-01020-LF															20906						
CCGW 32.52S-01020-LF															20907						
TCGT 21.50.5									07543												
TCGT 21.51	55102								07554	00721											
TCGT 21.50-F1					06799																
TCMT 21.50.5-F1					06800																
TCMT 21.51-F1		15889			06801																
TCMT 21.52-F1		15891			98986																
TCMW 21.51S-L1-C															44157						
TCMW 21.52S-L1-C															44158						
TCGW 21.51E-L1-C												78981									
TCGW 21.52E-L1-C												79016									
TCGW 21.51S-01020-LF															20929						
TCGW 21.52S-01020-LF															20931						
TCGW 21.50.5F-L1																				89757	
TCGW 21.51F-L1																				05689	
WBGW 030100	96659									83089											
WBGW 030102	83088									91845											
WBGW 030102																96761				96763	
WBGW 030102E-L-LF													68831	68832							
WBGW 030102L					01535																

0.0004-0.012 inch  
0.001-0.006 inch

\* For recommended cutting speeds, see page(s) 587-588. Please check availability in current price and stock-list.

CCGT 	CCGT-UX 	CCMT-F1/CCGT-F1 	CCMW-L0 	CCMW/GW-L0-B/L1-B 	CCGW-LF 	TCGT/TCMT-UX 
TCMW-L0 	TCMW/GW-L0-C/L1-C 	TCGW-LF 	WBGW 	WBGW-LF 	WBGW 	

## Inserts, recommended for rough boring, with cutting data

Part No  Example: CPGT050204 03D3	Uncoated			Coated							Ground flank and direct chipbreaker, left hand cutting  L-UX CP500	Cutting data*	
	Ground flank and pressed chipbreaker			Pressed chipbreaker								Max. depth of cut $a_p$ (inch)	Feed $f_z$ (inch/tooth)
	KX	HX	03D3	TP2501	TP3500	TP40	TM4000	25C4	TP200	TK2001			
CPGT 050204			12255					12254				0.079	0.002-0.008
CCMT 21.51-F1				19555	50448	08505	31411			69564		0.098	0.002-0.010
CCMT 21.51-F2		11732		14245	50450	18652	31412					0.098	0.002-0.010
CCGT 21.51											07556	0.098	0.002-0.010
CCGT 21.51F-AL	15710											0.098	0.002-0.010
CCMT 21.51-M3										69566		0.098	0.002-0.012
CCMT 32.52-F1				19599	50456	08518	31419			69571		0.157	0.004-0.012
CCMT 32.52-F2				14251	50457	18668	31420					0.157	0.004-0.012
CCGT 32.51											07558	0.157	0.004-0.012
CCGT 32.52F-AL	15754											0.157	0.004-0.012
CCMT 432-F1				19551	50463							0.157	0.006-0.016
CCMT 432-F2				14253	50464	19531	31421			69574		0.197	0.006-0.016
CCGT 432											52193	0.197	0.006-0.016
CCGT 432F-AL	15790											0.197	0.006-0.016
SCMT 21.51-F2				15917		07347						0.098	0.002-0.010
SCMT 32.52-F1				15880	50534					69703		0.098	0.004-0.012
SCMT 32.52-F2				14261	50535	17616	31459					0.157	0.004-0.012
SCMT 432-F1				15884	50542							0.157	0.006-0.016
SCMT 432-F2				15946	50544	19327	31460					0.197	0.006-0.016
SCMT 432-M3										69707		0.197	0.006-0.016
TCMT 32.52-F1				15896	50510	04572	31474					0.197	0.006-0.016
TCMT 32.52-F2				14266	50511	18666	31476			69768		0.157	0.006-0.016
TCGT 32.52F-AL	15875											0.157	0.006-0.016
CCMT 53.53-F2				27889			31422		18067	70177		0.276	0.008-0.020
CCMT 53.53-F2							31423		18082			0.276	0.008-0.020
SCMT 53.53-F2						07348						0.276	0.008-0.020
SCGX 53.53-P2												0.276	0.008-0.020
TCMT 432-F2				15953	50513				68150			0.276	0.008-0.020

Please check availability in current price and stock-list.

\* For recommended cutting speeds, see page(s) 587-588.

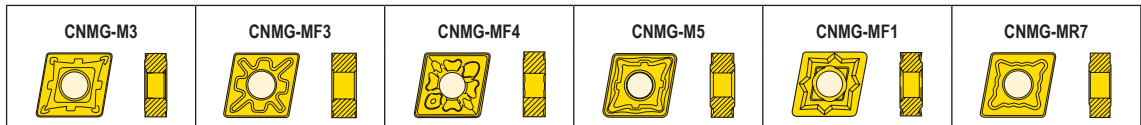
CPGT 	CCMT-F1 	CCMT-F2 	CCMT-M3 	CCGT-UX 	CCGT-AL 
SCMT-F1 	SCMT-F2 	TCMT-F1 	TCMT-F2 	TCGT-AL 	

## CN.. inserts, recommended for rough boring (double sided), with cutting data

Part No. Example: CNMG120408-M3 TK2000	Uncoated		Coated							Cutting data*		
	Ground flank and pressed chipbreaker KX	Ground flank and pressed chipbreaker 03D3	Pressed chipbreaker							Ground flank and pressed chipbreaker, left hand cutting L-UX CP500	Max. depth of cut $a_p$ (inch)	Feed $f_z$ (inch/tooth)
			TP1500	TP3500	TP40	TM4000	25C4	TP200	TK2001			
CNMG 432-M3									69592		0.177	0.010-0.014
CNMG 432-MF3				49998					69597		0.177	0.010-0.014
CNMG 432-MF4				50000		<a href="#">31428</a>					0.177	0.010-0.014
CNMG 432-M5				49980	<a href="#">23680</a>	<a href="#">31426</a>			69596		0.177	0.010-0.014
CNMG 432-MF1						<a href="#">31427</a>					0.177	0.010-0.014
CNMG 432-MR7									65599		0.177	0.010-0.014

\* For recommended cutting speeds, see page(s) 587-588.

Please check availability in current price and stock-list.



### WARNING:

When using CN.. inserts it is important to use the recommended inserts and cutting data. Using other inserts and incorrect cutting data could result in high cutting stresses and machine/workpiece damage.

## Recommended cutting speeds for boring (related to workpiece material and insert grade)

SMG	V <sub>c</sub>											
	KX & HX	03	TP40	TM4000	TP1501	TP2501	TP3500	TK1001	TK2001	TH1000	TH1500	CP500
P1			195-590		195-1150	195-820	195-755					260-655
P2			195-590		195-1150	195-820	195-755					260-655
P3			195-590		195-1150	195-820	195-755					260-655
P4			195-590		195-1150	195-820	195-755					260-655
P5			195-490		195-985	195-820	195-755					260-655
P6			195-460		195-985	195-755	195-655					260-590
P7			195-460		195-985	195-755	195-655					260-525
P8			195-395		195-820	195-755	195-655					260-425
P11			195-395		195-985	195-820	195-655					260-590
M1			195-425	195-590	330-655	195-655	195-655					195-525
M2			195-425	195-590	330-655	195-655	195-655					195-525
M3			195-395	195-560	330-590	195-655	195-655					195-490
M4			195-360	195-525	330-590	195-625	195-625					195-490
M5			195-360	195-490	330-590	195-590	195-590					195-490
K1			195-460		330-820		195-590	195-755	195-755			195-525
K2			195-460		330-820		195-590	195-755	195-755			195-525
K3			195-460		330-820		195-590	195-755	195-755			195-525
K4			195-460		330-820		195-590	195-655	195-655			195-525
K5			195-460		330-820		195-590	195-655	195-655			195-525
K6			195-425		330-820		195-590	195-655	195-655			195-525
K7			195-425		330-820		195-590	195-655	195-655			195-525
N1	490-2625	490-2625										490-2625
N2	490-2625	490-2625										490-2625
N3	490-1640	490-1640										490-1640
N11	490-1310	490-1310										490-1310
S1	65-165	65-165										65-165
S2	65-165	65-165										65-165
S3	65-165	65-165										65-165
S11	65-165	65-165										65-165
S12	65-165	65-165										65-165
S13	65-165	65-165										65-165
H3										165-490	165-490	
H5										165-460	165-460	
H7										165-490	165-490	
H8										100-425	100-425	
H11										100-395	100-395	
H12										100-395	100-395	
H21												
H31												

