



Tool material

HSCo

Surface



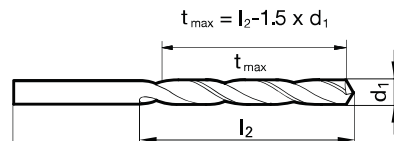
P	Steel	•
M	Stainless steel	•
K	Cast iron	•
N	Aluminum	•
S	Titanium alloys	•
H	Hardened steel	•

•=Optimal

○=Limited

web thinning $\geq \varnothing 1.000$ • facet split point • Co-alloyed high speed steel • low feed force required • low torque required • increased wear resistance • for universal application • only suitable for short drilling depths when used at full length for reach purposes

alloyed/unalloyed steels up to 800 N/mm² • cold/hot work steels • antifriction bearing steels • non-ferrous metals • cast materials • stainless steels • plastics



Speeds and feeds information on pg. 557

Shank diameter = cut diameter

Diameter (d ₁)			l ₁ mm	t _{max} mm	l ₂ mm	EDP #
inch	wire/ltr	mm				
0.0394		1.00	56.00	31.50	33.00	9055360010000
0.0402		1.02	56.00	32.00	33.00	9055360010200
0.0409		1.04	56.00	32.00	33.00	9055360010400
0.0421		1.07	60.00	36.00	37.00	9055360010700
0.0429		1.09	60.00	36.00	37.00	9055360010900
0.0433		1.10	60.00	35.35	37.00	9055360011000
0.0465		1.18	60.00	36.00	37.00	9055360011800
0.0469	3/64	1.19	65.00	40.00	41.00	9055360011900
0.0472		1.20	65.00	39.20	41.00	9055360012000
0.0512		1.30	65.00	39.05	41.00	9055360013000
0.0520		1.32	65.00	40.00	41.00	9055360013200
0.0551		1.40	70.00	42.90	45.00	9055360014000
0.0591		1.50	70.00	42.75	45.00	9055360015000
0.0594		1.51	76.00	49.00	50.00	9055360015100
0.0626	1/16	1.59	76.00	49.00	50.00	9055360015900
0.0630		1.60	76.00	47.60	50.00	9055360016000
0.0634		1.61	76.00	49.00	50.00	9055360016100
0.0669		1.70	76.00	47.45	50.00	9055360017000
0.0701		1.78	80.00	51.00	53.00	9055360017800
0.0709		1.80	80.00	50.30	53.00	9055360018000
0.0728		1.85	80.00	51.00	53.00	9055360018500
0.0748		1.90	80.00	50.15	53.00	9055360019000
0.0760		1.93	85.00	54.00	56.00	9055360019300
0.0780	5/64	1.98	85.00	54.00	56.00	9055360019800
0.0783		1.99	85.00	54.00	56.00	9055360019900
0.0787		2.00	85.00	53.00	56.00	9055360020000
0.0811		2.06	85.00	54.00	56.00	9055360020600
0.0819		2.08	85.00	54.00	56.00	9055360020800
0.0827		2.10	85.00	52.85	56.00	9055360021000
0.0858		2.18	90.00	57.00	59.00	9055360021800
0.0866		2.20	90.00	55.70	59.00	9055360022000
0.0890		2.26	90.00	57.00	59.00	9055360022600
0.0906		2.30	90.00	55.55	59.00	9055360023000
0.0933		2.37	95.00	60.00	62.00	9055360023700
0.0937	3/32	2.38	95.00	60.00	62.00	9055360023800
0.0945		2.40	95.00	58.40	62.00	9055360024000
0.0961		2.44	95.00	60.00	62.00	9055360024400
0.0980		2.49	95.00	60.00	62.00	9055360024900
0.0984		2.50	95.00	58.25	62.00	9055360025000
0.0996		2.53	95.00	60.00	62.00	9055360025300
0.1016		2.58	95.00	60.00	62.00	9055360025800
0.1024		2.60	95.00	58.10	62.00	9055360026000

