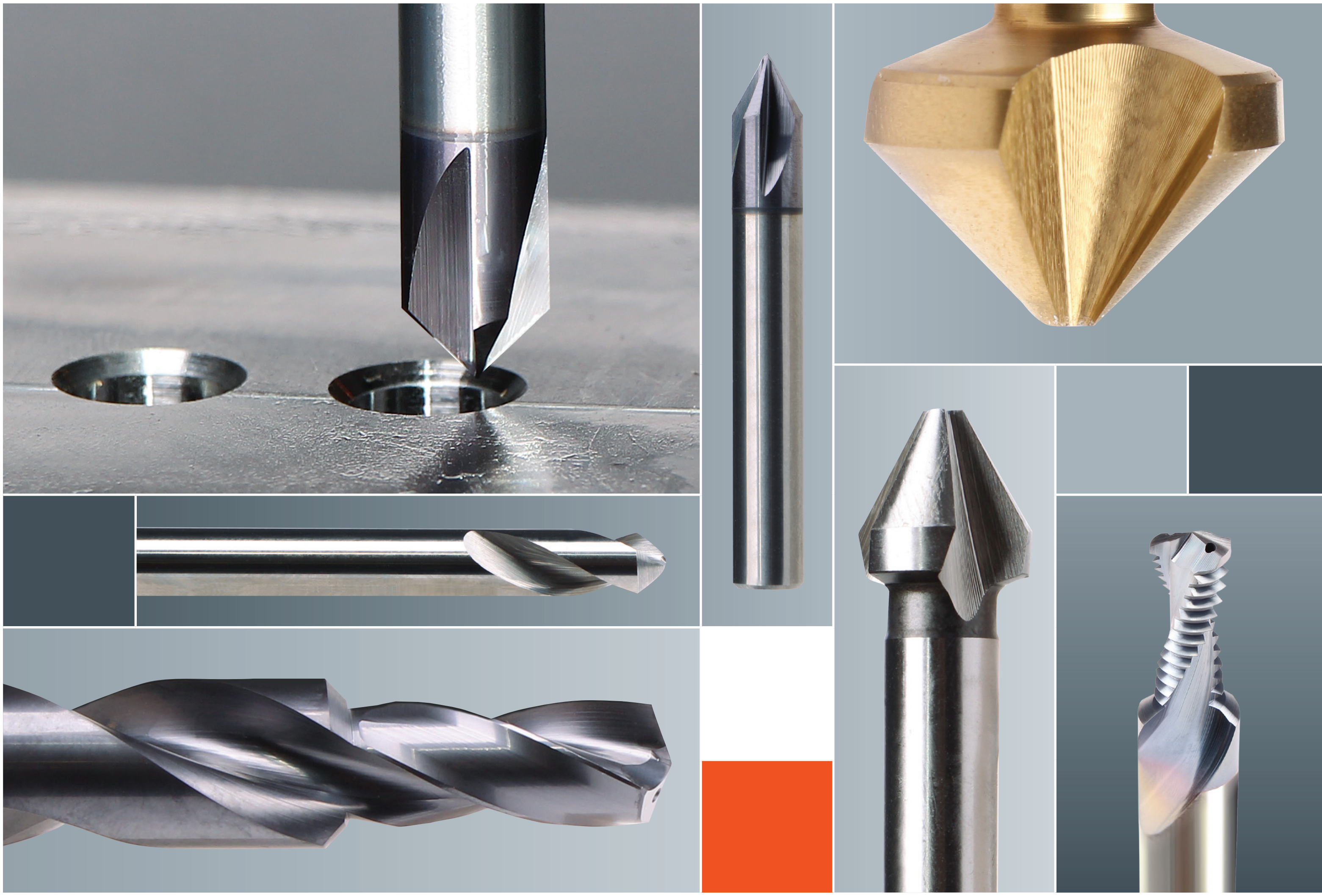