SMG = Seco Material Group

v<sub>c</sub> = sf/min

All cutting data are start values

## Recommended cutting speeds for boring (related to workpiece material and insert grade)

SMG	V <sub>c</sub>												
	26	25	TS2000	TP1020	TP1030	51	CBN10/ CBN010	81	CBN200	82	PCD20	91	Axiabore
P1	260-655	195-590		330-1150	330-1150	330-1150							260-820
P2	260-655	195-590		330-1150	330-1150	330-1150							260-820
P3	260-655	195-590		330-1150	330-1150	330-1150							260-820
P4	260-655	195-590		330-1150	330-1150	330-1150							260-820
P5	260-655	195-590		330-1150	330-1150	330-1150							230-755
P6	260-590	195-525		330-985	330-985	330-985							230-755
P7	260-525	195-525		330-820	330-820	330-820							230-755
P8	260-425	195-425		330-820	330-820	330-820							230-655
P11	260-590	195-490		330-985	330-985	330-985							230-655
M1	195-525	195-460	195-655	260-655	260-655	260-655							195-655
M2	195-525	195-460	195-655	260-655	260-655	260-655							195-655
M3	195-490	195-425	195-655	260-655	260-655	260-655							195-590
M4	195-490	195-395	195-590	260-590	260-590	260-590							195-560
M5	195-490	195-395	195-590	260-590	260-590	260-590							195-560
K1	195-525	195-525		330-820	330-820	330-820		985-3280	985-3280				195-490
K2	195-525	195-525		330-820	330-820	330-820		985-3280	985-3280				195-490
K3	195-525	195-525		330-820	330-820	330-820		985-3280	985-3280				195-490
K4	195-525	195-525		330-820	330-820	330-820		985-3280	985-3280				195-425
K5	195-525	195-525		330-820	330-820	330-820							165-330
K6	195-525	195-525		330-590	330-590	330-590							165-330
K7	195-525	195-525		330-590	330-590	330-590							165-330
N1	490-2625										985-4920	985-4920	655-2625
N2	490-2625										985-4920	985-4920	655-2625
N3	490-1640										655-2625	655-2625	655-2625
N11	490-1310										590-2625	590-2625	655-2625
S1	65-165		65-260										65-195
S2	65-165		65-260										65-195
S3	65-165		65-260										195-165
S11	65-165		65-260										65-165
S12	65-165		65-260										65-165
S13	65-165		65-260										65-165
H3							260-590	260-590					
H5							260-655	260-655					
H7							260-490	260-490					
H8							260-490	260-490					
H11													
H12													
H21													
H31													

SMG = Seco Material Group

v<sub>c</sub> = sf/min

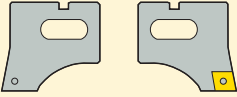


All cutting data are start values

## Insert locking keys and screws of all boring insert holders, tools and cartridges




Specific clamp spare parts for CN.. inserts are shown in the CN.. type insert holders product page. Insert clamp spare parts for insert holders EPB 610 are shown in the insert holders for heads EPB 610 page 485.

Reminder: Spare parts are part of the original delivery content of insert holders, tools or cartridges.

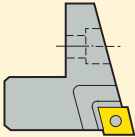


Accessories are not included in the delivery content, to be ordered separately.

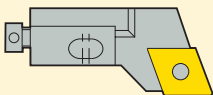


	Accessories			Spare parts	
	Torx driver for insert locking screw*			Insert locking screw	
					
For rough boring insert holders	For insert size	Part No.	Torx Plus	Part No.	Torx Plus
	CP..0502	T07P-3	07	C02245-T07P	07
	CC..21.5	T07P-3	07	C02504-T07P	07
	CC..32.5	T15P-3	15	C04008-T15P	15
	CC..43	T15P-3	15	C05012-T15P	15
	CC..53.5	T15P-3	15	C05012-T15P	15
	SC..0502	T07P-3	07	C02245-T07P	07
	SC..21.5	T07P-3	07	C02504-T07P	07
	SC..32.5	T15P-3	15	C04008-T15P	15
	SC..43	T15P-3	15	C05012-T15P	15
	SC..53.5	T15P-3	15	C05012-T15P	15

\* One Torx driver is delivered with each rough boring head.

	Accessories			Spare parts	
	Torx driver for insert locking screw			Insert locking screw	
					
For Axiabore™ type tools	For insert size	Part No.	Torx Plus	Part No.	Torx Plus
	WB..0301	T06P-3	06	C02035-T06P	06
	CC..21.5	T07P-3	07	C02504-T07P	07
	—	T15P-3	15	C04008-T15P	15

## Spare parts for insert holders

	Spare parts				
	Insert key			Insert screw	
					
For fine boring insert holders, chamfering insert holders and back boring insert holders	For insert size	Part No.	Torx Plus	Part No.	Torx Plus
	WB..0301	T06P-2	06	C02035-T06P	06
	CC..21.5	T07P-3	07	C02504-T07P	07
	CC..32.5	T15P-3	15	C04008-T15P	15
	TC..21.5	T07P-3	07	C02504-T07P	07

	Accessories			Spare parts	
	Torx driver for insert locking screw			Insert locking screw	
					
For cartridges	For insert size	Part No.	Torx Plus	Part No.	Torx Plus
	CC..53.5	T15P-2	15	C05012-T15P	15
	SC..53.5	T15P-2	15	C05012-T15P	15
	TC..32.5	T15P-2	15	C03509-T15P	15
	TC..43	T15P-2	15	C05012-T15P	15

For most Seco Holemaking 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

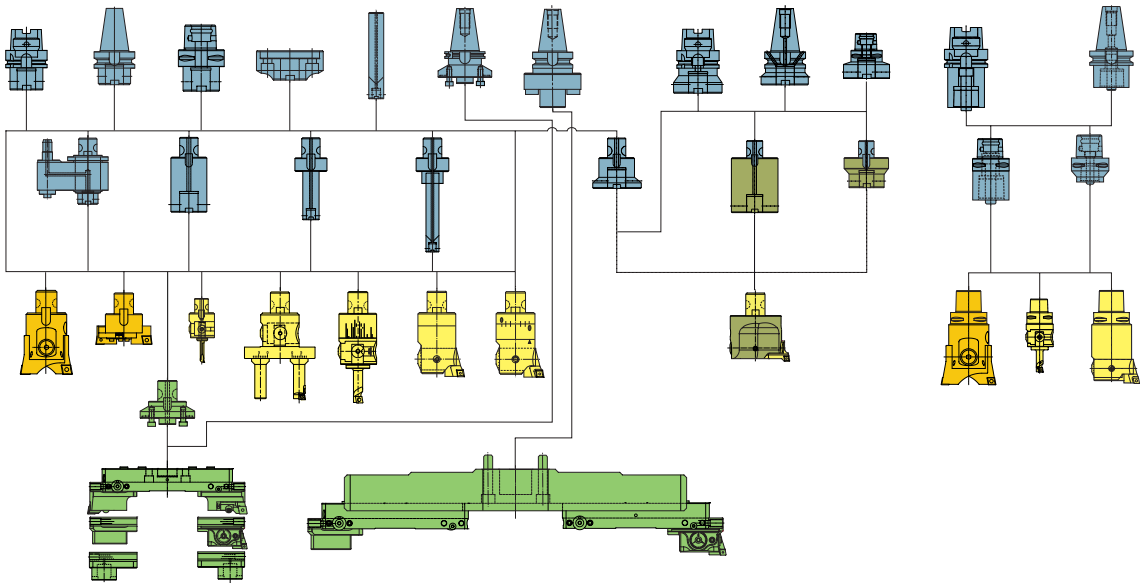
Torque key*	Replaceable blade	Torx Plus size (Hex size)	Torque value in/lbs	Torque value Nm	Hexagonal size
					
T00T-15P50	T00T-15P	T15P	44.3	5.0	–
T00T-20P50	T00T-20P	T20P	44.3	5.0	–
T00T-20P80	T00T-20P	T20P	70.8	8.0	–
T00T-25P60	T00T-25P	T25P	53.1	6.0	–
T00T-25P80	T00T-25P	T25P	70.8	8.0	–
T00T-30P80	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 606-607.



## Suitable holders for boring heads



## The EPB boring heads have a Graflex® or a Seco-Capto™ connection shank

The boring heads can be used on any machine type, using the suitable Graflex® arbor (HSK, DIN, BT, ANSI, Seco-Capto™). All bore lengths can be reached by selecting the required Graflex® intermediate, e.g. the extra-long ones with extension section in carbide.

Highest assembly rigidity is obtained by selecting the longest and widest arbor possible, then completing with smaller intermediates. The Graflex® and Seco-Capto™ connections guarantees a unique orientation of the boring heads, achieving a cutting edge orientation according to ISO.

Easy assembly of Graflex® modules by the side clamping principle.

For classic boring heads (steel), select the classic Graflex® and Seco-Capto™ arbors and intermediates from the TOOLING SYSTEMS catalog.

For Liteline™ boring heads (aluminum), select the suitable Liteline™ arbors, intermediates and adapters from page(s) 570-577.

For Bridge bars, see Graflex® adapters and direct holders page(s) 553.

