Stub length drills

Series no. **653**

Tool material **HSS**

Surface **S**

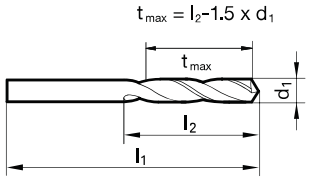
~3xD Cutting depth | DIN 1897 Standard | N Type | 118° Point angle | h8 Tolerance on Ø | Web Thinning | Cyl Shank form | R Cutting direction

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 • also for hand drilling machines • for use in automatic/capstan lathes

thin materials



Speeds and feeds information on pg. 516

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	9006530005000
0.0236		0.60	21.00	2.60	3.50	9006530006000
0.0276		0.70	23.00	3.45	4.50	9006530007000
0.0295		0.75	23.00	3.38	4.50	9006530007500
0.0315		0.80	24.00	3.80	5.00	9006530008000
0.0354		0.90	25.00	4.15	5.50	9006530009000
0.0394		1.00	26.00	4.50	6.00	9006530010000
0.0402	#60	1.02	26.00	4.47	6.00	9006530010200
0.0413		1.05	26.00	4.43	6.00	9006530010500
0.0421	#58	1.07	28.00	5.40	7.00	9006530010700
0.0429	#57	1.09	28.00	5.37	7.00	9006530010900
0.0433		1.10	28.00	5.35	7.00	9006530011000
0.0437		1.11	28.00	5.34	7.00	9006530011100
0.0453		1.15	28.00	5.28	7.00	9006530011500
0.0465	#56	1.18	28.00	5.23	7.00	9006530011800
0.0469	3/64	1.19	30.00	6.22	8.00	9006530011900
0.0472		1.20	30.00	6.20	8.00	9006530012000
0.0492		1.25	30.00	6.13	8.00	9006530012500
0.0504		1.28	30.00	6.08	8.00	9006530012800
0.0512		1.30	30.00	6.05	8.00	9006530013000
0.0520	#55	1.32	30.00	6.02	8.00	9006530013200
0.0531		1.35	32.00	6.98	9.00	9006530013500
0.0551	#54	1.40	32.00	6.90	9.00	9006530014000
0.0571		1.45	32.00	6.83	9.00	9006530014500
0.0591		1.50	32.00	6.75	9.00	9006530015000
0.0594	#53	1.51	34.00	7.74	10.00	9006530015100
0.0610		1.55	34.00	7.68	10.00	9006530015500
0.0626	1/16	1.59	34.00	7.62	10.00	9006530015900
0.0630		1.60	34.00	7.60	10.00	9006530016000
0.0634	#52	1.61	34.00	7.59	10.00	9006530016100
0.0650		1.65	34.00	7.53	10.00	9006530016500
0.0669	#51	1.70	34.00	7.45	10.00	9006530017000
0.0701	#50	1.78	36.00	8.33	11.00	9006530017800
0.0709		1.80	36.00	8.30	11.00	9006530018000
0.0728	#49	1.85	36.00	8.23	11.00	9006530018500
0.0748		1.90	36.00	8.15	11.00	9006530019000
0.0760	#48	1.93	38.00	9.11	12.00	9006530019300
0.0768		1.95	38.00	9.08	12.00	9006530019500
0.0780	5/64	1.98	38.00	9.03	12.00	9006530019800
0.0783	#47	1.99	38.00	9.02	12.00	9006530019900
0.0787		2.00	38.00	9.00	12.00	9006530020000
0.0811	#46	2.06	38.00	8.91	12.00	9006530020600

