

GUHRING

The Tool Company

MICRO-PRECISION DRILLS



MICRO DRILLS

NEW STYLES

Small Diameter Drill Offering

- *High speed cobalt*
- *Coolant fed carbide*
- *Solid carbide*
- *Fractional sizes*

PLUS *Tool Holders!!!*



Series #301

High speed cobalt micro-precision drill, reinforced straight shank, Type N, 118° point, 4xD, bright finish

Diameter				Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	mm	
0.0020			0.050	1.00	25.00	0.30	9003010000500
0.0024			0.060	1.00	25.00	0.30	9003010000600
0.0028			0.070	1.00	25.00	0.30	9003010000700
0.0030			0.075	1.00	25.00	0.40	9003010000750
0.0031			0.080	1.00	25.00	0.40	9003010000800
0.0035			0.090	1.00	25.00	0.40	9003010000900
0.0039			0.100	1.00	25.00	0.50	9003010001000
0.0041			0.105	1.00	25.00	0.50	9003010001050
0.0043			0.110	1.00	25.00	0.50	9003010001100
0.0045			0.115	1.00	25.00	0.50	9003010001150
0.0047			0.120	1.00	25.00	0.50	9003010001200
0.0049			0.125	1.00	25.00	0.80	9003010001250
0.0050			0.128	1.00	25.00	0.80	9003010001280
0.0051			0.130	1.00	25.00	0.80	9003010001300
0.0055			0.140	1.00	25.00	0.80	9003010001400
0.0056			0.143	1.00	25.00	0.80	9003010001430
0.0057			0.145	1.00	25.00	0.80	9003010001450
0.0058			0.147	1.00	25.00	0.80	9003010001470
0.0059	97		0.150	1.00	25.00	0.80	9003010001500
0.0061			0.155	1.00	25.00	1.10	9003010001550
0.0063	96		0.160	1.00	25.00	1.10	9003010001600
0.0067	95		0.170	1.00	25.00	1.10	9003010001700
0.0069			0.175	1.00	25.00	1.10	9003010001750
0.0071	94		0.180	1.00	25.00	1.10	9003010001800
0.0075	93		0.190	1.00	25.00	1.10	9003010001900
0.0077			0.195	1.00	25.00	1.50	9003010001950
0.0079	92		0.200	1.00	25.00	1.50	9003010002000
0.0081			0.205	1.00	25.00	1.50	9003010002050
0.0083	91		0.210	1.00	25.00	1.50	9003010002100
0.0087	90		0.220	1.00	25.00	1.50	9003010002200
0.0089			0.225	1.00	25.00	1.50	9003010002250
0.0091	89		0.230	1.00	25.00	1.50	9003010002300
0.0093			0.235	1.00	25.00	1.50	9003010002350
0.0094	88		0.240	1.00	25.00	1.50	9003010002400
0.0096			0.245	1.00	25.00	1.90	9003010002450
0.0098	87		0.250	1.00	25.00	1.90	9003010002500
0.0100			0.255	1.00	25.00	1.90	9003010002550
0.0102			0.260	1.00	25.00	1.90	9003010002600
0.0104			0.265	1.00	25.00	1.90	9003010002650
0.0106	86		0.270	1.00	25.00	1.90	9003010002700
0.0108			0.275	1.00	25.00	1.90	9003010002750
0.0110	85		0.280	1.00	25.00	1.90	9003010002800
0.0114	84		0.290	1.00	25.00	1.90	9003010002900
0.0116			0.295	1.00	25.00	1.90	9003010002950
0.0118			0.300	1.00	25.00	1.90	9003010003000
0.0120			0.305	1.00	25.00	2.40	9003010003050
0.0122	83		0.310	1.00	25.00	2.40	9003010003100
0.0124			0.315	1.00	25.00	2.40	9003010003150
0.0126	82		0.320	1.00	25.00	2.40	9003010003200
0.0128			0.325	1.00	25.00	2.40	9003010003250
0.0130	81		0.330	1.00	25.00	2.40	9003010003300
0.0134	80		0.340	1.00	25.00	2.40	9003010003400
0.0136			0.345	1.00	25.00	2.40	9003010003450
0.0138			0.350	1.00	25.00	2.40	9003010003500
0.0140			0.355	1.00	25.00	2.40	9003010003550
0.0142			0.360	1.00	25.00	2.40	9003010003600
0.0144			0.365	1.00	25.00	2.40	9003010003650
0.0146	79		0.370	1.00	25.00	2.40	9003010003700
0.0148			0.375	1.00	25.00	2.40	9003010003750
0.0150			0.380	1.00	25.00	2.40	9003010003800
0.0152			0.385	1.00	25.00	3.00	9003010003850
0.0154			0.390	1.00	25.00	3.00	9003010003900
0.0157	1/64		0.400	1.00	25.00	3.00	9003010004000
0.0159			0.405	1.00	25.00	3.00	9003010004050
0.0161	78		0.410	1.00	25.00	3.00	9003010004100
0.0163			0.415	1.00	25.00	3.00	9003010004150
0.0165			0.420	1.00	25.00	3.00	9003010004200
0.0167			0.425	1.00	25.00	3.00	9003010004250
0.0169			0.430	1.00	25.00	3.00	9003010004300

Diameter				Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	mm	
0.0170			0.432	1.00	25.00	3.00	9003010004320
0.0173			0.440	1.00	25.00	3.00	9003010004400
0.0175			0.445	1.00	25.00	3.00	9003010004450
0.0177			0.450	1.00	25.00	3.00	9003010004500
0.0181	77		0.460	1.00	25.00	3.00	9003010004600
0.0185			0.470	1.00	25.00	3.00	9003010004700
0.0187			0.475	1.00	25.00	3.00	9003010004750
0.0189			0.480	1.00	25.00	3.00	9003010004800
0.0191			0.485	1.00	25.00	3.40	9003010004850
0.0193			0.490	1.00	25.00	3.40	9003010004900
0.0195			0.495	1.00	25.00	3.40	9003010004950
0.0197			0.500	1.00	25.00	3.40	9003010005000
0.0199			0.505	1.00	25.00	3.40	9003010005050
0.0201	76		0.510	1.00	25.00	3.40	9003010005100
0.0203			0.515	1.00	25.00	3.40	9003010005150
0.0205			0.520	1.00	25.00	3.40	9003010005200
0.0207			0.525	1.00	25.00	3.40	9003010005250
0.0209	75		0.530	1.00	25.00	3.40	9003010005300
0.0211			0.535	1.00	25.00	3.90	9003010005350
0.0213			0.540	1.00	25.00	3.90	9003010005400
0.0215			0.545	1.00	25.00	3.90	9003010005450
0.0217			0.550	1.00	25.00	3.90	9003010005500
0.0219			0.555	1.00	25.00	3.90	9003010005550
0.0220			0.560	1.00	25.00	3.90	9003010005600
0.0224	74		0.570	1.00	25.00	3.90	9003010005700
0.0228			0.580	1.00	25.00	3.90	9003010005800
0.0230			0.585	1.00	25.00	3.90	9003010005850
0.0232			0.590	1.00	25.00	3.90	9003010005900
0.0234			0.595	1.00	25.00	3.90	9003010005950
0.0236			0.600	1.00	25.00	3.90	9003010006000
0.0238			0.605	1.00	25.00	4.20	9003010006050
0.0240	73		0.610	1.00	25.00	4.20	9003010006100
0.0242			0.615	1.00	25.00	4.20	9003010006150
0.0244			0.620	1.00	25.00	4.20	9003010006200
0.0246			0.625	1.00	25.00	4.20	9003010006250
0.0248			0.630	1.00	25.00	4.20	9003010006300
0.0249			0.632	1.00	25.00	4.20	9003010006320
0.0252	72		0.640	1.00	25.00	4.20	9003010006400
0.0256			0.650	1.00	25.00	4.20	9003010006500
0.0258			0.655	1.00	25.00	4.20	9003010006550
0.0260	71		0.660	1.00	25.00	4.20	9003010006600
0.0262			0.665	1.00	25.00	4.20	9003010006650
0.0264			0.670	1.00	25.00	4.20	9003010006700
0.0266			0.675	1.00	25.00	4.80	9003010006750
0.0268			0.680	1.00	25.00	4.80	9003010006800
0.0272			0.690	1.00	25.00	4.80	9003010006900
0.0276			0.700	1.00	25.00	4.80	9003010007000
0.0278			0.705	1.00	25.00	4.80	9003010007050
0.0280	70		0.710	1.00	25.00	4.80	9003010007100
0.0283			0.720	1.00	25.00	4.80	9003010007200
0.0285			0.725	1.00	25.00	4.80	9003010007250
0.0287			0.730	1.00	25.00	4.80	9003010007300
0.0291	69		0.740	1.00	25.00	4.80	9003010007400
0.0295			0.750	1.00	25.00	4.80	9003010007500
0.0299			0.760	1.00	25.00	5.30	9003010007600
0.0303			0.770	1.00	25.00	5.30	9003010007700
0.0307			0.780	1.00	25.00	5.30	9003010007800
0.0311	1/32	68	0.790	1.00	25.00	5.30	9003010007900
0.0313			0.795	1.00	25.00	5.30	9003010007950
0.0315			0.800	1.50	25.00	5.30	9003010008000
0.0319	67		0.810	1.50	25.00	5.30	9003010008100
0.0323			0.820	1.50	25.00	5.30	9003010008200
0.0327			0.830	1.50	25.00	5.30	9003010008300
0.0331	66		0.840	1.50	25.00	5.30	9003010008400
0.0335			0.850	1.50	25.00	5.30	9003010008500
0.0339			0.860	1.50	25.00	6.00	9003010008600
0.0343			0.870	1.50	25.00	6.00	9003010008700
0.0346			0.880	1.50	25.00	6.00	9003010008800
0.0350	65		0.890	1.50	25.00	6.00	9003010008900