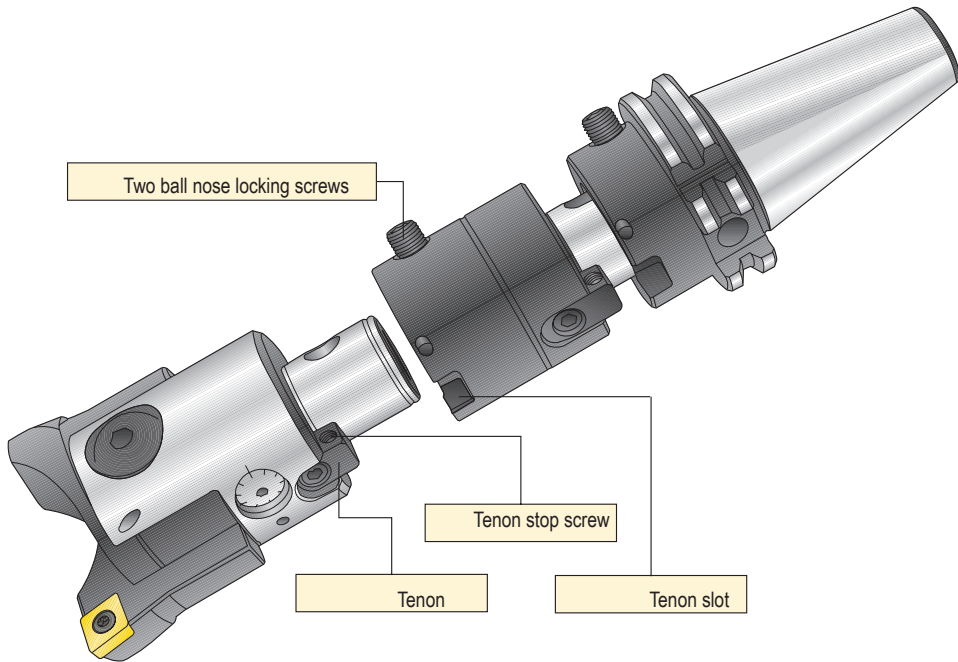
**Note:** Jumbo Bridge bars are designed to be held on milling cutter holders or to be fitted directly on a machine's spindle front.

## Locking advice for Graflex® classic connection shanks G. on boring heads (using a tenon with stop screw).

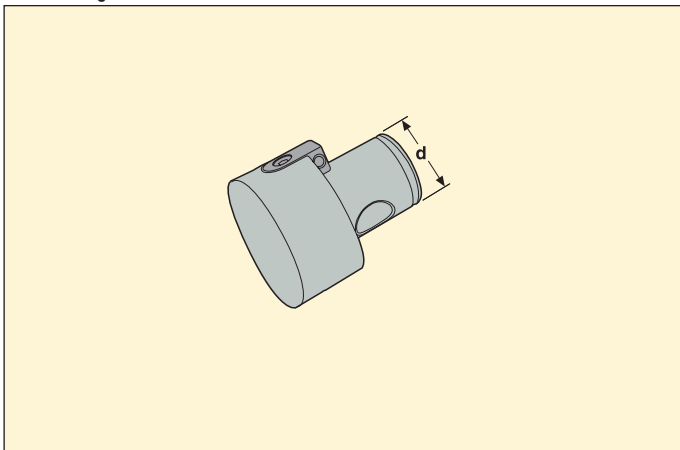
For boring, no need to tighten the tenon's stop screw, as the connection's self locking action is allowed.

For rough boring in heavy duty, we recommend to apply the 'high value' torques for the Graflex® ball nose screws.

See also the detailed 'Graflex® connection assembly procedure' in the TOOLING SYSTEMS catalog.



## Spare parts for the Graflex® classic connection shanks G. of boring heads



- The tenon kit includes a tenon with its locking screw and the integrated stop screw.
- See separate page for Liteline™ boring head shanks G.A and G.B

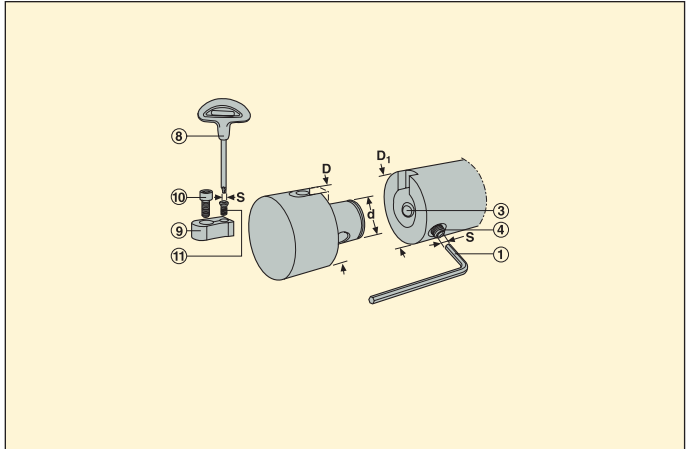
Spare parts	Description	EDP No.	Part No.	For Graflex shank connection		For boring head
				Shank size	d mm	
Spare parts standard	Tenon kit	<a href="#">55852</a>	<b>90M0</b>	G0	08	A75000/ A78009
	Tenon kit	<a href="#">55853</a>	<b>90M1</b>	G1	11	A78010
	Tenon kit	<a href="#">55854</a>	<b>90M2</b>	G2	14	A78020/ A79020
	Tenon kit	<a href="#">55855</a>	<b>90M3</b>	G3	18	A78030/ A79030
	Tenon kit	<a href="#">55856</a>	<b>90M4</b>	G4	22	A78040/ A79040
	Tenon kit	<a href="#">55857</a>	<b>90M5</b>	G5	28	A78050
	Tenon kit	<a href="#">55858</a>	<b>90M6</b>	G6	36	A78060/ A79060
	Tenon kit	<a href="#">55859</a>	<b>90M7</b>	G7	46	A78070/ A731200
Spare parts dedicated	Thin tenon kit	<a href="#">10958</a>	<b>90M01</b>	G0	08	A78008
	Short tenon kit	<a href="#">61818</a>	<b>90M11</b>	G1	11	A75010
	Short tenon kit	<a href="#">61819</a>	<b>90M21</b>	G2	14	A75020/ A76001
	Short tenon kit	<a href="#">61820</a>	<b>90M31</b>	G3	18	A75030
	Short tenon kit	<a href="#">61821</a>	<b>90M41</b>	G4	22	A75040
	Short tenon kit	<a href="#">61822</a>	<b>90M51</b>	G5	28	A75050/ A79050
	Short tenon kit	<a href="#">61824</a>	<b>90M61</b>	G6	36	A75060
	Short tenon kit	<a href="#">61826</a>	<b>90M71</b>	G7	46	A75070
	Frontal tenon kit	<a href="#">38768</a>	<b>90M3A</b>	G3	18	A76002/ A76012
	Frontal tenon kit	<a href="#">38769</a>	<b>90M5A</b>	G5	28	A76003
	Frontal tenon kit	<a href="#">38770</a>	<b>90M5A1</b>	G5	28	A76013

Please check availability in current price and stock-list

## Spare parts and accessories for the Graflex® connections shanks G.A/B of Liteline™ boring heads and holders



- Expandable tenon for Graflex® shanks G.A or G.B.
- Ball nose screws for Graflex® receivers G.A or G.B.



Spare parts and Accessories for Graflex connection	Description	For Graflex connection				EDP No.	Part No.	S
		Receiver size	Shank size	d mm	D or D <sub>1</sub> mm			
Spare parts	Expanding screw for tenon (11)		G5A	28	55	<a href="#">01577</a>	C04510-T20P	–
	Expanding screw for tenon (11)		G6A/ G6B	36	70/ 100	<a href="#">12638</a>	C05010-T20P	–
	Expanding screw for tenon (11)		G7A	46	120	<a href="#">12638</a>	C05010-T20P	–
	Tenon kit (9)+(10)+(11)		G5A	28	55	<a href="#">54592</a>	90M5L	–
	Tenon kit (9)+(10)+(11)		G6A/ G6B	36	70/ 100	<a href="#">54638</a>	90M6L	–
	Tenon kit (9)+(10)+(11)		G7A	46	120	<a href="#">54694</a>	90M7L	–
	Two ball nose screws kit (3) + (4)	G5A		28	55	<a href="#">55849</a>	90F5	–
	Two ball nose screws kit (3) + (4)	G6A/ G6B		36	70/ 100	<a href="#">55850</a>	90F6	–
	Two ball nose screws kit (3) + (4)	G7A*		46	120	<a href="#">55851</a>	90F7	–
	Two short ball nose screws kit (3) + (4)	G7A*		46	120	<a href="#">10955</a>	90F71	–
Accessories	Torx driver for expanding screw (8)**		G5A	28	55	01574	T20P-4	20
	Torx driver for expanding screw (8)**		G6A/ 6B	36	70/ 100	01574	T20P-4	20
	Torx driver for expanding screw (8)**		G7A	46	120	01574	T20P-4	20
	Hex locking key (1)	G5A		28	55	<a href="#">73569</a>	03H05	5
	Hex locking key (1)	G6A/6B		36	70/ 100	<a href="#">72663</a>	03H06	6
	Hex locking key (1)	G7A		46	120	<a href="#">73571</a>	03H10	10

Please check availability in current price and stock-list

\* Kit 90F7 is for all G7A connection receivers except for arbor EM3471 401 46A60 (DIN50) requiring Kit 90F71.