Diameter (d ₁)			l ₁ mm	t _{max} mm	l ₂ mm	EDP #
inch	wire/ltr	mm				
0.1039		2.64	95.00	60.00	62.00	9055360026400
0.1063		2.70	100.00	61.95	66.00	9055360027000
0.1067		2.71	100.00	64.00	66.00	9055360027100
0.1094	7/64	2.78	100.00	63.00	66.00	9055360027800
0.1098		2.79	100.00	63.00	66.00	9055360027900
0.1102		2.80	100.00	61.80	66.00	9055360028000
0.1110		2.82	100.00	63.00	66.00	9055360028200
0.1130		2.87	100.00	63.00	66.00	9055360028700
0.1142		2.90	100.00	61.65	66.00	9055360029000
0.1161		2.95	100.00	63.00	66.00	9055360029500
0.1181		3.00	100.00	61.50	66.00	9055360030000
0.1201		3.05	106.00	66.00	69.00	9055360030500
0.1220		3.10	106.00	64.35	69.00	9055360031000
0.1248	1/8	3.17	106.00	66.00	69.00	9055360031700
0.1260		3.20	106.00	64.20	69.00	9055360032000
0.1283		3.26	106.00	66.00	69.00	9055360032600
0.1299		3.30	106.00	64.05	69.00	9055360033000
0.1339		3.40	112.00	67.90	73.00	9055360034000
0.1358		3.45	112.00	70.00	73.00	9055360034500
0.1378		3.50	112.00	67.75	73.00	9055360035000
0.1406	9/64	3.57	112.00	70.00	73.00	9055360035700
0.1417		3.60	112.00	67.60	73.00	9055360036000
0.1441		3.66	112.00	70.00	73.00	9055360036600
0.1457		3.70	112.00	67.45	73.00	9055360037000
0.1469		3.73	112.00	70.00	73.00	9055360037300
0.1496		3.80	119.00	72.30	78.00	9055360038000
0.1520		3.86	119.00	75.00	78.00	9055360038600
0.1535		3.90	119.00	72.15	78.00	9055360039000
0.1539		3.91	119.00	74.00	78.00	9055360039100
0.1563	5/32	3.97	119.00	74.00	78.00	9055360039700
0.1571		3.99	119.00	74.00	78.00	9055360039900
0.1575		4.00	119.00	72.00	78.00	9055360040000
0.1591		4.04	119.00	74.00	78.00	9055360040400
0.1610		4.09	119.00	74.00	78.00	9055360040900
0.1614		4.10	119.00	71.85	78.00	9055360041000
0.1654		4.20	119.00	71.70	78.00	9055360042000
0.1661		4.22	119.00	74.00	78.00	9055360042200
0.1693		4.30	126.00	75.55	82.00	9055360043000
0.1720	11/64	4.37	126.00	78.00	82.00	9055360043700
0.1728		4.39	126.00	78.00	82.00	9055360043900
0.1732		4.40	126.00	75.40	82.00	9055360044000
0.1772		4.50	126.00	75.25	82.00	9055360045000

