

ENDMILLS > 2 FLUTE BALLNOSE



suttontools **TECLINE**

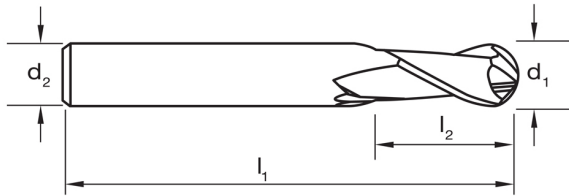
E311 - 2 FLUTE BALLNOSE ENDMILLS - Techline

Features:

- Ballnose Slot Drill 2 Flute
- Suitable for materials up to 1600 N/mm²
- TiAlN for longer tool life

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Range:



Item #	d1	Rad	l1	l2	l3	d2	d3	z
E3110159	1/16	0.79	38	4.75	-	1/8	-	2
E3110238	3/32	2.38	38	8	-	1/8	-	2
E3110318	1/8	1.59	38	12.5	-	1/8	-	2
E3110397	5/32	1.98	2	14	-	3/16	-	2
E3110476	3/16	2.38	2	16	-	3/16	-	2
E3110635	1/4	3.18	64	19	-	1/4	-	2
E3110794	5/16	3.97	64	20.5	-	5/16	-	2
E3110953	3/8	4.76	64	22	-	3/8	-	2
E3111111	7/16	5.56	70	25.5	-	7/16	-	2
E3111270	1/2	6.35	76	25.5	-	1/2	-	2
E3111588	5/8	7.94	89	32	-	5/8	-	2
E3111905	3/4	9.53	4	38	-	3/4	-	2

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Applications:

ISO	VDI	Description	Condition	Hardness	Strength	Optimal
P	1	Steel - Non-alloy, cast & free cutting (~ 0.15 %C)	Annealed	125HB	440MPa	●
P	2	Steel - Non-alloy, cast & free cutting (~ 0.45 %C)	Annealed	190HB	640MPa	●
P	3	Steel - Non-alloy, cast & free cutting (~ 0.45 %C)	Quenched & Tempered	250HB	840MPa	●
P	4	Steel - Non-alloy, cast & free cutting (~ 0.75 %C)	Annealed	270HB	910MPa	●
P	5	Steel - Non-alloy, cast & free cutting (~ 0.75 %C)	Quenched & Tempered	300HB	1010MPa	●
P	6	Steel - Low alloy & cast < 5% of alloying elements	Annealed	180HB	610MPa	●
P	7	Steel - Low alloy & cast < 5% of alloying elements	Quenched & Tempered	275HB	930MPa	○
P	8	Steel - Low alloy & cast < 5% of alloying elements	Quenched & Tempered	300HB	1010MPa	
P	9	Steel - Low alloy & cast < 5% of alloying elements	Quenched & Tempered	350HB	1180MPa	
P	10	Steel - High alloy, cast & tool	Annealed	200HB	680MPa	○
P	11	Steel - High alloy, cast & tool	Hardened & Tempered	325HB	1100MPa	
P	12	Steel - Corrosion resistant & cast - Ferritic / Martensitic	Annealed	200HB	680MPa	
P	13	Steel - Corrosion resistant & cast - Martensitic	Quenched & Tempered	240HB	810MPa	
M	14.1	Stainless Steel - Austenitic	Age Hardened	180HB	610MPa	○
M	14.2	Stainless Steel - Duplex		250HB	840MPa	○
M	14.3	Stainless Steel - Precipitation Hardening		250HB	840MPa	
K	15	Cast Iron, Grey (GG) - Ferritic / Pearlitic		180HB	610MPa	○
K	16	Cast Iron, Grey (GG) - Pearlitic		260HB	880MPa	○
K	17	Cast Iron, Nodular (GGG) - Ferritic		160HB	570MPa	○
K	18	Cast Iron, Nodular (GGG) - Pearlitic		250HB	840MPa	○
K	19	Cast Iron, Malleable - Ferritic		130HB	460MPa	○
K	20	Cast Iron, Malleable - Pearlitic		230HB	780MPa	○
N	21	Aluminum & Magnesium, wrought alloy - Non Heat Treatable		60HB	210MPa	
N	22	Aluminum & Magnesium, wrought alloy - Heat Treatable	Age Hardened	100HB	360MPa	
N	23	Aluminum & Magnesium, cast alloy ≤12% Si - Non Heat Treatabl		75HB	270MPa	
N	24	Aluminum & Magnesium, cast alloy ≤12% Si - Heat Treatable	Age Hardened	90HB	320MPa	
N	25	Aluminum & Magnesium, cast alloy >12% Si - Non Heat Treatabl		130HB	460MPa	
N	26	Copper & Copper alloys (Brass/Bronze) - Free cutting, Pb > 1		110HB	390MPa	
N	27	Copper & Copper alloys (Brass/Bronze) - Brass (CuZn, CuSnZn)		90HB	320MPa	
N	28	Copper & Copper alloys (Brass/Bronze) - Bronze (CuSn)		100HB	360MPa	
N	29	Non-metallic - Thermosetting & fiber-reinforced plastics				
N	30	Non-metallic - Hard rubber, wood etc.				
S	31	High temperature alloys - Fe based	Annealed	200HB	680MPa	
S	32	High temperature alloys - Fe based	Age Hardened	280HB	950MPa	
S	33	High temperature alloys - Ni / Co based	Annealed	250HB	840MPa	
S	34	High temperature alloys - Ni / Co based	Age Hardened	350HB	1180MPa	
S	35	High temperature alloys - Ni / Co based	Cast	320HB	1080MPa	
S	36	Titanium & Titanium alloys - CP Titanium			400MPa	
S	37.1	Titanium & Titanium alloys - Alpha alloys			860MPa	
S	37.2	Titanium & Titanium alloys - Alpha / Beta alloys	Annealed		960MPa	
S	37.3	Titanium & Titanium alloys - Alpha / Beta alloys	Age Hardened		1170MPa	
S	37.4	Titanium & Titanium alloys - Beta alloys	Annealed		830MPa	
S	37.5	Titanium & Titanium alloys - Beta alloys	Age Hardened		1400MPa	
H	38.1	Hardened steel	Hardened & Tempered	45HRC		
H	38.2	Hardened steel	Hardened & Tempered	55HRC		

KEY

● Optimal ○ Effective

P Steel
 M Stainless
 K Cast Iron
 N Non-Ferrous Metals
 S Titanium & Super Alloys
 H Hard Materials