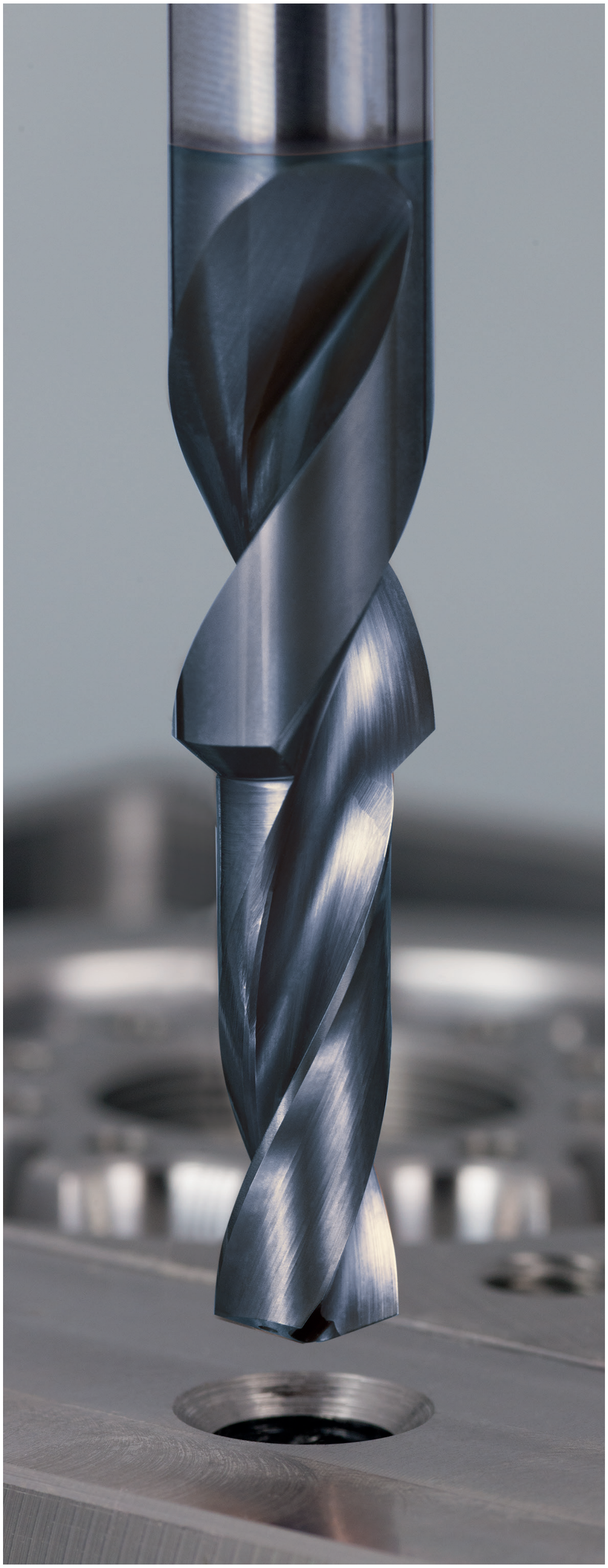
EMUGE