Diameter				Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	mm	
0.0354			0.900	1.50	25.00	6.00	9003010009000
0.0358	64		0.910	1.50	25.00	6.00	9003010009100
0.0362			0.920	1.50	25.00	6.00	9003010009200
0.0364			0.925	1.50	25.00	6.00	9003010009250
0.0366			0.930	1.50	25.00	6.00	9003010009300
0.0370	63		0.940	1.50	25.00	6.00	9003010009400
0.0374			0.950	1.50	25.00	6.00	9003010009500
0.0378			0.960	1.50	25.00	6.80	9003010009600
0.0382	62		0.970	1.50	25.00	6.80	9003010009700
0.0386			0.980	1.50	25.00	6.80	9003010009800
0.0390	61		0.990	1.50	25.00	6.80	9003010009900
0.0394			1.000	1.50	25.00	6.80	9003010010000
0.0398			1.010	1.50	25.00	6.80	9003010010100
0.0402	60		1.020	1.50	25.00	6.80	9003010010200
0.0406			1.030	1.50	25.00	6.80	9003010010300
0.0409	59		1.040	1.50	25.00	6.80	9003010010400
0.0413			1.050	1.50	25.00	6.80	9003010010500
0.0415			1.055	1.50	25.00	6.80	9003010010550
0.0417			1.060	1.50	25.00	6.80	9003010010600
0.0421	58		1.070	1.50	25.00	7.60	9003010010700
0.0425			1.080	1.50	25.00	7.60	9003010010800
0.0429	57		1.090	1.50	25.00	7.60	9003010010900
0.0431			1.095	1.50	25.00	7.60	9003010010950
0.0433			1.100	1.50	25.00	7.60	9003010011000
0.0437			1.110	1.50	25.00	7.60	9003010011100
0.0441			1.120	1.50	25.00	7.60	9003010011200
0.0445			1.130	1.50	25.00	7.60	9003010011300
0.0449			1.140	1.50	25.00	7.60	9003010011400
0.0453			1.150	1.50	25.00	7.60	9003010011500
0.0457			1.160	1.50	25.00	7.60	9003010011600
0.0461			1.170	1.50	25.00	7.60	9003010011700
0.0463			1.175	1.50	25.00	7.60	9003010011750
0.0465	56		1.180	1.50	25.00	7.60	9003010011800
0.0469	3/64		1.190	1.50	25.00	8.50	9003010011900
0.0472			1.200	1.50	25.00	8.50	9003010012000
0.0476			1.210	1.50	25.00	8.50	9003010012100
0.0480			1.220	1.50	25.00	8.50	9003010012200
0.0484			1.230	1.50	25.00	8.50	9003010012300
0.0488			1.240	1.50	25.00	8.50	9003010012400
0.0492			1.250	1.50	25.00	8.50	9003010012500
0.0496			1.260	1.50	25.00	8.50	9003010012600
0.0498			1.265	1.50	25.00	8.50	9003010012650
0.0500			1.270	1.50	25.00	8.50	9003010012700
0.0504			1.280	1.50	25.00	8.50	9003010012800
0.0508			1.290	1.50	25.00	8.50	9003010012900
0.0512			1.300	1.50	25.00	8.50	9003010013000
0.0516			1.310	1.50	25.00	8.50	9003010013100
0.0520	55		1.320	1.50	25.00	8.50	9003010013200
0.0524			1.330	1.50	25.00	9.50	9003010013300
0.0528			1.340	1.50	25.00	9.50	9003010013400
0.0531			1.350	1.50	25.00	9.50	9003010013500
0.0539			1.370	1.50	25.00	9.50	9003010013700
0.0543			1.380	1.50	25.00	9.50	9003010013800
0.0547			1.390	1.50	25.00	9.50	9003010013900
0.0551	54		1.400	1.50	25.00	9.50	9003010014000
0.0555			1.410	1.50	25.00	9.50	9003010014100
0.0559			1.420	1.50	25.00	9.50	9003010014200
0.0563			1.430	1.50	25.00	9.50	9003010014300
0.0567			1.440	1.50	25.00	9.50	9003010014400
0.0571			1.450	1.50	25.00	9.50	9003010014500
0.0575			1.460	2.00	30.00	9.50	9003010014600
0.0579			1.470	2.00	30.00	9.50	9003010014700
0.0591			1.500	2.00	30.00	9.50	9003010015000
0.0602			1.530	2.00	30.00	10.60	9003010015300
0.0610			1.550	2.00	30.00	10.60	9003010015500
0.0626	1/16		1.590	2.00	30.00	10.60	9003010015900
0.0630			1.600	2.00	30.00	10.60	9003010016000
0.0634	52		1.610	2.00	30.00	10.60	9003010016100
0.0650			1.650	2.00	30.00	10.60	9003010016500

Diameter				Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	mm	
0.0669	51		1.700	2.00	30.00	10.60	9003010017000
0.0673			1.710	2.00	30.00	11.80	9003010017100
0.0681			1.730	2.00	30.00	11.80	9003010017300
0.0687			1.745	2.00	30.00	11.80	9003010017450
0.0689			1.750	2.00	30.00	11.80	9003010017500
0.0699			1.775	2.00	30.00	11.80	9003010017750
0.0709			1.800	2.00	30.00	11.80	9003010018000
0.0720			1.830	2.00	30.00	11.80	9003010018300
0.0724			1.840	2.00	30.00	11.80	9003010018400
0.0728	49		1.850	2.00	30.00	11.80	9003010018500
0.0748			1.900	2.00	30.00	11.80	9003010019000
0.0756			1.920	2.00	30.00	13.20	9003010019200



Series #303

Micro-precision **left-hand** drill, high speed cobalt, reinforced straight shank, Type N, 118° point, 4xD, bright finish

Diameter			Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	
0.0051			0.130	1.00	25.00	9003030001300
0.0055			0.140	1.00	25.00	9003030001400
0.0059	97		0.150	1.00	25.00	9003030001500
0.0063	96		0.160	1.00	25.00	9003030001600
0.0067	95		0.170	1.00	25.00	9003030001700
0.0071	94		0.180	1.00	25.00	9003030001800
0.0073			0.185	1.00	25.00	9003030001850
0.0075	93		0.190	1.00	25.00	9003030001900
0.0077			0.195	1.00	25.00	9003030001950
0.0079	92		0.200	1.00	25.00	9003030002000
0.0083	91		0.210	1.00	25.00	9003030002100
0.0085			0.215	1.00	25.00	9003030002150
0.0087	90		0.220	1.00	25.00	9003030002200
0.0089			0.225	1.00	25.00	9003030002250
0.0091	89		0.230	1.00	25.00	9003030002300
0.0094	88		0.240	1.00	25.00	9003030002400
0.0096			0.245	1.00	25.00	9003030002450
0.0098	87		0.250	1.00	25.00	9003030002500
0.0100			0.255	1.00	25.00	9003030002550
0.0102			0.260	1.00	25.00	9003030002600
0.0104			0.265	1.00	25.00	9003030002650
0.0106	86		0.270	1.00	25.00	9003030002700
0.0110	85		0.280	1.00	25.00	9003030002800
0.0114	84		0.290	1.00	25.00	9003030002900
0.0116			0.295	1.00	25.00	9003030002950
0.0118			0.300	1.00	25.00	9003030003000
0.0122	83		0.310	1.00	25.00	9003030003100
0.0126	82		0.320	1.00	25.00	9003030003200
0.0130	81		0.330	1.00	25.00	9003030003300
0.0134	80		0.340	1.00	25.00	9003030003400
0.0138			0.350	1.00	25.00	9003030003500
0.0142			0.360	1.00	25.00	9003030003600
0.0146	79		0.370	1.00	25.00	9003030003700
0.0150			0.380	1.00	25.00	9003030003800
0.0154			0.390	1.00	25.00	9003030003900
0.0157	1/64		0.400	1.00	25.00	9003030004000
0.0161	78		0.410	1.00	25.00	9003030004100
0.0165			0.420	1.00	25.00	9003030004200
0.0169			0.430	1.00	25.00	9003030004300
0.0173			0.440	1.00	25.00	9003030004400
0.0177			0.450	1.00	25.00	9003030004500
0.0181	77		0.460	1.00	25.00	9003030004600
0.0185			0.470	1.00	25.00	9003030004700
0.0189			0.480	1.00	25.00	9003030004800
0.0193			0.490	1.00	25.00	9003030004900
0.0197			0.500	1.00	25.00	9003030005000
0.0201	76		0.510	1.00	25.00	9003030005100
0.0205			0.520	1.00	25.00	9003030005200
0.0207			0.525	1.00	25.00	9003030005250
0.0209	75		0.530	1.00	25.00	9003030005300
0.0211			0.535	1.00	25.00	9003030005350
0.0213			0.540	1.00	25.00	9003030005400
0.0215			0.545	1.00	25.00	9003030005450
0.0217			0.550	1.00	25.00	9003030005500
0.0219			0.555	1.00	25.00	9003030005550
0.0220			0.560	1.00	25.00	9003030005600
0.0222			0.565	1.00	25.00	9003030005650
0.0224	74		0.570	1.00	25.00	9003030005700
0.0228			0.580	1.00	25.00	9003030005800
0.0232			0.590	1.00	25.00	9003030005900
0.0236			0.600	1.00	25.00	9003030006000
0.0240	73		0.610	1.00	25.00	9003030006100
0.0244			0.620	1.00	25.00	9003030006200
0.0248			0.630	1.00	25.00	9003030006300
0.0252	72		0.640	1.00	25.00	9003030006400
0.0256			0.650	1.00	25.00	9003030006500
0.0260	71		0.660	1.00	25.00	9003030006600

Diameter			Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	
0.0264			0.670	1.00	25.00	9003030006700
0.0266			0.675	1.00	25.00	9003030006750
0.0268			0.680	1.00	25.00	9003030006800
0.0272			0.690	1.00	25.00	9003030006900
0.0276			0.700	1.00	25.00	9003030007000
0.0280	70		0.710	1.00	25.00	9003030007100
0.0283			0.720	1.00	25.00	9003030007200
0.0287			0.730	1.00	25.00	9003030007300
0.0291	69		0.740	1.00	25.00	9003030007400
0.0295			0.750	1.00	25.00	9003030007500
0.0299			0.760	1.00	25.00	9003030007600
0.0303			0.770	1.00	25.00	9003030007700
0.0307			0.780	1.00	25.00	9003030007800
0.0311	1/32	68	0.790	1.00	25.00	9003030007900
0.0315			0.800	1.500	25.00	9003030008000
0.0319	67		0.810	1.500	25.00	9003030008100
0.0323			0.820	1.500	25.00	9003030008200
0.0327			0.830	1.500	25.00	9003030008300
0.0331	66		0.840	1.500	25.00	9003030008400
0.0335			0.850	1.500	25.00	9003030008500
0.0339			0.860	1.500	25.00	9003030008600
0.0343			0.870	1.500	25.00	9003030008700
0.0346			0.880	1.500	25.00	9003030008800
0.0350	65		0.890	1.500	25.00	9003030008900
0.0354			0.900	1.500	25.00	9003030009000
0.0358	64		0.910	1.500	25.00	9003030009100
0.0360			0.915	1.500	25.00	9003030009150
0.0362			0.920	1.500	25.00	9003030009200
0.0366			0.930	1.500	25.00	9003030009300
0.0368			0.935	1.500	25.00	9003030009350
0.0370	63		0.940	1.500	25.00	9003030009400
0.0374			0.950	1.500	25.00	9003030009500
0.0378			0.960	1.500	25.00	9003030009600
0.0382	62		0.970	1.500	25.00	9003030009700
0.0386			0.980	1.500	25.00	9003030009800
0.0390	61		0.990	1.500	25.00	9003030009900
0.0394			1.000	1.500	25.00	9003030010000
0.0396			1.005	1.500	25.00	9003030010050
0.0398			1.010	1.500	25.00	9003030010100
0.0402	60		1.020	1.500	25.00	9003030010200
0.0406			1.030	1.500	25.00	9003030010300
0.0409	59		1.040	1.500	25.00	9003030010400
0.0413			1.050	1.500	25.00	9003030010500
0.0417			1.060	1.500	25.00	9003030010600
0.0421	58		1.070	1.500	25.00	9003030010700
0.0425			1.080	1.500	25.00	9003030010800
0.0429	57		1.090	1.500	25.00	9003030010900
0.0433			1.100	1.500	25.00	9003030011000
0.0437			1.110	1.500	25.00	9003030011100
0.0441			1.120	1.500	25.00	9003030011200
0.0453			1.150	1.500	25.00	9003030011500
0.0461			1.170	1.500	25.00	9003030011700
0.0465	56		1.180	1.500	25.00	9003030011800
0.0469	3/64		1.190	1.500	25.00	9003030011900
0.0472			1.200	1.500	25.00	9003030012000
0.0480			1.220	1.500	25.00	9003030012200
0.0492			1.250	1.500	25.00	9003030012500
0.0500			1.270	1.500	25.00	9003030012700
0.0508			1.290	1.500	25.00	9003030012900
0.0512			1.300	1.500	25.00	9003030013000
0.0520	55		1.320	1.500	25.00	9003030013200
0.0524			1.330	1.500	25.00	9003030013300
0.0531			1.350	1.500	25.00	9003030013500
0.0535			1.360	1.500	25.00	9003030013600
0.0551	54		1.400	1.500	25.00	9003030014000
0.0728	49		1.850	2.00	30.00	9003030018500



