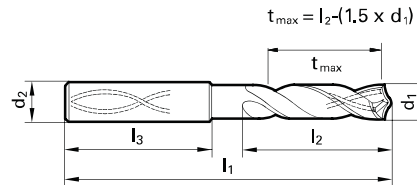




Tool material **Solid Carbide**
Surface **F**

P Steel	web thinning ≥ Ø 3.000 • patented radius point grind • main cutting edge form straight (after correction)
M Stainless steel	
K Cast iron ★	
N Aluminum	
S Titanium alloys	
H Hardened steel	vermicular cast iron GGV and ADI, CDI • grey cast iron, malleable and spheroidal iron

- ★ = 1st choice
- = Optimal suitability
- = Limited suitability



Speeds and feeds information on pg. 569

Diameter (d1)			d2 mm	l1 mm	t _{max} mm	l2 mm	EDP #
inch	wire/ltr	mm					
0.1181		3.00	6.00	66.00	23.50	28.00	9065010030000
0.1220		3.10	6.00	66.00	23.35	28.00	9065010031000
0.1248	1/8	3.17	6.00	66.00	23.25	28.00	9065010031700
0.1260		3.20	6.00	66.00	23.20	28.00	9065010032000
0.1280		3.25	6.00	66.00	23.13	28.00	9065010032500
0.1299		3.30	6.00	66.00	23.05	28.00	9065010033000
0.1339		3.40	6.00	66.00	22.90	28.00	9065010034000
0.1378		3.50	6.00	66.00	22.75	28.00	9065010035000
0.1406	9/64 #28	3.57	6.00	66.00	22.65	28.00	9065010035700
0.1417		3.60	6.00	66.00	22.60	28.00	9065010036000
0.1457		3.70	6.00	66.00	22.45	28.00	9065010037000
0.1496	#25	3.80	6.00	74.00	30.30	36.00	9065010038000
0.1535		3.90	6.00	74.00	30.15	36.00	9065010039000
0.1563	5/32	3.97	6.00	74.00	30.05	36.00	9065010039700
0.1575		4.00	6.00	74.00	30.00	36.00	9065010040000
0.1614		4.10	6.00	74.00	29.85	36.00	9065010041000
0.1654		4.20	6.00	74.00	29.70	36.00	9065010042000
0.1693	#18	4.30	6.00	74.00	29.55	36.00	9065010043000
0.1720	11/64	4.37	6.00	74.00	29.45	36.00	9065010043700
0.1732		4.40	6.00	74.00	29.40	36.00	9065010044000
0.1772	#16	4.50	6.00	74.00	29.25	36.00	9065010045000
0.1811		4.60	6.00	74.00	29.10	36.00	9065010046000
0.1831		4.65	6.00	74.00	29.03	36.00	9065010046500
0.1850	#13	4.70	6.00	74.00	28.95	36.00	9065010047000
0.1874	3/16	4.76	6.00	82.00	36.86	44.00	9065010047600
0.1890	#12	4.80	6.00	82.00	36.80	44.00	9065010048000
0.1929		4.90	6.00	82.00	36.65	44.00	9065010049000
0.1969		5.00	6.00	82.00	36.50	44.00	9065010050000
0.2008		5.10	6.00	82.00	36.35	44.00	9065010051000
0.2031	13/64	5.16	6.00	82.00	36.26	44.00	9065010051600
0.2047		5.20	6.00	82.00	36.20	44.00	9065010052000
0.2087		5.30	6.00	82.00	36.05	44.00	9065010053000
0.2126		5.40	6.00	82.00	35.90	44.00	9065010054000
0.2165		5.50	6.00	82.00	35.75	44.00	9065010055000
0.2185		5.55	6.00	82.00	35.68	44.00	9065010055500
0.2189	7/32	5.56	6.00	82.00	35.66	44.00	9065010055600
0.2205		5.60	6.00	82.00	35.60	44.00	9065010056000
0.2244		5.70	6.00	82.00	35.45	44.00	9065010057000
0.2283		5.80	6.00	82.00	35.30	44.00	9065010058000
0.2323		5.90	6.00	82.00	35.15	44.00	9065010059000
0.2343	15/64	5.95	6.00	82.00	35.08	44.00	9065010059500
0.2362		6.00	6.00	82.00	35.00	44.00	9065010060000