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	9006530020800
0.0827		2.10	38.00	8.85	12.00	9006530021000
0.0858	#44	2.18	40.00	9.73	13.00	9006530021800
0.0866		2.20	40.00	9.70	13.00	9006530022000
0.0886		2.25	40.00	9.63	13.00	9006530022500
0.0890	#43	2.26	40.00	9.61	13.00	9006530022600
0.0906		2.30	40.00	9.55	13.00	9006530023000
0.0925		2.35	40.00	9.48	13.00	9006530023500
0.0933	#42	2.37	43.00	10.45	14.00	9006530023700
0.0937	3/32	2.38	43.00	10.43	14.00	9006530023800
0.0945		2.40	43.00	10.40	14.00	9006530024000
0.0961	#41	2.44	43.00	10.34	14.00	9006530024400
0.0965		2.45	43.00	10.33	14.00	9006530024500
0.0984		2.50	43.00	10.25	14.00	9006530025000
0.0996	#39	2.53	43.00	10.21	14.00	9006530025300
0.1004		2.55	43.00	10.18	14.00	9006530025500
0.1016	#38	2.58	43.00	10.13	14.00	9006530025800
0.1024		2.60	43.00	10.10	14.00	9006530026000
0.1039	#37	2.64	43.00	10.04	14.00	9006530026400
0.1063		2.70	46.00	11.95	16.00	9006530027000
0.1067	#36	2.71	46.00	11.94	16.00	9006530027100
0.1083		2.75	46.00	11.88	16.00	9006530027500
0.1094	7/64	2.78	46.00	11.83	16.00	9006530027800
0.1102		2.80	46.00	11.80	16.00	9006530028000
0.1130	#33	2.87	46.00	11.70	16.00	9006530028700
0.1142		2.90	46.00	11.65	16.00	9006530029000
0.1161	#32	2.95	46.00	11.58	16.00	9006530029500
0.1181		3.00	46.00	11.50	16.00	9006530030000
0.1201	#31	3.05	49.00	13.43	18.00	9006530030500
0.1220		3.10	49.00	13.35	18.00	9006530031000
0.1248	1/8	3.17	49.00	13.25	18.00	9006530031700
0.1260		3.20	49.00	13.20	18.00	9006530032000
0.1280		3.25	49.00	13.13	18.00	9006530032500
0.1283	#30	3.26	49.00	13.11	18.00	9006530032600
0.1299		3.30	49.00	13.05	18.00	9006530033000
0.1339		3.40	52.00	14.90	20.00	9006530034000
0.1358	#29	3.45	52.00	14.83	20.00	9006530034500
0.1378		3.50	52.00	14.75	20.00	9006530035000
0.1406	9/64 #28	3.57	52.00	14.65	20.00	9006530035700
0.1417		3.60	52.00	14.60	20.00	9006530036000
0.1437		3.65	52.00	14.53	20.00	9006530036500
0.1441	#27	3.66	52.00	14.51	20.00	9006530036600