Series #660

Micro-precision drill, high speed cobalt, reinforced straight shank, Type N, 118° point, 4xD, TiN coated

Diameter				Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	mm	
0.0050			0.128	1.00	25.00	0.80	9006600001280
0.0063	96		0.160	1.00	25.00	1.10	9006600001600
0.0067	95		0.170	1.00	25.00	1.10	9006600001700
0.0071	94		0.180	1.00	25.00	1.10	9006600001800
0.0075	93		0.190	1.00	25.00	1.10	9006600001900
0.0079	92		0.200	1.00	25.00	1.50	9006600002000
0.0083	91		0.210	1.00	25.00	1.50	9006600002100
0.0087	90		0.220	1.00	25.00	1.50	9006600002200
0.0091	89		0.230	1.00	25.00	1.50	9006600002300
0.0093			0.235	1.00	25.00	1.50	9006600002350
0.0094	88		0.240	1.00	25.00	1.50	9006600002400
0.0096			0.245	1.00	25.00	1.90	9006600002450
0.0098	87		0.250	1.00	25.00	1.90	9006600002500
0.0100			0.255	1.00	25.00	1.90	9006600002550
0.0102			0.260	1.00	25.00	1.90	9006600002600
0.0104			0.265	1.00	25.00	1.90	9006600002650
0.0106	86		0.270	1.00	25.00	1.90	9006600002700
0.0110	85		0.280	1.00	25.00	1.90	9006600002800
0.0114	84		0.290	1.00	25.00	1.90	9006600002900
0.0118			0.300	1.00	25.00	1.90	9006600003000
0.0120			0.305	1.00	25.00	2.40	9006600003050
0.0122	83		0.310	1.00	25.00	2.40	9006600003100
0.0126	82		0.320	1.00	25.00	2.40	9006600003200
0.0130	81		0.330	1.00	25.00	2.40	9006600003300
0.0134	80		0.340	1.00	25.00	2.40	9006600003400
0.0138			0.350	1.00	25.00	2.40	9006600003500
0.0142			0.360	1.00	25.00	2.40	9006600003600
0.0146	79		0.370	1.00	25.00	2.40	9006600003700
0.0150			0.380	1.00	25.00	2.40	9006600003800
0.0154			0.390	1.00	25.00	3.00	9006600003900
0.0157	1/64		0.400	1.00	25.00	3.00	9006600004000
0.0161		78	0.410	1.00	25.00	3.00	9006600004100
0.0165			0.420	1.00	25.00	3.00	9006600004200
0.0169			0.430	1.00	25.00	3.00	9006600004300
0.0173			0.440	1.00	25.00	3.00	9006600004400
0.0177			0.450	1.00	25.00	3.00	9006600004500
0.0181	77		0.460	1.00	25.00	3.00	9006600004600
0.0185			0.470	1.00	25.00	3.00	9006600004700
0.0189			0.480	1.00	25.00	3.00	9006600004800
0.0193			0.490	1.00	25.00	3.40	9006600004900
0.0197			0.500	1.00	25.00	3.40	9006600005000
0.0201	76		0.510	1.00	25.00	3.40	9006600005100
0.0205			0.520	1.00	25.00	3.40	9006600005200
0.0209	75		0.530	1.00	25.00	3.40	9006600005300
0.0213			0.540	1.00	25.00	3.90	9006600005400
0.0217			0.550	1.00	25.00	3.90	9006600005500
0.0220			0.560	1.00	25.00	3.90	9006600005600
0.0224	74		0.570	1.00	25.00	3.90	9006600005700
0.0228			0.580	1.00	25.00	3.90	9006600005800
0.0232			0.590	1.00	25.00	3.90	9006600005900
0.0236			0.600	1.00	25.00	3.90	9006600006000
0.0240	73		0.610	1.00	25.00	4.20	9006600006100
0.0244			0.620	1.00	25.00	4.20	9006600006200
0.0248			0.630	1.00	25.00	4.20	9006600006300
0.0252	72		0.640	1.00	25.00	4.20	9006600006400
0.0256			0.650	1.00	25.00	4.20	9006600006500
0.0260	71		0.660	1.00	25.00	4.20	9006600006600
0.0264			0.670	1.00	25.00	4.20	9006600006700
0.0268			0.680	1.00	25.00	4.80	9006600006800
0.0272			0.690	1.00	25.00	4.80	9006600006900
0.0276			0.700	1.00	25.00	4.80	9006600007000
0.0280	70		0.710	1.00	25.00	4.80	9006600007100
0.0283			0.720	1.00	25.00	4.80	9006600007200
0.0287			0.730	1.00	25.00	4.80	9006600007300
0.0291	69		0.740	1.00	25.00	4.80	9006600007400

Diameter				Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	mm	
0.0295			0.750	1.00	25.00	4.80	9006600007500
0.0299			0.760	1.00	25.00	5.30	9006600007600
0.0303			0.770	1.00	25.00	5.30	9006600007700
0.0307			0.780	1.00	25.00	5.30	9006600007800
0.0311	1/32	68	0.790	1.00	25.00	5.30	9006600007900
0.0315			0.800	1.50	25.00	5.30	9006600008000
0.0319		67	0.810	1.50	25.00	5.30	9006600008100
0.0323			0.820	1.50	25.00	5.30	9006600008200
0.0327			0.830	1.50	25.00	5.30	9006600008300
0.0331		66	0.840	1.50	25.00	5.30	9006600008400
0.0335			0.850	1.50	25.00	5.30	9006600008500
0.0339			0.860	1.50	25.00	6.00	9006600008600
0.0343			0.870	1.50	25.00	6.00	9006600008700
0.0346			0.880	1.50	25.00	6.00	9006600008800
0.0354			0.900	1.50	25.00	6.00	9006600009000
0.0358		64	0.910	1.50	25.00	6.00	9006600009100
0.0370		63	0.940	1.50	25.00	6.00	9006600009400
0.0374			0.950	1.50	25.00	6.00	9006600009500
0.0382		62	0.970	1.50	25.00	6.80	9006600009700
0.0386			0.980	1.50	25.00	6.80	9006600009800
0.0394			1.000	1.50	25.00	6.80	9006600010000
0.0402		60	1.020	1.50	25.00	6.80	9006600010200
0.0409		59	1.040	1.50	25.00	6.80	9006600010400
0.0413			1.050	1.50	25.00	6.80	9006600010500
0.0421		58	1.070	1.50	25.00	7.60	9006600010700
0.0425			1.080	1.50	25.00	7.60	9006600010800
0.0433			1.100	1.50	25.00	7.60	9006600011000
0.0453			1.150	1.50	25.00	7.60	9006600011500
0.0465		56	1.180	1.50	25.00	7.60	9006600011800
0.0469	3/64		1.190	1.50	25.00	8.50	9006600011900
0.0472			1.200	1.50	25.00	8.50	9006600012000
0.0492			1.250	1.50	25.00	8.50	9006600012500
0.0512			1.300	1.50	25.00	8.50	9006600013000
0.0531			1.350	1.50	25.00	9.50	9006600013500
0.0547			1.390	1.50	25.00	9.50	9006600013900
0.0551		54	1.400	1.50	25.00	9.50	9006600014000
0.0559			1.420	1.50	25.00	9.50	9006600014200
0.0571			1.450	1.50	25.00	9.50	9006600014500
0.0591			1.500	2.00	30.00	9.50	9006600015000
0.0709			1.800	2.00	30.00	11.80	9006600018000



Series #3899

Carbide micro-precision drill, 4-flute point > 0.79 mm, reinforced straight shank, flute h7, Type N, 140° point, facet grind, 5xD, TiAlN coated

Diameter				Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	mm	
0.0039			0.10	3.00	38.00	1.20	9038990001000
0.0043			0.11	3.00	38.00	1.20	9038990001100
0.0047			0.12	3.00	38.00	1.40	9038990001200
0.0051			0.13	3.00	38.00	1.40	9038990001300
0.0055			0.14	3.00	38.00	1.40	9038990001400
0.0059		97	0.15	3.00	38.00	2.00	9038990001500
0.0063		96	0.16	3.00	38.00	2.00	9038990001600
0.0067		95	0.17	3.00	38.00	2.00	9038990001700
0.0071		94	0.18	3.00	38.00	2.00	9038990001800
0.0075		93	0.19	3.00	38.00	2.00	9038990001900
0.0079		92	0.20	3.00	38.00	2.50	9038990002000
0.0083		91	0.21	3.00	38.00	2.50	9038990002100
0.0087		90	0.22	3.00	38.00	2.50	9038990002200
0.0091		89	0.23	3.00	38.00	2.50	9038990002300
0.0094		88	0.24	3.00	38.00	2.50	9038990002400
0.0098		87	0.25	3.00	38.00	3.00	9038990002500
0.0102			0.26	3.00	38.00	3.00	9038990002600
0.0106		86	0.27	3.00	38.00	3.00	9038990002700
0.0110		85	0.28	3.00	38.00	3.00	9038990002800
0.0114		84	0.29	3.00	38.00	3.00	9038990002900
0.0118			0.30	3.00	38.00	5.00	9038990003000
0.0122		83	0.31	3.00	38.00	5.00	9038990003100
0.0126		82	0.32	3.00	38.00	5.00	9038990003200
0.0130		81	0.33	3.00	38.00	5.00	9038990003300
0.0134		80	0.34	3.00	38.00	5.00	9038990003400
0.0138			0.35	3.00	38.00	6.00	9038990003500
0.0142			0.36	3.00	38.00	6.00	9038990003600
0.0146		79	0.37	3.00	38.00	6.00	9038990003700
0.0150			0.38	3.00	38.00	6.00	9038990003800
0.0154			0.39	3.00	38.00	6.00	9038990003900
0.0157	1/64		0.40	3.00	38.00	7.00	9038990004000
0.0161		78	0.41	3.00	38.00	7.00	9038990004100
0.0165			0.42	3.00	38.00	7.00	9038990004200
0.0169			0.43	3.00	38.00	7.00	9038990004300
0.0173			0.44	3.00	38.00	7.00	9038990004400
0.0177			0.45	3.00	38.00	7.00	9038990004500
0.0181		77	0.46	3.00	38.00	7.00	9038990004600
0.0185			0.47	3.00	38.00	7.00	9038990004700
0.0189			0.48	3.00	38.00	7.00	9038990004800
0.0193			0.49	3.00	38.00	7.00	9038990004900
0.0197			0.50	3.00	38.00	7.00	9038990005000
0.0201		76	0.51	3.00	38.00	7.00	9038990005100
0.0205			0.52	3.00	38.00	7.00	9038990005200
0.0209		75	0.53	3.00	38.00	7.00	9038990005300
0.0213			0.54	3.00	38.00	7.00	9038990005400
0.0217			0.55	3.00	38.00	7.00	9038990005500
0.0220			0.56	3.00	38.00	7.00	9038990005600
0.0224		74	0.57	3.00	38.00	7.00	9038990005700
0.0228			0.58	3.00	38.00	7.00	9038990005800
0.0232			0.59	3.00	38.00	7.00	9038990005900
0.0236			0.60	3.00	38.00	7.00	9038990006000
0.0240		73	0.61	3.00	38.00	7.00	9038990006100
0.0244			0.62	3.00	38.00	7.00	9038990006200
0.0248			0.63	3.00	38.00	7.00	9038990006300
0.0252		72	0.64	3.00	38.00	7.00	9038990006400
0.0256			0.65	3.00	38.00	7.00	9038990006500
0.0260		71	0.66	3.00	38.00	7.00	9038990006600
0.0264			0.67	3.00	38.00	7.00	9038990006700
0.0268			0.68	3.00	38.00	7.00	9038990006800
0.0272			0.69	3.00	38.00	7.00	9038990006900
0.0276			0.70	3.00	38.00	8.00	9038990007000
0.0280		70	0.71	3.00	38.00	8.00	9038990007100
0.0283			0.72	3.00	38.00	8.00	9038990007200
0.0287			0.73	3.00	38.00	8.00	9038990007300
0.0291		69	0.74	3.00	38.00	8.00	9038990007400
0.0295			0.75	3.00	38.00	8.00	9038990007500
0.0299			0.76	3.00	38.00	8.00	9038990007600
0.0303			0.77	3.00	38.00	8.00	9038990007700

