Stub length drills 659

~3xD Cutting depth | DIN 1897 Standard | GV 120 Type | 130° Point angle | h8 Tolerance on Ø | Web Thinning | Cyl Shank form | R Cutting direction

Tool material: HSCO

Surface: S

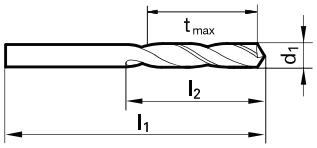
P	Steel	●
M	Stainless steel	●
K	Cast iron	●
N	Aluminum	○
S	Titanium alloys	●
H	Hardened steel	○

●=Optimal
○=Limited

web thinning ≥ Ø 1.000 • relieved cone • Co-alloyed high speed steel • increased wear resistance

acid resist./stainless steels • spring steels • austenitic stainless steels • Hastelloy, Inconel, Nimonic

$t_{max} = l_2 - 1.5 \times d_1$



Speeds and feeds information on pg. 518

Shank diameter = cut diameter

Diameter (d1) inch	wire/ltr	mm	l1 mm	t_{max} mm	l2 mm	EDP #
0.0197		0.50	20.00	2.25	3.00	9006590005000
0.0236		0.60	21.00	2.60	3.50	9006590006000
0.0256		0.65	22.00	3.03	4.00	9006590006500
0.0276		0.70	23.00	3.45	4.50	9006590007000
0.0291	#69	0.74	23.00	3.39	4.50	9006590007400
0.0295		0.75	23.00	3.38	4.50	9006590007500
0.0311	1/32 #68	0.79	24.00	3.82	5.00	9006590007900
0.0315		0.80	24.00	3.80	5.00	9006590008000
0.0335		0.85	24.00	3.73	5.00	9006590008500
0.0354		0.90	25.00	4.15	5.50	9006590009000
0.0374		0.95	25.00	4.08	5.50	9006590009500
0.0394		1.00	26.00	4.50	6.00	9006590010000
0.0402	#60	1.02	26.00	4.47	6.00	9006590010200
0.0421	#58	1.07	28.00	5.40	7.00	9006590010700
0.0429	#57	1.09	28.00	5.37	7.00	9006590010900
0.0433		1.10	28.00	5.35	7.00	9006590011000
0.0453		1.15	28.00	5.28	7.00	9006590011500
0.0465	#56	1.18	28.00	5.23	7.00	9006590011800
0.0469	3/64	1.19	30.00	6.22	8.00	9006590011900
0.0472		1.20	30.00	6.20	8.00	9006590012000
0.0492		1.25	30.00	6.13	8.00	9006590012500
0.0512		1.30	30.00	6.05	8.00	9006590013000
0.0520	#55	1.32	30.00	6.02	8.00	9006590013200
0.0551	#54	1.40	32.00	6.90	9.00	9006590014000
0.0571		1.45	32.00	6.83	9.00	9006590014500
0.0591		1.50	32.00	6.75	9.00	9006590015000
0.0594	#53	1.51	34.00	7.74	10.00	9006590015100
0.0602		1.53	34.00	7.71	10.00	9006590015300
0.0618		1.57	34.00	7.65	10.00	9006590015700
0.0626	1/16	1.59	34.00	7.62	10.00	9006590015900
0.0630		1.60	34.00	7.60	10.00	9006590016000
0.0634	#52	1.61	34.00	7.59	10.00	9006590016100
0.0669	#51	1.70	34.00	7.45	10.00	9006590017000
0.0701	#50	1.78	36.00	8.33	11.00	9006590017800
0.0709		1.80	36.00	8.30	11.00	9006590018000
0.0728	#49	1.85	36.00	8.23	11.00	9006590018500
0.0748		1.90	36.00	8.15	11.00	9006590019000
0.0760	#48	1.93	38.00	9.11	12.00	9006590019300
0.0776		1.97	38.00	9.05	12.00	9006590019700
0.0780	5/64	1.98	38.00	9.03	12.00	9006590019800
0.0783	#47	1.99	38.00	9.02	12.00	9006590019900
0.0787		2.00	38.00	9.00	12.00	9006590020000