Stub length drills

Series no. 653

Diameter (d1) inch	wire/ltr	mm	l1 mm	t_{max} mm	l2 mm	EDP #
0.1457		3.70	52.00	14.45	20.00	9006530037000
0.1469	#26	3.73	52.00	14.41	20.00	9006530037300
0.1476		3.75	52.00	14.38	20.00	9006530037500
0.1496	#25	3.80	55.00	16.30	22.00	9006530038000
0.1535		3.90	55.00	16.15	22.00	9006530039000
0.1563	5/32	3.97	55.00	16.05	22.00	9006530039700
0.1571	#22	3.99	55.00	16.02	22.00	9006530039900
0.1575		4.00	55.00	16.00	22.00	9006530040000
0.1591	#21	4.04	55.00	15.94	22.00	9006530040400
0.1610	#20	4.09	55.00	15.87	22.00	9006530040900
0.1614		4.10	55.00	15.85	22.00	9006530041000
0.1634		4.15	55.00	15.78	22.00	9006530041500
0.1654		4.20	55.00	15.70	22.00	9006530042000
0.1673		4.25	55.00	15.63	22.00	9006530042500
0.1693	#18	4.30	58.00	17.55	24.00	9006530043000
0.1720	11/64	4.37	58.00	17.45	24.00	9006530043700
0.1732		4.40	58.00	17.40	24.00	9006530044000
0.1772	#16	4.50	58.00	17.25	24.00	9006530045000
0.1799	#15	4.57	58.00	17.15	24.00	9006530045700
0.1811		4.60	58.00	17.10	24.00	9006530046000
0.1819	#14	4.62	58.00	17.07	24.00	9006530046200
0.1831		4.65	58.00	17.03	24.00	9006530046500
0.1850	#13	4.70	58.00	16.95	24.00	9006530047000
0.1874	3/16	4.76	62.00	18.86	26.00	9006530047600
0.1890	#12	4.80	62.00	18.80	26.00	9006530048000
0.1909	#11	4.85	62.00	18.73	26.00	9006530048500
0.1929		4.90	62.00	18.65	26.00	9006530049000
0.1937	#10	4.92	62.00	18.62	26.00	9006530049200
0.1961	#9	4.98	62.00	18.53	26.00	9006530049800
0.1969		5.00	62.00	18.50	26.00	9006530050000
0.1988		5.05	62.00	18.43	26.00	9006530050500
0.1992	#8	5.06	62.00	18.41	26.00	9006530050600
0.2008		5.10	62.00	18.35	26.00	9006530051000
0.2012	#7	5.11	62.00	18.34	26.00	9006530051100
0.2031	13/64	5.16	62.00	18.26	26.00	9006530051600
0.2039	#6	5.18	62.00	18.23	26.00	9006530051800
0.2047		5.20	62.00	18.20	26.00	9006530052000
0.2067		5.25	62.00	18.13	26.00	9006530052500
0.2087		5.30	62.00	18.05	26.00	9006530053000
0.2091	#4	5.31	66.00	20.04	28.00	9006530053100
0.2126		5.40	66.00	19.90	28.00	9006530054000
0.2130	#3	5.41	66.00	19.89	28.00	9006530054100
0.2165		5.50	66.00	19.75	28.00	9006530055000
0.2189	7/32	5.56	66.00	19.66	28.00	9006530055600
0.2197		5.58	66.00	19.63	28.00	9006530055800
0.2205		5.60	66.00	19.60	28.00	9006530056000
0.2209	#2	5.61	66.00	19.59	28.00	9006530056100
0.2244		5.70	66.00	19.45	28.00	9006530057000
0.2264		5.75	66.00	19.38	28.00	9006530057500
0.2283		5.80	66.00	19.30	28.00	9006530058000
0.2323		5.90	66.00	19.15	28.00	9006530059000
0.2343	15/64	5.95	66.00	19.08	28.00	9006530059500
0.2362		6.00	66.00	19.00	28.00	9006530060000
0.2382		6.05	70.00	21.93	31.00	9006530060500
0.2402		6.10	70.00	21.85	31.00	9006530061000
0.2421	C	6.15	70.00	21.78	31.00	9006530061500
0.2441		6.20	70.00	21.70	31.00	9006530062000
0.2461	D	6.25	70.00	21.63	31.00	9006530062500
0.2480		6.30	70.00	21.55	31.00	9006530063000
0.2500	1/4 E	6.35	70.00	21.48	31.00	9006530063500
0.2520		6.40	70.00	21.40	31.00	9006530064000
0.2539		6.45	70.00	21.33	31.00	9006530064500
0.2559		6.50	70.00	21.25	31.00	9006530065000
0.2571	F	6.53	70.00	21.21	31.00	9006530065300
0.2598		6.60	70.00	21.10	31.00	9006530066000
0.2638		6.70	70.00	20.95	31.00	9006530067000