\*\* One driver (8) is part of delivery content of Graflex® Liteline™ boring heads.

## Locking advice for Graflex® Liteline™ connection shanks G.A/B on boring heads (using an expandable tenon)

The Liteline™ modules with Graflex® back end sizes (G5A, G6A, G6B, G7A) are equipped with an expandable split tenon. The assembly procedure shown below, fixing the tightening orders and locking torques, guarantees the optimum connection performance:

1. Assemble the modules using the tenon for easy orientation.
2. Orientate the modules ensuring that the left face of the tenon contacts the left face of the tenon slot.
3. Lightly tighten ball nose screw (1).
4. Lightly tighten ball nose screw (2).
5. 'Torque' tenon's expanding screw (3).
6. 'Torque' ball nose screw (1).
7. 'Torque' ball nose screw (2).
8. Double check tenon's expanding screw (3) tightening torque.

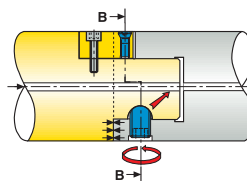


Fig. A

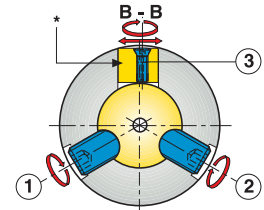
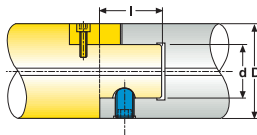


Fig. B  
viewed from the front.  
\* Tenon's left face.

## Graflex® connections G.A or G.B, dimensions and recommended locking torques



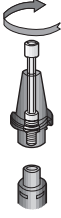
Graflex® connection	d mm	D inch	l inch	Recommended locking torques	
				Ball nose screws (1) & (2)	Tenon expanding screw (3)
G5A	28	2.165	1.181	1.42 ft/lbs / 17 Nm	0.375 ft/lbs / 4.5 Nm
G6A	36	2.756	1.575	1.92 ft/lbs / 23 Nm	0.42 ft/lbs / 5 Nm
G6B	36	3.937	1.575	1.92 ft/lbs / 23 Nm	0.42 ft/lbs / 5 Nm
G7A	46	4.724	1.969	3.33 ft/lbs / 40 Nm	0.42 ft/lbs / 5 Nm

## Accessories and Spare Parts for the Graflex® connections G.A or G.B

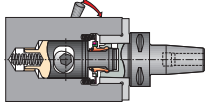
Accessories (locking keys) and spare parts (two ball nose screw kits or tenon kits) are shown on page(s) 594.

Locking advice for Seco-Capto™ connection shanks C. on boring heads: No specific advice.  
For boring heads, the general instructions are applicable, see below.

Tightening torques for Seco-Capto™ receivers connections with center bolt clamping (Basic Holders, Intermediates)

Seco-Capto size	Center bolt tightening torque (ft/lbs)	
C3	30-37	
C4	37-44	
C5	66-74	
C6	118-133	
C8	118-133	

Tightening torques for Seco-Capto™ receivers connections with segment clamping, actuated by cam shaft side locking (Flange Mounts)

Seco-Capto size	Cam tightening torque (ft/lbs)	
C3	26	
C4	37	
C5	52	
C6	66	
C8	96	

The Seco-Capto™ joint features a self-locking taper. Where the center bolt system is used, unscrew the center bolt until the bolt head makes contact with the tool holder, causing the bolt to force the taper joint apart. When using the cam shaft side clamping system, over tightening of the cam will force the taper joint apart.

## Threaded holes – hole size Metric ISO threads and inch threads

Tap threading – Thread milling					
Thread	Inch sizes	Pitch	Hole Ø inch	Tolerance minimum	Tolerance maximum
M2	–	0.4	0.063	1.570	1.670
M2.5	–	0.45	0.081	2.015	2.130
–	UNC4-40	–	0.093	2.160	2.380
M3	–	0.5	0.093	2.470	2.590
–	UNC5-40	–	0.104	2.490	2.690
–	UNC6-32	–	0.112	2.645	2.890
M3.5	–	0.6	0.114	2.850	3.000
M4	–	0.7	0.130	3.250	3.400
–	UNC8-32	–	0.138	3.350	3.530
M4.5	–	0.75	0.146	3.690	3.870
–	UNC10-24	–	0.154	3.685	3.960
M5	–	0.8	0.165	4.140	4.330
–	UNC12-24	–	0.177	4.350	4.590
M6	–	1	0.197	4.920	5.150
–	UNC1/4-20	–	0.201	4.980	5.260
M7	–	1	0.236	5.980	6.260
–	NPT1/16	–	0.242	6.200	TAPER 1:16
–	UNC5/16-18	–	0.260	6.415	6.730
M8	–	1.25	0.268	6.650	6.910
–	UNC3/8-16	–	0.315	7.810	8.160
–	NPT1/8	–	0.331	8.500	TAPER 1:16
M10	–	1.5	0.335	8.380	8.675
–	G1/8	–	0.346	8.570	8.840
–	UNC7/16-14	–	0.370	9.150	9.550
M12	–	1.75	0.402	10.110	10.440
–	UNC1/2-13	–	0.425	10.590	11.010
–	NPT1/4	–	0.437	11.100	TAPER 1:16
–	G1/4	–	0.465	11.445	11.890
M14	–	2	0.472	11.835	12.210
–	UNC5/8-11	–	0.531	13.380	13.860
M16	–	2	0.551	13.835	14.210
–	NPT3/8	–	0.563	14.550	TAPER 1:16
–	G3/8	–	0.600	14.950	15.395
M18	–	2.5	0.610	15.295	15.740
M20	–	2.5	0.689	17.295	17.740
–	NPT1/2	–	0.705	18.000	TAPER 1:16
–	G1/2	–	0.748	18.635	19.170
M22	–	2.5	0.768	19.300	19.740
–	G5/8	–	0.827	20.590	21.120
M24	–	3	0.827	20.760	21.250
–	NPT3/4	–	0.913	23.250	TAPER 1:16
M27	–	3	0.945	23.760	24.250
–	G3/4	–	0.965	24.120	24.650
M30	–	3.5	1.043	26.380	26.670
–	G7/8	–	1.112	27.880	28.415
–	NPT1	–	1.142	29.200	TAPER 1:16
M33	–	3.5	1.161	28.706	29.211
–	G1	–	1.211	30.300	30.930
M36	–	4	1.260	31.670	32.270
M39	–	4	1.378	34.093	35.670
–	G1.1/8	–	1.398	34.940	35.580
M42	–	4.5	1.476	37.220	37.799
–	G1.1/4	–	1.555	38.960	39.590
–	G1.1/2	–	1.781	44.845	45.485

## Threaded holes – hole size Metric ISO threads and inch threads

Rolled taps (fluteless taps)					
Thread	Inch sizes	Pitch	Hole Ø inch	Tolerance minimum	Tolerance maximum
M3	–	0.5	0.110	2.78	2.82
M3.5	–	0.6	0.128	3.22	3.28
M4	–	0.7	0.146	3.67	3.73
MF5	–	0.5	0.189	4.78	4.82
M5	–	0.8	0.183	4.62	4.68
M6	–	1	0.219	5.52	5.58
MF6X0.2.0875	–	0.75	0.222	5.62	5.68
MF7	–	0.75	0.262	6.62	6.68
M7	–	1	0.258	6.52	6.58
MF8	–	0.75	0.301	7.62	7.68
MF8	–	1	0.297	7.52	7.58
M8	–	1.25	0.293	7.41	7.49
MF10	–	1	0.376	9.52	9.58
MF10	–	1.25	0.372	9.41	9.49
M10	–	1.5	0.368	9.31	9.39
MF12	–	1	0.455	11.52	11.58
MF12	–	1.25	0.451	11.41	11.49
MF12	–	1.5	0.447	11.31	11.39
M12	–	1.75	0.441	11.15	11.25
MF14	–	1	0.533	13.52	13.58
MF14	–	1.25	0.530	13.41	13.49
MF14	–	1.5	0.526	13.31	13.39
M14	–	2	0.516	13.05	13.15
MF16	–	1.5	0.604	15.31	15.39
M16	–	2	0.594	15.05	15.15
M20	–	2.5	0.744	18.85	18.95
M24	–	3	0.892	22.60	22.70