Diameter (d1)			d2 mm	l1 mm	t _{max} mm	l2 mm	EDP #
inch	wire/ltr	mm					
0.2402		6.10	8.00	91.00	43.85	53.00	9065010061000
0.2441		6.20	8.00	91.00	43.70	53.00	9065010062000
0.2480		6.30	8.00	91.00	43.55	53.00	9065010063000
0.2500	1/4 E	6.35	8.00	91.00	43.48	53.00	9065010063500
0.2520		6.40	8.00	91.00	43.40	53.00	9065010064000
0.2559		6.50	8.00	91.00	43.25	53.00	9065010065000
0.2598		6.60	8.00	91.00	43.10	53.00	9065010066000
0.2638		6.70	8.00	91.00	42.95	53.00	9065010067000
0.2657	17/64 H	6.75	8.00	91.00	42.88	53.00	9065010067500
0.2677		6.80	8.00	91.00	42.80	53.00	9065010068000
0.2717	I	6.90	8.00	91.00	42.65	53.00	9065010069000
0.2756		7.00	8.00	91.00	42.50	53.00	9065010070000
0.2795		7.10	8.00	91.00	42.35	53.00	9065010071000
0.2811	9/32 K	7.14	8.00	91.00	42.29	53.00	9065010071400
0.2835		7.20	8.00	91.00	42.20	53.00	9065010072000
0.2874		7.30	8.00	91.00	42.05	53.00	9065010073000
0.2913		7.40	8.00	91.00	41.90	53.00	9065010074000
0.2953		7.50	8.00	91.00	41.75	53.00	9065010075000
0.2969	19/64	7.54	8.00	91.00	41.69	53.00	9065010075400
0.2992		7.60	8.00	91.00	41.60	53.00	9065010076000
0.3031		7.70	8.00	91.00	41.45	53.00	9065010077000
0.3071		7.80	8.00	91.00	41.30	53.00	9065010078000
0.3110		7.90	8.00	91.00	41.15	53.00	9065010079000
0.3126	5/16	7.94	8.00	91.00	41.09	53.00	9065010079400
0.3150		8.00	8.00	91.00	41.00	53.00	9065010080000
0.3189		8.10	10.00	103.00	48.85	61.00	9065010081000
0.3228	P	8.20	10.00	103.00	48.70	61.00	9065010082000
0.3268		8.30	10.00	103.00	48.55	61.00	9065010083000
0.3280	21/64	8.33	10.00	103.00	48.51	61.00	9065010083300
0.3307		8.40	10.00	103.00	48.40	61.00	9065010084000
0.3346		8.50	10.00	103.00	48.25	61.00	9065010085000
0.3386		8.60	10.00	103.00	48.10	61.00	9065010086000
0.3425		8.70	10.00	103.00	47.95	61.00	9065010087000
0.3437	11/32	8.73	10.00	103.00	47.91	61.00	9065010087300
0.3465		8.80	10.00	103.00	47.80	61.00	9065010088000
0.3504		8.90	10.00	103.00	47.65	61.00	9065010089000
0.3543		9.00	10.00	103.00	47.50	61.00	9065010090000
0.3583		9.10	10.00	103.00	47.35	61.00	9065010091000
0.3594	23/64	9.13	10.00	103.00	47.31	61.00	9065010091300
0.3622		9.20	10.00	103.00	47.20	61.00	9065010092000
0.3642		9.25	10.00	103.00	47.13	61.00	9065010092500
0.3661		9.30	10.00	103.00	47.05	61.00	9065010093000

