

NEW SERIES

MATERIAL SPECIFIC COATINGS

X7

G7

GARR TOOL[®]
High Performance Solid Carbide



TM

S M P K

High Performance End Mills

X7 BALIQ® ALCRONOS Coating (AlCrN)

G7 BALIQ® TISINOS PRO Coating (AlTiSiN)

X7 Target Materials:

Stainless Steel (Inox, Austenitic/Martensitic)

Carbon Tools Steels (Up to 50 HRC)

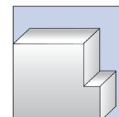
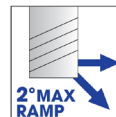
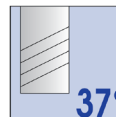
Cast Iron

G7 Target Materials:

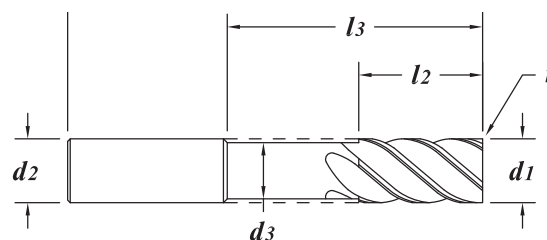
Heat Resistant Super Alloys

PH Stainless Steels (Inox, 13-8, 15-5, 17-4, Martensitic)

Conditioned Tool Steels (50-70 HRC)



CALCULATE IDEAL PARAMETERS
FOR THE X7 AND G7 IN YOUR
APPLICATION WITH THE GARR
TECHNICAL ADVISOR



X7

G7

View the X7

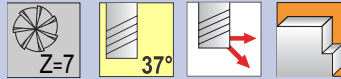
View the G7

TOLERANCES

d_1	$+0.000" - .002" (+.000mm - .050mm)$
d_2	$h6$
r	$+0.001" - .001" (+.025 - .025mm)$

HIGH EFFICIENCY MILLING

Series X7, G7



.3150" - .4724"
(8.000mm - 12.000mm)

X7 Recommended for Low, Medium, and High Carbon Tool Steels (up to 50 HRC), cast iron, and stainless steel (Inox).

G7 Recommended for tough machining materials such as Heat Resistant Super Alloys,
PH Stainless steels (Inox), and conditioned tool steels. (50-70 HRC)

7 Flute High Performance End Mills

X7* BALIQ® ALCRONOS Coating (AlCrN-based)

G7 BALIQ® TISINOS PRO Coating (AlTiSiN)

Solid submicron grain carbide - non-center cutting

h6 shank tolerance

Engineered for High Efficiency Milling

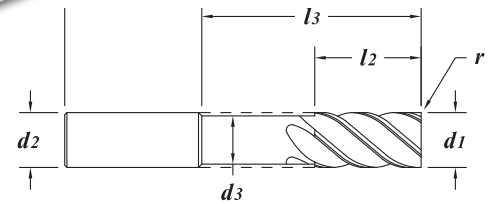
Variable flute grind

Honed edge treatment

Polished fluting

Material and condition specific coatings

*Previously named VX-7; now polished.



X7 EDP#	G7 EDP#	d_1 †		d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter	1-11	12-24	25-49	50-100	
		Decimal	Metric											
64100	64500	.3150"	8.000	8	65	22	-	-	-	53.99	51.64	49.30	46.95	
64102	64501	.3150"	8.000	8	65	22	0.50	-	-	59.48	56.89	54.31	51.72	
64104	64502	.3150"	8.000	8	65	22	1.00	-	-	59.48	56.89	54.31	51.72	
64105	64503	.3150"	8.000	8	75	27	1.60	-	-	72.94	69.77	66.60	63.43	
64106	64504	.3150"	8.000	8	75	32	-	-	-	66.75	63.85	60.95	58.04	
64108	64505	.3150"	8.000	8	75	32	0.50	-	-	72.94	69.77	66.60	63.43	
64110	64506	.3150"	8.000	8	75	32	1.00	-	-	72.94	69.77	66.60	63.43	
64267	64507	.3750"	3/8"	9.525	3/8"	2"	5/8"	-	-	49.94	47.77	45.60	43.43	
64268	64508	.3750"	3/8"	9.525	3/8"	2"	5/8"	.010"	-	57.05	54.57	52.09	49.61	
64269	64509	.3750"	3/8"	9.525	3/8"	2"	5/8"	.015"	-	57.05	54.57	52.09	49.61	
64270	64510	.3750"	3/8"	9.525	3/8"	2"	5/8"	.020"	-	57.05	54.57	52.09	49.61	
64271	64511	.3750"	3/8"	9.525	3/8"	2"	5/8"	.030"	-	57.05	54.57	52.09	49.61	
64112	64512	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	-	-	58.67	56.12	53.57	51.02	
64114	64513	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	.020"	-	64.24	61.45	58.65	55.86	
64116	64514	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	.030"	-	64.24	61.45	58.65	55.86	
64117	64515	.3750"	3/8"	9.525	3/8"	3"	1"	.025"	-	78.14	74.74	71.34	67.95	
64118	64516	.3750"	3/8"	9.525	3/8"	3"	1-1/2"	-	-	70.76	67.68	64.61	61.53	
64120	64517	.3750"	3/8"	9.525	3/8"	3"	1-1/2"	.020"	-	78.14	74.74	71.34	67.95	
64122	64518	.3750"	3/8"	9.525	3/8"	3"	1-1/2"	.030"	-	78.14	74.74	71.34	67.95	
64123	64519	.3750"	3/8"	9.525	3/8"	3"	1-1/2"	.060"	-	78.14	74.74	71.34	67.95	
64246	64520	.3750"	3/8"	9.525	3/8"	4"	7/8"	.015"	1-7/8"	.355"	101.71	97.29	92.87	88.44
64124	64521	.3937"	10.000	10	70	25	-	-	-	68.70	65.71	62.73	59.74	
64126	64522	.3937"	10.000	10	70	25	0.50	-	-	75.83	72.53	69.24	65.94	
64128	64523	.3937"	10.000	10	70	25	1.00	-	-	75.83	72.53	69.24	65.94	
64130	64524	.4724"	12.000	12	75	26	-	-	-	82.48	78.89	75.31	71.72	
64132	64525	.4724"	12.000	12	75	26	0.50	-	-	100.42	96.05	91.69	87.32	
64134	64526	.4724"	12.000	12	75	26	1.00	-	-	100.42	96.05	91.69	87.32	
64136	64527	.4724"	12.000	12	75	32	-	-	-	82.48	78.89	75.31	71.72	
64138	64528	.4724"	12.000	12	75	32	0.50	-	-	100.42	96.05	91.69	87.32	
64140	64529	.4724"	12.000	12	75	32	1.00	-	-	100.42	96.05	91.69	87.32	
64141	64530	.4724"	12.000	12	100	42	1.00	-	-	121.80	116.50	111.21	105.91	
64142	64531	.4724"	12.000	12	100	50	-	-	-	110.76	105.94	101.13	96.31	
64144	64532	.4724"	12.000	12	100	50	0.50	-	-	121.80	116.50	111.21	105.91	
64146	64533	.4724"	12.000	12	100	50	1.00	-	-	121.80	116.50	111.21	105.91	

