

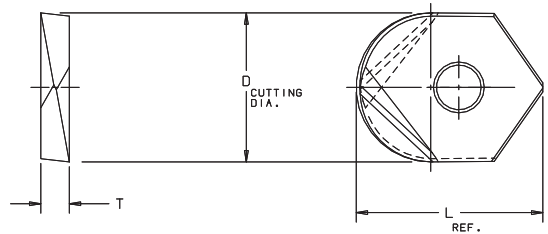
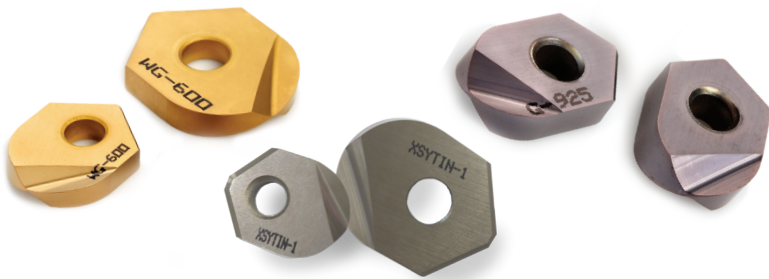


# Greenleaf®

Saegertown, PA 16433 | 814-763-2915 | www.greenleafcorporation.com

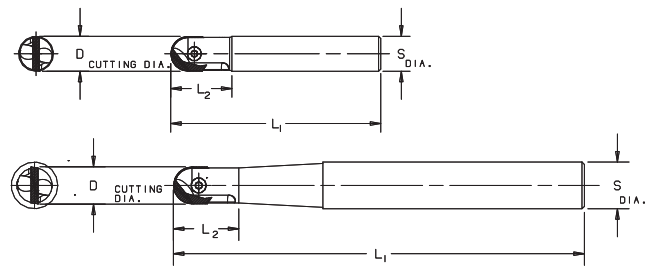
## EXCELERATOR® BALL NOSE

Greenleaf's line of Excelerator® ball nose mills features patented geometries designed to maximize your productivity and improve tool life. Greenleaf's ball nose mills are the only ball nose end mills on the market designed to accept either carbide or ceramic inserts, making extreme applications profitable.



INSERT	'L'	'D'	'T'	INSERT SCREW	SCREW TORQUE SETTING
GBN-0375	0.500	0.375	0.125	SM30-083	17.4 In/lbs
GBN-0500	0.670	0.500	0.188	SM40-106	26.0 In/lbs
GBN-0625	0.800	0.625	0.188	SM50-139	52.0 In/lbs
GBN-0750	0.900	0.750	0.188	SM60-167	72.0 In/lbs
GBN-1000	1.230	1.000	0.188	SM70-210	82.5 In/lbs

Application of medium strength thread locker recommended



PART NUMBER SHORT SERIES	PART NUMBER EXTENDED SERIES	INSERT	D	L1	L2	S
SSBN-0375X	SSBN-0375EX	GBN-0375	0.375	4.000	0.750	0.625
				6.000	0.750	0.750
SSBN-0500X	SSBN-0500EX	GBN-0500	0.500	4.000	1.250	0.625
				7.500	1.250	0.750
SSBN-0625X	SSBN-0625EX	GBN-0625	0.625	5.000	1.375	0.625
				7.500	1.375	0.750
SSBN-0750X	SSBN-0750EX	GBN-0750	0.750	5.500	1.750	0.750
				10.000	1.750	1.000
SSBN-1000X	SSBN-1000EX	GBN-1000	1.000	6.000	1.750	1.000
				11.000	1.750	1.250

Inserts available in ceramic grades WG-600® and XSYTIN®-1 and carbide grade G-925.