LEADING SOLUTIONS FOR **CHAMFERED / THREADED HOLES**

Plus Our NEW Quick Delivery Step Drill Program



From standard stocked tools to our Quick Delivery Program – a full range of solutions.

The typical internal thread will require a defined chamfer at the entrance to the hole, or at least a chamfer for deburring purposes. Chamfering, or adding a bevel to the hole, is beneficial to starting the tap.

Since threading often produces starting burrs, these burrs can be minimized by specifying a 45° countersink or chamfer which is .015" minimum larger than the major diameter on the internal threads.

A countersink is the most basic tool used to create a chamfer on a threaded hole. HSS countersinks are an inexpensive solution for non-critical dimensions or short run operations. Carbide chamfer mills are another easy solution, with the added benefit that chamfer mills can be used for linear chamfering operations in addition to radial threaded hole chamfers.

NC Spot drills are commonly used as countersinking tools when other options are not available. NC Spot drills are designed to be employed as starter drills for critical location holes and are not the first choice for creating threaded hole chamfers, but they are an option.

Emuge offers a complete range of chamfering tools to produce internal threaded parts. In addition, Emuge provides tooling that combines chamfering operations with drilling or threading operations, thus saving time, reducing tooling and more importantly, providing the most accurate chamfer location possible.

Options:

- **HSS Countersinks**
- **Chamfer Mills**
- **NC Spot / Chamfer Drills**
- **EF Drill-C / Chamfer Step Drills**
- **GSF Chamfer Thread Mills**
- **BGF Drill / Chamfer Thread Mills**

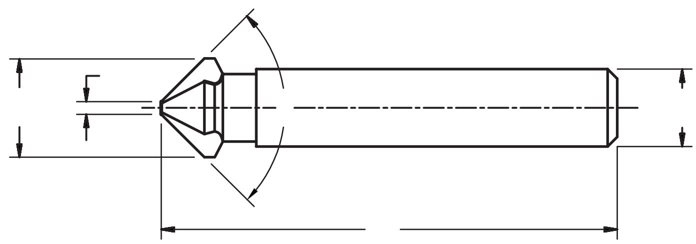
	HSS Countersinks	Chamfer Mills	NC Spot / Chamfer Drills	EF Drill-C / Chamfer Step Drills	GSF Chamfer Thread Mills	BGF Drill / Chamfer Thread Mills
Page	4	5	6-7	8-9	10	11
Create center spot for hole starting			●			
Chamfering pre-drilled holes	●	●				
Deburring and Countersinking	●	●	●	●	●	●
Drilling				●		●
Chamfering		●	●	●	●	●
Threading					●	●
Application	Deburr and countersink tap drilled holes in almost all materials	Chamfer / Deburr existing hole	Spot drill and / or create chamfer angle	Drill and Chamfer in one step. Provides optimal hole accuracy	Chamfer and thread mill steps done all in one milling operation	Drill, chamfer and thread mill steps done all in one milling operation

HSS Countersinks

Designed for deburring and countersinking tap drilled holes in almost all materials.

- Fully ground high speed steel flutes
- Radial and axial relieved flutes
- Bright finished for materials up to 1,000 N/mm^2
- TiN coated for materials up to 1,200 N/mm^2

- Available with TiN coating for additional tool life in any application
- 90° (EDP No. 7560) and 60° (EDP No. 7550) included chamfer angle designs.



HSS COUNTERSINK - TiN Coated

Dia. (d1) (mm)	Dia. (d3) (mm)	Angle	No. Flutes	Shank (d2) (mm)	OAL (L1) (mm)	EDP#
6.0	1.5	90°	3	5.0	45.0	7560T.09006
8.0	2.0	90°	3	6.0	50.0	7560T.09008
12.4	2.8	90°	3	8.0	56.0	7560T.090124
15.0	3.2	90°	3	10.0	60.0	7560T.09015
20.5	3.5	90°	3	10.0	63.0	7560T.090205
25.0	3.8	90°	3	10.0	67.0	7560T.09025
6.3	1.6	60°	3	5.0	45.0	7550T.060063
8.0	2.0	60°	3	6.0	50.0	7550T.06008
12.5	3.2	60°	3	8.0	56.0	7550T.060125
16.0	4.0	60°	3	10.0	63.0	7550T.06016
20.0	5.0	60°	3	10.0	67.0	7550T.06020
25.0	6.3	60°	3	10.0	71.0	7550T.06025