Diameter (d1) inch	wire/ltr	mm	l1 mm	t_{max} mm	l2 mm	EDP #
0.0819	#45	2.08	38.00	8.88	12.00	9006590020800
0.0827		2.10	38.00	8.85	12.00	9006590021000
0.0858	#44	2.18	40.00	9.73	13.00	9006590021800
0.0866		2.20	40.00	9.70	13.00	9006590022000
0.0886		2.25	40.00	9.63	13.00	9006590022500
0.0890	#43	2.26	40.00	9.61	13.00	9006590022600
0.0906		2.30	40.00	9.55	13.00	9006590023000
0.0933	#42	2.37	43.00	10.45	14.00	9006590023700
0.0937	3/32	2.38	43.00	10.43	14.00	9006590023800
0.0945		2.40	43.00	10.40	14.00	9006590024000
0.0961	#41	2.44	43.00	10.34	14.00	9006590024400
0.0965		2.45	43.00	10.33	14.00	9006590024500
0.0980	#40	2.49	43.00	10.27	14.00	9006590024900
0.0984		2.50	43.00	10.25	14.00	9006590025000
0.0996	#39	2.53	43.00	10.21	14.00	9006590025300
0.1004		2.55	43.00	10.18	14.00	9006590025500
0.1016	#38	2.58	43.00	10.13	14.00	9006590025800
0.1024		2.60	43.00	10.10	14.00	9006590026000
0.1039	#37	2.64	43.00	10.04	14.00	9006590026400
0.1063		2.70	46.00	11.95	16.00	9006590027000
0.1067	#36	2.71	46.00	11.94	16.00	9006590027100
0.1094	7/64	2.78	46.00	11.83	16.00	9006590027800
0.1102		2.80	46.00	11.80	16.00	9006590028000
0.1110	#34	2.82	46.00	11.77	16.00	9006590028200
0.1122		2.85	46.00	11.73	16.00	9006590028500
0.1142		2.90	46.00	11.65	16.00	9006590029000
0.1161	#32	2.95	46.00	11.58	16.00	9006590029500
0.1181		3.00	46.00	11.50	16.00	9006590030000
0.1201	#31	3.05	49.00	13.43	18.00	9006590030500
0.1220		3.10	49.00	13.35	18.00	9006590031000
0.1248	1/8	3.17	49.00	13.25	18.00	9006590031700
0.1260		3.20	49.00	13.20	18.00	9006590032000
0.1280		3.25	49.00	13.13	18.00	9006590032500
0.1283	#30	3.26	49.00	13.11	18.00	9006590032600
0.1299		3.30	49.00	13.05	18.00	9006590033000
0.1339		3.40	52.00	14.90	20.00	9006590034000
0.1358	#29	3.45	52.00	14.83	20.00	9006590034500
0.1378		3.50	52.00	14.75	20.00	9006590035000
0.1406	9/64 #28	3.57	52.00	14.65	20.00	9006590035700
0.1417		3.60	52.00	14.60	20.00	9006590036000
0.1441	#27	3.66	52.00	14.51	20.00	9006590036600
0.1457		3.70	52.00	14.45	20.00	9006590037000