5xD Drills

Diameter (d1)			d2 mm	l1 mm	t _{max} mm	l2 mm	EDP #
inch	wire/ltr	mm					
0.3701		9.40	10.00	103.00	46.90	61.00	9065010094000
0.3740		9.50	10.00	103.00	46.75	61.00	9065010095000
0.3748	3/8	9.52	10.00	103.00	46.72	61.00	9065010095200
0.3780		9.60	10.00	103.00	46.60	61.00	9065010096000
0.3819		9.70	10.00	103.00	46.45	61.00	9065010097000
0.3858	W	9.80	10.00	103.00	46.30	61.00	9065010098000
0.3898		9.90	10.00	103.00	46.15	61.00	9065010099000
0.3906	25/64	9.92	10.00	103.00	46.12	61.00	9065010099200
0.3937		10.00	10.00	105.00	30.00	45.00	9065010100000
0.3976		10.10	12.00	118.00	55.85	71.00	9065010101000
0.4016		10.20	12.00	118.00	55.70	71.00	9065010102000
0.4055		10.30	12.00	118.00	55.55	71.00	9065010103000
0.4063	13/32	10.32	12.00	118.00	55.52	71.00	9065010103200
0.4094		10.40	12.00	118.00	55.40	71.00	9065010104000
0.4134		10.50	12.00	118.00	55.25	71.00	9065010105000
0.4173		10.60	12.00	118.00	55.10	71.00	9065010106000
0.4213		10.70	12.00	118.00	54.95	71.00	9065010107000
0.4220	27/64	10.72	12.00	118.00	54.92	71.00	9065010107200
0.4252		10.80	12.00	118.00	54.80	71.00	9065010108000
0.4291		10.90	12.00	118.00	54.65	71.00	9065010109000
0.4331		11.00	12.00	118.00	54.50	71.00	9065010110000
0.4370		11.10	12.00	118.00	54.35	71.00	9065010111000
0.4374	7/16	11.11	12.00	118.00	54.34	71.00	9065010111100
0.4409		11.20	12.00	118.00	54.20	71.00	9065010112000
0.4449		11.30	12.00	118.00	54.05	71.00	9065010113000
0.4488		11.40	12.00	118.00	53.90	71.00	9065010114000
0.4528		11.50	12.00	118.00	53.75	71.00	9065010115000
0.4567		11.60	12.00	118.00	53.60	71.00	9065010116000
0.4606		11.70	12.00	118.00	53.45	71.00	9065010117000
0.4646		11.80	12.00	118.00	53.30	71.00	9065010118000
0.4685		11.90	12.00	118.00	53.15	71.00	9065010119000
0.4689	15/32	11.91	12.00	118.00	53.14	71.00	9065010119100
0.4724		12.00	12.00	118.00	53.00	71.00	9065010120000
0.4764		12.10	14.00	124.00	58.85	77.00	9065010121000
0.4803		12.20	14.00	124.00	58.70	77.00	9065010122000
0.4843	31/64	12.30	14.00	124.00	58.55	77.00	9065010123000
0.4882		12.40	14.00	124.00	58.40	77.00	9065010124000
0.4921		12.50	14.00	124.00	58.25	77.00	9065010125000
0.4961		12.60	14.00	124.00	58.10	77.00	9065010126000
0.5000	1/2	12.70	14.00	124.00	57.95	77.00	9065010127000
0.5039		12.80	14.00	124.00	57.80	77.00	9065010128000

Diameter (d1)			d2 mm	l1 mm	t _{max} mm	l2 mm	EDP #
inch	wire/ltr	mm					
0.5079		12.90	14.00	124.00	57.65	77.00	9065010129000
0.5118		13.00	14.00	124.00	57.50	77.00	9065010130000
0.5157	33/64	13.10	14.00	124.00	57.35	77.00	9065010131000
0.5236		13.30	14.00	124.00	57.05	77.00	9065010133000
0.5276		13.40	14.00	124.00	56.90	77.00	9065010134000
0.5315		13.50	14.00	124.00	56.75	77.00	9065010135000
0.5394		13.70	14.00	124.00	56.45	77.00	9065010137000
0.5433		13.80	14.00	124.00	56.30	77.00	9065010138000
0.5472		13.90	14.00	124.00	56.15	77.00	9065010139000
0.5512		14.00	14.00	107.00	39.00	60.00	9065010140000
0.5551		14.10	16.00	133.00	61.85	83.00	9065010141000
0.5591		14.20	16.00	133.00	61.70	83.00	9065010142000
0.5626	9/16	14.29	16.00	133.00	61.57	83.00	9065010142900
0.5630		14.30	16.00	133.00	61.55	83.00	9065010143000
0.5669		14.40	16.00	133.00	61.40	83.00	9065010144000
0.5709		14.50	16.00	133.00	61.25	83.00	9065010145000
0.5748		14.60	16.00	133.00	61.10	83.00	9065010146000
0.5787		14.70	16.00	133.00	60.95	83.00	9065010147000
0.5866		14.90	16.00	133.00	60.65	83.00	9065010149000
0.5906		15.00	16.00	133.00	60.50	83.00	9065010150000
0.5945		15.10	16.00	133.00	60.35	83.00	9065010151000
0.5984		15.20	16.00	133.00	60.20	83.00	9065010152000
0.6024		15.30	16.00	133.00	60.05	83.00	9065010153000
0.6063		15.40	16.00	133.00	59.90	83.00	9065010154000
0.6102		15.50	16.00	133.00	59.75	83.00	9065010155000
0.6142		15.60	16.00	133.00	59.60	83.00	9065010156000
0.6181		15.70	16.00	133.00	59.45	83.00	9065010157000
0.6220		15.80	16.00	133.00	59.30	83.00	9065010158000
0.6248	5/8	15.87	16.00	133.00	59.20	83.00	9065010158700
0.6260		15.90	16.00	133.00	59.15	83.00	9065010159000
0.6299		16.00	16.00	133.00	59.00	83.00	9065010160000
0.6496		16.50	18.00	143.00	68.25	93.00	9065010165000
0.6563	21/32	16.67	18.00	143.00	68.00	93.00	9065010166700
0.6693		17.00	18.00	143.00	67.50	93.00	9065010170000
0.6890		17.50	18.00	143.00	66.75	93.00	9065010175000
0.7087		18.00	18.00	143.00	66.00	93.00	9065010180000
0.7283		18.50	20.00	153.00	73.25	101.00	9065010185000
0.7480		19.00	20.00	153.00	72.50	101.00	9065010190000
0.7677		19.50	20.00	153.00	71.75	101.00	9065010195000
0.7874		20.00	20.00	153.00	71.00	101.00	9065010200000