Diameter (d1) inch	wire/ltr	mm	l1 mm	t_{max} mm	l2 mm	EDP #
0.2657	17/64 H	6.75	74.00	23.88	34.00	9006530067500
0.2677		6.80	74.00	23.80	34.00	9006530068000
0.2717	I	6.90	74.00	23.65	34.00	9006530069000
0.2756		7.00	74.00	23.50	34.00	9006530070000
0.2795		7.10	74.00	23.35	34.00	9006530071000
0.2811	9/32 K	7.14	74.00	23.29	34.00	9006530071400
0.2835		7.20	74.00	23.20	34.00	9006530072000
0.2854		7.25	74.00	23.13	34.00	9006530072500
0.2874		7.30	74.00	23.05	34.00	9006530073000
0.2902	L	7.37	74.00	22.95	34.00	9006530073700
0.2913		7.40	74.00	22.90	34.00	9006530074000
0.2953		7.50	74.00	22.75	34.00	9006530075000
0.2969	19/64	7.54	79.00	25.69	37.00	9006530075400
0.2992		7.60	79.00	25.60	37.00	9006530076000
0.3020	N	7.67	79.00	25.50	37.00	9006530076700
0.3031		7.70	79.00	25.45	37.00	9006530077000
0.3071		7.80	79.00	25.30	37.00	9006530078000
0.3110		7.90	79.00	25.15	37.00	9006530079000
0.3126	5/16	7.94	79.00	25.09	37.00	9006530079400
0.3150		8.00	79.00	25.00	37.00	9006530080000
0.3161	O	8.03	79.00	24.96	37.00	9006530080300
0.3189		8.10	79.00	24.85	37.00	9006530081000
0.3228	P	8.20	79.00	24.70	37.00	9006530082000
0.3248		8.25	79.00	24.63	37.00	9006530082500
0.3268		8.30	79.00	24.55	37.00	9006530083000
0.3280	21/64	8.33	79.00	24.51	37.00	9006530083300
0.3307		8.40	79.00	24.40	37.00	9006530084000
0.3319	Q	8.43	79.00	24.36	37.00	9006530084300
0.3346		8.50	79.00	24.25	37.00	9006530085000
0.3366		8.55	84.00	27.18	40.00	9006530085500
0.3386		8.60	84.00	27.10	40.00	9006530086000
0.3390	R	8.61	84.00	27.09	40.00	9006530086100
0.3425		8.70	84.00	26.95	40.00	9006530087000
0.3437	11/32	8.73	84.00	26.91	40.00	9006530087300
0.3445		8.75	84.00	26.88	40.00	9006530087500
0.3465		8.80	84.00	26.80	40.00	9006530088000
0.3504		8.90	84.00	26.65	40.00	9006530089000
0.3543		9.00	84.00	26.50	40.00	9006530090000
0.3579	T	9.09	84.00	26.37	40.00	9006530090900
0.3594	23/64	9.13	84.00	26.31	40.00	9006530091300
0.3622		9.20	84.00	26.20	40.00	9006530092000
0.3642		9.25	84.00	26.13	40.00	9006530092500
0.3661		9.30	84.00	26.05	40.00	9006530093000
0.3701		9.40	84.00	25.90	40.00	9006530094000
0.3740		9.50	84.00	25.75	40.00	9006530095000
0.3748	3/8	9.52	89.00	28.72	43.00	9006530095200
0.3772	V	9.58	89.00	28.63	43.00	9006530095800
0.3819		9.70	89.00	28.45	43.00	9006530097000
0.3858	W	9.80	89.00	28.30	43.00	9006530098000
0.3898		9.90	89.00	28.15	43.00	9006530099000
0.3906	25/64	9.92	89.00	28.12	43.00	9006530099200
0.3937		10.00	89.00	28.00	43.00	9006530100000
0.3976		10.10	89.00	27.85	43.00	9006530101000
0.4016		10.20	89.00	27.70	43.00	9006530102000
0.4055		10.30	89.00	27.55	43.00	9006530103000
0.4063	13/32	10.32	89.00	27.52	43.00	9006530103200
0.4130	Z	10.49	89.00	27.27	43.00	9006530104900
0.4134		10.50	89.00	27.25	43.00	9006530105000
0.4173		10.60	89.00	27.10	43.00	9006530106000
0.4220	27/64	10.72	95.00	30.92	47.00	9006530107200
0.4232		10.75	95.00	30.88	47.00	9006530107500
0.4252		10.80	95.00	30.80	47.00	9006530108000
0.4331		11.00	95.00	30.50	47.00	9006530110000
0.4374	7/16	11.11	95.00	30.34	47.00	9006530111100
0.4409		11.20	95.00	30.20	47.00	9006530112000
0.4449		11.30	95.00	30.05	47.00	9006530113000