Diameter			Shank dia	O.A.L.	F.L.	EDP Number	
dec	fract	wire/let	mm	mm	mm		
0.0307			0.78	3.00	38.00	8.00	9038990007800
0.0311	1/32		0.79	3.00	38.00	8.00	9038990007900
0.0315			0.80	3.00	38.00	10.00	9038990008000
0.0319		67	0.81	3.00	38.00	10.00	9038990008100
0.0323			0.82	3.00	38.00	10.00	9038990008200
0.0327			0.83	3.00	38.00	10.00	9038990008300
0.0331		66	0.84	3.00	38.00	10.00	9038990008400
0.0335			0.85	3.00	38.00	10.00	9038990008500
0.0339			0.86	3.00	38.00	10.00	9038990008600
0.0343			0.87	3.00	38.00	10.00	9038990008700
0.0346			0.88	3.00	38.00	10.00	9038990008800
0.0350		65	0.89	3.00	38.00	10.00	9038990008900
0.0354			0.90	3.00	38.00	10.00	9038990009000
0.0358		64	0.91	3.00	38.00	10.00	9038990009100
0.0362			0.92	3.00	38.00	10.00	9038990009200
0.0366			0.93	3.00	38.00	10.00	9038990009300
0.0370		63	0.94	3.00	38.00	10.00	9038990009400
0.0374			0.95	3.00	38.00	10.00	9038990009500
0.0378			0.96	3.00	38.00	10.00	9038990009600
0.0382		62	0.97	3.00	38.00	10.00	9038990009700
0.0386			0.98	3.00	38.00	10.00	9038990009800
0.0390		61	0.99	3.00	38.00	10.00	9038990009900
0.0394			1.00	3.00	38.00	10.00	9038990010000
0.0398			1.01	3.00	38.00	10.00	9038990010100
0.0402		60	1.02	3.00	38.00	10.00	9038990010200
0.0406			1.03	3.00	38.00	10.00	9038990010300
0.0409		59	1.04	3.00	38.00	10.00	9038990010400
0.0413			1.05	3.00	38.00	10.00	9038990010500
0.0417			1.06	3.00	38.00	10.00	9038990010600
0.0421		58	1.07	3.00	38.00	10.00	9038990010700
0.0425			1.08	3.00	38.00	10.00	9038990010800
0.0429		57	1.09	3.00	38.00	10.00	9038990010900
0.0433			1.10	3.00	38.00	10.00	9038990011000
0.0437			1.11	3.00	38.00	10.00	9038990011100
0.0441			1.12	3.00	38.00	10.00	9038990011200
0.0445			1.13	3.00	38.00	10.00	9038990011300
0.0449			1.14	3.00	38.00	10.00	9038990011400
0.0453			1.15	3.00	38.00	10.00	9038990011500
0.0457			1.16	3.00	38.00	10.00	9038990011600
0.0461			1.17	3.00	38.00	10.00	9038990011700
0.0465		56	1.18	3.00	38.00	10.00	9038990011800
0.0469	3/64		1.19	3.00	38.00	10.00	9038990011900
0.0472			1.20	3.00	38.00	10.00	9038990012000
0.0476			1.21	3.00	38.00	10.00	9038990012100
0.0480			1.22	3.00	38.00	10.00	9038990012200
0.0484			1.23	3.00	38.00	10.00	9038990012300
0.0488			1.24	3.00	38.00	10.00	9038990012400
0.0492			1.25	3.00	38.00	10.00	9038990012500
0.0496			1.26	3.00	38.00	10.00	9038990012600
0.0500			1.27	3.00	38.00	10.00	9038990012700
0.0504			1.28	3.00	38.00	10.00	9038990012800
0.0508			1.29	3.00	38.00	10.00	9038990012900
0.0512			1.30	3.00	38.00	10.00	9038990013000
0.0516			1.31	3.00	38.00	10.00	9038990013100
0.0520		55	1.32	3.00	38.00	10.00	9038990013200
0.0524			1.33	3.00	38.00	10.00	9038990013300
0.0528			1.34	3.00	38.00	10.00	9038990013400
0.0531			1.35	3.00	38.00	10.00	9038990013500
0.0535			1.36	3.00	38.00	10.00	9038990013600
0.0539			1.37	3.00	38.00	10.00	9038990013700
0.0543			1.38	3.00	38.00	10.00	9038990013800
0.0547			1.39	3.00	38.00	10.00	9038990013900
0.0551		54	1.40	3.00	38.00	10.00	9038990014000
0.0555			1.41	3.00	38.00	10.00	9038990014100
0.0559			1.42	3.00	38.00	10.00	9038990014200
0.0563			1.43	3.00	38.00	10.00	9038990014300
0.0567			1.44	3.00	38.00	10.00	9038990014400
0.0571			1.45	3.00	38.00	10.00	9038990014500
0.0575			1.46	3.00	38.00	10.00	9038990014600
0.0579			1.47	3.00	38.00	10.00	9038990014700
0.0583			1.48	3.00	38.00	10.00	9038990014800
0.0587			1.49	3.00	38.00	10.00	9038990014900
0.0591			1.50	3.00	38.00	10.00	9038990015000

EXCLUSIVELINE®



Series #6400

Micro-precision solid carbide (DK460) drill, reinforced straight shank, m7, Type N, 140° point, 4-facet grind, 4xD, Super-A™ coated

Diameter			Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	
0.0594			1.51	3.00	38.00	9038990015100
0.0598			1.52	3.00	38.00	9038990015200
0.0602			1.53	3.00	38.00	9038990015300
0.0606			1.54	3.00	38.00	9038990015400
0.0610			1.55	3.00	38.00	9038990015500
0.0614			1.56	3.00	38.00	9038990015600
0.0618			1.57	3.00	38.00	9038990015700
0.0622			1.58	3.00	38.00	9038990015800
0.0626	1/16		1.59	3.00	38.00	9038990015900
0.0630			1.60	3.00	38.00	9038990016000
0.0634		52	1.61	3.00	38.00	9038990016100
0.0638			1.62	3.00	38.00	9038990016200
0.0642			1.63	3.00	38.00	9038990016300
0.0646			1.64	3.00	38.00	9038990016400
0.0650			1.65	3.00	38.00	9038990016500
0.0654			1.66	3.00	38.00	9038990016600
0.0657			1.67	3.00	38.00	9038990016700
0.0661			1.68	3.00	38.00	9038990016800
0.0665			1.69	3.00	38.00	9038990016900
0.0669		51	1.70	3.00	38.00	9038990017000
0.0673			1.71	3.00	38.00	9038990017100
0.0677			1.72	3.00	38.00	9038990017200
0.0681			1.73	3.00	38.00	9038990017300
0.0685			1.74	3.00	38.00	9038990017400
0.0689			1.75	3.00	38.00	9038990017500
0.0693			1.76	3.00	38.00	9038990017600
0.0697			1.77	3.00	38.00	9038990017700
0.0701			1.78	3.00	38.00	9038990017800
0.0705			1.79	3.00	38.00	9038990017900
0.0709			1.80	3.00	38.00	9038990018000
0.0713			1.81	3.00	38.00	9038990018100
0.0717			1.82	3.00	38.00	9038990018200
0.0720			1.83	3.00	38.00	9038990018300
0.0724			1.84	3.00	38.00	9038990018400
0.0728		49	1.85	3.00	38.00	9038990018500
0.0732			1.86	3.00	38.00	9038990018600
0.0736			1.87	3.00	38.00	9038990018700
0.0740			1.88	3.00	38.00	9038990018800
0.0744			1.89	3.00	38.00	9038990018900
0.0748			1.90	3.00	38.00	9038990019000
0.0752			1.91	3.00	38.00	9038990019100
0.0756			1.92	3.00	38.00	9038990019200
0.0760		48	1.93	3.00	38.00	9038990019300
0.0764			1.94	3.00	38.00	9038990019400
0.0768			1.95	3.00	38.00	9038990019500
0.0772			1.96	3.00	38.00	9038990019600
0.0776			1.97	3.00	38.00	9038990019700
0.0780	5/64		1.98	3.00	38.00	9038990019800
0.0783		47	1.99	3.00	38.00	9038990019900
0.0787			2.00	3.00	38.00	9038990020000
0.0807			2.05	3.00	38.00	9038990020500
0.0827			2.10	3.00	38.00	9038990021000
0.0846			2.15	3.00	38.00	9038990021500
0.0866			2.20	3.00	38.00	9038990022000
0.0886			2.25	3.00	38.00	9038990022500
0.0906			2.30	3.00	38.00	9038990023000
0.0925			2.35	3.00	38.00	9038990023500
0.0945			2.40	3.00	38.00	9038990024000
0.0965			2.45	3.00	38.00	9038990024500
0.0984			2.50	3.00	38.00	9038990025000
0.1004			2.55	3.00	38.00	9038990025500
0.1024			2.60	3.00	38.00	9038990026000
0.1043			2.65	3.00	38.00	9038990026500
0.1063			2.70	3.00	38.00	9038990027000
0.1083			2.75	3.00	38.00	9038990027500
0.1102			2.80	3.00	38.00	9038990028000
0.1122			2.85	3.00	38.00	9038990028500
0.1142			2.90	3.00	38.00	9038990029000
0.1161		32	2.95	3.00	38.00	9038990029500
0.1181			3.00	3.00	38.00	9038990030000