continued →

800-248-9003

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HIGH PERFORMANCE
END MILLS

X7

MATERIAL HARDNESS (RC)

G7

35

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Series X7, G7 (continued)

.5000" - .6250"
(12.700mm - 15.875mm)

X7 EDP#	G7 EDP#	d1 † Diameter			d2 Shank Diameter	l1 Overall Length	l2 Flute Length	r Corner Radius	l3 Reach Length	d3 Neck Diameter	1-11	12-24	25-49	50-100
		Decimal	1/2"	Metric										
64218	64534	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	-	77.07	73.72	70.37	67.02
64220	64535	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.015"	-	-	89.80	85.90	81.99	78.09
64222	64536	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	-	-	89.80	85.90	81.99	78.09
64223	64537	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.060"	-	-	89.80	85.90	81.99	78.09
64224	64538	.5000"	1/2"	12.700	1/2"	3"	1"	-	-	-	80.10	76.62	73.13	69.65
64226	64539	.5000"	1/2"	12.700	1/2"	3"	1"	.015"	-	-	97.27	93.04	88.81	84.58
64228	64540	.5000"	1/2"	12.700	1/2"	3"	1"	.030"	-	-	97.27	93.04	88.81	84.58
64148	64541	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	-	-	-	80.10	76.62	73.13	69.65
64150	64542	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-	97.27	93.04	88.81	84.58
64152	64543	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-	97.27	93.04	88.81	84.58
64154	64544	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-	97.27	93.04	88.81	84.58
64156	64545	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-	97.27	93.04	88.81	84.58
64157	64546	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.125"	-	-	97.27	93.04	88.81	84.58
64158	64547	.5000"	1/2"	12.700	1/2"	3-1/2"	1-1/2"	-	-	-	104.17	99.64	95.11	90.58
64160	64548	.5000"	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.030"	-	-	114.82	109.83	104.84	99.84
64161	64549	.5000"	1/2"	12.700	1/2"	4"	5/8"	.015"	2-1/8"	.475"	128.62	123.03	117.44	111.84
64242	64550	.5000"	1/2"	12.700	1/2"	4"	1-5/8"	-	-	-	106.87	102.22	97.58	92.93
64244	64551	.5000"	1/2"	12.700	1/2"	4"	1-5/8"	.015"	-	-	117.52	112.41	107.30	102.19
64162	64552	.5000"	1/2"	12.700	1/2"	4"	2"	-	-	-	106.87	102.22	97.58	92.93
64163	64553	.5000"	1/2"	12.700	1/2"	4"	2"	.015"	-	-	117.52	112.41	107.30	102.19
64164	64554	.5000"	1/2"	12.700	1/2"	4"	2"	.030"	-	-	117.52	112.41	107.30	102.19
64165	64555	.5000"	1/2"	12.700	1/2"	4"	2"	.125"	-	-	117.52	112.41	107.30	102.19
64248	64556	.5512"	14	14.000	14	88	32	0.50	-	-	143.31	137.08	130.85	124.62
64273	64557	.6250"	5/8"	15.875	5/8"	3"	1"	-	-	-	131.20	125.50	119.79	114.09
64274	64558	.6250"	5/8"	15.875	5/8"	3"	1"	.015"	-	-	143.65	137.40	131.16	124.91
64275	64559	.6250"	5/8"	15.875	5/8"	3"	1"	.030"	-	-	143.65	137.40	131.16	124.91
64166	64560	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	-	-	135.99	130.08	124.16	118.25
64276	64561	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	-	-	148.65	142.19	135.72	129.26
64320	64639	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	-	148.65	142.19	135.72	129.26
64168	64562	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-	148.65	142.19	135.72	129.26
64170	64563	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-	148.65	142.19	135.72	129.26
64171	64564	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.120"	-	-	148.65	142.19	135.72	129.26
64277	64565	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/2"	-	-	-	135.99	130.08	124.16	118.25
64278	64566	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/2"	.015"	-	-	148.65	142.19	135.72	129.26
64279	64567	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/2"	.030"	-	-	148.65	142.19	135.72	129.26
64280	64568	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/2"	.060"	-	-	148.65	142.19	135.72	129.26
64281	64569	.6250"	5/8"	15.875	5/8"	3-1/2"	1-5/8"	-	-	-	135.99	130.08	124.16	118.25
64282	64570	.6250"	5/8"	15.875	5/8"	3-1/2"	1-5/8"	.015"	-	-	148.65	142.19	135.72	129.26
64283	64571	.6250"	5/8"	15.875	5/8"	3-1/2"	1-5/8"	.030"	-	-	148.65	142.19	135.72	129.26
64284	64572	.6250"	5/8"	15.875	5/8"	3-1/2"	1-5/8"	.060"	-	-	148.65	142.19	135.72	129.26
64172	64573	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	-	-	-	143.18	136.95	130.73	124.50
64285	64574	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.015"	-	-	156.71	149.90	143.08	136.27
64174	64575	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.030"	-	-	156.71	149.90	143.08	136.27
64176	64576	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.060"	-	-	156.71	149.90	143.08	136.27
64321	64640	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.090"	-	-	156.71	149.90	143.08	136.27
64177	64577	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.120"	-	-	156.71	149.90	143.08	136.27
64286	64578	.6250"	5/8"	15.875	5/8"	4"	2"	-	-	-	143.18	136.95	130.73	124.50
64287	64579	.6250"	5/8"	15.875	5/8"	4"	2"	.015"	-	-	156.71	149.90	143.08	136.27
64288	64580	.6250"	5/8"	15.875	5/8"	4"	2"	.030"	-	-	156.71	149.90	143.08	136.27
64289	64581	.6250"	5/8"	15.875	5/8"	4"	2"	.060"	-	-	156.71	149.90	143.08	136.27
64290	64582	.6250"	5/8"	15.875	5/8"	4"	2"	.120"	-	-	156.71	149.90	143.08	136.27
64323	64641	.6250"	5/8"	15.875	5/8"	4"	2-1/8"	.125"	-	-	156.71	149.90	143.08	136.27
64324	64642	.6250"	5/8"	15.875	5/8"	5"	2-1/2"	-	-	-	187.34	179.19	171.05	162.90
64325	64643	.6250"	5/8"	15.875	5/8"	5"	2-1/2"	.125"	-	-	204.69	195.79	186.89	177.99