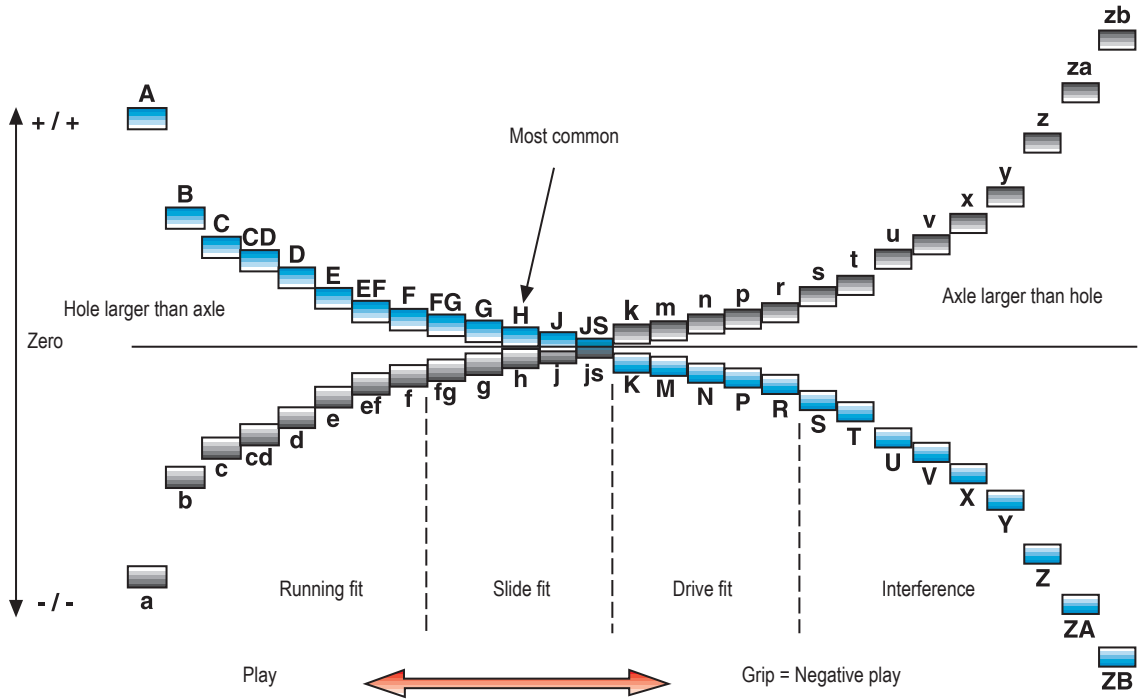
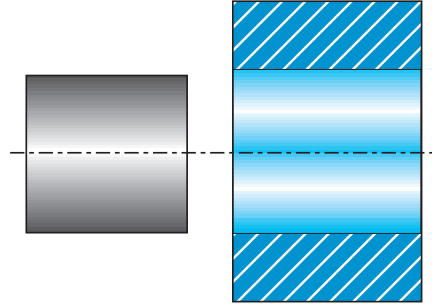
## Threaded holes – hole size Metric ISO threads and inch threads

Tap threading – Thread milling – Fine threads					
Thread	Inch sizes	Pitch	Hole Ø inch	Tolerance minimum	Tolerance maximum
MF4X0.5	–	0.5	0.138	3.459	3.599
–	UNF8-36	–	0.138	3.404	3.607
–	UNF10-32	–	0.161	3.962	4.166
MF5X0.5	–	0.5	0.177	4.459	4.599
MF6X0.75	–	0.75	0.205	5.188	5.378
–	UNF1/4-28	–	0.217	5.367	5.580
–	NPTF1/16	–	0.240	6.200	TAPER 1:16
–	UNF5/16-24	–	0.272	6.792	7.038
MF8X1	–	1	0.276	6.917	7.153
MF8X0.75	–	0.75	0.283	7.188	7.378
–	NPTF1/8	–	0.331	8.500	TAPER 1:16
MF10X1.25	–	1.25	0.346	8.647	8.912
MF10X1	–	1	0.354	8.917	9.153
MF10X0.75	–	0.75	0.362	9.188	9.378
–	UNF7/16-20	–	0.390	9.738	10.030
MF12X1.5	–	1.5	0.413	10.376	10.676
MF12X1.25	–	1.25	0.425	10.647	10.912
MF12X1	–	1	0.433	10.917	11.153
–	NPTF1/4	–	0.433	11.000	TAPER 1:16
–	UNF1/2-20	–	0.453	11.326	11.618
MF14X1.5	–	1.5	0.492	12.376	12.676
MF14X1.25	–	1.25	0.504	12.647	12.912
MF14X1	–	1	0.512	12.917	13.153
–	NPTF3/8	–	0.563	14.500	TAPER 1:16
MF16X1.5	–	1.5	0.571	14.376	14.676
–	UNF5/8-18	–	0.571	14.348	14.671
MF16X1	–	1	0.591	14.917	15.153
MF18X1.5	–	1.5	0.650	16.376	16.676
MF18X1	–	1	0.670	16.917	17.153
–	NPTF1/2	–	0.693	17.800	TAPER 1:16
MF20X1.5	–	1.5	0.728	18.376	18.676
MF20X1	–	1	0.748	18.917	19.153
MF22X1.5	–	1.5	0.807	20.376	20.676
MF24X2	–	2	0.866	21.835	22.210
MF24X1.5	–	1.5	0.886	22.376	22.676
–	NPTF3/4	–	0.906	23.100	TAPER 1:16
MF25X1.5	–	1.5	0.925	23.376	23.676
MF26X1.5	–	1.5	0.965	24.376	24.676
MF27X2	–	2	0.984	24.835	25.210
MF27X1.5	–	1.5	1.004	25.376	25.676
MF28X1.5	–	1.5	1.043	26.376	26.676
MF30X2	–	2	1.102	27.835	28.210
MF30X1.5	–	1.5	1.122	28.376	28.676

## ISO Standard tolerance for hole and shaft – Axle tolerances

Axle tolerance position is denominated with **small letters**

Bore tolerance position is denominated with **CAPITAL LETTERS**



## ISO tolerance table (metric)

ISO tolerances for holes (mm)													
Hole dia (mm)	D10	E9	F7	F8	G7	G9	H6	H7	H8	H9	H10	H11	H12
≤ 3	+60 +20	+39 +14	+16 +6	+20 +6	+12 +2	+27 +2	+6 0	+10 0	+14 0	+25 0	+40 0	+60 0	+100 0
3 ≥ 6	+78 +30	+50 +20	+22 +10	+28 +10	+16 +4	+34 +4	+8 0	+12 0	+18 0	+30 0	+48 0	+75 0	+120 0
6 ≥ 10	+98 +40	+61 +25	+28 +13	+35 +13	+20 +5	+41 +5	+9 0	+15 0	+22 0	+36 0	+58 0	+90 0	+150 0
10 ≥ 18	+120 +50	+75 +32	+34 +16	+43 +16	+24 +6	+49 +6	+11 0	+18 0	+27 0	+43 0	+70 0	+110 0	+180 0
18 ≥ 30	+149 +65	+92 +40	+41 +20	+53 +20	+28 +7	+59 +7	+13 0	+21 0	+33 0	+52 0	+84 0	+130 0	+210 0
30 ≥ 50	+180 +80	+112 +50	+50 +25	+64 +25	+34 +9	+71 +9	+16 0	+25 0	+39 0	+62 0	+100 0	+160 0	+250 0
50 ≥ 65	+220 +100	+134 +60	+60 +30	+76 +30	+40 +10	-	+19 0	+30 0	+46 0	+74 0	+120 0	+190 0	+300 0
65 ≥ 80													
80 ≥ 100	+260 +120	+159 +72	+71 +36	+90 +36	+47 +12	-	+22 0	+35 0	+54 0	+87 0	+140 0	+220 0	+350 0
100 ≥ 120													
120 ≥ 140	+305 +145	+185 +85	+83 +43	+106 +43	+54 +14	-	+25 0	+40 0	+63 0	+100 0	+160 0	+250 0	+400 0
140 ≥ 160													
160 ≥ 180													
180 ≥ 200	+355 +170	+215 +110	+96 +50	+122 +50	+61 +15	-	+29 0	+46 0	+72 0	+115 0	+185 0	+290 0	+460 0
200 ≥ 225													
225 ≥ 250													
250 ≥ 280	+400 +190	+240 +110	+108 +56	+137 +56	+69 +17	-	+32 0	+52 0	+81 0	+130 0	210 0	+320 0	+520 0
280 ≥ 315													
315 ≥ 355	+440 +210	+265 +125	+119 +62	+151 +62	+75 +18	-	+36 0	+57 0	+89 0	+140 0	+230 0	+360 0	+570 0
355 ≥ 400													