HSS COUNTERSINK - Bright Finish

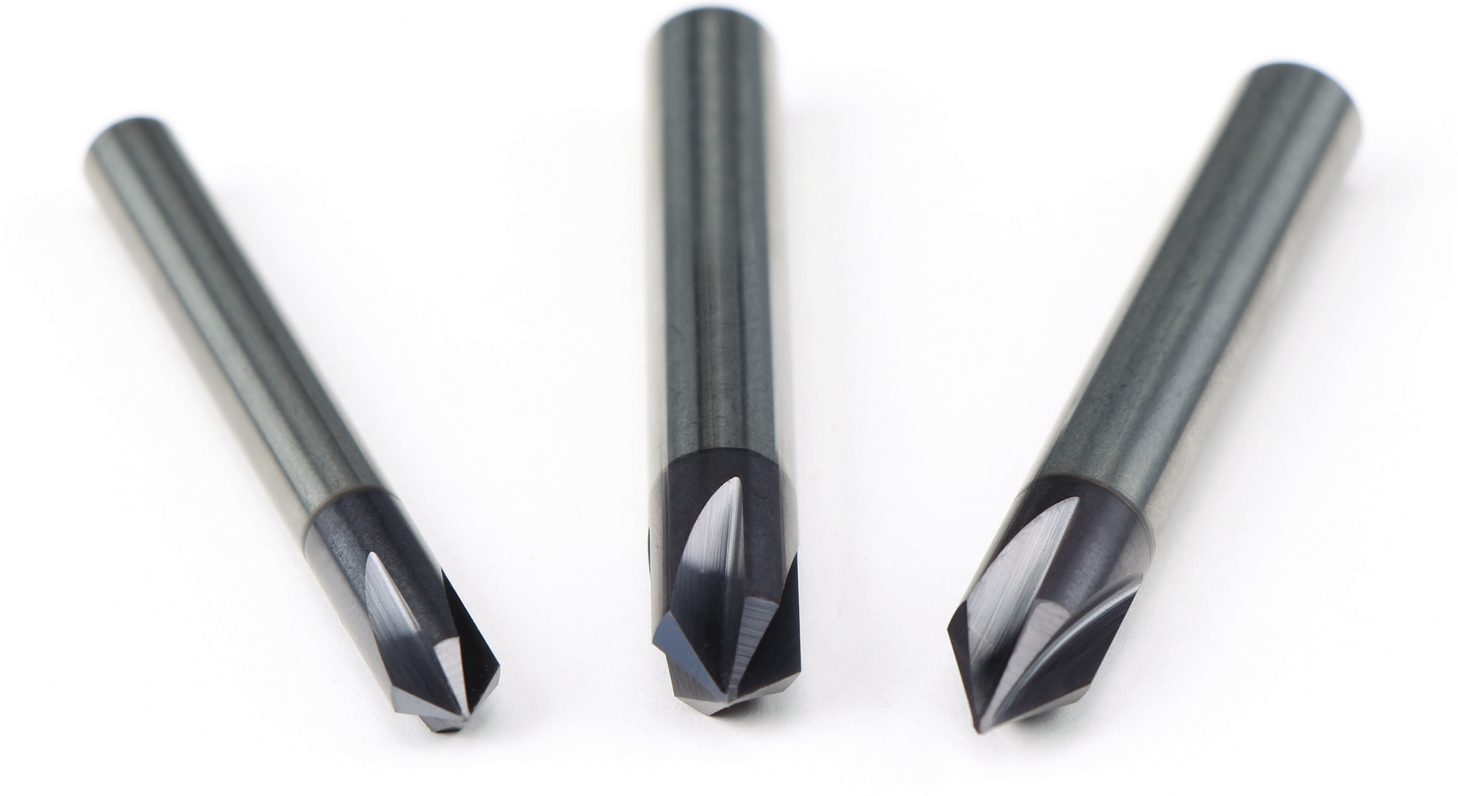
Dia. (d1) (mm)	Dia. (d3) (mm)	Angle	No. Flutes	Shank (d2) (mm)	OAL (L1) (mm)	EDP#
6.0	1.5	90°	3	5.0	45.0	7560.09006
8.0	2.0	90°	3	6.0	50.0	7560.09008
12.4	2.8	90°	3	8.0	56.0	7560.090124
15.0	3.2	90°	3	10.0	60.0	7560.09015
20.5	3.5	90°	3	10.0	63.0	7560.090205
25.0	3.8	90°	3	10.0	67.0	7560.09025
6.3	1.6	60°	3	5.0	45.0	7550.060063
8.0	2.0	60°	3	6.0	50.0	7550.06008
12.5	3.2	60°	3	8.0	56.0	7550.060125
16.0	4.0	60°	3	10.0	63.0	7550.06016
20.0	5.0	60°	3	10.0	67.0	7550.06020
25.0	6.3	60°	3	10.0	71.0	7550.06025

Chamfer Mills

Carbide chamfer mills can be used as a deburring, chamfering or countersinking tool.