X7 EDP#	G7 EDP#	d_1 † Diameter		d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter	1-11	12-24	25-49	50-100
		Decimal	Metric										
64178	64583	.6299"	16.000	16	88	32	-	-	-	145.51	139.18	132.86	126.53
64180	64584	.6299"	16.000	16	88	32	0.50	-	-	158.64	151.74	144.84	137.95
64182	64585	.6299"	16.000	16	88	32	1.00	-	-	158.64	151.74	144.84	137.95
64230	64586	.6299"	16.000	16	88	32	2.00	-	-	158.64	151.74	144.84	137.95
64290	64587	.6299"	16.000	16	100	40	-	-	-	151.64	145.05	138.45	131.86
64291	64588	.6299"	16.000	16	100	40	0.50	-	-	166.49	159.25	152.01	144.77
64231	64589	.6299"	16.000	16	100	40	1.00	-	-	166.49	159.25	152.01	144.77
64232	64590	.6299"	16.000	16	100	40	1.50	-	-	166.49	159.25	152.01	144.77
64292	64591	.6299"	16.000	16	100	50	-	-	-	151.64	145.05	138.45	131.86
64293	64592	.6299"	16.000	16	100	50	0.50	-	-	166.49	159.25	152.01	144.77
64294	64593	.6299"	16.000	16	100	50	1.00	-	-	166.49	159.25	152.01	144.77
64234	64594	.6299"	16.000	16	125	65	0.50	-	-	209.33	200.23	191.13	182.03
64236	64595	.6299"	16.000	16	125	65	3.00	-	-	209.33	200.23	191.13	182.03
64252	64596	.7500" 3/4"	19.050	3/4"	3"	1"	-	-	-	176.90	169.21	161.52	153.83
64254	64597	.7500" 3/4"	19.050	3/4"	3"	1"	.030"	-	-	195.07	186.59	178.11	169.63
64184	64598	.7500" 3/4"	19.050	3/4"	4"	1-1/2"	-	-	-	186.22	178.12	170.03	161.93
64186	64599	.7500" 3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-	204.72	195.82	186.92	178.02
64188	64600	.7500" 3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-	204.72	195.82	186.92	178.02
64190	64601	.7500" 3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-	204.72	195.82	186.92	178.02
64295	64602	.7500" 3/4"	19.050	3/4"	4"	1-5/8"	-	-	-	186.22	178.12	170.03	161.93
64296	64603	.7500" 3/4"	19.050	3/4"	4"	1-5/8"	.015"	-	-	204.72	195.82	186.92	178.02
64297	64604	.7500" 3/4"	19.050	3/4"	4"	1-5/8"	.030"	-	-	204.72	195.82	186.92	178.02
64298	64605	.7500" 3/4"	19.050	3/4"	4"	1-5/8"	.060"	-	-	204.72	195.82	186.92	178.02
64299	64606	.7500" 3/4"	19.050	3/4"	4"	1-5/8"	.090"	-	-	204.72	195.82	186.92	178.02
64301	64607	.7500" 3/4"	19.050	3/4"	4"	1-5/8"	.125"	-	-	204.72	195.82	186.92	178.02
64303	64608	.7500" 3/4"	19.050	3/4"	4"	1-5/8"	.190"	-	-	204.72	195.82	186.92	178.02
64305	64609	.7500" 3/4"	19.050	3/4"	4"	1-5/8"	.250"	-	-	204.72	195.82	186.92	178.02
64256	64610	.7500" 3/4"	19.050	3/4"	4"	1-3/4"	-	-	-	186.22	178.12	170.03	161.93
64258	64611	.7500" 3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-	204.72	195.82	186.92	178.02
64260	64612	.7500" 3/4"	19.050	3/4"	5"	1"	.030"	3"	.730"	288.37	275.83	263.29	250.76
64192	64613	.7500" 3/4"	19.050	3/4"	5"	2-1/4"	-	-	-	245.23	234.57	223.90	213.24
64194	64614	.7500" 3/4"	19.050	3/4"	5"	2-1/4"	.030"	-	-	277.27	265.21	253.16	241.10
64238	64615	.7500" 3/4"	19.050	3/4"	5"	2-1/4"	.060"	-	-	277.27	265.21	253.16	241.10
64262	64616	.7500" 3/4"	19.050	3/4"	5"	2-1/4"	.120"	-	-	277.27	265.21	253.16	241.10
64307	64617	.7500" 3/4"	19.050	3/4"	5"	2-1/4"	.125"	-	-	277.27	265.21	253.16	241.10
64264	64618	.7500" 3/4"	19.050	3/4"	5"	2-1/2"	.060"	-	-	277.27	265.21	253.16	241.10
64266	64619	.7500" 3/4"	19.050	3/4"	6"	1-1/8"	.120"	3-5/8"	.730"	336.93	322.28	307.63	292.98
64196	64620	.7500" 3/4"	19.050	3/4"	6"	3-1/4"	-	-	-	287.04	274.56	262.08	249.60
64198	64621	.7500" 3/4"	19.050	3/4"	6"	3-1/4"	.030"	-	-	325.81	311.64	297.48	283.31
64309	64622	.7500" 3/4"	19.050	3/4"	6"	3-1/4"	.060"	-	-	325.81	311.64	297.48	283.31
64311	64623	.7500" 3/4"	19.050	3/4"	6"	3-1/4"	.125"	-	-	325.81	311.64	297.48	283.31
64200	64624	.7874"	20.000	20	100	38	-	-	-	249.19	238.36	227.52	216.69
64202	64625	.7874"	20.000	20	100	38	0.50	-	-	285.07	272.68	260.28	247.89
64204	64626	.7874"	20.000	20	100	38	1.00	-	-	285.07	272.68	260.28	247.89
64313	64627	.7874"	20.000	20	100	50	-	-	-	249.19	238.36	227.52	216.69
64315	64628	.7874"	20.000	20	100	50	0.50	-	-	285.07	272.68	260.28	247.89
64317	64629	.7874"	20.000	20	100	50	1.00	-	-	285.07	272.68	260.28	247.89
64206	64630	1.000" 1"	25.400	1.00"	4"	1-1/2"	-	-	-	270.81	259.04	247.26	235.49
64208	64631	1.000" 1"	25.400	1.00"	4"	1-1/2"	.030"	-	-	334.04	319.52	304.99	290.47
64319	64632	1.000" 1"	25.400	1.0"	4"	1-1/2"	.060"	-	-	334.04	319.52	304.99	290.47
64240	64633	1.000" 1"	25.400	1.00"	4"	1-1/2"	.125"	-	-	334.04	319.52	304.99	290.47
64210	64634	1.000" 1"	25.400	1.00"	5"	2"	-	-	-	353.38	338.02	322.65	307.29
64212	64635	1.000" 1"	25.400	1.00"	5"	2-1/2"	-	-	-	353.38	338.02	322.65	307.29
64213	64636	1.000" 1"	25.400	1.00"	5"	2-1/2"	.030"	-	-	406.56	388.88	371.21	353.53
64214	64637	1.000" 1"	25.400	1.00"	6"	3-1/4"	-	-	-	450.47	430.88	411.30	391.71
64216	64638	1.000" 1"	25.400	1.00"	6"	3-1/4"	.030"	-	-	515.95	493.52	471.08	448.65