## ISO tolerance table (metric)

ISO tolerances for holes (mm)												
Hole dia (mm)	H13	JS7	JS9	K6	K7	M6	M7	N7	N9'	P7	P9	R7
≤ 3	+140 0	+/-5	+/-12.5	0 -6	0 -10	-2 -8	-2 -12	-4 -14	-4 -29	-6 -16	-6 -31	-10 -20
3 ≥ 6	+180 0	+/-6	+/-15	+2 -6	+3 -9	-1 -9	0 -12	-4 -16	0 -30	-8 -20	-12 -42	-11 -23
6 ≥ 10	+220 0	+/-7.5	+/-18	+2 -7	+5 -10	-3 -12	0 -15	-4 -19	0 -36	-9 -24	-15 -51	-13 -28
10 ≥ 18	+270 0	+/-9	+/-21.5	+2 -9	+6 -12	-4 -15	0 -18	-5 -23	0 -43	-11 -29	-18 -61	-16 -34
18 ≥ 30	+330 0	+/-10.5	+/-26	+2 -11	+6 -15	-4 -17	0 -21	-7 -28	0 -52	-14 -35	-22 -74	-20 -41
30 ≥ 50	+390 0	+/-12.5	+/-31	+3 -13	+7 -18	-4 -20	0 -25	-8 -33	0 -62	-17 -42	-26 -88	-25 -50
50 ≥ 65	+460 0	+/-15	+/-37	+4 -15	+9 -21	-5 -24	0 -30	-9 -39	0 -74	-21 -51	-32 -106	-30 -62
65 ≥ 80												-32 -62
80 ≥ 100	+540 0	+/-17.5	+/-43.5	+4 -18	+10 -15	-6 -28	0 -35	-10 -45	0 -87	-24 -59	-37 -124	-38 -73
100 ≥ 120												-41 -76
120 ≥ 140	+630 0	+/-20	+/-50	+4 -21	+12 -28	-8 -33	0 -40	-12 -52	0 -100	-28 -68	-43 -143	-48 -88
140 ≥ 160												-50 -90
160 ≥ 180												-53 -93
180 ≥ 200	+720 0	+/-23	+/-57.5	+5 -24	+13 -33	-8 -37	0 -46	-14 -60	0 -115	-33 -79	+50 +165	-60 -106
200 ≥ 225												-63 -109
225 ≥ 250												-67 -113
250 ≥ 280	+810 0	+/-26	+/-65	+5 -27	+16 -36	-9 -41	0 -52	-14 -66	0 -130	-36 -88	-56 -186	-74 -126
280 ≥ 315												-78 -130
315 ≥ 355	+890 0	+/-28.5	+/-70	+7 -29	+17 -40	-10 -46	0 -57	-16 -73	0 -140	-41 -98	-62 -202	-87 -144
355 ≥ 400												-93 -150


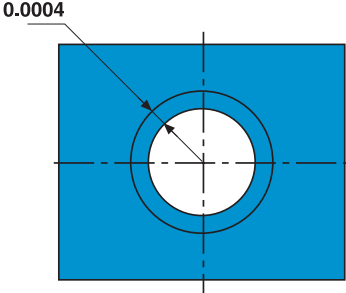

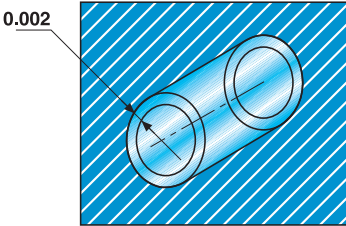

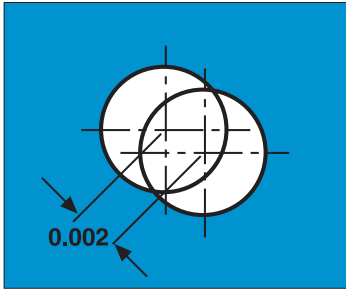
## ISO tolerance table (inch)

ISO tolerances for holes (inch)													
Hole dia (inch)	D10	E9	F7	F8	G7	G9	H6	H7	H8	H9	H10	H11	H12
- 0.118	+0.00236 +0.00079	+0.00154 +0.00055	+0.00063 +0.00024	+0.00079 +0.00024	+0.00047 +0.00008	+0.00106 +0.00008	+0.00024 0	+0.00039 0	+0.00055 0	+0.00098 0	+0.00157 0	+0.00236 0	+0.00394 0
- 0.118-0.236	+0.00307 +0.00118	+0.00197 +0.00079	+0.00087 +0.00039	+0.00110 +0.00039	+0.00063 +0.00016	+0.00134 +0.00016	+0.00031 0	+0.00047 0	+0.00071 0	+0.00118 0	+0.00189 0	+0.00295 0	+0.00472 0
- 0.236-0.394	+0.00386 +0.00157	+0.00240 +0.00098	+0.00110 +0.00051	+0.00138 +0.00051	+0.00079 +0.00020	+0.00161 +0.00020	+0.00035 0	+0.00059 0	+0.00087 0	+0.00142 0	+0.00228 0	+0.00354 0	+0.00591 0
- 0.394-0.709	+0.00472 +0.00197	+0.00295 +0.00126	+0.00134 +0.00063	+0.00169 +0.00063	+0.00094 +0.00024	+0.00193 +0.00024	+0.00043 0	+0.00071 0	+0.00106 0	+0.00169 0	+0.00276 0	+0.00433 0	+0.00709 0
- 0.709-1.181	+0.00587 +0.00256	+0.00362 +0.00157	+0.00161 +0.00079	+0.00209 +0.00079	+0.00110 +0.00028	+0.00232 +0.00028	+0.00051 0	+0.00083 0	+0.00130 0	+0.00205 0	+0.00331 0	+0.00512 0	+0.00827 0
- 1.181-1.968	+0.00709 +0.00315	+0.00441 +0.00197	+0.00197 +0.00098	+0.00252 +0.00098	+0.00134 +0.00035	+0.00280 +0.00035	+0.00063 0	+0.00098 0	+0.00154 0	+0.00244 0	+0.00394 0	+0.00630 0	+0.00984 0
- 1.968-2.559	+0.00866 +0.00394	+0.00528 +0.00236	+0.00236 +0.00118	+0.00299 +0.00118	+0.00157 +0.00039	-	+0.00075 0	+0.00118 0	+0.00181 0	+0.00291 0	+0.00472 0	+0.00748 0	+0.01181 0
- 2.559-3.150													
- 3.150-3.937	+0.01024 +0.00472	+0.00626 +0.00283	+0.00280 +0.00142	+0.00354 +0.00142	+0.00185 +0.00047	-	+0.00087 0	+0.00138 0	+0.00213 0	+0.00343 0	+0.00551 0	+0.00866 0	+0.01378 0
- 3.937-4.724													
- 4.724-5.512													
- 5.512-6.299	+0.01201 +0.00571	+0.00728 +0.00335	+0.00327 +0.00169	+0.00417 +0.00169	+0.00213 +0.00055	-	+0.00098 0	+0.00157 0	+0.00248 0	+0.00394 0	+0.00630 0	+0.00984 0	+0.01575 0
- 6.299-7.087													
- 7.087-7.874													
- 7.874-8.858	+0.01398 +0.00669	+0.00846 +0.00433	+0.00378 +0.00197	+0.00480 +0.00197	+0.00240 +0.00059	-	+0.00114 0	+0.00181 0	+0.00283 0	+0.00453 0	+0.00728 0	+0.01142 0	+0.01811 0
- 8.858-9.842													
- 9.842-11.024	+0.01575 +0.00748	+0.00945 +0.00433	+0.00425 +0.00220	+0.00539 +0.00220	+0.00272 +0.00067	-	+0.00126 0	+0.00205 0	+0.00319 0	+0.00512 0	+0.00827 0	+0.01260 0	+0.02047 0
- 11.024-12.402													
- 12.402-13.976	+0.01732 +0.00827	+0.01043 +0.00492	+0.00469 +0.00244	+0.00594 +0.00244	+0.00295 +0.00071	-	+0.00142 0	+0.00224 0	+0.00350 0	+0.00551 0	+0.00906 0	+0.01417 0	+0.02244 0
- 13.976-15.748													