Diameter (d ₁)			l ₁ mm	t _{max} mm	l ₂ mm	EDP #
inch	wire/ltr	mm				
0.1799		4.57	126.00	78.00	82.00	9055360045700
0.1811		4.60	126.00	75.10	82.00	9055360046000
0.1819		4.62	126.00	78.00	82.00	9055360046200
0.1850	3/16	4.70	126.00	74.95	82.00	9055360047000
0.1874		4.76	132.00	83.00	87.00	9055360047600
0.1890		4.80	132.00	79.80	87.00	9055360048000
0.1909		4.85	132.00	83.00	87.00	9055360048500
0.1929		4.90	132.00	79.65	87.00	9055360049000
0.1937		4.92	132.00	83.00	87.00	9055360049200
0.1961		4.98	132.00	83.00	87.00	9055360049800
0.1969		5.00	132.00	79.50	87.00	9055360050000
0.1992		5.06	132.00	82.00	87.00	9055360050600
0.2008		5.10	132.00	79.35	87.00	9055360051000
0.2012		5.11	132.00	82.00	87.00	9055360051100
0.2031	13/64	5.16	132.00	82.00	87.00	9055360051600
0.2039		5.18	132.00	82.00	87.00	9055360051800
0.2047		5.20	132.00	79.20	87.00	9055360052000
0.2055		5.22	132.00	82.00	87.00	9055360052200
0.2087		5.30	132.00	79.05	87.00	9055360053000
0.2091		5.31	139.00	86.00	91.00	9055360053100
0.2126		5.40	139.00	82.90	91.00	9055360054000
0.2130		5.41	139.00	86.00	91.00	9055360054100
0.2165		5.50	139.00	82.75	91.00	9055360055000
0.2189	7/32	5.56	139.00	86.00	91.00	9055360055600
0.2205		5.60	139.00	82.60	91.00	9055360056000
0.2209		5.61	139.00	86.00	91.00	9055360056100
0.2244		5.70	139.00	82.45	91.00	9055360057000
0.2280		5.79	139.00	86.00	91.00	9055360057900
0.2283		5.80	139.00	82.30	91.00	9055360058000
0.2323		5.90	139.00	82.15	91.00	9055360059000
0.2339	15/64	5.94	139.00	86.00	91.00	9055360059400
0.2343		5.95	139.00	86.00	91.00	9055360059500
0.2362		6.00	139.00	82.00	91.00	9055360060000
0.2378	B	6.04	148.00	92.00	97.00	9055360060400
0.2402		6.10	148.00	87.85	97.00	9055360061000
0.2421		6.15	148.00	91.00	97.00	9055360061500
0.2441	C	6.20	148.00	87.70	97.00	9055360062000
0.2461		6.25	148.00	91.00	97.00	9055360062500
0.2480		6.30	148.00	87.55	97.00	9055360063000
0.2500	1/4	6.35	148.00	91.00	97.00	9055360063500
0.2520		6.40	148.00	87.40	97.00	9055360064000
0.2559		6.50	148.00	87.25	97.00	9055360065000
0.2571	F	6.53	148.00	91.00	97.00	9055360065300
0.2598		6.60	148.00	87.10	97.00	9055360066000
0.2610		6.63	148.00	91.00	97.00	9055360066300
0.2638		6.70	148.00	86.95	97.00	9055360067000
0.2657	17/64	6.75	156.00	96.00	102.00	9055360067500
0.2677		6.80	156.00	91.80	102.00	9055360068000
0.2717		6.90	156.00	91.65	102.00	9055360069000
0.2756		7.00	156.00	91.50	102.00	9055360070000
0.2768	J	7.03	156.00	96.00	102.00	9055360070300
0.2795		7.10	156.00	91.35	102.00	9055360071000
0.2811		7.14	156.00	96.00	102.00	9055360071400
0.2835	K	7.20	156.00	91.20	102.00	9055360072000
0.2874		7.30	156.00	91.05	102.00	9055360073000
0.2902		7.37	156.00	95.00	102.00	9055360073700
0.2913	L	7.40	156.00	90.90	102.00	9055360074000
0.2949		7.49	156.00	95.00	102.00	9055360074900
0.2953		7.50	156.00	90.75	102.00	9055360075000
0.2969	19/64	7.54	165.00	102.00	109.00	9055360075400
0.2992		7.60	165.00	97.60	109.00	9055360076000
0.3020		7.67	165.00	102.00	109.00	9055360076700