Diameter			Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	
0.0197			0.500	3.00	47.00	9064000005000
0.0217			0.550	3.00	47.00	9064000005500
0.0236			0.600	3.00	47.00	9064000006000
0.0256			0.650	3.00	47.00	9064000006500
0.0276			0.700	3.00	47.00	9064000007000
0.0295			0.750	3.00	47.00	9064000007500
0.0315			0.800	3.00	47.00	9064000008000
0.0335			0.850	3.00	47.00	9064000008500
0.0354			0.900	3.00	47.00	9064000009000
0.0374			0.950	3.00	47.00	9064000009500
0.0394			1.000	3.00	47.00	9064000010000
0.0413			1.050	3.00	47.00	9064000010500
0.0433			1.100	3.00	47.00	9064000011000
0.0453			1.150	3.00	47.00	9064000011500
0.0472			1.200	3.00	47.00	9064000012000
0.0492			1.250	3.00	47.00	9064000012500
0.0512			1.300	3.00	47.00	9064000013000
0.0531			1.350	3.00	47.00	9064000013500
0.0551		54	1.400	3.00	47.00	9064000014000
0.0571			1.450	3.00	47.00	9064000014500
0.0591			1.500	3.00	47.00	9064000015000
0.0610			1.550	3.00	47.00	9064000015500
0.0626	1/16		1.590	3.00	47.00	9064000015900
0.0630			1.600	3.00	47.00	9064000016000
0.0650			1.650	3.00	47.00	9064000016500
0.0669		51	1.700	3.00	47.00	9064000017000
0.0689			1.750	3.00	47.00	9064000017500
0.0709			1.800	3.00	52.00	9064000018000
0.0728		49	1.850	3.00	52.00	9064000018500
0.0748			1.900	3.00	52.00	9064000019000
0.0768			1.950	3.00	52.00	9064000019500
0.0780	5/64		1.980	4.00	59.00	9064000019800
0.0787			2.000	4.00	59.00	9064000020000
0.0807			2.050	4.00	59.00	9064000020500
0.0827			2.100	4.00	59.00	9064000021000
0.0846			2.150	4.00	59.00	9064000021500
0.0866			2.200	4.00	59.00	9064000022000
0.0886			2.250	4.00	59.00	9064000022500
0.0906			2.300	4.00	59.00	9064000023000
0.0925			2.350	4.00	59.00	9064000023500
0.0937	3/32		2.380	4.00	59.00	9064000023800
0.0945			2.400	4.00	59.00	9064000024000
0.0965			2.450	4.00	59.00	9064000024500
0.0984			2.500	4.00	59.00	9064000025000
0.1004			2.550	4.00	59.00	9064000025500
0.1024			2.600	4.00	59.00	9064000026000
0.1043			2.650	4.00	59.00	9064000026500
0.1063			2.700	4.00	59.00	9064000027000
0.1083			2.750	4.00	59.00	9064000027500
0.1094	7/64		2.780	4.00	59.00	9064000027800
0.1102			2.800	4.00	59.00	9064000028000
0.1122			2.850	4.00	59.00	9064000028500
0.1142			2.900	4.00	59.00	9064000029000
0.1161		32	2.950	4.00	59.00	9064000029500
0.1181			3.000	4.00	59.00	9064000030000



Series #6401

Micro-precision solid carbide (DK460) drill, reinforced straight shank, m7, Type N, 140° point, 4-facet grind, 7xD, Super-A™ coated

Diameter			Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	
0.0197			0.500	3.00	47.00	9064010005000
0.0217			0.550	3.00	47.00	9064010005500
0.0236			0.600	3.00	47.00	9064010006000
0.0256			0.650	3.00	47.00	9064010006500
0.0276			0.700	3.00	47.00	9064010007000
0.0295			0.750	3.00	47.00	9064010007500
0.0315			0.800	3.00	47.00	9064010008000
0.0335			0.850	3.00	47.00	9064010008500
0.0354			0.900	3.00	47.00	9064010009000
0.0374			0.950	3.00	47.00	9064010009500
0.0394			1.000	3.00	47.00	9064010010000
0.0413			1.050	3.00	47.00	9064010010500
0.0433			1.100	3.00	47.00	9064010011000
0.0453			1.150	3.00	47.00	9064010011500
0.0472			1.200	3.00	52.00	9064010012000
0.0492			1.250	3.00	52.00	9064010012500
0.0512			1.300	3.00	52.00	9064010013000
0.0531			1.350	3.00	52.00	9064010013500
0.0551	54		1.400	3.00	52.00	9064010014000
0.0571			1.450	3.00	52.00	9064010014500
0.0591			1.500	3.00	52.00	9064010015000
0.0610			1.550	3.00	52.00	9064010015500
0.0626	1/16		1.590	3.00	52.00	9064010015900
0.0630			1.600	3.00	52.00	9064010016000
0.0650			1.650	3.00	52.00	9064010016500
0.0669		51	1.700	3.00	52.00	9064010017000
0.0689			1.750	3.00	52.00	9064010017500
0.0709			1.800	3.00	52.00	9064010018000
0.0728		49	1.850	3.00	52.00	9064010018500
0.0748			1.900	3.00	52.00	9064010019000
0.0768			1.950	3.00	52.00	9064010019500
0.0780	5/64		1.980	4.00	63.00	9064010019800
0.0787			2.000	4.00	63.00	9064010020000
0.0807			2.050	4.00	63.00	9064010020500
0.0827			2.100	4.00	63.00	9064010021000
0.0846			2.150	4.00	63.00	9064010021500
0.0866			2.200	4.00	63.00	9064010022000
0.0886			2.250	4.00	63.00	9064010022500
0.0906			2.300	4.00	63.00	9064010023000
0.0925			2.350	4.00	63.00	9064010023500
0.0937	3/32		2.380	4.00	63.00	9064010023800
0.0945			2.400	4.00	63.00	9064010024000
0.0965			2.450	4.00	63.00	9064010024500
0.0984			2.500	4.00	63.00	9064010025000
0.1004			2.550	4.00	63.00	9064010025500
0.1024			2.600	4.00	67.00	9064010026000
0.1043			2.650	4.00	67.00	9064010026500
0.1063			2.700	4.00	67.00	9064010027000
0.1083			2.750	4.00	67.00	9064010027500
0.1094	7/64		2.780	4.00	67.00	9064010027800
0.1102			2.800	4.00	67.00	9064010028000
0.1122			2.850	4.00	67.00	9064010028500
0.1142			2.900	4.00	67.00	9064010029000
0.1161		32	2.950	4.00	67.00	9064010029500
0.1181			3.000	4.00	67.00	9064010030000



Series #6405

Micro-precision solid carbide (DK460) drill, reinforced straight shank, m7, Type N, 140° point, 4-facet grind, 5xD, coolant fed, TiAlN coated

NEW

Diameter			Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	
0.0551		54	1.40	4.00	52.00	9064050014000
0.0571			1.45	4.00	52.00	9064050014500
0.0591			1.50	4.00	52.00	9064050015000
0.0610			1.55	4.00	52.00	9064050015500
0.0626	1/16		1.59	4.00	52.00	9064050015900
0.0630			1.60	4.00	52.00	9064050016000
0.0650			1.65	4.00	52.00	9064050016500
0.0669		51	1.70	4.00	56.00	9064050017000
0.0689			1.75	4.00	56.00	9064050017500
0.0709			1.80	4.00	56.00	9064050018000
0.0728		49	1.85	4.00	56.00	9064050018500
0.0748			1.90	4.00	56.00	9064050019000
0.0768			1.95	4.00	56.00	9064050019500
0.0780	5/64		1.98	4.00	56.00	9064050019800
0.0787			2.00	4.00	56.00	9064050020000
0.0807			2.05	4.00	56.00	9064050020500
0.0827			2.10	4.00	62.00	9064050021000
0.0846			2.15	4.00	62.00	9064050021500
0.0866			2.20	4.00	62.00	9064050022000
0.0886			2.25	4.00	62.00	9064050022500
0.0906			2.30	4.00	62.00	9064050023000
0.0925			2.35	4.00	62.00	9064050023500
0.0937	3/32		2.38	4.00	62.00	9064050023800
0.0945			2.40	4.00	62.00	9064050024000
0.0965			2.45	4.00	62.00	9064050024500
0.0984			2.50	4.00	62.00	9064050025000
0.1004			2.55	4.00	62.00	9064050025500
0.1024			2.60	4.00	66.00	9064050026000
0.1043			2.65	4.00	66.00	9064050026500
0.1063			2.70	4.00	66.00	9064050027000
0.1083			2.75	4.00	66.00	9064050027500
0.1094	7/64		2.78	4.00	66.00	9064050027800
0.1102			2.80	4.00	66.00	9064050028000
0.1122			2.85	4.00	66.00	9064050028500
0.1142			2.90	4.00	66.00	9064050029000
0.1161		32	2.95	4.00	66.00	9064050029500
0.1181			3.00	4.00	66.00	9064050030000



Series #6408

Micro-precision solid carbide (DK460) drill, reinforced straight shank, flute h7, 135° point, 4-facet grind, 8xD, coolant fed, TiAlN coated

Diameter			Shank dia	O.A.L.	F.L.	EDP Number	
dec	fract	wire/let	mm	mm	mm		
0.0551		54	1.400	4.00	52.00	15.00	9064080014000
0.0571			1.450	4.00	52.00	16.00	9064080014500
0.0591			1.500	4.00	52.00	17.00	9064080015000
0.0610			1.550	4.00	52.00	17.00	9064080015500
0.0626	1/16		1.590	4.00	52.00	18.00	9064080015900
0.0630			1.600	4.00	52.00	18.00	9064080016000
0.0650			1.650	4.00	52.00	18.00	9064080016500
0.0669		51	1.700	4.00	56.00	19.00	9064080017000
0.0689			1.750	4.00	56.00	19.00	9064080017500
0.0709			1.800	4.00	56.00	20.00	9064080018000
0.0728		49	1.850	4.00	56.00	20.00	9064080018500
0.0748			1.900	4.00	56.00	21.00	9064080019000
0.0768			1.950	4.00	56.00	21.00	9064080019500
0.0780	5/64		1.980	4.00	56.00	22.00	9064080019800
0.0787			2.000	4.00	56.00	22.00	9064080020000
0.0807			2.050	4.00	56.00	23.00	9064080020500
0.0827			2.100	4.00	62.00	23.00	9064080021000
0.0846			2.150	4.00	62.00	24.00	9064080021500
0.0866			2.200	4.00	62.00	24.00	9064080022000
0.0886			2.250	4.00	62.00	25.00	9064080022500
0.0906			2.300	4.00	62.00	25.00	9064080023000
0.0913			2.320	4.00	62.00	25.00	9064080023200
0.0925			2.350	4.00	62.00	26.00	9064080023500
0.0937	3/32		2.380	4.00	62.00	26.00	9064080023800
0.0945			2.400	4.00	62.00	26.00	9064080024000
0.0965			2.450	4.00	62.00	27.00	9064080024500
0.0984			2.500	4.00	62.00	28.00	9064080025000
0.1004			2.550	4.00	62.00	28.00	9064080025500
0.1024			2.600	4.00	66.00	29.00	9064080026000
0.1043			2.650	4.00	66.00	29.00	9064080026500
0.1063			2.700	4.00	66.00	30.00	9064080027000
0.1083			2.750	4.00	66.00	30.00	9064080027500
0.1094	7/64		2.780	4.00	66.00	31.00	9064080027800
0.1102			2.800	4.00	66.00	31.00	9064080028000
0.1122			2.850	4.00	66.00	31.00	9064080028500
0.1142			2.900	4.00	66.00	32.00	9064080029000
0.1161		32	2.950	4.00	66.00	32.00	9064080029500
0.1181			3.000	4.00	66.00	33.00	9064080030000