70 → G7

X7

35 →

MATERIAL HARDNESS (Rc)

0 →

S M P K

High Performance End Mills

X7C BALIQ® ALCRONOS Coating (AlCrN)

G7C BALIQ® TISINOS PRO Coating (AlTiSiN)

X7C Target Materials:

Stainless Steel (Inox, Austenitic/Martensitic)

Carbon Tools Steels (Up to 50 HRC)

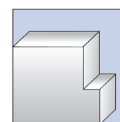
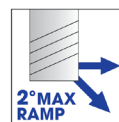
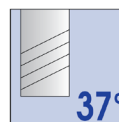
Cast Iron

G7C Target Materials:

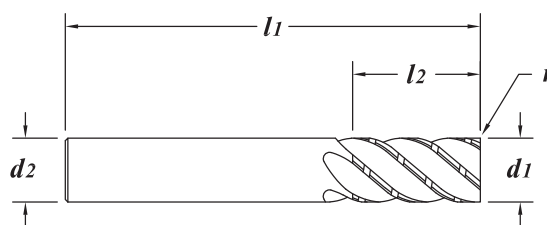
Heat Resistant Super Alloys

PH Stainless Steels (Inox, 13-8, 15-5, 17-4, Martensitic)

Conditioned Tool Steels (50-70 HRC)



CALCULATE IDEAL PARAMETERS
FOR THE X7C AND G7C IN YOUR
APPLICATION WITH THE GARR
TECHNICAL ADVISOR



X7C

G7C

View the X7C

View the G7C

TOLERANCES

$d1$	$+0.000" - .002" (+.000mm -.050mm)$
$d2$	$h6$
r	$+0.001" -.001" (+.025 -.025mm)$

HIGH EFFICIENCY MILLING

Series X7C, G7C



.3750" - .4724"
(9.525mm - 12.000mm)

X7C Recommended for Low, Medium, and High Carbon Tool Steels (up to 50 HRC), cast iron, and stainless steel (Inox).

G7C Recommended for tough machining materials such as Heat Resistant Super Alloys,
PH Stainless steels (Inox), and conditioned tool steels. (50-70 HRC)

7 Flute High Performance End Mills

X7C* BALIQ® ALCRONOS Coating (AlCrN-based)

G7C BALIQ® TISINOS PRO Coating (AlTiSiN)

Solid submicron grain carbide - non-center cutting

Chip splitters

h6 shank tolerance

Engineered for High Efficiency Milling

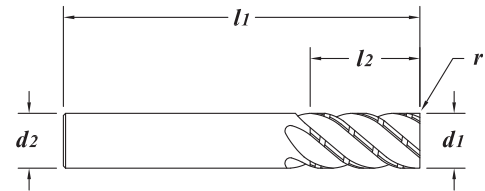
Variable flute grind

Honed edge treatment

Polished fluting

Material and condition specific coatings

*Previously named VX-7C; now polished.