## ISO tolerance table (inch)

ISO tolerances for holes (inch)												
Hole dia (inch)	H13	JS7	JS9	K6	K7	M6	M7	N7	N9'	P7	P9	R7
- 0.118	+0.00551 0	± 0.00020	± 0.00049	0 - 0.00024	0 - 0.00039	-0.00008 -0.00031	-0.00008 -0.00047	-0.00016 -0.00055	-0.00016 -0.00114	-0.00024 -0.00063	-0.00024 -0.00122	-0.00039 -0.00079
- 0.118-0.236	+0.00709 0	± 0.00024	± 0.00059	+0.00008 -0.00024	+0.00012 -0.00035	-0.00004 -0.00035	0 -0.00047	-0.00016 -0.00063	0 -0.00118	-0.00031 -0.00079	-0.00047 -0.00165	-0.00043 -0.00091
- 0.236-0.394	+0.00866 0	± 0.00030	± 0.00071	+0.00008 -0.00028	+0.00020 -0.00039	-0.00012 -0.00047	0 -0.00059	-0.00016 -0.00075	0 -0.00142	-0.00035 -0.00094	-0.00059 -0.00201	-0.00051 -0.00110
- 0.394-0.709	+0.01063 0	± 0.00035	± 0.00085	+0.00008 -0.00035	+0.00024 -0.00047	-0.00016 -0.00059	0 -0.00071	-0.00020 -0.00091	0 -0.00169	-0.00043 -0.00114	-0.00071 -0.00240	-0.00063 -0.00134
- 0.709-1.181	+0.01299 0	± 0.00041	± 0.00102	+0.00008 -0.00043	+0.00024 -0.00059	-0.00016 -0.00067	0 -0.00083	-0.00028 -0.00110	0 -0.00205	-0.00055 -0.00138	-0.00087 -0.00291	-0.00079 -0.00161
- 1.181-1.968	+0.01535 0	± 0.00049	± 0.00122	+0.00012 -0.00051	+0.00028 -0.00071	-0.00016 -0.00079	0 -0.00098	-0.00031 -0.00130	0 -0.00244	-0.00067 -0.00165	-0.00102 -0.00346	-0.00098 -0.00197
- 1.968-2.559	+0.01811 0	± 0.00059	± 0.00146	+0.00016 -0.00059	+0.00035 -0.00083	-0.00020 -0.00094	0 -0.00118	-0.00035 -0.00154	0 -0.00291	-0.00083 -0.00201	-0.00126 -0.00417	-0.00118 -0.00244
- 2.559-3.150												-0.00126 -0.00244
- 3.150-3.937	+0.02126 0	± 0.00069	± 0.00171	+0.00016 -0.00071	+0.00039 -0.00059	-0.00024 -0.00110	0 -0.00138	-0.00039 -0.00177	0 -0.00343	-0.00094 -0.00232	-0.00146 -0.00488	-0.00150 -0.00287
- 3.937-4.724												-0.00161 -0.00299
- 4.724-5.512	+0.02480 0	± 0.00079	± 0.00197	+0.00016 -0.00083	+0.00047 -0.00110	-0.00031 -0.00130	0 -0.00157	-0.00047 -0.00205	0 -0.00394	-0.00110 -0.00268	-0.00169 -0.00563	-0.00189 -0.00346
- 5.512-6.299												-0.00197 -0.00354
- 6.299-7.087												-0.00209 -0.00366
- 7.087-7.874	+0.02835 0	± 0.00091	± 0.00226	+0.00020 -0.00094	+0.00051 -0.00130	-0.00031 -0.00146	0 -0.00181	-0.00055 -0.00236	0 -0.00453	-0.00130 -0.00311	+0.00197 +0.00650	-0.00236 -0.00417
- 7.874-8.858												-0.00248 -0.00429
- 8.858-9.842												-0.00264 -0.00445
- 9.842-11.024	+0.03189 0	± 0.00102	± 0.00256	+0.00020 -0.00106	+0.00063 -0.00142	-0.00035 -0.00161	0 -0.00205	-0.00055 -0.00260	0 -0.00512	-0.00142 -0.00346	-0.00220 -0.00732	-0.00291 -0.00496
- 11.024-12.402												-0.00307 -0.00512
- 12.402-13.976	+0.03504 0	± 0.00112	± 0.00276	+0.00028 -0.00114	+0.00067 -0.00157	-0.00039 -0.00181	0 -0.00224	-0.00063 -0.00287	0 -0.00551	-0.00161 -0.00386	-0.00244 -0.00795	-0.00343 -0.00567
13.976-15.748												-0.00366 -0.00591

## Geometrical tolerance

	Drawing symbol	Tolerance area
Circularity		
Cylindricity		
Positioning localisation		

# Spare part and accessory index



EDP No.	Product Desc.
79575	0.9SMS795
73563	03B587532
68228	03B587540
73565	03H02
73566	03H025
73567	03H03
73568	03H04
73569	03H05
72663	03H06
73571	03H10
72645	03HL03
73572	03HL04
72646	03HL05
72647	03HL06
73574	03HL08
73575	03HL10
73577	03M03C
20624	05A7600604
35665	05A7601204
01348	05B61003225
01345	05B61004025
01347	05B61004032
15170	05B61013125
15167	05B61013825
15169	05B61013831
79576	1.3SMS795
77806	1.5SMS795
11063	10SMS795
43070	1310
10700	179.17-680
10244	179.17-685
21657	179.17-690-T15P
11891	179.17-693
42054	18LS0316
56002	19A71000
86729	19A7100403
35668	19A71008125
55826	19A71030
55828	19A71060
35667	19M4001A
55839	19TB0305
72639	19TB04075
11768	19TLR1016
15505	19TLR1216
10253	19X608412
10254	19X60841208
42998	2.5SMS795
00261	2SMS795
32604	3113020-304
32606	3113020-406
32607	3113020-457
32612	3113020-509
00373	3SMS795
20626	41B76001
35663	42M06
35664	42M07
00262	4SMS795
28609	5512063-08
28611	5512063-09
28606	5512063-10
28274	5512063-13
28633	5512067-01
28636	5512067-03
28637	5512067-04

EDP No.	Product Desc.
28281	5512068-04
40386	5512091-01
40387	5512091-02
28612	5512091-04
28290	5545040-08
13334	564301701
13347	564301702
28615	5680015-01
28616	5680015-02
28614	5680015-05
28620	5680065-11
28621	5680065-12
28618	5680065-13
28303	5680094-04
28304	5680094-06
29006	5692020-04
32616	5692020-06
41892	58803210
41927	58803216
41940	58803220
42124	58804016
42128	58804020
42133	58804025
42134	58804026
00374	5SMS795
43000	6SMS795
43099	9/64SMS875
92987	90A75000
92991	90A75010
92992	90A75020
92993	90A75030
92994	90A75040
92995	90A75050
92997	90A75060
92998	90A75070
80065	90AS03
55844	90F0
55845	90F1
55846	90F2
55847	90F3
55848	90F4
55849	90F5
55850	90F6
55851	90F7
70322	90JT01
09586	90JT02
55852	90M0
55853	90M1
55854	90M2
55855	90M3
55856	90M4
55857	90M5
61822	90M51
54592	90M5L
55858	90M6
61824	90M61
54638	90M6L
55859	90M7
54694	90M7L
20625	935L01
80067	940ZC06
55861	950A0406
41764	950A0810
55866	950A1012

EDP No.	Product Desc.
00444	950AF1210014
04471	950AF1210020
80066	950CB0830
86750	950D0410
54700	950D0514
72513	950D0612
72515	950D0616
80063	950D0618
98105	950D0820
98106	950D0822
86879	950D1230
69938	950D1240
11770	950D1250
86758	950D16120
23349	950D1670
10961	950D1680
47410	950DC0616
26670	950F0308
26671	950F0410
26672	950F0620
82524	950L0406
35673	950L0607T15P
55887	950L0608
55889	950L0612
58396	950L0616
54699	950L0816
55890	950L1016
86759	950L1030
55938	960D30045S
25953	960D30050S
92250	AU6103003
92253	AU6104003
92305	AU6105003
92306	AU6106003
70320	AU731S00700
98104	AU731S01100
70321	AU731S40700
35669	AU7601212
35671	AU7601218
35670	AU7601312
35672	AU7601318
86778	AU7901030
76335	AU7901040
86779	AU7901050
15201	AU7901060
79566	BB1.5
79567	BB2.0
79568	BB2.5
79569	BB3.0
29572	C01805-T06P
21773	C02035-T06P
16700	C02205-T07P
16783	C02245-T07P
23077	C02504-T07P
16703	C02505-T07P
16711	C02506-T07P
07369	C02506-T08P
16712	C02507-T08P
13215	C03007-T08P
00060	C03007-T09P
16714	C03009-T09P
12630	C03010-T09P
00902	C03508-T15P
12631	C03509-T15P

EDP No.	Product Desc.
16717	C04008-T15P
04199	C04011-T15P
24191	C04013-T15P
16719	C04014-T15P
01577	C04510-T20P
12638	C05010-T20P
16723	C05012-T15P
11666	CA3510
92969	CAA75010
92973	CAA75020
92974	CAA75030
92975	CAA75040
92977	CAA75050
92978	CAA75060
92979	CAA75070
36932	CARTCY12
36922	CARTCY4
36931	CARTCY6
39767	CD12-S12
63303	CLC06KEY
63304	CLC10KEY
36935	CLW10
36933	CLW5
36934	CLW7
21590	CSC6312-T15P
01344	E99000
09891	EU9023001
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
89983	H06-4
15174	H1.5-2D
15176	H2.0-2D
15179	H2.5-2D
01817	K6S4X8
68524	K6S6X10
68530	K6S6X12
56727	LBHF0306R
79561	LH2040