Stub length drills

Series no. **659**

Diameter (d1) inch	wire/ltr	mm	l1 mm	t_{max} mm	l2 mm	EDP #
0.1469	#26	3.73	52.00	14.41	20.00	9006590037300
0.1496	#25	3.80	55.00	16.30	22.00	9006590038000
0.1520	#24	3.86	55.00	16.21	22.00	9006590038600
0.1535		3.90	55.00	16.15	22.00	9006590039000
0.1539	#23	3.91	55.00	16.14	22.00	9006590039100
0.1563	5/32	3.97	55.00	16.05	22.00	9006590039700
0.1575		4.00	55.00	16.00	22.00	9006590040000
0.1591	#21	4.04	55.00	15.94	22.00	9006590040400
0.1610	#20	4.09	55.00	15.87	22.00	9006590040900
0.1614		4.10	55.00	15.85	22.00	9006590041000
0.1634		4.15	55.00	15.78	22.00	9006590041500
0.1654		4.20	55.00	15.70	22.00	9006590042000
0.1673		4.25	55.00	15.63	22.00	9006590042500
0.1693	#18	4.30	58.00	17.55	24.00	9006590043000
0.1720	11/64	4.37	58.00	17.45	24.00	9006590043700
0.1728	#17	4.39	58.00	17.42	24.00	9006590043900
0.1732		4.40	58.00	17.40	24.00	9006590044000
0.1772	#16	4.50	58.00	17.25	24.00	9006590045000
0.1811		4.60	58.00	17.10	24.00	9006590046000
0.1819	#14	4.62	58.00	17.07	24.00	9006590046200
0.1850	#13	4.70	58.00	16.95	24.00	9006590047000
0.1874	3/16	4.76	62.00	18.86	26.00	9006590047600
0.1890	#12	4.80	62.00	18.80	26.00	9006590048000
0.1909	#11	4.85	62.00	18.73	26.00	9006590048500
0.1929		4.90	62.00	18.65	26.00	9006590049000
0.1937	#10	4.92	62.00	18.62	26.00	9006590049200
0.1969		5.00	62.00	18.50	26.00	9006590050000
0.1992	#8	5.06	62.00	18.41	26.00	9006590050600
0.2008		5.10	62.00	18.35	26.00	9006590051000
0.2031	13/64	5.16	62.00	18.26	26.00	9006590051600
0.2047		5.20	62.00	18.20	26.00	9006590052000
0.2055	#5	5.22	62.00	18.17	26.00	9006590052200
0.2087		5.30	62.00	18.05	26.00	9006590053000
0.2091	#4	5.31	66.00	20.04	28.00	9006590053100
0.2126		5.40	66.00	19.90	28.00	9006590054000
0.2165		5.50	66.00	19.75	28.00	9006590055000
0.2189	7/32	5.56	66.00	19.66	28.00	9006590055600
0.2205		5.60	66.00	19.60	28.00	9006590056000
0.2209	#2	5.61	66.00	19.59	28.00	9006590056100
0.2244		5.70	66.00	19.45	28.00	9006590057000
0.2283		5.80	66.00	19.30	28.00	9006590058000
0.2323		5.90	66.00	19.15	28.00	9006590059000
0.2339	A	5.94	66.00	19.09	28.00	9006590059400
0.2362		6.00	66.00	19.00	28.00	9006590060000
0.2378	B	6.04	70.00	21.94	31.00	9006590060400
0.2402		6.10	70.00	21.85	31.00	9006590061000
0.2421	C	6.15	70.00	21.78	31.00	9006590061500
0.2441		6.20	70.00	21.70	31.00	9006590062000
0.2480		6.30	70.00	21.55	31.00	9006590063000
0.2500	1/4 E	6.35	70.00	21.48	31.00	9006590063500
0.2520		6.40	70.00	21.40	31.00	9006590064000
0.2559		6.50	70.00	21.25	31.00	9006590065000
0.2571	F	6.53	70.00	21.21	31.00	9006590065300
0.2598		6.60	70.00	21.10	31.00	9006590066000
0.2638		6.70	70.00	20.95	31.00	9006590067000
0.2657	17/64 H	6.75	74.00	23.88	34.00	9006590067500
0.2677		6.80	74.00	23.80	34.00	9006590068000
0.2717	I	6.90	74.00	23.65	34.00	9006590069000
0.2756		7.00	74.00	23.50	34.00	9006590070000