Series #6412

Micro-precision solid carbide (DK460) drill, reinforced straight shank, flute h7, 135° point, 4-facet grind, 15xD, coolant fed, TiAlN coated

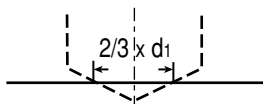
Diameter				Shank dia	O.A.L.	F.L.	EDP Number
dec	fract	wire/let	mm	mm	mm	mm	
0.0551		54	1.400	4.00	62.00	25.00	9064120014000
0.0591			1.500	4.00	62.00	27.00	9064120015000
0.0626	1/16		1.590	4.00	62.00	29.00	9064120015900
0.0630			1.600	4.00	62.00	29.00	9064120016000
0.0669		51	1.700	4.00	70.00	31.00	9064120017000
0.0689			1.750	4.00	70.00	32.00	9064120017500
0.0709			1.800	4.00	70.00	32.00	9064120018000
0.0748			1.900	4.00	70.00	34.00	9064120019000
0.0779	5/64		1.980	4.00	70.00	36.00	9064120019800
0.0787			2.000	4.00	70.00	36.00	9064120020000
0.0827			2.100	4.00	78.00	38.00	9064120021000
0.0866			2.200	4.00	78.00	40.00	9064120022000
0.0906			2.300	4.00	78.00	42.00	9064120023000
0.0937	3/32		2.380	4.00	78.00	44.00	9064120023800
0.0945			2.400	4.00	78.00	44.00	9064120024000
0.0984			2.500	4.00	78.00	45.00	9064120025000
0.1024			2.600	4.00	87.00	47.00	9064120026000
0.1063			2.700	4.00	87.00	48.00	9064120027000
0.1094	7/64		2.780	4.00	87.00	50.00	9064120027800
0.1102			2.800	4.00	87.00	50.00	9064120028000
0.1142			2.900	4.00	87.00	52.00	9064120029000
0.1181			3.000	4.00	87.00	54.00	9064120030000

Series 6405, 6408 and 6412 are coolant fed.
Minimum recommended coolant pressure is 250 - 400 psi.

Spot Drilling

In order to achieve full performance with Series 6408 solid carbide micro-precision drills at 8xD drilling depth, we recommend spot drilling.

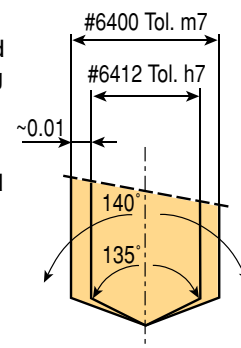
The ExclusiveLine Series 6400 solid carbide micro-precision drill (up to 4xD) can be applied for this purpose. The spot drill diameter should be approximately $\frac{2}{3}$ xD.



Pilot drilling

For applications using Series 6412 solid carbide micro-precision drills to drilling depths of 15xD we recommend a pilot hole 1xD up to 2xD depth.

For this pilot hole, the Series 6400 solid carbide micro-precision drill (4xD) is optimally suited. Its 140° point angle and its m7 diameter tolerance are perfectly adapted.



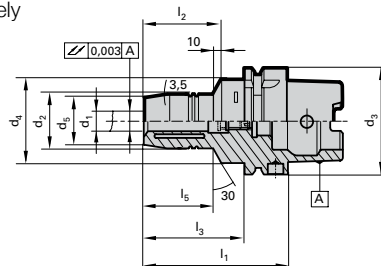
HSK-A hydraulic chucks HMC 3000 for clamping small diameters

Product information

- perfect concentricity: < 3 µm at 10xd1
- balancing quality: G6.3 / 30,000 rev./min
- HSK-A to DIN 69893
- high clamping force
- quick, simple handling and accurate length setting
- Internal coolant and GÜHROJET peripheral cooling ensure optimal chip evacuation and tool lubrication

Scope of delivery

- incl. length adjustment screw
- incl. hexagon chuck key Guhring no. 4912
- order coolant delivery set Guhring no. 4949 separately



GÜHROJET

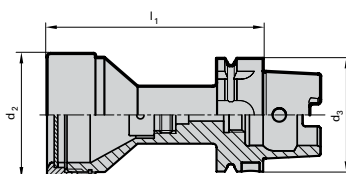
Series Number 4618

HSK-A d ₃	for shank Ø d ₁ h ₆ mm	d ₂ mm	d ₄ mm	l ₁ mm	l ₂ mm	l ₅ mm	SW	EDP Numbers
32	3	28	40.0	84.0	34	33	4	9046180030320
32	4	28	40.0	84.0	34	33	4	9046180040320
32	5	28	40.0	84.0	34	33	4	9046180050320
40	3	28	33.5	74	34	40	4	9046180030400
40	4	28	33.5	74	34	40	4	9046180040400
40	5	28	33.5	74	34	40	4	9046180050400
50	3	28	40	74	34	32	4	9046180030500
50	4	28	40	74	34	32	4	9046180040500
50	5	28	40	74	34	32	4	9046180050500
63	3	28	50	74	34	28.5	5	9046180030630
63	4	28	50	74	34	28.5	5	9046180040630
63	5	28	50	74	34	28.5	5	9046180050630
100	3	28	50	79	34	30	5	9046180030100
100	4	28	50	79	34	30	5	9046180040100
100	5	28	50	79	34	30	5	9046180050100

CC 3000 coolant filter gage

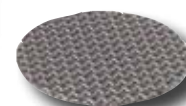
Product information

- range of application 50 - 500 min-1
- suitable for coolant pressure up to 80 bar



Scope of delivery

- inspection instrument with HSK 63-A interface
- high-grade steel filter sizes 100, 200 and 300 µm
- refractometer including accessories
- magnifying glass, 8-fold magnification
- coolant delivery set guhring no. 4949 code 18,063
- order high-grade steel filter size 60 µm separately



Filter: Series 4077

Series Number

4076

4077

CC 3000 FILTER	EDP Numbers	EDP Numbers
case complete	9040760100630	
high-grade steel filter size 60, Guhring no. 4077		9040770600000
high-grade steel filter size 100, Guhring no. 4077		9040771000000
high-grade steel filter size 200, Guhring no. 4077		9040772000000
high-grade steel filter size 300, Guhring no. 4077		9040773000000

$$\text{RPM} = \frac{\text{SFM}}{\text{DIAM. in.}} \times 3.82 \quad \text{IPM} = \text{IPR} \times \text{RPM}$$

$$\text{HOLE DEPTH in.} \times 60 = \text{Cut Time} \quad \text{IPM}$$

$$\text{mm} = \text{in.} \times 25.40$$

$$\text{m/min.} = \text{SFM} \div 3.28 \quad \text{Bar} = \text{PSI} \div 14.50$$

$$\text{mm/rev.} = \text{IPR} \times 25.40 \quad \text{Liter} = \text{Gal.} \div 3.79$$

Series # 301

Material group	Hardness	SFM	Feed Rate - IPR									
			0.0039 in. 0.100 mm	0.0063 in. 0.160 mm	0.0098 in. 0.250 mm	0.0118 in. 0.300 mm	0.0197 in. 0.500 mm	0.0248 in. 0.630 mm	0.0315 in. 0.800 mm	0.0394 in. 1.000 mm	0.0591 in. 1.500 mm	0.0787 in. 2.000 mm
Common structural steels	≤ 20 HRC ≤ 32 HRC	65 55	0.0003 0.0003	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0006	0.0011 0.0008	0.0013 0.0010	0.0020 0.0017	0.0024 0.0021	0.0032 0.0028
Free-cutting steels	≤ 25 HRC ≤ 32 HRC	55 50	0.0003 0.0003	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0006	0.0011 0.0008	0.0013 0.0010	0.0020 0.0017	0.0024 0.0021	0.0032 0.0028
Unalloyed heat-treatable steels	≤ 20 HRC ≤ 25 HRC ≤ 32 HRC	65 55 45	0.0003 0.0003 0.0002	0.0003 0.0003 0.0002	0.0004 0.0004 0.0003	0.0005 0.0005 0.0004	0.0006 0.0006 0.0005	0.0008 0.0008 0.0006	0.0010 0.0010 0.0008	0.0017 0.0017 0.0014	0.0021 0.0021 0.0019	0.0028 0.0028 0.0025
Alloyed heat-treatable steels	≤ 32 HRC ≤ 43 HRC	45 35	0.0002 0.0002	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0007	0.0014 0.0012	0.0019 0.0016	0.0025 0.0021
Unalloyed case hardened steels	≤ 25 HRC	55	0.0003	0.0004	0.0005	0.0006	0.0008	0.0011	0.0013	0.0020	0.0024	0.0032
Alloyed case hardened steels	≤ 32 HRC ≤ 43 HRC	45 35	0.0002 0.0002	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0007	0.0014 0.0012	0.0019 0.0016	0.0025 0.0021
Nitriding steels	≤ 32 HRC ≤ 43 HRC	45 35	0.0002 0.0002	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0007	0.0014 0.0012	0.0019 0.0016	0.0025 0.0021
Tool steels	≤ 25 HRC ≤ 43 HRC	50 45	0.0002 0.0002	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0007	0.0014 0.0012	0.0019 0.0016	0.0025 0.0021
High speed steels	≤ 43 HRC	45	0.0002	0.0002	0.0002	0.0003	0.0004	0.0005	0.0007	0.0012	0.0016	0.0021
Spring steels	≤ 38 HRC	25	0.0002	0.0002	0.0002	0.0002	0.0003	0.0004	0.0006	0.0001	0.0014	0.0019
Stainless steels	sulphured ≤ 28 HRC	15	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0014	0.0019	0.0025
	austenitic ≤ 36 HRC	15	0.0002	0.0002	0.0002	0.0003	0.0004	0.0005	0.0007	0.0012	0.0016	0.0021
	martensitic ≤ 46 HRC	15	0.0002	0.0002	0.0002	0.0003	0.0004	0.0005	0.0007	0.0012	0.0016	0.0021
Hardened steels	≤ 48 HRC ≤ 66 HRC											
Special alloys	≤ 54 HRC											
Cast iron	≤ 23 HRC ≤ 38 HRC	85 70	0.0003 0.0003	0.0004 0.0004	0.0005 0.0005	0.0006 0.0006	0.0008 0.0008	0.0011 0.0011	0.0013 0.0013	0.0020 0.0020	0.0024 0.0024	0.0032 0.0032
Spheroidal graphite iron and malleable cast iron	≤ 23 HRC ≤ 38 HRC	55 70	0.0003 0.0003	0.0004 0.0004	0.0005 0.0005	0.0006 0.0006	0.0008 0.0008	0.0011 0.0011	0.0013 0.0013	0.0020 0.0020	0.0024 0.0024	0.0032 0.0032
Chilled cast iron	≤ 38 HRC											
Ti and Ti-alloys	≤ 25 HRC ≤ 43 HRC											
Aluminum and Al-alloys	≤ 120HB											
Al wrought alloys	≤ 200HB											
Al cast alloys	≤ 10% Si ≤ 24% Si	85 55	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0006	0.0010 0.0008	0.0014 0.0011	0.0015 0.0013	0.0024 0.0020	0.0028 0.0024	0.0037 0.0032
Magnesium alloys	≤ 120HB	245	0.0003	0.0004	0.0005	0.0006	0.0008	0.0011	0.0013	0.0020	0.0024	0.0032
Copper	low-alloyed ≤ 80 HB	135	0.0003	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0017	0.0021	0.0028
Brass	short-chipping ≤ 180HB long-chipping ≤ 180HB	70 70	0.0003 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0006	0.0010 0.0008	0.0017 0.0014	0.0021 0.0019	0.0028 0.0025
Bronze	short-chipping ≤ 180HB long-chipping ≤ 25 HRC	70 55	0.0002 0.0002	0.0002 0.0002	0.0003 0.0003	0.0004 0.0004	0.0005 0.0005	0.0006 0.0006	0.0008 0.0008	0.0014 0.0014	0.0019 0.0019	0.0025 0.0025
Bronze	long-chipping ≤ 25 HRC ≤ 32 HRC	40	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0014	0.0019	0.0025
Duroplastics	-	50	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0014	0.0019	0.0025
Thermoplastics	-	55	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0014	0.0019	0.0025