U.S. Patent No. 8, 177, 459 B2

# Starting Speeds and Feeds for Excelerator® Ball Nose

Work Material	Hardness (HRC)	Insert Grades	Cutting Speed (SFM)	Target Chip Thickness (in.)	Recommended Feed per Tooth* (IPT) Depth of Cut to Radius Ratio (Ap/r)		
					0-13.4%	13.4-29.3%	29.3-50%
Steel	40 HRC	G-925	500	0.0019	0.0049	0.0038	0.0038
		XSYTIN®-1	1050	0.0031	0.0081	0.0062	0.0063
		WG-600	1500	0.0022	0.0057	0.0044	0.0044
	50 HRC	G-925	350	0.0013	0.0024	0.0019	0.0025
		XSYTIN®-1	720	0.0025	0.0065	0.0050	0.005
		WG-600	1020	0.0019	0.0049	0.0038	0.0038
	60 HRC	G-925	300	0.0006	0.0016	0.0013	0.0013
		XSYTIN®-1	430	0.0019	0.0049	0.0038	0.0038
		WG-600	610	0.0013	0.0032	0.0025	0.0025
Tool Steel	65 HRC	G-925	275	0.0006	0.0016	0.0013	0.0013
		XSYTIN®-1	280	0.0016	0.0041	0.0031	0.0031
		WG-600	400	0.0010	0.0024	0.0019	0.0019
HRSA	20-25 HRC	G-925	550	0.0025	0.0065	0.0050	0.005
		XSYTIN®-1	3000	0.0025	0.0065	0.0050	0.005
		WG-600	3950	0.0016	0.0041	0.0031	0.0031
	40-45 HRC	G-925	350	0.0016	0.0041	0.0031	0.0031
		XSYTIN®-1	2600	0.0016	0.0041	0.0031	0.0031
		WG-600	3450	0.0010	0.0024	0.0019	0.0019
Graphitic Cast Iron	<40 HRC	G-925	850	0.0034	0.0088	0.0067	0.0068
		XSYTIN®-1	2300	0.0028	0.0073	0.0056	0.0056
		WG-600	2950	0.0019	0.0049	0.0038	0.0038
Stainless Steel	≤40 HRC	G-925	450	0.0025	0.0065	0.0050	0.005
		XSYTIN®-1	2400	0.0025	0.0065	0.0050	0.005
		WG-600	3480	0.0016	0.0041	0.0031	0.0031
Titanium 6Al4V	35-40 HRC	G-925	250	0.0010	0.0024	0.0019	0.0019
Aluminum		G-925	950	0.0038	0.0097	0.0075	0.0075

\* Recommended Feed per Tooth values are given here for full slotting. When 3D/Profile milling, please use the Greenleaf Ball Nose Calculator to determine the appropriate cutting parameters to achieve the target chip thickness shown. For questions regarding applications and additional materials, please contact your local sales and service engineer or the Greenleaf Technical Service department.

\*\* Optimal chip thickness has to be balanced with resulting cutting forces (can the cutting tool material withstand the mechanical loads?), the dynamics of the machine, the rigidity of the setup, and ultimately the surface roughness requirements.

## Effective Cutting Diameter

		DEPTH OF CUT (DOC)												
DOC		0.005	0.010	0.015	0.025	0.035	0.055	0.075	0.095	0.100	0.115	0.125	0.150	0.200
INSERT DIAMETER	0.375	0.086	0.121	0.147	0.187	0.218	0.265	0.300	0.326	0.32	0.346	0.354	0.367	-
	0.500	0.099	0.140	0.171	0.218	0.255	0.313	0.357	0.392	0.400	0.421	0.433	0.458	0.490
	0.625	0.111	0.157	0.191	0.245	0.287	0.354	0.406	0.449	0.458	0.484	0.500	0.534	0.583
	0.750	0.122	0.172	0.210	0.269	0.316	0.391	0.450	0.499	0.510	0.540	0.559	0.600	0.663
	1.000	0.141	0.199	0.243	0.312	0.368	0.456	0.527	0.586	0.600	0.638	0.661	0.714	0.800

 Effective diameter at maximum recommended DOC for WG-600®

 Effective diameter at maximum recommended DOC for G-925 and XSYTIN®-1



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Excelerator® Ball Nose (Imperial)