Diameter (d1) inch	wire/ltr	mm	l1 mm	t_{max} mm	l2 mm	EDP #
0.2795		7.10	74.00	23.35	34.00	9006590071000
0.2811	9/32 K	7.14	74.00	23.29	34.00	9006590071400
0.2835		7.20	74.00	23.20	34.00	9006590072000
0.2874		7.30	74.00	23.05	34.00	9006590073000
0.2902	L	7.37	74.00	22.95	34.00	9006590073700
0.2913		7.40	74.00	22.90	34.00	9006590074000
0.2953		7.50	74.00	22.75	34.00	9006590075000
0.2969	19/64	7.54	79.00	25.69	37.00	9006590075400
0.3031		7.70	79.00	25.45	37.00	9006590077000
0.3071		7.80	79.00	25.30	37.00	9006590078000
0.3126	5/16	7.94	79.00	25.09	37.00	9006590079400
0.3150		8.00	79.00	25.00	37.00	9006590080000
0.3189		8.10	79.00	24.85	37.00	9006590081000
0.3228	P	8.20	79.00	24.70	37.00	9006590082000
0.3268		8.30	79.00	24.55	37.00	9006590083000
0.3307		8.40	79.00	24.40	37.00	9006590084000
0.3346		8.50	79.00	24.25	37.00	9006590085000
0.3386		8.60	84.00	27.10	40.00	9006590086000
0.3425		8.70	84.00	26.95	40.00	9006590087000
0.3437	11/32	8.73	84.00	26.91	40.00	9006590087300
0.3465		8.80	84.00	26.80	40.00	9006590088000
0.3480	S	8.84	84.00	26.74	40.00	9006590088400
0.3543		9.00	84.00	26.50	40.00	9006590090000
0.3583		9.10	84.00	26.35	40.00	9006590091000
0.3594	23/64	9.13	84.00	26.31	40.00	9006590091300
0.3622		9.20	84.00	26.20	40.00	9006590092000
0.3661		9.30	84.00	26.05	40.00	9006590093000
0.3740		9.50	84.00	25.75	40.00	9006590095000
0.3748	3/8	9.52	89.00	28.72	43.00	9006590095200
0.3780		9.60	89.00	28.60	43.00	9006590096000
0.3819		9.70	89.00	28.45	43.00	9006590097000
0.3858	W	9.80	89.00	28.30	43.00	9006590098000
0.3898		9.90	89.00	28.15	43.00	9006590099000
0.3906	25/64	9.92	89.00	28.12	43.00	9006590099200
0.3937		10.00	89.00	28.00	43.00	9006590100000
0.4016		10.20	89.00	27.70	43.00	9006590102000
0.4035		10.25	89.00	27.63	43.00	9006590102500
0.4063	13/32	10.32	89.00	27.52	43.00	9006590103200
0.4134		10.50	89.00	27.25	43.00	9006590105000
0.4220	27/64	10.72	95.00	30.92	47.00	9006590107200
0.4291		10.90	95.00	30.65	47.00	9006590109000
0.4331		11.00	95.00	30.50	47.00	9006590110000
0.4374	7/16	11.11	95.00	30.34	47.00	9006590111100
0.4528		11.50	95.00	29.75	47.00	9006590115000
0.4724		12.00	102.00	33.00	51.00	9006590120000
0.4764		12.10	102.00	32.85	51.00	9006590121000
0.4803		12.20	102.00	32.70	51.00	9006590122000
0.4843	31/64	12.30	102.00	32.55	51.00	9006590123000
0.4921		12.50	102.00	32.25	51.00	9006590125000
0.5000	1/2	12.70	102.00	31.95	51.00	9006590127000
0.5039		12.80	102.00	31.80	51.00	9006590128000
0.5118		13.00	102.00	31.50	51.00	9006590130000
0.5236		13.30	107.00	34.05	54.00	9006590133000
0.5311	17/32	13.49	107.00	33.77	54.00	9006590134900
0.5512		14.00	107.00	33.00	54.00	9006590140000
0.5626	9/16	14.29	111.00	34.57	56.00	9006590142900
0.5709		14.50	111.00	34.25	56.00	9006590145000
0.5906		15.00	111.00	33.50	56.00	9006590150000
0.6102		15.50	115.00	34.75	58.00	9006590155000