EDP No.	Product Desc.	EDP No.	Product Desc.	EDP No.	Product Desc.	EDP No.	Product Desc.
<a href="#">79562</a>	LH2540	<a href="#">14376</a>	RT08-KI	<a href="#">79573</a>	SH3040	<a href="#">12860</a>	T00-15P30
<a href="#">79564</a>	LH3050	<a href="#">14377</a>	RT12-KI	<a href="#">36926</a>	SH4040P	<a href="#">12870</a>	T00-15P35
<a href="#">79565</a>	LH4010	<a href="#">14308</a>	SB06	<a href="#">79574</a>	SH4060	<a href="#">12871</a>	T00-15P50
<a href="#">10388</a>	LS0818	<a href="#">14310</a>	SB08	<a href="#">36927</a>	SH4080P	<a href="#">05101</a>	T00-20P
<a href="#">03404</a>	LW0408	<a href="#">14312</a>	SB12	<a href="#">79555</a>	SR-B0	<a href="#">35915</a>	T00-20P35
<a href="#">03406</a>	LW0611	<a href="#">14374</a>	SB16	<a href="#">79554</a>	SR-B02	<a href="#">05103</a>	T00-20P50
<a href="#">79560</a>	M2T	<a href="#">32868</a>	SD200-3X7.3	<a href="#">79556</a>	SR-B1	<a href="#">24154</a>	T00T-15P
<a href="#">10391</a>	MP0912	<a href="#">44474</a>	SD400-K03	<a href="#">79557</a>	SR-B2	<a href="#">24143</a>	T00T-15P50
<a href="#">98522</a>	MP6SS3X12	<a href="#">44475</a>	SD400-K04	<a href="#">79558</a>	SR-B3	<a href="#">24155</a>	T00T-20P
<a href="#">98523</a>	MP6SS4X12	<a href="#">44476</a>	SD400-K05	<a href="#">79559</a>	SR-B5	<a href="#">24144</a>	T00T-20P50
<a href="#">98524</a>	MP6SS5X16	<a href="#">44477</a>	SD400-K06	<a href="#">14309</a>	ST06	<a href="#">39294</a>	T00T-20P60
<a href="#">63301</a>	NF06-CLKI	<a href="#">44481</a>	SD400-K07	<a href="#">14307</a>	ST08	<a href="#">24145</a>	T00T-20P80
<a href="#">63302</a>	NF10-CLKI	<a href="#">44483</a>	SD400-K08	<a href="#">14311</a>	ST12	<a href="#">24156</a>	T00T-25P
<a href="#">57423</a>	P6SS10X10	<a href="#">44484</a>	SD400-K09	<a href="#">14373</a>	ST16	<a href="#">35914</a>	T00T-25P50
<a href="#">71334</a>	P6SS4X4-T09P	<a href="#">64065</a>	SD600-C-07	<a href="#">79620</a>	STN160312	<a href="#">24146</a>	T00T-25P60
<a href="#">14539</a>	P6SS8X8	<a href="#">64052</a>	SD600-C-09	<a href="#">16685</a>	T00-06P	<a href="#">24147</a>	T00T-25P80
<a href="#">04155</a>	PCN120308	<a href="#">64060</a>	SD600-C-12	<a href="#">03403</a>	T00-06P03	<a href="#">24157</a>	T00T-30P
<a href="#">23479</a>	PM06-CLKI	<a href="#">64061</a>	SD600-C-15	<a href="#">01728</a>	T00-06P05	<a href="#">24148</a>	T00T-30P80
<a href="#">23483</a>	PM07-CLKI	<a href="#">64066</a>	SD600-P-07	<a href="#">16689</a>	T00-07P	<a href="#">16661</a>	T06P-2
<a href="#">23484</a>	PM08-CLKI	<a href="#">64053</a>	SD600-P-09	<a href="#">41232</a>	T00-07P05	<a href="#">16662</a>	T06P-3
<a href="#">23485</a>	PM11-CLKI	<a href="#">64059</a>	SD600-P-12	<a href="#">09618</a>	T00-07P09	<a href="#">16665</a>	T07P-2
<a href="#">23486</a>	PM15-CLKI	<a href="#">64062</a>	SD600-P-15	<a href="#">69934</a>	T00-07P12	<a href="#">16666</a>	T07P-3
<a href="#">23487</a>	PM19-CLKI	<a href="#">81257</a>	SD6020-P-07-N	<a href="#">16692</a>	T00-08P	<a href="#">16667</a>	T08P-2
<a href="#">14379</a>	PMX06-CLKI	<a href="#">81258</a>	SD6020-P-07-U	<a href="#">12856</a>	T00-08P12	<a href="#">10394</a>	T08P-3
<a href="#">14380</a>	PMX08-CLKI	<a href="#">81259</a>	SD6020-P-09-N	<a href="#">16697</a>	T00-09P	<a href="#">16672</a>	T09P-2
<a href="#">14381</a>	PMX12-CLKI	<a href="#">81260</a>	SD6020-P-09-U	<a href="#">41233</a>	T00-09P09	<a href="#">00064</a>	T09P-3
<a href="#">14382</a>	PMX16-CLKI	<a href="#">81261</a>	SD6020-P-12-N	<a href="#">12857</a>	T00-09P12	<a href="#">16674</a>	T15P-2
<a href="#">10383</a>	PP4713	<a href="#">81262</a>	SD6020-P-12-U	<a href="#">12858</a>	T00-09P20	<a href="#">16675</a>	T15P-2D
<a href="#">10885</a>	R1/4	<a href="#">81263</a>	SD6020-P-15-N	<a href="#">16641</a>	T00-10P	<a href="#">10395</a>	T15P-3
<a href="#">60718</a>	R3/8	<a href="#">81264</a>	SD6020-P-15-U	<a href="#">05287</a>	T00-10P20	<a href="#">01574</a>	T20P-4
<a href="#">10373</a>	R3/8-HA	<a href="#">79570</a>	SH2020	<a href="#">16691</a>	T00-10P30	<a href="#">92222</a>	UCN120612
<a href="#">10386</a>	RP6757	<a href="#">79571</a>	SH2525	<a href="#">16698</a>	T00-15P		
<a href="#">14375</a>	RT06-KI	<a href="#">36923</a>	SH3030P	<a href="#">12859</a>	T00-15P20		

## 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.

## 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 than 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	■				■	■			■		■						

**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.

The use of SMG v2 is illustrated below.

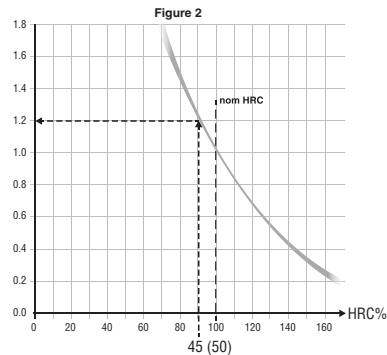
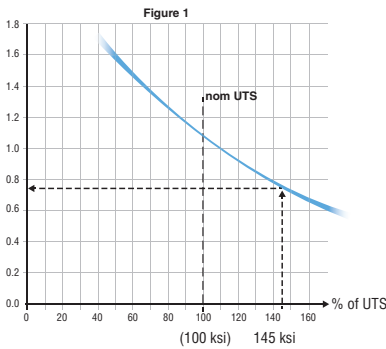
As shown in Table I, the reference material for work material group P4 is 1045, for P5 it is 4140 steel and for H5 it is 4140 hardened to 50 HRC. 4140 steel is available in a wide variety of hardness and tensile strengths. It will be expected that the machinability will vary with these properties.

SMG	Description	Properties	Reference	SMG	Description	Properties	Reference
P4	Low alloy general structural steels, 0.25% < C < 0.67%wt	75 < UTS < 175	1045 UTS = 95 ksi	H5	Quenched & Tempered steels	38 < HRC < 56	4140 50 HRC
	Low alloy Quench & Temper steels						
P5	Structural steels, 0.25% < C < 0.67%wt Quench & Temper steels	80 < UTS < 175	4140 UTS = 100ksi				

Table II gives some examples of 4140 in different conditions.

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



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 sfpm 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.

For further workpiece material details please see page(s) 612-623 and suggested cutting data at applicable pages.

For more convenient cutting data handling we recommend applicable tools in My Pages – Suggest on [www.secotools.com](http://www.secotools.com)

## 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, ( $\alpha$ )		Ti
S12	Titanium, medium alloyed, ( $\alpha$ + $\beta$ )		TiAl6V4
S13	Titanium, high alloyed, (near $\beta$ and $\beta$ )		Ti10V2Fe3Al

## 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 cobalt 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
P1	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		
		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	
P2		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	
	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		
P3				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		
	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	
P4	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		
	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		
P5	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	
	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	
P6	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
	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	
G11400		40		Annealed	
G11460				Annealed	
G12150				Annealed	
G12144				Annealed	
		16D		Annealed	
		18kp		Annealed	
		S114kP		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 MnCrV 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 CrMoV 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 WKCVC 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 CENNb 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 .10Az	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 CUNUNb 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 NCTDU 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	AI99.5	3.0255	AI99.5	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	CuNi10Fe1Mn	CN102			5667
					CuNi10Zn45					
					CW408J	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		CZ300	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 WCV 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
	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
				1.2601		X 165 CrMoV 12			X 165 CrMoW 12 KU	
				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 ( $\alpha$ )
R54620			Ti 6-2-4-2	Annealed	Ti ( $\alpha$ )
R56320			Ti 3Al-2.5V (grd 9)	Annealed	Ti ( $\alpha+\beta$ )
R56400		VT6	Ti 6Al-4V	Annealed	Ti ( $\alpha+\beta$ )
			Ti 10V-2Fe-3Al	Annealed	Ti ( $\beta$ )
G51170	F.1516	12KH2		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

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