X7C EDP#	G7C EDP#	$d1$ †		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	1-11	12-24	25-49	50-100
		Decimal	Metric										
64300	64700	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	-	-	65.50	62.65	59.80	56.96
64302	64701	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	.020"	-	71.08	67.99	64.90	61.81
64304	64702	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	.030"	-	71.08	67.99	64.90	61.81
64900	64703	.3750"	3/8"	9.525	3/8"	3"	1-1/2"	-	-	77.33	73.97	70.61	67.24
64901	64704	.3750"	3/8"	9.525	3/8"	3"	1-1/2"	.020"	-	84.72	81.04	77.35	73.67
64902	64705	.3750"	3/8"	9.525	3/8"	3"	1-1/2"	.030"	-	84.72	81.04	77.35	73.67
64903	64706	.3750"	3/8"	9.525	3/8"	3"	1-1/2"	.060"	-	84.72	81.04	77.35	73.67
64904	64707	.3750"	3/8"	9.525	3/8"	4"	7/8"	.015"	1-7/8"	108.28	103.57	98.86	94.16
64905	64708	.3937"	10.000	10	70	25	-	-	-	76.10	72.79	69.48	66.17
64906	64709	.3937"	10.000	10	70	25	0.50	-	-	83.23	79.61	75.99	72.37
64907	64710	.3937"	10.000	10	70	25	1.00	-	-	83.23	79.61	75.99	72.37
64908	64711	.4724"	12.000	12	75	26	-	-	-	90.69	86.75	82.80	78.86
64909	64712	.4724"	12.000	12	75	26	0.50	-	-	108.63	103.91	99.18	94.46
64910	64713	.4724"	12.000	12	75	26	1.00	-	-	108.63	103.91	99.18	94.46
64911	64714	.4724"	12.000	12	75	32	-	-	-	90.69	86.75	82.80	78.86
64912	64715	.4724"	12.000	12	75	32	0.50	-	-	108.63	103.91	99.18	94.46
64913	64716	.4724"	12.000	12	75	32	1.00	-	-	108.63	103.91	99.18	94.46
64914	64717	.4724"	12.000	12	100	42	1.00	-	-	130.35	124.68	119.01	113.35
64915	64718	.4724"	12.000	12	100	50	-	-	-	118.98	113.81	108.63	103.46
64310	64719	.4724"	12.000	12	100	50	0.50	-	-	130.35	124.68	119.01	113.35
64916	64720	.4724"	12.000	12	100	50	1.00	-	-	130.35	124.68	119.01	113.35

HIGH PERFORMANCE
END MILLS

G7

X7

35

MATERIAL HARDNESS (RC)

continued →

800-248-9003

989-463-6171

fax 989-463-3609

Series **X7C, G7C** (continued).5000" - .6250"
(12.700mm - 15.875mm)

X7C EDP#	G7C EDP#	$d1^{\dagger}$			$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	1-11	12-24	25-49	50-100
		Decimal	Diameter	Metric								
64917	64721	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	-	85.28	81.57	77.86	74.16
64918	64722	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.015"	98.35	94.07	89.80	85.52
64316	64723	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	98.35	94.07	89.80	85.52
64318	64724	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.060"	98.35	94.07	89.80	85.52
64919	64725	.5000"	1/2"	12.700	1/2"	3"	1"	-	88.32	84.48	80.64	76.80
64920	64726	.5000"	1/2"	12.700	1/2"	3"	1"	.015"	105.81	101.21	96.61	92.01
64322	64727	.5000"	1/2"	12.700	1/2"	3"	1"	.030"	105.81	101.21	96.61	92.01
64921	64728	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	-	88.32	84.48	80.64	76.80
64922	64729	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.015"	105.81	101.21	96.61	92.01
64923	64730	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.020"	105.81	101.21	96.61	92.01
64330	64731	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.030"	105.81	101.21	96.61	92.01
64332	64732	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.060"	105.81	101.21	96.61	92.01
64924	64733	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.125"	105.81	101.21	96.61	92.01
64338	64734	.5000"	1/2"	12.700	1/2"	3-1/2"	1-1/2"	-	112.71	107.81	102.91	98.01
64342	64735	.5000"	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.030"	123.36	118.00	112.63	107.27
64925	64736	.5000"	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.060"	123.36	118.00	112.63	107.27
64926	64737	.5000"	1/2"	12.700	1/2"	4"	1-5/8"	-	115.41	110.39	105.37	100.36
64927	64738	.5000"	1/2"	12.700	1/2"	4"	1-5/8"	.015"	126.06	120.58	115.10	109.62
64928	64739	.5000"	1/2"	12.700	1/2"	4"	1-5/8"	.030"	126.06	120.58	115.10	109.62
64929	64740	.5000"	1/2"	12.700	1/2"	4"	1-5/8"	.060"	126.06	120.58	115.10	109.62
64346	64741	.5000"	1/2"	12.700	1/2"	4"	2"	-	115.41	110.39	105.37	100.36
64930	64742	.5000"	1/2"	12.700	1/2"	4"	2"	.015"	126.06	120.58	115.10	109.62
64348	64743	.5000"	1/2"	12.700	1/2"	4"	2"	.030"	126.06	120.58	115.10	109.62
64931	64744	.5000"	1/2"	12.700	1/2"	4"	2"	.060"	126.06	120.58	115.10	109.62
64352	64745	.5000"	1/2"	12.700	1/2"	4"	2"	.125"	126.06	120.58	115.10	109.62
64932	64746	.5512"		14.000	14	88	32	0.50	130.17	124.51	118.85	113.19
64933	64747	.6250"	5/8"	15.875	5/8"	3"	1"	-	141.06	134.93	128.79	122.66
64934	64748	.6250"	5/8"	15.875	5/8"	3"	1"	.015"	153.51	146.84	140.16	133.49
64935	64749	.6250"	5/8"	15.875	5/8"	3"	1"	.030"	153.51	146.84	140.16	133.49
64936	64750	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	145.85	139.51	133.17	126.83
64937	64751	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	158.50	151.61	144.72	137.83
65006	64829	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	158.50	151.61	144.72	137.83
64938	64752	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	158.50	151.61	144.72	137.83
64939	64753	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	158.50	151.61	144.72	137.83
64940	64754	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.120"	158.50	151.61	144.72	137.83
64941	64755	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/2"	-	145.85	139.51	133.17	126.83
64942	64756	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/2"	.015"	158.50	151.61	144.72	137.83
64943	64757	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/2"	.030"	158.50	151.61	144.72	137.83
64944	64758	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/2"	.060"	158.50	151.61	144.72	137.83
64945	64759	.6250"	5/8"	15.875	5/8"	3-1/2"	1-5/8"	-	145.85	139.51	133.17	126.83
64946	64760	.6250"	5/8"	15.875	5/8"	3-1/2"	1-5/8"	.015"	158.50	151.61	144.72	137.83
64947	64761	.6250"	5/8"	15.875	5/8"	3-1/2"	1-5/8"	.030"	158.50	151.61	144.72	137.83
64948	64762	.6250"	5/8"	15.875	5/8"	3-1/2"	1-5/8"	.060"	158.50	151.61	144.72	137.83
64360	64763	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	-	153.43	146.76	140.09	133.42
64949	64764	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.015"	166.96	159.70	152.44	145.18
64364	64765	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.030"	166.96	159.70	152.44	145.18
64950	64766	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.060"	166.96	159.70	152.44	145.18
64951	64767	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.090"	166.96	159.70	152.44	145.18
64952	64768	.6250"	5/8"	15.875	5/8"	4"	1-3/4"	.120"	166.96	159.70	152.44	145.18
64953	64769	.6250"	5/8"	15.875	5/8"	4"	2"	-	153.43	146.76	140.09	133.42
64954	64770	.6250"	5/8"	15.875	5/8"	4"	2"	.015"	166.96	159.70	152.44	145.18
64955	64771	.6250"	5/8"	15.875	5/8"	4"	2"	.030"	166.96	159.70	152.44	145.18
64956	64772	.6250"	5/8"	15.875	5/8"	4"	2"	.060"	166.96	159.70	152.44	145.18
64957	64773	.6250"	5/8"	15.875	5/8"	4"	2"	.120"	166.96	159.70	152.44	145.18
65007	64830	.6250"	5/8"	15.875	5/8"	4"	2-1/8"	.125"	166.96	159.70	152.44	145.18
65008	64831	.6250"	5/8"	15.875	5/8"	5"	2-1/2"	-	197.19	188.62	180.04	171.47
65009	64832	.6250"	5/8"	15.875	5/8"	5"	2-1/2"	.125"	214.54	205.21	195.88	186.56

