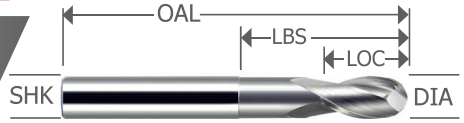
General Purpose Carbide End Mill

2 Flute • Ball Nose End Mills



Carbide | 2 | 30° | Bright AlTiN | +.0005 -.0005 <1/8 | +.0000 -.0020 ≥1/8 | Ball | HRc <48 | P K M S N

Series: AMG-_ _-B

DIA	SHK	LOC	LBS	OAL	LENGTH	TOOL	BRIGHT EDP	ALTIN EDP
1/64	1/8	3/64		1-1/2	std	**AMG-400-1/2-B**	13487	53487
1/32	1/8	1/16		1-1/2	stub	**AMGS-401-B**	16161	56161
1/32	1/8	3/32		1-1/2	std	**AMG-401-B**	15904	55904
3/64	1/8	3/32		1-1/2	stub	**AMGS-401-1/2-B**	16162	56162
3/64	1/8	1/8		1-1/2	std	**AMG-401-1/2-B**	15905	55905
1/16	1/8	1/8		1-1/2	stub	**AMGS-402-B**	16163	56163
1/16	1/8	3/16		1-1/2	std	**AMG-402-B**	15906	55906
1/16	1/8	3/8		1-1/2	long	**AMG-402-LB**	19537	59537
5/64	1/8	3/16		1-1/2	std	**AMG-402-1/2-B**	15907	55907
3/32	1/8	3/16		1-1/2	stub	**AMGS-403-B**	16164	56164
3/32	1/8	3/8		1-1/2	std	**AMG-403-B**	15908	55908
7/64	1/8	3/8		1-1/2	std	**AMG-403-1/2-B**	15909	55909
1/8	1/8	1/4		1-1/2	stub	**AMGS-404-B**	16165	56165
1/8	1/8	1/2		1-1/2	std	**AMG-404-B**	14058	54058
1/8	1/8	5/8	1	2	ext neck	**AMGN-404-B**	16749	56749
1/8	1/8	3/4		2-1/4	med	**AMG-404-MB**	11127	51127
1/8	1/8	3/4		3	long	**AMG-404-LB**	16110	56110
1/8	1/8	1		3	xl	**AMG-404-EB**	16176	56176
9/64	3/16	9/16		2	std	**AMG-604-1/2-B**	16126	56126
5/32	3/16	5/16		1-1/2	stub	**AMGS-605-B**	16166	56166
5/32	3/16	9/16		2	std	**AMG-605-B**	15910	55910
11/64	3/16	9/16		2	std	**AMG-605-1/2-B**	16127	56127
3/16	3/16	3/8		1-1/2	stub	**AMGS-606-B**	16167	56167
3/16	3/16	5/8		2	std	**AMG-606-B**	14060	54060
3/16	3/16	3/4		2-1/2	med	**AMG-606-MB**	19554	59554
3/16	3/16	3/4		3	long	**AMG-606-LB**	16111	56111
3/16	3/16	1	1-5/8	3	ext neck	**AMGN-606-B**	16750	56750
3/16	3/16	1	2-5/8	4	ext neck	**AMGN-606-2B**	16751	56751
3/16	3/16	1-1/8		3	xl	**AMG-606-EB**	16177	56177
13/64	1/4	5/8		2-1/2	std	**AMG-806-1/2-B**	16128	56128
7/32	1/4	1/2		2	stub	**AMGS-807-B**	16168	56168
7/32	1/4	5/8		2-1/2	std	**AMG-807-B**	15911	55911
15/64	1/4	3/4		2-1/2	std	**AMG-807-1/2-B**	16129	56129
1/4	1/4	1/2		2	stub	**AMGS-808-B**	16169	56169
1/4	1/4	3/4		2-1/2	std	**AMG-808-B**	14062	54062
1/4	1/4	1	2-1/4	4	ext neck	**AMGN-808-B**	16752	56752
1/4	1/4	1-1/8		3	long	**AMG-808-LB**	16112	56112
1/4	1/4	1-1/2		4	xl	**AMG-808-EB**	16178	56178
1/4	1/4	1-1/2	4-1/4	6	ext neck	**AMGN-808-2B**	16753	56753
17/64	5/16	3/4		2-1/2	std	**AMG-1008-1/2-B**	16130	56130
9/32	5/16	3/4		2-1/2	std	**AMG-1009-B**	15912	55912
19/64	5/16	13/16		2-1/2	std	**AMG-1009-1/2-B**	16131	56131
5/16	5/16	1/2		2	stub	**AMGS-1010-B**	16170	56170
5/16	5/16	13/16		2-1/2	std	**AMG-1010-B**	14064	54064
5/16	5/16	1-1/8		3	long	**AMG-1010-LB**	16113	56113
5/16	5/16	1-5/8		4	xl	**AMG-1010-EB**	16179	56179
5/16	5/16	1	2-5/16	4	ext neck	**AMGN-1010-B**	16754	56754