Series # 303

Material group	Hardness	SFM	Feed Rate - IPR									
			0.0039 in. 0.100 mm	0.0063 in. 0.160 mm	0.0098 in. 0.250 mm	0.0118 in. 0.300 mm	0.0197 in. 0.500 mm	0.0248 in. 0.630 mm	0.0315 in. 0.800 mm	0.0394 in. 1.000 mm	0.0591 in. 1.500 mm	0.0787 in. 2.000 mm
Common structural steels	≤ 20 HRC ≤ 32 HRC	65 55	0.0003 0.0003	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0006	0.0011 0.0008	0.0013 0.0010	0.0020 0.0017	0.0024 0.0021	0.0032 0.0028
Free-cutting steels	≤ 25 HRC ≤ 32 HRC	55 50	0.0003 0.0003	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0006	0.0011 0.0008	0.0013 0.0010	0.0020 0.0017	0.0024 0.0021	0.0032 0.0028
Unalloyed heat-treatable steels	≤ 20 HRC ≤ 25 HRC ≤ 32 HRC	65 55 45	0.0003 0.0003 0.0002	0.0003 0.0003 0.0002	0.0004 0.0004 0.0003	0.0005 0.0005 0.0004	0.0006 0.0006 0.0005	0.0008 0.0008 0.0006	0.0010 0.0010 0.0008	0.0017 0.0017 0.0014	0.0021 0.0021 0.0019	0.0028 0.0028 0.0025
Alloyed heat-treatable steels	≤ 32 HRC ≤ 43 HRC	45 35	0.0002 0.0002	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0007	0.0014 0.0012	0.0019 0.0016	0.0025 0.0021
Unalloyed case hardened steels	≤ 25 HRC	55	0.0003	0.0004	0.0005	0.0006	0.0008	0.0011	0.0013	0.0020	0.0024	0.0032
Alloyed case hardened steels	≤ 32 HRC ≤ 43 HRC	45 35	0.0002 0.0002	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0007	0.0014 0.0012	0.0019 0.0016	0.0025 0.0021
Nitriding steels	≤ 32 HRC ≤ 43 HRC	45 35	0.0002 0.0002	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0007	0.0014 0.0012	0.0019 0.0016	0.0025 0.0021
Tool steels	≤ 25 HRC ≤ 43 HRC	50 45	0.0002 0.0002	0.0002 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0007	0.0014 0.0012	0.0019 0.0016	0.0025 0.0021
High speed steels	≤ 43 HRC	45	0.0002	0.0002	0.0002	0.0003	0.0004	0.0005	0.0007	0.0012	0.0016	0.0021
Spring steels	≤ 38 HRC	25	0.0002	0.0002	0.0002	0.0002	0.0003	0.0004	0.0006	0.0001	0.0014	0.0019
Stainless steels	sulphured ≤ 28 HRC	15	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0014	0.0019	0.0025
	austenitic ≤ 36 HRC	15	0.0002	0.0002	0.0002	0.0003	0.0004	0.0005	0.0007	0.0012	0.0016	0.0021
	martensitic ≤ 46 HRC	15	0.0002	0.0002	0.0002	0.0003	0.0004	0.0005	0.0007	0.0012	0.0016	0.0021
Hardened steels	≤ 48 HRC ≤ 66 HRC											
Special alloys	≤ 54 HRC											
Cast iron	≤ 23 HRC ≤ 38 HRC	85 70	0.0003 0.0003	0.0004 0.0004	0.0005 0.0005	0.0006 0.0006	0.0008 0.0008	0.0011 0.0011	0.0013 0.0013	0.0020 0.0020	0.0024 0.0024	0.0032 0.0032
Spheroidal graphite iron and malleable cast iron	≤ 23 HRC ≤ 38 HRC	55 70	0.0003 0.0003	0.0004 0.0004	0.0005 0.0005	0.0006 0.0006	0.0008 0.0008	0.0011 0.0011	0.0013 0.0013	0.0020 0.0020	0.0024 0.0024	0.0032 0.0032
Chilled cast iron	≤ 38 HRC											
Ti and Ti-alloys	≤ 25 HRC ≤ 43 HRC											
Aluminum and Al-alloys	≤ 120HB											
Al wrought alloys	≤ 200HB											
Al cast alloys	≤ 10% Si ≤ 24% Si	85 55	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0006	0.0010 0.0008	0.0014 0.0011	0.0015 0.0013	0.0024 0.0020	0.0028 0.0024	0.0037 0.0032
Magnesium alloys	≤ 120HB	245	0.0003	0.0004	0.0005	0.0006	0.0008	0.0011	0.0013	0.0020	0.0024	0.0032
Copper	low-alloyed ≤ 80 HB	135	0.0003	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0017	0.0021	0.0028
Brass	short-chipping ≤ 180HB long-chipping ≤ 180HB	70 70	0.0003 0.0002	0.0003 0.0002	0.0004 0.0003	0.0005 0.0004	0.0006 0.0005	0.0008 0.0006	0.0010 0.0008	0.0017 0.0014	0.0021 0.0019	0.0028 0.0025
Bronze	short-chipping ≤ 180HB long-chipping ≤ 25 HRC	70 55	0.0002 0.0002	0.0002 0.0002	0.0003 0.0003	0.0004 0.0004	0.0005 0.0005	0.0006 0.0006	0.0008 0.0008	0.0014 0.0014	0.0019 0.0019	0.0025 0.0025
Bronze	long-chipping ≤ 25 HRC ≤ 32 HRC	40	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0014	0.0019	0.0025
Duroplastics	-	50	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0014	0.0019	0.0025
Thermoplastics	-	55	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0014	0.0019	0.0025

For more information, contact U.S. Headquarters at 1-800-776-6170. In Canada, call 1-800-463-5555. On the Internet, visit us at www.guhring.com.

Series # 660

Series # 3899

[illegible]

$$\text{RPM} = \frac{\text{SFM}}{\text{DIAM. in.}} \times 3.82 \quad \text{IPM} = \text{IPR} \times \text{RPM}$$

$$\frac{\text{HOLE DEPTH in.}}{\text{IPM}} \times 60 = \text{Cut Time}$$

$$\text{mm} = \text{in.} \times 25.40$$

$$\begin{aligned} \text{m/min.} &= \text{SFM} \div 3.28 \\ \text{mm/rev.} &= \text{IPR} \times 25.40 \end{aligned} \quad \begin{aligned} \text{Bar} &= \text{PSI} \div 14.50 \\ \text{Liter} &= \text{Gal.} \div 3.79 \end{aligned}$$

Series # 6400

Material group		Hardness	SFM	Feed Rate - IPR										
				0.0197 in. 0.500 mm	0.0315 in. 0.800 mm	0.0394 in. 1.000 mm	0.0591 in. 1.500 mm	0.0787 in. 2.000 mm	0.0984 in. 2.500 mm	0.1181 in. 3.000 mm				
Common structural steels		≤ 20 HRC	330	0.0020	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118				
		≤ 32 HRC	330	0.0020	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118				
Free-cutting steels		≤ 25 HRC	330	0.0020	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118				
		≤ 32 HRC	295	0.0018	0.0028	0.0035	0.0051	0.0071	0.0087	0.0106				
Unalloyed heat-treatable steels		≤ 20 HRC	295	0.0020	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118				
		≤ 25 HRC	295	0.0020	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118				
		≤ 32 HRC	295	0.0018	0.0028	0.0035	0.0051	0.0071	0.0087	0.0106				
Alloyed heat-treatable steels		≤ 32 HRC	295	0.0018	0.0028	0.0035	0.0051	0.0071	0.0087	0.0106				
		≤ 43 HRC	230	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
Unalloyed case hardened steels		≤ 25 HRC	330	0.0018	0.0028	0.0035	0.0051	0.0071	0.0087	0.0106				
Alloyed case hardened steels		≤ 32 HRC	280	0.0018	0.0028	0.0035	0.0051	0.0071	0.0087	0.0106				
		≤ 43 HRC	230	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
Nitriding steels		≤ 32 HRC	230	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 43 HRC	195	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
Tool steels		≤ 25 HRC	165	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 43 HRC	195	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
High speed steels		≤ 43 HRC	195	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035				
Spring steels		≤ 38 HRC	195	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035				
Stainless steels		sulphured austenitic martensitic	≤ 28 HRC	100	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035			
			≤ 36 HRC	50	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024			
			≤ 46 HRC	100	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035			
Hardened steels		≤ 48 HRC												
		≤ 66 HRC												
Special alloys		≤ 54 HRC	35	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
Cast iron		≤ 23 HRC	425	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
		≤ 38 HRC	425	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
Spheroidal graphite iron and malleable cast iron		≤ 23 HRC	425	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
		≤ 38 HRC	395	0.0024	0.0035	0.0043	0.0067	0.0091	0.0110	0.0134				
Chilled cast iron		≤ 38 HRC												
Ti and Ti-alloys		≤ 25 HRC	50	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
		≤ 43 HRC	50	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
Aluminum and Al-alloys		≤120HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
Al wrought alloys		≤200HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
Al cast alloys		≤ 10% Si	≤180HB	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059			
		≤ 24% Si	≤180HB	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059			
Magnesium alloys		≤120HB												
Copper		low-alloyed	≤ 80 HB											
Brass		short-chipping	≤180HB											
		long-chipping	≤180HB											
Bronze		short-chipping	≤180HB											
			≤ 25 HRC											
Bronze		long-chipping	≤ 25 HRC											
			≤ 32 HRC											