Diameter (d ₁)			l ₁ mm	t _{max} mm	l ₂ mm	EDP #
inch	wire/ltr	mm				
0.3031		7.70	165.00	97.45	109.00	9055360077000
0.3071		7.80	165.00	97.30	109.00	9055360078000
0.3110		7.90	165.00	97.15	109.00	9055360079000
0.3126	5/16	7.94	165.00	102.00	109.00	9055360079400
0.3150		8.00	165.00	97.00	109.00	9055360080000
0.3161		8.03	165.00	102.00	109.00	9055360080300
0.3189	O	8.10	165.00	96.85	109.00	9055360081000
0.3228		8.20	165.00	96.70	109.00	9055360082000
0.3268		8.30	165.00	96.55	109.00	9055360083000
0.3280	21/64	8.33	165.00	101.00	109.00	9055360083300
0.3307		8.40	165.00	96.40	109.00	9055360084000
0.3319		8.43	165.00	101.00	109.00	9055360084300
0.3346	Q	8.50	165.00	96.25	109.00	9055360085000
0.3386		8.60	175.00	102.10	115.00	9055360086000
0.3390		8.61	175.00	107.00	115.00	9055360086100
0.3425	R	8.70	175.00	101.95	115.00	9055360087000
0.3437		8.73	175.00	107.00	115.00	9055360087300
0.3465		8.80	175.00	101.80	115.00	9055360088000
0.3480	S	8.84	175.00	107.00	115.00	9055360088400
0.3504		8.90	175.00	101.65	115.00	9055360089000
0.3543		9.00	175.00	101.50	115.00	9055360090000
0.3579	T	9.09	175.00	107.00	115.00	9055360090900
0.3583		9.10	175.00	101.35	115.00	9055360091000
0.3594		9.13	175.00	107.00	115.00	9055360091300
0.3622	23/64	9.20	175.00	101.20	115.00	9055360092000
0.3661		9.30	175.00	101.05	115.00	9055360093000
0.3677		9.34	175.00	107.00	115.00	9055360093400
0.3701	U	9.40	175.00	100.90	115.00	9055360094000
0.3740		9.50	175.00	100.75	115.00	9055360095000
0.3748		9.52	184.00	112.00	121.00	9055360095200
0.3772	V	9.58	184.00	112.00	121.00	9055360095800
0.3780		9.60	184.00	106.60	121.00	9055360096000
0.3819		9.70	184.00	106.45	121.00	9055360097000
0.3858	W	9.80	184.00	106.30	121.00	9055360098000
0.3898		9.90	184.00	106.15	121.00	9055360099000
0.3906		9.92	184.00	112.00	121.00	9055360099200
0.3937	25/64	10.00	184.00	106.00	121.00	9055360100000
0.3969		10.08	184.00	112.00	121.00	9055360100800
0.3976		10.10	184.00	105.85	121.00	9055360101000
0.4016	Y	10.20	184.00	105.70	121.00	9055360102000
0.4039		10.26	184.00	112.00	121.00	9055360102600
0.4055		10.30	184.00	105.55	121.00	9055360103000
0.4063	13/32	10.32	184.00	112.00	121.00	9055360103200
0.4094		10.40	184.00	105.40	121.00	9055360104000
0.4130		10.49	184.00	111.00	121.00	9055360104900
0.4134	Z	10.50	184.00	105.25	121.00	9055360105000
0.4220		10.72	195.00	118.00	128.00	9055360107200
0.4331		11.00	195.00	111.50	128.00	9055360110000
0.4374	7/16	11.11	195.00	118.00	128.00	9055360111100
0.4528		11.50	195.00	110.75	128.00	9055360115000
0.4531		11.51	195.00	118.00	128.00	9055360115100
0.4689	15/32	11.91	205.00	123.00	134.00	9055360119100
0.4724		12.00	205.00	116.00	134.00	9055360120000
0.4843		12.30	205.00	123.00	134.00	9055360123000
0.4921	31/64	12.50	205.00	115.25	134.00	9055360125000
0.5000		12.70	205.00	123.00	134.00	9055360127000
0.5118		13.00	205.00	114.50	134.00	9055360130000
0.5157	33/64	13.10	205.00	122.00	134.00	9055360131000
0.5311		13.49	214.00	128.00	140.00	9055360134900
0.5315		13.50	214.00	119.75	140.00	9055360135000
0.5512	9/16	14.00	214.00	119.00	140.00	9055360140000
0.5626		14.29	220.00	131.00	144.00	9055360142900