sizes continued on next page

Series: AMG-_ _-B

DIA	SHK	LOC	LBS	OAL	LENGTH	TOOL	BRIGHT EDP	ALTIN EDP
5/16	5/16	1-1/2	4-5/16	6	ext neck	**AMGN-1010-2B**	16755	56755
21/64	3/8	7/8		2-1/2	std	**AMG-1210-1/2-B**	16132	56132
11/32	3/8	7/8		2-1/2	std	**AMG-1211-B**	16133	56133
23/64	3/8	7/8		2-1/2	std	**AMG-1211-1/2-B**	16134	56134
3/8	3/8	5/8		2	stub	**AMGS-1212-B**	16171	56171
3/8	3/8	1		2-1/2	std	**AMG-1212-B**	14066	54066
3/8	3/8	1	2-3/8	4	ext neck	**AMGN-1212-B**	16756	56756
3/8	3/8	1-1/8		3	long	**AMG-1212-LB**	16114	56114
3/8	3/8	1-1/2	4-3/8	6	ext neck	**AMGN-1212-2B**	16757	56757
3/8	3/8	1-3/4		4	xl	**AMG-1212-EB**	16180	56180
25/64	7/16	1		2-3/4	std	**AMG-1412-1/2-B**	16135	56135
13/32	7/16	1		2-3/4	std	**AMG-1413-B**	16136	56136
27/64	7/16	1		2-3/4	std	**AMG-1413-1/2-B**	16137	56137
7/16	7/16	5/8		2-1/2	stub	**AMGS-1414-B**	16172	56172
7/16	7/16	1		2-3/4	std	**AMG-1414-B**	15913	55913
7/16	7/16	1	2-1/4	4	ext neck	**AMGN-1414-B**	16758	56758
7/16	7/16	1-1/2	4-1/4	6	ext neck	**AMGN-1414-2B**	16759	56759
7/16	7/16	2		4	long	**AMG-1414-LB**	16115	56115
7/16	7/16	3		6	xl	**AMG-1414-EB**	16181	56181
29/64	1/2	1		3	std	**AMG-1614-1/2-B**	16138	56138
15/32	1/2	1		3	std	**AMG-1615-B**	16139	56139
31/64	1/2	1		3	std	**AMG-1615-1/2-B**	16140	56140
1/2	1/2	5/8		2-1/2	stub	**AMGS-1616-B**	16173	56173
1/2	1/2	1		3	std	**AMG-1616-B**	14068	54068
1/2	1/2	1	2	4	ext neck	**AMGN-1616-B**	16760	56760
1/2	1/2	1-1/2	4	6	ext neck	**AMGN-1616-2B**	16761	56761
1/2	1/2	2		4	long	**AMG-1616-LB**	16116	56116
1/2	1/2	3		6	xl	**AMG-1616-EB**	16182	56182
9/16	9/16	1-1/4		3-1/2	std	**AMG-1818-B**	16141	56141
9/16	9/16	2	3-3/4	6	ext neck	**AMGN-1818-B**	16762	56762
5/8	5/8	3/4		3	stub	**AMGS-2020-B**	16174	56174
5/8	5/8	1-1/4		3-1/2	std	**AMG-2020-B**	16142	56142
5/8	5/8	2	3-3/4	6	ext neck	**AMGN-2020-B**	16764	56764
5/8	5/8	2-1/4		5	long	**AMG-2020-LB**	16117	56117
5/8	5/8	3		6	xl	**AMG-2020-EB**	16183	56183
11/16	3/4	1-3/8		4	std	**AMG-2422-B**	19575	59575
3/4	3/4	1		3	stub	**AMGS-2424-B**	16175	56175
3/4	3/4	1-1/2		4	std	**AMG-2424-B**	16143	56143
3/4	3/4	2	3-1/2	6	ext neck	**AMGN-2424-B**	16765	56765
3/4	3/4	2-1/4		5	long	**AMG-2424-LB**	16118	56118
3/4	3/4	3		6	xl	**AMG-2424-EB**	16184	56184
7/8	7/8	1-1/2		4	std	**AMG-2828-B**	16144	56144
1	1	1-1/2		4	std	**AMG-3232-B**	16145	56145
1	1	2	3-1/2	6	ext neck	**AMGN-3232-B**	16766	56766
1	1	3		6	xl	**AMG-3232-EB**	16185	56185