5xD Drills

Material group	Hardness		SFM	Feed Rate - IPR						
	HRc	Bhn		0,0197 in. 0.5 mm	0,0315 in. 0.8 mm	0,0394 in. 1.0 mm	0,0591 in. 1.5 mm	0,0787 in. 2.0 mm	0,0984 in. 2.5 mm	0,1181 in. 3.0 mm
Common structural steels	- ≤ 32	≤ 150 ≤ 301	345 330			0,0013 0,0013	0,0020 0,0020	0,0028 0,0028	0,0037 0,0037	0,0047 0,0047
Free-cutting steels	≤ 25 ≤ 32	≤ 255 ≤ 301	345 295			0,0017 0,0017	0,0026 0,0026	0,0036 0,0036	0,0047 0,0047	0,0059 0,0059
Unalloyed heat-treatable steels	≤ 20 ≤ 25 ≤ 32	≤ 220 ≤ 255 ≤ 301	310 310 295			0,0013 0,0013 0,0013	0,0020 0,0020 0,0020	0,0028 0,0028 0,0028	0,0037 0,0037 0,0037	0,0047 0,0047 0,0047
Alloyed heat-treatable steels	≤ 32 ≤ 43	≤ 301 ≤ 402	295 230			0,0013 0,0013	0,0020 0,0020	0,0028 0,0028	0,0037 0,0037	0,0047 0,0047
Unalloyed case hardened steels	≤ 25	≤ 255	330			0,0009	0,0014	0,0020	0,0028	0,0035
Alloyed case hardened steels	≤ 32 ≤ 43	≤ 301 ≤ 402	280 230			0,0013 0,0013	0,0020 0,0020	0,0028 0,0028	0,0037 0,0037	0,0047 0,0047
Nitriding steels	≤ 32 ≤ 43	≤ 301 ≤ 402	230 195			0,0009 0,0009	0,0014 0,0014	0,0020 0,0020	0,0028 0,0028	0,0035 0,0035
Tool steels	≤ 25 ≤ 43	≤ 255 ≤ 402	165 165			0,0013 0,0013	0,0020 0,0020	0,0028 0,0028	0,0037 0,0037	0,0047 0,0047
High speed steels	≤ 43	≤ 402	165			0,0009	0,0014	0,0020	0,0028	0,0035
Spring steels	≤ 38	≤ 354	165			0,0009	0,0014	0,0020	0,0028	0,0035
Hardened steels	≤ 48 ≤ 66	≤ 460 -								
Stainless steels, sulphured austenitic martensitic	≤ 28 ≤ 36 ≤ 46	≤ 273 ≤ 337 ≤ 435	230 195 230			0,0009 0,0005 0,0009	0,0014 0,0008 0,0014	0,0020 0,0013 0,0020	0,0028 0,0018 0,0028	0,0035 0,0024 0,0035
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	490 460			0,0016 0,0016	0,0035 0,0035	0,0047 0,0047	0,0059 0,0059	0,0071 0,0071
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	460 425			0,0016 0,0016	0,0035 0,0035	0,0047 0,0047	0,0059 0,0059	0,0071 0,0071
Chilled cast iron	≤ 38	≤ 354								
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301	115			0,0005	0,0008	0,0013	0,0018	0,0024
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402								
Special alloys	≤ 54	≤ 549								
Ti and Ti-alloys	≤ 25 ≤ 43	≤ 255 ≤ 402	80 115			0,0005 0,0005	0,0008 0,0008	0,0013 0,0013	0,0018 0,0018	0,0024 0,0024
Aluminium and Al-alloys	-	≤ 120	230			0,0047	0,0071	0,0094	0,0118	0,0142
Al wrought alloys	-	≤ 200	230			0,0047	0,0071	0,0094	0,0118	0,0142
Al cast alloys ≤ 10 % Si ≤ 24 % Si	-	≤ 180 ≤ 180	445 445			0,0017 0,0017	0,0026 0,0026	0,0036 0,0036	0,0047 0,0047	0,0059 0,0059
Magnesium alloys	-	≤ 120								
Copper, low-alloyed	-	≤ 150								
Brass, short-chipping long-chipping	-	≤ 180 ≤ 180								
Bronze, short-chipping	-	≤ 180								
Bronze, long-chipping	≤ 25 ≤ 32	≤ 255 ≤ 301								
Duroplastics Thermoplastics Reinforced plastics - Kevlar Reinforced plastics - GFK / CFK										