X7C EDP#	G7C EDP#	$d1^+$ Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	1-11	12-24	25-49	50-100
		Decimal	Metric								
64958	64774	.6299"	16.000	16	88	32	-	155.37	148.61	141.86	135.10
64959	64775	.6299"	16.000	16	88	32	0.50	168.51	161.18	153.86	146.53
64960	64776	.6299"	16.000	16	88	32	1.00	168.51	161.18	153.86	146.53
64961	64777	.6299"	16.000	16	88	32	2.00	168.51	161.18	153.86	146.53
64962	64778	.6299"	16.000	16	100	40	-	161.49	154.47	147.45	140.43
64963	64779	.6299"	16.000	16	100	40	0.50	176.73	169.05	161.36	153.68
64368	64780	.6299"	16.000	16	100	40	0.75	176.73	169.05	161.36	153.68
64369	64781	.6299"	16.000	16	100	40	1.00	176.73	169.05	161.36	153.68
64964	64782	.6299"	16.000	16	100	40	1.50	176.73	169.05	161.36	153.68
64965	64783	.6299"	16.000	16	100	50	-	161.49	154.47	147.45	140.43
64966	64784	.6299"	16.000	16	100	50	0.50	176.73	169.05	161.36	153.68
64372	64785	.6299"	16.000	16	100	50	1.00	176.73	169.05	161.36	153.68
64967	64786	.6299"	16.000	16	125	65	0.50	219.19	209.66	200.13	190.60
64968	64787	.6299"	16.000	16	125	65	3.00	219.19	209.66	200.13	190.60
64969	64788	.7500"	19.050	3/4"	3"	1"	-	187.17	179.03	170.89	162.76
64970	64789	.7500"	19.050	3/4"	3"	1"	.030"	205.34	196.41	187.48	178.56
64971	64790	.7500"	19.050	3/4"	4"	1-1/2"	-	196.49	187.95	179.40	170.86
64380	64791	.7500"	19.050	3/4"	4"	1-1/2"	.030"	215.41	206.04	196.68	187.31
64972	64792	.7500"	19.050	3/4"	4"	1-1/2"	.060"	215.41	206.04	196.68	187.31
64973	64793	.7500"	19.050	3/4"	4"	1-1/2"	.120"	215.41	206.04	196.68	187.31
64974	64794	.7500"	19.050	3/4"	4"	1-5/8"	-	196.49	187.95	179.40	170.86
64975	64795	.7500"	19.050	3/4"	4"	1-5/8"	.015"	215.41	206.04	196.68	187.31
64976	64796	.7500"	19.050	3/4"	4"	1-5/8"	.030"	215.41	206.04	196.68	187.31
64977	64797	.7500"	19.050	3/4"	4"	1-5/8"	.060"	215.41	206.04	196.68	187.31
64978	64798	.7500"	19.050	3/4"	4"	1-5/8"	.090"	215.41	206.04	196.68	187.31
64979	64799	.7500"	19.050	3/4"	4"	1-5/8"	.125"	215.41	206.04	196.68	187.31
64980	64800	.7500"	19.050	3/4"	4"	1-5/8"	.190"	215.41	206.04	196.68	187.31
64981	64801	.7500"	19.050	3/4"	4"	1-5/8"	.250"	215.41	206.04	196.68	187.31
64982	64802	.7500"	19.050	3/4"	4"	1-3/4"	-	196.49	187.95	179.40	170.86
64983	64803	.7500"	19.050	3/4"	4"	1-3/4"	.030"	215.41	206.04	196.68	187.31
64984	64804	.7500"	19.050	3/4"	5"	2-1/4"	-	255.50	244.39	233.28	222.17
64985	64805	.7500"	19.050	3/4"	5"	2-1/4"	.030"	287.53	275.03	262.53	250.03
64986	64806	.7500"	19.050	3/4"	5"	2-1/4"	.060"	287.53	275.03	262.53	250.03
64987	64807	.7500"	19.050	3/4"	5"	2-1/4"	.120"	287.53	275.03	262.53	250.03
64988	64808	.7500"	19.050	3/4"	5"	2-1/4"	.125"	287.53	275.03	262.53	250.03
64989	64809	.7500"	19.050	3/4"	5"	2-1/2"	.060"	287.53	275.03	262.53	250.03
64990	64810	.7500"	19.050	3/4"	6"	3-1/4"	-	297.31	284.38	271.46	258.53
64386	64811	.7500"	19.050	3/4"	6"	3-1/4"	.030"	336.48	321.85	307.22	292.59
64991	64812	.7500"	19.050	3/4"	6"	3-1/4"	.060"	336.48	321.85	307.22	292.59
64992	64813	.7500"	19.050	3/4"	6"	3-1/4"	.125"	336.48	321.85	307.22	292.59
64993	64814	.7874"	20.000	20	100	38	-	261.51	250.14	238.77	227.40
64389	64815	.7874"	20.000	20	100	38	0.50	297.88	284.93	271.98	259.03
64994	64816	.7874"	20.000	20	100	38	1.00	297.88	284.93	271.98	259.03
64995	64817	.7874"	20.000	20	100	50	-	261.51	250.14	238.77	227.40
64996	64818	.7874"	20.000	20	100	50	0.50	297.88	284.93	271.98	259.03
64997	64819	.7874"	20.000	20	100	50	1.00	297.88	284.93	271.98	259.03
64998	64820	1.000"	25.400	1.00"	4"	1-1/2"	-	283.13	270.82	258.51	246.20
64999	64821	1.000"	25.400	1.00"	4"	1-1/2"	.030"	346.37	331.31	316.25	301.19
65000	64822	1.000"	25.400	1.0"	4"	1-1/2"	.060"	346.37	331.31	316.25	301.19
65001	64823	1.000"	25.400	1.00"	4"	1-1/2"	.125"	346.37	331.31	316.25	301.19
65002	64824	1.000"	25.400	1.00"	5"	2"	-	365.70	349.80	333.90	318.00
65003	64825	1.000"	25.400	1.00"	5"	2-1/2"	-	365.70	349.80	333.90	318.00
64400	64826	1.000"	25.400	1.00"	5"	2-1/2"	.030"	419.38	401.15	382.91	364.68
65004	64827	1.000"	25.400	1.00"	6"	3-1/4"	-	462.79	442.67	422.55	402.43
65005	64828	1.000"	25.400	1.00"	6"	3-1/4"	.030"	528.28	505.31	482.34	459.37