Series # 659

Material group	Hardness HRc	Hardness Bhn	SFM	Feed Rate - IPR 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	130	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100				
Unalloyed heat-treatable steels	≤ 20 ≤ 25 ≤ 32	≤ 220 ≤ 255 ≤ 301	130 90	0.0015 0.0012	0.0040 0.0030	0.0065 0.0050	0.0080 0.0065	0.0100 0.0080	0.0100 0.0080				
Alloyed heat-treatable steels	≤ 32 ≤ 43	≤ 301 ≤ 402	80 65	0.0012 0.0010	0.0030 0.0025	0.0050 0.0040	0.0065 0.0050	0.0080 0.0065	0.0080 0.0065				
Unalloyed case hardened steels	≤ 25	≤ 255											
Alloyed case hardened steels	≤ 32 ≤ 43	≤ 301 ≤ 402	70 55	0.0012 0.0010	0.0030 0.0025	0.0050 0.0040	0.0065 0.0050	0.0080 0.0065	0.0080 0.0065				
Nitriding steels	≤ 32 ≤ 43	≤ 301 ≤ 402	65 45	0.0012 0.0010	0.0030 0.0025	0.0050 0.0040	0.0065 0.0050	0.0080 0.0065	0.0080 0.0065				
Tool steels	≤ 25 ≤ 43	≤ 255 ≤ 402	80 45	0.0012 0.0010	0.0030 0.0025	0.0050 0.0040	0.0065 0.0050	0.0080 0.0065	0.0080 0.0065				
High speed steels	≤ 43	≤ 402	45	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
Spring steels	≤ 38	≤ 354	35	0.0007	0.0020	0.0030	0.0040	0.0050	0.0050				
Hardened steels	≤ 48 ≤ 66	≤ 460 -	15	0.0005	0.0015	0.0025	0.0030	0.0040	0.0040				
Stainless steels, sulphured austenitic martensitic	≤ 28 ≤ 36 ≤ 46	≤ 273 ≤ 337 ≤ 435	65 45 55	0.0012 0.0010 0.0010	0.0030 0.0025 0.0025	0.0050 0.0040 0.0040	0.0065 0.0050 0.0050	0.0080 0.0065 0.0065	0.0080 0.0065 0.0065				
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	160 130	0.0017 0.0017	0.0050 0.0050	0.0080 0.0080	0.0100 0.0100	0.0125 0.0125	0.0125 0.0125				
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	145 100	0.0017 0.0017	0.0050 0.0050	0.0080 0.0080	0.0100 0.0100	0.0125 0.0125	0.0125 0.0125				
Chilled cast iron	≤ 38	≤ 354	35	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301											
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402											
Special alloys	≤ 54	≤ 549	30	0.0005	0.0015	0.0025	0.0030	0.0040	0.0040				
Ti and Ti-alloys	≤ 25 ≤ 43	≤ 255 ≤ 402	45 30	0.0007 0.0007	0.0020 0.0020	0.0030 0.0030	0.0040 0.0040	0.0050 0.0050	0.0050 0.0050				
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
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	- ≤ 25	≤ 180 ≤ 255	145	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080				
Bronze, long-chipping	≤ 25 ≤ 32	≤ 255 ≤ 301	130 100	0.0012 0.0012	0.0030 0.0030	0.0050 0.0050	0.0065 0.0065	0.0080 0.0080	0.0080 0.0080				
Duroplastics Thermoplastics Reinforced plastics - Kevlar Reinforced plastics - GFK / CFK													

