

## Series 1050

### Speed & Feed Recommendations for 3-D Machining with GWS Ball End Mills

Diameter	Roughing & Semi-finishing			Finishing		
	RPM			RPM		
	30-40HRC	40-50HRC	50-60 HRC	30-40 HRC	40-50HRC	50-60HRC
1/32	38,400 - 60,000	32,000 - 50,000	24,600 - 40,000	20,000 - 50,000	20,000 - 50,000	20,000 - 50,000
1/16	26,400 - 42,000	22,000 - 35,000	16,600 - 28,000	20,000 - 50,000	20,000 - 50,000	20,000 - 50,000
3/32	21,600 - 31,200	18,000 - 26,000	13,400 - 20,800	20,000 - 50,000	20,000 - 50,000	20,000 - 50,000
1/8	19,200 - 28,800	16,000 - 24,000	11,800 - 19,200	20,000 - 38,000	20,000 - 50,000	20,000 - 30,500
3/16	15,000 - 19,776	12,500 - 16,480	9,000 - 13,184	20,000 - 26,000	20,000 - 34,000	16,000 - 20,300
1/4	12,120 - 16,800	10,100-14,000	7,080 - 11,200	15,000 - 18,000	18,000 - 24,400	12,000 - 15,000
5/16	11,400 - 15,900	9,200 - 13,250	6,360 - 10,600	12,000 - 14,000	14,600 - 19,000	9,700 - 12,000
3/8	10,560 - 14,520	8,800 - 12,100	6,040 - 9,680	10,000 - 12,000	12,000 - 16,200	8,100- 10,000
7/16	9,480 - 12,480	7,900 - 10,400	5,320 - 8,320	8,700 - 10,400	10,000 - 13,900	6,900 - 8,700
1/2	8,280 - 10,920	6,900 - 9,100	4,520 - 7,280	7,800 - 9,800	9,100-12,200	6,100 - 7,600

### Chip Load per Tooth

Diameter	30-40 HRC		40-50 HRC		50-60HRC	
	Rough & Semi	Finishing	Rough&Semi	Finishing	Rough & Semi	Finishing
1/32	0.0006 -0.0010	0.0006 -0.0009	0.0006 -0.0008	0.0005 -0.0007	0.0004 -0.0007	0.0004 -0.0006
1/16	0.0012 -0.0016	0.0010 -0.0015	0.0010 -0.0015	0.0010 -0.0014	0.0008 -0.0012	0.0007 -0.0010
3/32	0.0020 -0.0025	0.0014 -0.0024	0.0015 -0.0022	0.0014 -0.0020	0.0012 -0.0020	0.0010 -0.0014
1/8	0.0025 -0.0030	0.0019 -0.0028	0.0020 -0.0027	0.0019 -0.0026	0.0017 -0.0022	0.0015 -0.0020
3/16	0.0035 -0.0043	0.0032 -0.0042	0.0032 -0.0041	0.0030 -0.0040	0.0030 -0.0039	0.0023 -0.0031
1/4	0.0050 -0.0060	0.0040 -0.0053	0.0050 -0.0057	0.0040 -0.0051	0.0040 -0.0050	0.0038 -0.0048
5/16	0.0063 -0.0070	0.0053 -0.0068	0.0052 -0.0066	0.0052 -0.0063	0.0051 -0.0062	0.0046 -0.0054
3/8	0.0070 -0.0080	0.0062 -0.0079	0.0062 -0.0077	0.0054 -0.0065	0.0060 -0.0072	0.0050 -0.0061
7/16	0.0080 -0.0087	0.0068 -0.0086	0.0068 -0.0084	0.0060 -0.0078	0.0066 -0.0080	0.0053 -0.0070
1/2	0.0087 -0.0100	0.0080 -0.0094	0.0080 -0.0092	0.0070 -0.0090	0.0078 -0.0090	0.0062 -0.0081

#### Axial Depth of Cut

30 - 40 HRC = 0.10 X Diameter  
 40 - 50 HRC = 0.07 X Diameter  
 50 - 60 HRC = 0.05 X Diameter

#### Radial Depth of Cut

Roughing - 0.35 X Diameter  
 Finishing = 0.02 - 0.05 X Diameter