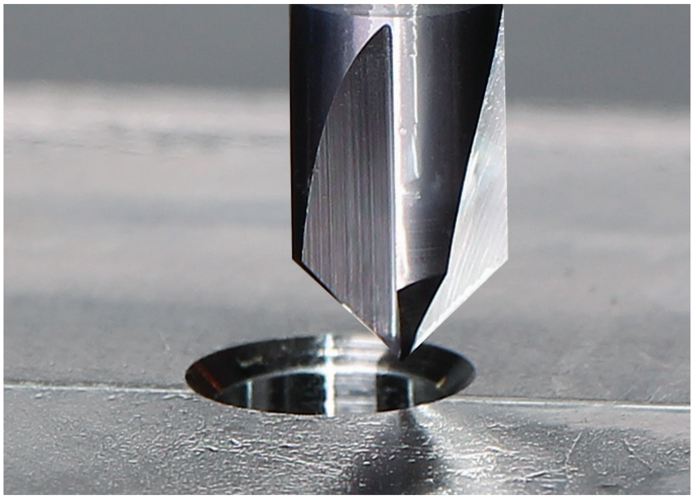
For optimum performance this style tool is used in a milling pass and not as a plunging tool. Available in 60° or 90° point options, these tools have straight cylindrical shanks ground to an h6 tolerance.

- Multi-functional tool
- Suitable for a wide variety of materials
- Premium sub-micro grain carbide
- TiAlN coated for wear and heat resistance
- For chamfering edges and threaded hole chamfers



CHAMFER MILL - TiAlN Coated

Dia. (in)	Point Angle	Shank ø (in)	OAL (in)	No. Flutes	EDP No.
1/8	60°	0.125	2.0	4	1715A.060125
1/4	60°	0.250	2.5	4	1715A.060250
3/8	60°	0.375	3.0	4	1715A.060375
1/2	60°	0.500	3.0	4	1715A.060500
5/8	60°	0.625	4.0	4	1715A.060625
1/8	90°	0.125	2.0	4	1715A.090125
1/4	90°	0.250	2.5	4	1715A.090250
3/8	90°	0.375	3.0	4	1715A.090375
1/2	90°	0.500	3.0	4	1715A.090500
5/8	90°	0.625	4.0	4	1715A.090625