Series # 6401

Material group		Hardness	SFM	Feed Rate - IPR										
				0.0197 in. 0.500 mm	0.0315 in. 0.800 mm	0.0394 in. 1.000 mm	0.0591 in. 1.500 mm	0.0787 in. 2.000 mm	0.0984 in. 2.500 mm	0.1181 in. 3.000 mm				
Common structural steels		≤ 20 HRC	330	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 32 HRC	330	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
Free-cutting steels		≤ 25 HRC	330	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 32 HRC	295	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
Unalloyed heat-treatable steels		≤ 20 HRC	295	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 25 HRC	295	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 32 HRC	295	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
Alloyed heat-treatable steels		≤ 32 HRC	295	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
		≤ 43 HRC	230	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
Unalloyed case hardened steels		≤ 25 HRC	330	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
Alloyed case hardened steels		≤ 32 HRC	280	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
		≤ 43 HRC	230	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
Nitriding steels		≤ 32 HRC	230	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
		≤ 43 HRC	195	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
Tool steels		≤ 25 HRC	165	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
		≤ 43 HRC	195	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
High speed steels		≤ 43 HRC	195	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035				
Spring steels		≤ 38 HRC	195	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035				
Stainless steels		sulphured austenitic martensitic	≤ 28 HRC	100	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035			
			≤ 36 HRC	50	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024			
			≤ 46 HRC	100	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035			
Hardened steels		≤ 48 HRC												
		≤ 66 HRC												
Special alloys		≤ 54 HRC	35	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
Cast iron		≤ 23 HRC	425	0.0022	0.0031	0.0043	0.0063	0.0087	0.0106	0.0130				
		≤ 38 HRC	425	0.0022	0.0031	0.0043	0.0063	0.0087	0.0106	0.0130				
Spheroidal graphite iron and malleable cast iron		≤ 23 HRC	425	0.0022	0.0031	0.0043	0.0063	0.0087	0.0106	0.0130				
		≤ 38 HRC	395	0.0020	0.0031	0.0039	0.0059	0.0083	0.0102	0.0122				
Chilled cast iron		≤ 38 HRC												
Ti and Ti-alloys		≤ 25 HRC	50	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
		≤ 43 HRC	50	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
Aluminum and Al-alloys		≤120HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
Al wrought alloys		≤200HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
Al cast alloys		≤ 10% Si	≤180HB	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059			
		≤ 24% Si	≤180HB	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059			
Magnesium alloys		≤120HB												
Copper		low-alloyed	≤ 80 HB											
Brass		short-chipping	≤180HB											
		long-chipping	≤180HB											
Bronze		short-chipping	≤180HB											
			≤ 25 HRC											
Bronze		long-chipping	≤ 25 HRC											
			≤ 32 HRC											

Using These Tables. The Speeds & Feeds listed below are conservative recommendations for initial setup. In actual use, depending on the machining environment and workpiece material, significantly higher speeds and feeds may be achievable. Using the below as a starting point, cutting speed/feed can be gradually adjusted upwards until the optimum settings per application are found. Questions? Contact us by telephone at (800) 776-6170.

Series # 6405

Material group		Hardness	SFM	Feed Rate - IPR										
				0.0197 in. 0.500 mm	0.0315 in. 0.800 mm	0.0394 in. 1.000 mm	0.0591 in. 1.500 mm	0.0787 in. 2.000 mm	0.0984 in. 2.500 mm	0.1181 in. 3.000 mm				
Common structural steels		≤ 20 HRC	345	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 32 HRC	330	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
Free-cutting steels		≤ 25 HRC	345	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 32 HRC	295	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
Unalloyed heat-treatable steels		≤ 20 HRC	310	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 25 HRC	310	0.0016	0.0024	0.0031	0.0047	0.0063	0.0079	0.0094				
		≤ 32 HRC	295	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
Alloyed heat-treatable steels		≤ 32 HRC	295	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
		≤ 43 HRC	230	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
Unalloyed case hardened steels		≤ 25 HRC	330	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
Alloyed case hardened steels		≤ 32 HRC	280	0.0014	0.0020	0.0028	0.0039	0.0055	0.0067	0.0083				
		≤ 43 HRC	230	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
Nitriding steels		≤ 32 HRC	230	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
		≤ 43 HRC	195	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
Tool steels		≤ 25 HRC	165	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
		≤ 43 HRC	165	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
High speed steels		≤ 43 HRC	165	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035				
Spring steels		≤ 38 HRC	165	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035				
Stainless steels sulphured austenitic martensitic		≤ 28 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035				
		≤ 36 HRC	195	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
		≤ 46 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035				
Hardened steels		≤ 48 HRC												
		≤ 66 HRC												
Special alloys		≤ 54 HRC	80	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
Cast iron		≤ 23 HRC	490	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
		≤ 38 HRC	460	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
Spheroidal graphite iron and malleable cast iron		≤ 23 HRC	460	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
		≤ 38 HRC	425	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071				
Chilled cast iron		≤ 38 HRC												
Ti and Ti-alloys		≤ 25 HRC	115	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
		≤ 43 HRC	115	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024				
Aluminum and Al-alloys		≤120HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
Al wrought alloys		≤200HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142				
Al cast alloys		≤ 10% Si	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059				
		≤ 24% Si	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059				
Magnesium alloys		≤120HB												
Copper		low-alloyed	≤ 80 HB											
Brass		short-chipping	≤180HB											
		long-chipping	≤180HB											
Bronze		short-chipping	≤180HB											
			≤ 25 HRC											
Bronze		long-chipping	≤ 25 HRC											
			≤ 32 HRC											

GUHRING

E-LEARNING

Guhring's E-Learning center was developed as a technical resource center for machining principles and also Guhring products. Each training module is designed to provide a brief overview of a product or machining principle that is common to the metalworking industry.

www.guhring.com/elearning

$$\text{RPM} = \frac{\text{SFM}}{\text{DIAM. in.}} \times 3.82 \quad \text{IPM} = \text{IPR} \times \text{RPM}$$

$$\frac{\text{HOLE DEPTH in.}}{\text{IPM}} \times 60 = \text{Cut Time}$$

$$\text{mm} = \text{in.} \times 25.40$$

$$\text{m/min.} = \text{SFM} \div 3.28 \quad \text{Bar} = \text{PSI} \div 14.50$$

$$\text{mm/rev.} = \text{IPR} \times 25.40 \quad \text{Liter} = \text{Gal.} \div 3.79$$

Series # 6408

Material group	Hardness	SFM	Feed Rate - IPR								
			0.0197 in. 0.500 mm	0.0315 in. 0.800 mm	0.0394 in. 1.000 mm	0.0591 in. 1.500 mm	0.0787 in. 2.000 mm	0.0984 in. 2.500 mm	0.1181 in. 3.000 mm		
Common structural steels	≤ 20 HRC	345	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 32 HRC	330	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Free-cutting steels	≤ 25 HRC	345	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
	≤ 32 HRC	295	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
Unalloyed heat-treatable steels	≤ 20 HRC	310	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 25 HRC	310	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Alloyed heat-treatable steels	≤ 32 HRC	295	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 43 HRC	230	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Unalloyed case hardened steels	≤ 25 HRC	330	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 32 HRC	280	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Alloyed case hardened steels	≤ 43 HRC	230	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 32 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
Nitriding steels	≤ 43 HRC	195	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 25 HRC	165	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Tool steels	≤ 43 HRC	165	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 43 HRC	165	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
High speed steels	≤ 43 HRC	165	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 38 HRC	165	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
Spring steels	≤ 28 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 36 HRC	195	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024		
Stainless steels	≤ 46 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 46 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
Hardened steels	≤ 48 HRC										
	≤ 66 HRC										
Special alloys	≤ 54 HRC	80	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024		
	≤ 23 HRC	490	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
Cast iron	≤ 38 HRC	460	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
	≤ 23 HRC	460	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
Spheroidal graphite iron and malleable cast iron	≤ 38 HRC	425	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
	≤ 38 HRC	425	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
Chilled cast iron	≤ 25 HRC	115	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024		
	≤ 43 HRC	115	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024		
Aluminum and Al-alloys	≤ 120HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142		
	≤ 200HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142		
Al wrought alloys	≤ 180HB	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
	≤ 24% Si	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
Al cast alloys	≤ 180HB	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
	≤ 24% Si	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
Magnesium alloys	≤ 120HB										
	≤ 80 HB										
Copper	low-alloyed										
	short-chipping	≤ 180HB									
Brass	long-chipping	≤ 180HB									
	short-chipping	≤ 180HB									
Bronze	short-chipping	≤ 25 HRC									
	long-chipping	≤ 25 HRC									
Bronze	long-chipping	≤ 32 HRC									
	long-chipping	≤ 32 HRC									

Series # 6412

Material group	Hardness	SFM	Feed Rate - IPR								
			0.0197 in. 0.500 mm	0.0315 in. 0.800 mm	0.0394 in. 1.000 mm	0.0591 in. 1.500 mm	0.0787 in. 2.000 mm	0.0984 in. 2.500 mm	0.1181 in. 3.000 mm		
Common structural steels	≤ 20 HRC	345	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 32 HRC	330	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Free-cutting steels	≤ 25 HRC	345	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
	≤ 32 HRC	295	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
Unalloyed heat-treatable steels	≤ 20 HRC	310	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 25 HRC	310	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Alloyed heat-treatable steels	≤ 32 HRC	295	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 43 HRC	230	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Unalloyed case hardened steels	≤ 25 HRC	330	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 32 HRC	280	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Alloyed case hardened steels	≤ 43 HRC	230	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 32 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
Nitriding steels	≤ 43 HRC	195	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 25 HRC	165	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
Tool steels	≤ 43 HRC	165	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
	≤ 43 HRC	165	0.0007	0.0009	0.0013	0.0020	0.0028	0.0037	0.0047		
High speed steels	≤ 43 HRC	165	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 38 HRC	165	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
Spring steels	≤ 28 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 36 HRC	195	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024		
Stainless steels	≤ 46 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
	≤ 46 HRC	230	0.0005	0.0006	0.0009	0.0014	0.0020	0.0028	0.0035		
Hardened steels	≤ 48 HRC										
	≤ 66 HRC										
Special alloys	≤ 54 HRC	80	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024		
	≤ 23 HRC	490	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
Cast iron	≤ 38 HRC	460	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
	≤ 23 HRC	460	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
Spheroidal graphite iron and malleable cast iron	≤ 38 HRC	425	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
	≤ 38 HRC	425	0.0012	0.0016	0.0016	0.0035	0.0047	0.0059	0.0071		
Chilled cast iron	≤ 25 HRC	115	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024		
	≤ 43 HRC	115	0.0002	0.0003	0.0005	0.0008	0.0013	0.0018	0.0024		
Aluminum and Al-alloys	≤ 120HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142		
	≤ 200HB	230	0.0024	0.0035	0.0047	0.0071	0.0094	0.0118	0.0142		
Al wrought alloys	≤ 180HB	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
	≤ 24% Si	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
Al cast alloys	≤ 180HB	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
	≤ 24% Si	445	0.0009	0.0013	0.0017	0.0026	0.0036	0.0047	0.0059		
Magnesium alloys	≤ 120HB										
	≤ 80 HB										
Copper	low-alloyed										
	short-chipping	≤ 180HB									
Brass	long-chipping	≤ 180HB									
	short-chipping	≤ 180HB									
Bronze	short-chipping	≤ 25 HRC									
	long-chipping	≤ 25 HRC									
Bronze	long-chipping	≤ 32 HRC									
	long-chipping	≤ 32 HRC									

For more information, contact U.S. Headquarters at 1-800-776-6170. In Canada, call 1-800-463-5555. On the Internet, visit us at www.guhring.com.

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MODULAR TOOLING
SYSTEMS

TOOL RECONDITIONING SERVICE

GUHRING

The Tool Company

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Reconditioning Facility
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**Manufacturing and
Reconditioning Facility**
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