Stub length drills

Series no. **653**

Diameter (d1) inch	wire/ltr	mm	l1 mm	t_{max} mm	l2 mm	EDP #
0.4488		11.40	95.00	29.90	47.00	**9006530114000**
0.4528		11.50	95.00	29.75	47.00	**9006530115000**
0.4531	29/64	11.51	95.00	29.74	47.00	**9006530115100**
0.4646		11.80	95.00	29.30	47.00	**9006530118000**
0.4689	15/32	11.91	102.00	33.14	51.00	**9006530119100**
0.4724		12.00	102.00	33.00	51.00	**9006530120000**
0.4764		12.10	102.00	32.85	51.00	**9006530121000**
0.4803		12.20	102.00	32.70	51.00	**9006530122000**
0.4843	31/64	12.30	102.00	32.55	51.00	**9006530123000**
0.4921		12.50	102.00	32.25	51.00	**9006530125000**
0.5000	1/2	12.70	102.00	31.95	51.00	**9006530127000**
0.5039		12.80	102.00	31.80	51.00	**9006530128000**
0.5118		13.00	102.00	31.50	51.00	**9006530130000**
0.5157	33/64	13.10	102.00	31.35	51.00	**9006530131000**
0.5311	17/32	13.49	107.00	33.77	54.00	**9006530134900**
0.5315		13.50	107.00	33.75	54.00	**9006530135000**
0.5433		13.80	107.00	33.30	54.00	**9006530138000**
0.5469	35/64	13.89	107.00	33.17	54.00	**9006530138900**
0.5512		14.00	107.00	33.00	54.00	**9006530140000**
0.5626	9/16	14.29	111.00	34.57	56.00	**9006530142900**
0.5709		14.50	111.00	34.25	56.00	**9006530145000**
0.5827		14.80	111.00	33.80	56.00	**9006530148000**
0.5906		15.00	111.00	33.50	56.00	**9006530150000**
0.5937	19/32	15.08	115.00	35.38	58.00	**9006530150800**
0.6024		15.30	115.00	35.05	58.00	**9006530153000**
0.6102		15.50	115.00	34.75	58.00	**9006530155000**
0.6220		15.80	115.00	34.30	58.00	**9006530158000**
0.6248	5/8	15.87	115.00	34.20	58.00	**9006530158700**
0.6299		16.00	115.00	34.00	58.00	**9006530160000**
0.6406	41/64	16.27	119.00	35.60	60.00	**9006530162700**
0.6496		16.50	119.00	35.25	60.00	**9006530165000**
0.6563	21/32	16.67	119.00	35.00	60.00	**9006530166700**
0.6693		17.00	119.00	34.50	60.00	**9006530170000**
0.6874	11/16	17.46	123.00	35.81	62.00	**9006530174600**
0.6890		17.50	123.00	35.75	62.00	**9006530175000**
0.7031	45/64	17.86	123.00	35.21	62.00	**9006530178600**
0.7087		18.00	123.00	35.00	62.00	**9006530180000**
0.7185		18.25	127.00	36.63	64.00	**9006530182500**
0.7189	23/32	18.26	127.00	36.61	64.00	**9006530182600**
0.7283		18.50	127.00	36.25	64.00	**9006530185000**
0.7343	47/64	18.65	127.00	36.03	64.00	**9006530186500**
0.7480		19.00	127.00	35.50	64.00	**9006530190000**
0.7500	3/4	19.05	131.00	37.43	66.00	**9006530190500**
0.7677		19.50	131.00	36.75	66.00	**9006530195000**
0.7874		20.00	131.00	36.00	66.00	**9006530200000**
0.8071		20.50	136.00	37.25	68.00	**9006530205000**
0.8126	13/16	20.64	136.00	37.04	68.00	**9006530206400**
0.8268		21.00	136.00	36.50	68.00	**9006530210000**
0.8465		21.50	141.00	37.75	70.00	**9006530215000**
0.8661		22.00	141.00	37.00	70.00	**9006530220000**
0.8858		22.50	146.00	38.25	72.00	**9006530225000**
0.8906	57/64	22.62	146.00	38.07	72.00	**9006530226200**
0.9055		23.00	146.00	37.50	72.00	**9006530230000**
0.9220	59/64	23.42	146.00	36.87	72.00	**9006530234200**
0.9449		24.00	151.00	39.00	75.00	**9006530240000**
0.9646		24.50	151.00	38.25	75.00	**9006530245000**
0.9843	63/64	25.00	151.00	37.50	75.00	**9006530250000**
1.0000	1.0000	25.40	156.00	39.90	78.00	**9006530254000**
1.1220		28.50	168.00	41.25	84.00	**9006530285000**