Series # 660

Material group	Hardness HRc	Hardness Bhn	SFM	Feed Rate - IPR .0039 in. .10 mm	.0063 in. .16 mm	.0098 in .25 mm	.0118 in. .30 mm	.0197 in. .50 mm	.0248 in. .63 mm	.0315 in. .8 mm	.0394 in. 1.0 mm	.0591 in. 1.5 mm	.0787 in. 2.0 mm
Common structural steels	- ≤ 32	≤ 150 ≤ 301	90 75	0.0003 0.0002	0.0004 0.0003	0.0004 0.0004	0.0006 0.0004	0.0007 0.0006	0.0010 0.0008	0.0012 0.0009	0.0020 0.0016	0.0024 0.0020	0.0031 0.0028
Free-cutting steels	≤ 25 ≤ 32	≤ 255 ≤ 301	75 70	0.0003 0.0002	0.0004 0.0003	0.0004 0.0004	0.0006 0.0004	0.0007 0.0006	0.0010 0.0008	0.0012 0.0009	0.0020 0.0016	0.0024 0.0020	0.0031 0.0028
Unalloyed heat-treatable steels	≤ 20 ≤ 25 ≤ 32	≤ 220 ≤ 255 ≤ 301	85 75 60	0.0002 0.0002 0.0002	0.0003 0.0003 0.0002	0.0004 0.0004 0.0003	0.0004 0.0004 0.0004	0.0006 0.0006 0.0004	0.0008 0.0008 0.0006	0.0009 0.0009 0.0008	0.0016 0.0016 0.0014	0.0020 0.0020 0.0018	0.0028 0.0028 0.0024
Alloyed heat-treatable steels	≤ 32 ≤ 43	≤ 301 ≤ 402	60 50	0.0002 0.0001	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0004 0.0003	0.0006 0.0005	0.0008 0.0006	0.0014 0.0011	0.0018 0.0016	0.0024 0.0021
Unalloyed case hardened steels	≤ 25	≤ 255	75	0.0003	0.0004	0.0004	0.0006	0.0007	0.0010	0.0012	0.0020	0.0024	0.0031
Alloyed case hardened steels	≤ 32 ≤ 43	≤ 301 ≤ 402	60 50	0.0002 0.0001	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0004 0.0003	0.0006 0.0005	0.0008 0.0006	0.0014 0.0011	0.0018 0.0016	0.0024 0.0021
Nitriding steels	≤ 32 ≤ 43	≤ 301 ≤ 402	60 50	0.0002 0.0001	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0004 0.0003	0.0006 0.0005	0.0008 0.0006	0.0014 0.0011	0.0018 0.0016	0.0024 0.0021
Tool steels	≤ 25 ≤ 43	≤ 255 ≤ 402	65 60	0.0002 0.0001	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0004 0.0003	0.0006 0.0005	0.0008 0.0006	0.0014 0.0011	0.0018 0.0016	0.0024 0.0021
High speed steels	≤ 43	≤ 402	60	0.0001	0.0002	0.0002	0.0003	0.0003	0.0005	0.0006	0.0011	0.0016	0.0021
Spring steels	≤ 38	≤ 354	35	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0005	0.0009	0.0014	0.0018
Hardened steels	≤ 48 ≤ 66	≤ 460 -											
Stainless steels, sulphured austenitic martensitic	≤ 28 ≤ 36 ≤ 46	≤ 273 ≤ 337 ≤ 435	65 50 60	0.0002 0.0001 0.0001	0.0002 0.0002 0.0002	0.0003 0.0002 0.0002	0.0004 0.0003 0.0003	0.0004 0.0003 0.0003	0.0006 0.0005 0.0005	0.0008 0.0006 0.0006	0.0014 0.0011 0.0011	0.0018 0.0016 0.0016	0.0024 0.0021 0.0021
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	110 90	0.0003 0.0003	0.0004 0.0004	0.0004 0.0004	0.0006 0.0006	0.0007 0.0007	0.0010 0.0010	0.0012 0.0012	0.0020 0.0020	0.0024 0.0024	0.0031 0.0031
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	75 90	0.0003 0.0003	0.0004 0.0004	0.0004 0.0004	0.0006 0.0006	0.0007 0.0007	0.0010 0.0010	0.0012 0.0012	0.0020 0.0020	0.0024 0.0024	0.0031 0.0031
Chilled cast iron	≤ 38	≤ 354											
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301											
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402											
Special alloys	≤ 54	≤ 549											
Ti and Ti-alloys	≤ 25 ≤ 43	≤ 255 ≤ 402											
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si ≤ 24 % Si	- -	≤ 180 ≤ 180											
Magnesium alloys	-	≤ 120	260	0.0003	0.0004	0.0004	0.0006	0.0007	0.0010	0.0012	0.0020	0.0024	0.0031
Copper, low-alloyed	-	≤ 150	175	0.0002	0.0003	0.0004	0.0004	0.0006	0.0008	0.0009	0.0016	0.0020	0.0028
Brass, short-chipping long-chipping	- -	≤ 180 ≤ 180	90	0.0002	0.0003	0.0004	0.0004	0.0006	0.0008	0.0009	0.0016	0.0020	0.0028
Bronze, short-chipping	- ≤ 25	≤ 180 ≤ 255	90 75	0.0002 0.0002	0.0002 0.0002	0.0003 0.0003	0.0004 0.0004	0.0004 0.0004	0.0006 0.0006	0.0008 0.0008	0.0014 0.0014	0.0018 0.0018	0.0024 0.0024
Bronze, long-chipping	≤ 25 ≤ 32	≤ 255 ≤ 301	50 45	0.0002 0.0002	0.0002 0.0002	0.0003 0.0003	0.0004 0.0004	0.0004 0.0004	0.0006 0.0006	0.0008 0.0008	0.0014 0.0014	0.0018 0.0018	0.0024 0.0024
Duroplastics Thermoplastics Reinforced plastics - Kevlar Reinforced plastics - GFK / CFK			65 75	0.0002 0.0002	0.0002 0.0002	0.0003 0.0003	0.0004 0.0004	0.0004 0.0004	0.0006 0.0006	0.0008 0.0008	0.0014 0.0014	0.0018 0.0018	0.0024 0.0024