Material group	Hardness		SFM	Feed Rate - IPR										
	HRc	Bhn		1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm	
Common structural steels	- ≤ 32	≤ 150 ≤ 301												
Free-cutting steels	≤ 25 ≤ 32	≤ 255 ≤ 301												
Unalloyed heat-treatable steels	≤ 20 ≤ 25 ≤ 32	≤ 220 ≤ 255 ≤ 301												
Alloyed heat-treatable steels	≤ 32 ≤ 43	≤ 301 ≤ 402												
Unalloyed case hardened steels	≤ 25	≤ 255												
Alloyed case hardened steels	≤ 32 ≤ 43	≤ 301 ≤ 402												
Nitriding steels	≤ 32 ≤ 43	≤ 301 ≤ 402												
Tool steels	≤ 25 ≤ 43	≤ 255 ≤ 402												
High speed steels	≤ 43	≤ 402												
Spring steels	≤ 38	≤ 354												
Hardened steels	≤ 48 ≤ 66	≤ 460 -												
Stainless steels, sulphured austenitic martensitic	≤ 28 ≤ 36 ≤ 46	≤ 273 ≤ 337 ≤ 435												
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	685 520		0,0060	0,0125	0,0160	0,0200	0,0250	0,0250				
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	520 425		0,0060	0,0125	0,0160	0,0200	0,0250	0,0250				
Chilled cast iron	≤ 38	≤ 354												
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301	425 330	0,0010	0,0065	0,0100	0,0155	0,0155	0,0195	0,0250	0,0315	0,0315	0,0395	0,0395
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402	260 195	0,0010	0,0065	0,0100	0,0155	0,0155	0,0195	0,0250	0,0315	0,0315	0,0395	0,0395
Special alloys	≤ 54	≤ 549												
Ti and Ti-alloys	≤ 25 ≤ 43	≤ 255 ≤ 402	425 325		0,0060	0,0100	0,0150	0,0160	0,0200	0,0250				
Aluminium and Al-alloys	-	≤ 120	260		0,0060	0,0100	0,0150	0,0160	0,0200	0,0250				
Al wrought alloys	-	≤ 200	195		0,0060	0,0100	0,0150	0,0160	0,0200	0,0250				
Al cast alloys ≤ 10 % Si ≤ 24 % Si	-	≤ 180 ≤ 180												
Magnesium alloys	-	≤ 120												
Copper, low-alloyed	-	≤ 150												
Brass, short-chipping long-chipping	-	≤ 180 ≤ 180												
Bronze, short-chipping	-	≤ 180												
Bronze, long-chipping	≤ 25 ≤ 32	≤ 255 ≤ 301												
Duroplastics Thermoplastics Reinforced plastics - Kevlar Reinforced plastics - GFK / CFK														