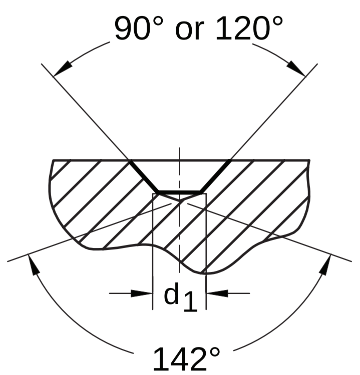


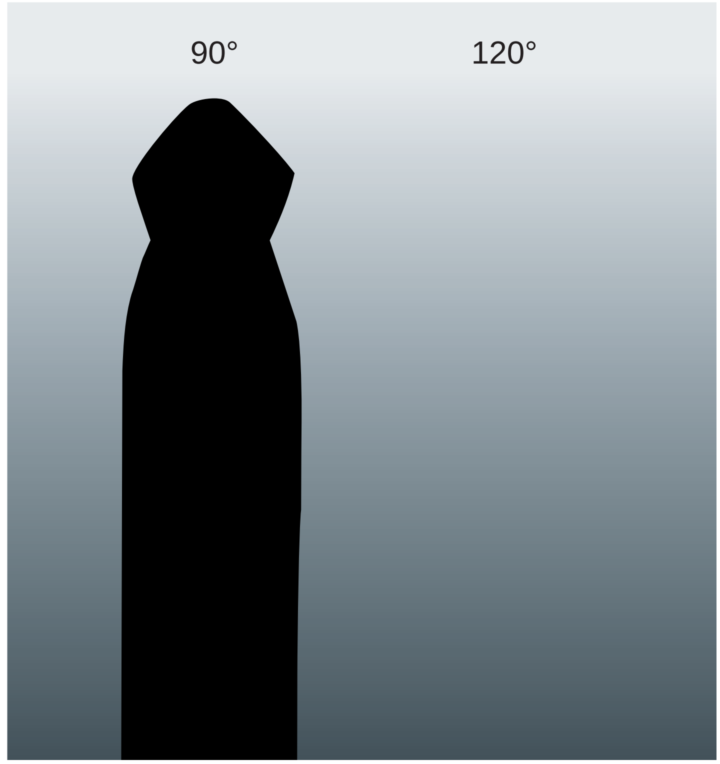
NC Spot / Chamfer Drills

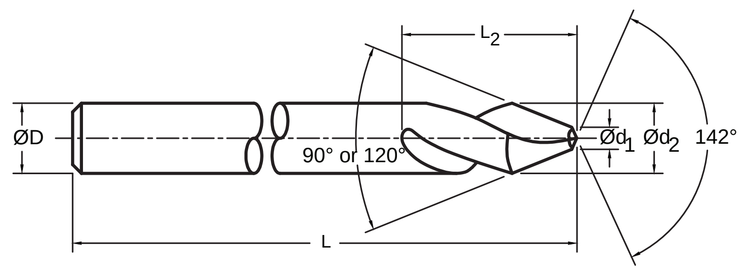
Typically used to create a center spot for a more accurate, finished hole.

Emuge spot / chamfer drills are designed with a double angle that allows easy drill starts and perfect 90° or 120° degree chamfer angles. Extensive testing has shown superior cutting action at the tip angle with a 142° angle which is well suited for a wide range of materials. This double angle eliminates tip breakage that is sometimes associated with 90° or 120° spot drills.

- Double tip angle with short chisel edge reduces axial force requirement
- 142° entry point angle creates better chip flow
- Secondary 90° or 120° angle creates desired chamfer







90°/142° NC Spot / Chamfer Drill - Bright Finish

Dia. (d2) (in)	Dia. (d1) (in)	OAL (L) (in)	Flute (L2) (in)	EDP No.
1/8	0.034	2.00	0.75	EFUT3100.0317
1/4	0.068	2.50	0.75	EFUT3100.0635
3/8	0.101	3.00	1.00	EFUT3100.0952
1/2	0.135	3.00	1.00	EFUT3100.1270
5/8	0.169	4.00	1.25	EFUT3100.1587
3/4	0.203	4.00	1.75	EFUT3100.1905

Dia. (d2) (mm)	Dia. (d1) (mm)	OAL (L) (in)	Flute (L2) (in)	EDP No.
3.0	0.81	2.00	0.50	EFUT3100.0300
4.0	1.08	2.25	0.75	EFUT3100.0400
5.0	1.35	2.25	0.75	EFUT3100.0500
6.0	1.62	2.25	0.75	EFUT3100.0600
8.0	2.16	2.75	1.00	EFUT3100.0800
10.0	2.70	2.88	1.00	EFUT3100.1000
12.0	3.25	2.92	1.00	EFUT3100.1200
16.0	4.33	4.00	1.00	EFUT3100.1600

120°/142° NC Spot / Chamfer Drill - Bright Finish

Dia. (d2) (in)	Dia. (d1) (in)	OAL (L) (in)	Flute (L2) (in)	EDP No.
1/8	0.029	2.00	0.75	EFUT3200.0317
1/4	0.059	2.50	0.75	EFUT3200.0635
3/8	0.089	3.00	1.00	EFUT3200.0952
1/2	0.118	3.00	1.00	EFUT3200.1270
5/8	0.148	4.00	1.25	EFUT3200.1587
3/4	0.177	4.00	1.75	EFUT3200.1905

Dia. (d2) (mm)	Dia. (d1) (mm)	OAL (L) (in)	Flute (L2) (in)	EDP No.
3.0	0.71	2.00	0.50	EFUT3200.0300
4.0	0.95	2.25	0.75	EFUT3200.0400
5.0	1.18	2.25	0.75	EFUT3200.0500
6.0	1.42	2.25	0.75	EFUT3200.0600
8.0	1.89	2.75	1.00	EFUT3200.0800
10.0	2.36	2.88	1.00	EFUT3200.1000
12.0	2.84	2.92	1.00	EFUT3200.1200
16.0	3.78	4.00	1.00	EFUT3200.1600