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	-	≤ 150											
	≤ 32	≤ 301											
Free-cutting steels	≤ 25	≤ 255											
	≤ 32	≤ 301											
Unalloyed heat-treatable steels	≤ 20	≤ 220											
	≤ 25	≤ 255											
	≤ 32	≤ 301											
Alloyed heat-treatable steels	≤ 32	≤ 301											
	≤ 43	≤ 402	35	0,0010	0,0025	0,0040	0,0050	0,0065					
Unalloyed case hardened steels	≤ 25	≤ 255											
Alloyed case hardened steels	≤ 32	≤ 301											
	≤ 43	≤ 402											
Nitriding steels	≤ 32	≤ 301											
	≤ 43	≤ 402											
Tool steels	≤ 25	≤ 255											
	≤ 43	≤ 402											
High speed steels	≤ 43	≤ 402											
Spring steels	≤ 38	≤ 354											
Hardened steels	≤ 48	≤ 460											
	≤ 66	-											
Stainless steels, sulphured	≤ 28	≤ 273	35	0,0012	0,0030	0,0050	0,0065	0,0080					
austenitic	≤ 36	≤ 337	25	0,0010	0,0025	0,0040	0,0050	0,0065					
martensitic	≤ 46	≤ 435	30	0,0010	0,0025	0,0040	0,0050	0,0065					
Cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Chilled cast iron	≤ 38	≤ 354	15	0,0010	0,0025	0,0040	0,0050	0,0065					
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301											
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402											
Special alloys	≤ 54	≤ 549	15	0,0005	0,0015	0,0025	0,0030	0,0040					
Ti and Ti-alloys	≤ 25	≤ 255	25	0,0007	0,0020	0,0030	0,0040	0,0050					
	≤ 43	≤ 402	15	0,0007	0,0020	0,0030	0,0040	0,0050					
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180											
≤ 24 % Si	-	≤ 180											
Magnesium alloys	-	≤ 120											
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping	-	≤ 180											
long-chipping	-	≤ 180											
Bronze, short-chipping	-	≤ 180											
	≤ 25	≤ 255											
Bronze, long-chipping	≤ 25	≤ 255											
	≤ 32	≤ 301											
Duroplastics			65	0,0012	0,0030	0,0050	0,0065	0,0080					
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	-	≤ 150											
	≤ 32	≤ 301											
Free-cutting steels	≤ 25	≤ 255											
	≤ 32	≤ 301											
Unalloyed heat-treatable steels	≤ 20	≤ 220											
	≤ 25	≤ 255											
	≤ 32	≤ 301											
Alloyed heat-treatable steels	≤ 32	≤ 301											
	≤ 43	≤ 402	45	0,0010	0,0025	0,0040	0,0050	0,0065					
Unalloyed case hardened steels	≤ 25	≤ 255											
Alloyed case hardened steels	≤ 32	≤ 301											
	≤ 43	≤ 402	40	0,0010	0,0025	0,0040	0,0050	0,0065					
Nitriding steels	≤ 32	≤ 301											
	≤ 43	≤ 402	30	0,0010	0,0025	0,0040	0,0050	0,0065					
Tool steels	≤ 25	≤ 255											
	≤ 43	≤ 402	30	0,0010	0,0025	0,0040	0,0050	0,0065					
High speed steels	≤ 43	≤ 402	30	0,0010	0,0025	0,0040	0,0050	0,0065					
Spring steels	≤ 38	≤ 354	25	0,0007	0,0020	0,0030	0,0040	0,0050					
Hardened steels	≤ 48	≤ 460	5	0,0005	0,0015	0,0025	0,0030	0,0040					
	≤ 66	-											
Stainless steels, sulphured	≤ 28	≤ 273	45	0,0012	0,0030	0,0050	0,0065	0,0080					
austenitic	≤ 36	≤ 337	30	0,0010	0,0025	0,0040	0,0050	0,0065					
martensitic	≤ 46	≤ 435	40	0,0010	0,0025	0,0040	0,0050	0,0065					
Cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Chilled cast iron	≤ 38	≤ 354	15	0,0010	0,0025	0,0040	0,0050	0,0065					
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301											
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402											
Special alloys	≤ 54	≤ 549	15	0,0005	0,0015	0,0025	0,0030	0,0040					
Ti and Ti-alloys	≤ 25	≤ 255	30	0,0007	0,0020	0,0030	0,0040	0,0050					
	≤ 43	≤ 402	15	0,0007	0,0020	0,0030	0,0040	0,0050					
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180											
≤ 24 % Si	-	≤ 180											
Magnesium alloys	-	≤ 120											
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping	-	≤ 180											
long-chipping	-	≤ 180											
Bronze, short-chipping	-	≤ 180											
	≤ 25	≤ 255											
Bronze, long-chipping	≤ 25	≤ 255											
	≤ 32	≤ 301	80	0,0012	0,0030	0,0050	0,0065	0,0080					
Duroplastics													
Thermoplastics													
Reinforced plastics - Kevlar													
Reinforced plastics - GFK / CFK													