70 **G7**

X7

35

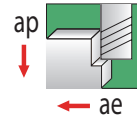
MATERIAL HARDNESS (Rc)

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GARR TOOL X7, G7 High Performance Milling Guide

ISO Material		HRC	SFM (Vc)	CHIPLOAD PER TOOTH (Fz)				
				3/8"	1/2"	5/8"	3/4"	1"
S	COBALT BASE ALLOYS							
	Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605	< 40 > 40	120 - 240 100 - 195	.0013" - .0026" .0010" - .0024"	.0019" - .0036" .0014" - .0031"	.0021" - .0043" .0017" - .0038"	.0026" - .0052" .0020" - .0048"	.0038" - .0072" .0028" - .0062"
	NICKEL BASE ALLOYS							
	Invar, Kovar, Inconel-625/718, Waspaloy, Rene, Hastelloy, A286	< 40 > 40	120 - 240 100 - 195	.0013" - .0026" .0010" - .0024"	.0019" - .0036" .0014" - .0031"	.0021" - .0043" .0017" - .0038"	.0026" - .0052" .0020" - .0048"	.0038" - .0072" .0028" - .0062"
	IRON BASE ALLOYS							
	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 40 > 40	120 - 240 100 - 195	.0013" - .0026" .0010" - .0024"	.0019" - .0036" .0014" - .0031"	.0021" - .0043" .0017" - .0038"	.0026" - .0052" .0020" - .0048"	.0038" - .0072" .0028" - .0062"
	MONEL							
	Monel - 65% Nickel		160 - 290	.0013" - .0026"	.0019" - .0036"	.0021" - .0043"	.0026" - .0052"	.0038" - .0072"
	TITANIUM ALLOYS							
	Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		260 - 490	.0014" - .0028"	.0021" - .0040"	.0026" - .0048"	.0028" - .0056"	.0042" - .0080"
5553 / Beta Titanium		195 - 365	.0014" - .0026"	.0021" - .0036"	.0026" - .0043"	.0028" - .0052"	.0042" - .0072"	
M	STAINLESS STEELS							
	13/8, 15/5, 17-4, pH Types	< 40 > 40	290 - 490 225 - 360	.0013" - .0026" .0010" - .0024"	.0019" - .0036" .0014" - .0031"	.0022" - .0043" .0017" - .0039"	.0026" - .0052" .0020" - .0048"	.0038" - .0072" .0028" - .0062"
	200 Series, 300 Series	< 40 > 40	355 - 555 290 - 455	.0013" - .0029" .0010" - .0024"	.0019" - .0041" .0014" - .0031"	.0022" - .0048" .0017" - .0039"	.0026" - .0058" .0020" - .0048"	.0038" - .0082" .0028" - .0062"
	304L, 316L, Nitronic 50	< 40 > 40	325 - 520 225 - 360	.0013" - .0026" .0010" - .0024"	.0019" - .0036" .0014" - .0031"	.0022" - .0043" .0017" - .0039"	.0026" - .0052" .0020" - .0048"	.0038" - .0072" .0028" - .0062"
	400 Series	< 40 > 40	290 - 555 225 - 425	.0013" - .0028" .0010" - .0025"	.0019" - .0038" .0014" - .0034"	.0022" - .0046" .0017" - .0041"	.0026" - .0056" .0020" - .0050"	.0038" - .0076" .0028" - .0068"
	HIGH STRENGTH TOOL STEELS							
	A2, D2, P20, H13, S7, O1	< 40 > 40	290 - 520 195 - 425	.0016" - .0028" .0014" - .0024"	.0024" - .0038" .0022" - .0031"	.0026" - .0046" .0024" - .0038"	.0032" - .0056" .0028" - .0048"	.0048" - .0076" .0044" - .0062"
P	MEDIUM ALLOY TOOL STEELS							
	4140, 4340, 52100, 6150, 8620	< 40 > 40	455 - 650 325 - 490	.0016" - .0029" .0014" - .0024"	.0024" - .0040" .0022" - .0033"	.0026" - .0048" .0024" - .0040"	.0032" - .0058" .0028" - .0048"	.0048" - .0080" .0044" - .0066"
	CARBON STEELS							
	1000's - 1018, 1020, 12L14	< 40	490 - 780	.0016" - .0030"	.0024" - .0043"	.0026" - .0050"	.0032" - .0060"	.0048" - .0086"
K	CAST MATERIAL							
	Steel (Malleable)		455 - 685	.0018" - .0031"	.0029" - .0046"	.0031" - .0053"	.0036" - .0062"	.0058" - .0092"
	Ductile Iron		455 - 685	.0018" - .0031"	.0029" - .0046"	.0031" - .0053"	.0036" - .0062"	.0058" - .0092"
	Gray Iron		585 - 770	.0019" - .0032"	.0031" - .0048"	.0034" - .0055"	.0038" - .0064"	.0062" - .0096"