Series # 653

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	-	≤ 150	145	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 32	≤ 301	115	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Free-cutting steels	≤ 25	≤ 255	145	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 32	≤ 301	115	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Unalloyed heat-treatable steels	≤ 20	≤ 220	145	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
	≤ 25	≤ 255	100	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
	≤ 32	≤ 301	55	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Alloyed heat-treatable steels	≤ 32	≤ 301	70	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Unalloyed case hardened steels	≤ 25	≤ 255	145	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Alloyed case hardened steels	≤ 32	≤ 301	65	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Nitriding steels	≤ 32	≤ 301	55	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Tool steels	≤ 25	≤ 255	70	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
High speed steels	≤ 43	≤ 402											
Spring steels	≤ 38	≤ 354											
Hardened steels	≤ 48	≤ 460											
	≤ 66	-											
Stainless steels, sulphured	≤ 28	≤ 273											
austenitic	≤ 36	≤ 337											
martensitic	≤ 46	≤ 435											
Cast iron	≤ 23	≤ 242	145	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 38	≤ 354	115	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242	130	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 38	≤ 354	90	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Chilled cast iron	≤ 38	≤ 354											
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301											
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402											
Special alloys	≤ 54	≤ 549											
Ti and Ti-alloys	≤ 25	≤ 255											
	≤ 43	≤ 402											
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180	295	0.0020	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200	0.0245	
≤ 24 % Si	-	≤ 180	260	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Magnesium alloys	-	≤ 120											
Copper, low-alloyed	-	≤ 150	145	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Brass, short-chipping	-	≤ 180											
long-chipping	-	≤ 180	180	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Bronze, short-chipping	-	≤ 180	145	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 25	≤ 255	130	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Bronze, long-chipping	≤ 25	≤ 255	110	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 32	≤ 301	90	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Duroplastics			70	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Thermoplastics			115	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Reinforced plastics - Kevlar													
Reinforced plastics - GFK / CFK													

Series # 654

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	-	≤ 150	130		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 32	≤ 301	100		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Free-cutting steels	≤ 25	≤ 255	130		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 32	≤ 301	100		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Unalloyed heat-treatable steels	≤ 20	≤ 220	130		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
	≤ 25	≤ 255	100		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
	≤ 32	≤ 301	50		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Alloyed heat-treatable steels	≤ 32	≤ 301	65		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Unalloyed case hardened steels	≤ 25	≤ 255	130		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Alloyed case hardened steels	≤ 32	≤ 301	55		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Nitriding steels	≤ 32	≤ 301	45		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Tool steels	≤ 25	≤ 255	65		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
High speed steels	≤ 43	≤ 402											
Spring steels	≤ 38	≤ 354											
Hardened steels	≤ 48	≤ 460											
	≤ 66	-											
Stainless steels, sulphured	≤ 28	≤ 273											
austenitic	≤ 36	≤ 337											
martensitic	≤ 46	≤ 435											
Cast iron	≤ 23	≤ 242	130		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 38	≤ 354	100		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242	115		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 38	≤ 354	80		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Chilled cast iron	≤ 38	≤ 354											
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301											
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402											
Special alloys	≤ 54	≤ 549											
Ti and Ti-alloys	≤ 25	≤ 255											
	≤ 43	≤ 402											
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180	260		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200	0.0245	
≤ 24 % Si	-	≤ 180	225		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Magnesium alloys	-	≤ 120	325		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Copper, low-alloyed	-	≤ 150	130		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Brass, short-chipping	-	≤ 180											
long-chipping	-	≤ 180	160		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Bronze, short-chipping	-	≤ 180	130		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 25	≤ 255	115		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Bronze, long-chipping	≤ 25	≤ 255	100		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 32	≤ 301	80		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Duroplastics			65		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Thermoplastics			100		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Reinforced plastics - Kevlar													
Reinforced plastics - GFK / CFK													