	Profile/Trochoidal Milling
Axial (ap)	up to 2xD
Radial (ae)	5% - 15% of Dia.



NOTE - DATA DOES NOT REFLECT CHIP THINNING.

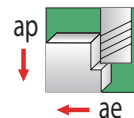
SPINDLE INTERFACE MUST BE SCRUTINIZED WHEN USING 5/8" DIAMETER AND LARGER END MILLS

NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.

GARR TOOL X7, G7 High Performance Milling Guide

ISO Material		HRC	M/Min. (Vc)	CHIPLOAD PER TOOTH (Fz)				
				8.0mm	10.0mm	12.0mm	16.0mm	20.0mm
S	COBALT BASE ALLOYS							
	Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605	< 40 > 40	37 - 75 30 - 60	.023 -.056 .020 -.051	.033 -.066 .025 -.061	.048 -.091 .036 -.079	.053 -.109 .043 -.097	.066 -.132 .051 -.122
	NICKEL BASE ALLOYS							
	Invar, Kovar, Inconel-625/718, Waspaloy, Rene, Hastelloy, A286	< 40 > 40	37 - 75 30 - 60	.023 -.056 .020 -.051	.033 -.066 .025 -.061	.048 -.091 .036 -.079	.053 -.109 .043 -.097	.066 -.132 .051 -.122
	IRON BASE ALLOYS							
	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 40 > 40	37 - 75 30 - 60	.023 -.056 .020 -.051	.033 -.066 .025 -.061	.048 -.091 .036 -.079	.053 -.109 .043 -.097	.066 -.132 .051 -.122
	MONEL							
	Monel - 65% Nickel		50 - 90	.023 -.056	.033 -.066	.048 -.091	.053 -.109	.066 -.132
	TITANIUM ALLOYS							
	Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		80 - 150	.025 -.051	.036 -.071	.053 -.102	.066 -.122	.071 -.142
5553 / Beta Titanium		60 - 110	.025 -.048	.036 -.066	.053 -.091	.066 -.109	.071 -.132	
M	STAINLESS STEELS							
	13/8, 15/5, 17-4, pH Types	< 40 > 40	90 - 150 70 - 110	.020 -.051 .018 -.048	.033 -.066 .025 -.061	.048 -.091 .036 -.079	.056 -.109 .043 -.099	.066 -.132 .051 -.122
	200 Series, 300 Series	< 40 > 40	110 - 170 90 - 140	.020 -.051 .018 -.048	.033 -.074 .025 -.061	.048 -.104 .036 -.079	.056 -.122 .043 -.099	.066 -.147 .051 -.122
	304L, 316L, Nitronic 50	< 40 > 40	100 - 160 70 - 110	.020 -.051 .018 -.048	.033 -.066 .025 -.061	.048 -.091 .036 -.079	.056 -.109 .043 -.099	.066 -.132 .051 -.122
	400 Series	< 40 > 40	90 - 170 70 - 130	.020 -.051 .018 -.048	.033 -.071 .025 -.064	.048 -.097 .036 -.086	.056 -.117 .043 -.104	.066 -.142 .051 -.127
	HIGH STRENGTH TOOL STEELS							
A2, D2, P20, H13, S7, O1	< 40 > 40	90 - 160 60 - 130	.023 -.056 .020 -.046	.041 -.071 .036 -.061	.061 -.097 .056 -.079	.066 -.117 .061 -.097	.081 -.142 .071 -.122	
P	MEDIUM ALLOY TOOL STEELS							
	4140, 4340, 52100, 6150, 8620	< 40 > 40	140 - 200 100 - 150	.023 -.058 .020 -.046	.041 -.074 .036 -.061	.061 -.102 .056 -.084	.066 -.122 .061 -.102	.081 -.147 .071 -.122
	CARBON STEELS							
	1000's - 1018, 1020, 12L14	< 40	150 - 240	.023 -.046	.041 -.076	.061 -.109	.066 -.127	.081 -.152
K	CAST MATERIAL							
	Steel (Malleable)		140 - 210	.025 -.064	.046 -.079	.074 -.117	.079 -.135	.091 -.157
	Ductile Iron		140 - 210	.025 -.064	.046 -.079	.074 -.117	.079 -.135	.091 -.157
	Gray Iron		180 - 235	.028 -.066	.048 -.081	.079 -.122	.086 -.140	.097 -.163

	Profile/Trochoidal Milling
Axial (ap)	up to 2xD
Radial (ae)	5% - 15% of Dia.



NOTE - DATA DOES NOT REFLECT CHIP THINNING.

SPINDLE INTERFACE MUST BE SCRUTINIZED WHEN USING 16mm DIAMETER AND LARGER END MILLS

NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.

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