General Purpose Carbide End Mill

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Series: AMG-M_M_-B

DIA	SHK	LOC	OAL	LENGTH	TOOL	BRIGHT EDP	ALTIN EDP
1mm	3mm	2mm	38mm	stub	**AMGS-M3M1-B**	13976	53976
1mm	3mm	3mm	38mm	std	**AMG-M3M1-B**	16805	56805
1.5mm	3mm	3mm	38mm	stub	**AMGS-M3M1.5-B**	14033	54033
1.5mm	3mm	6mm	38mm	std	**AMG-M3M1.5-B**	16806	56806
2mm	3mm	4mm	38mm	stub	**AMGS-M3M2-B**	13739	53739
2mm	3mm	9mm	38mm	std	**AMG-M3M2-B**	16555	56555
2.5mm	3mm	5mm	38mm	stub	**AMGS-M3M2.5-B**	14063	54063
2.5mm	3mm	12mm	38mm	std	**AMG-M3M2.5-B**	16556	56556
3mm	3mm	6mm	38mm	stub	**AMGS-M3M3-B**	13977	53977
3mm	3mm	12mm	38mm	std	**AMG-M3M3-B**	16557	56557
3mm	3mm	18mm	57mm	long	**AMG-M3M3-LB**	13979	53979
3.5mm	4mm	7mm	51mm	stub	**AMGS-M4M3.5-B**	14043	54043
3.5mm	4mm	12mm	51mm	std	**AMG-M4M3.5-B**	16558	56558
4mm	4mm	8mm	51mm	stub	**AMGS-M4M4-B**	13963	53963
4mm	4mm	14mm	51mm	std	**AMG-M4M4-B**	16559	56559
4mm	4mm	20mm	63mm	long	**AMG-M4M4-LB**	19755	59755
4.5mm	5mm	14mm	51mm	std	**AMG-M5M4.5-B**	16560	56560
5mm	5mm	10mm	51mm	stub	**AMGS-M5M5-B**	13956	53956
5mm	5mm	20mm	51mm	std	**AMG-M5M5-B**	16561	56561
5mm	5mm	25mm	64mm	long	**AMG-M5M5-LB**	13743	53743
6mm	6mm	12mm	51mm	stub	**AMGS-M6M6-B**	13740	53740
6mm	6mm	20mm	63mm	std	**AMG-M6M6-B**	16562	56562
6mm	6mm	28mm	75mm	long	**AMG-M6M6-LB**	13954	53954
7mm	8mm	12mm	51mm	stub	**AMGS-M8M7-B**	14045	54045
7mm	8mm	20mm	63mm	std	**AMG-M8M7-B**	16563	56563
8mm	8mm	12mm	51mm	stub	**AMGS-M8M8-B**	13741	53741
8mm	8mm	20mm	63mm	std	**AMG-M8M8-B**	16564	56564
8mm	8mm	32mm	75mm	long	**AMG-M8M8-LB**	19756	59756
9mm	10mm	22mm	70mm	std	**AMG-M10M9-B**	16565	56565
10mm	10mm	14mm	51mm	stub	**AMGS-M10M10-B**	13978	53978
10mm	10mm	25mm	70mm	std	**AMG-M10M10-B**	16566	56566
10mm	10mm	31mm	76mm	med	**AMG-M10M10-MB**	19757	59757
10mm	10mm	40mm	100mm	long	**AMG-M10M10-LB**	19758	59758
11mm	12mm	25mm	76mm	std	**AMG-M12M11-B**	14067	54067
12mm	12mm	25mm	76mm	std	**AMG-M12M12-B**	16567	56567
12mm	12mm	50mm	100mm	long	**AMG-M12M12-LB**	13980	53980
14mm	14mm	32mm	89mm	std	**AMG-M14M14-B**	16568	56568
16mm	16mm	32mm	89mm	std	**AMG-M16M16-B**	16569	56569
16mm	16mm	57mm	127mm	long	**AMG-M16M16-LB**	19759	59759
18mm	18mm	38mm	100mm	std	**AMG-M18M18-B**	16570	56570
18mm	18mm	57mm	127mm	long	**AMG-M18M18-LB**	19760	59760
20mm	20mm	38mm	100mm	std	**AMG-M20M20-B**	16571	56571
20mm	20mm	57mm	127mm	long	**AMG-M20M20-LB**	19761	59761
22mm	22mm	38mm	100mm	std	**AMG-M22M22-B**	16807	56807
25mm	25mm	38mm	100mm	std	**AMG-M25M25-B**	16808	56808

General Purpose Carbide End Mills

SERIES: General Purpose Carbide End Mills

MATERIAL	CONDITIONS			CUTTING DIAMETER							
				1/8"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
		Under 32 HRc	Over 32 HRc	CHIP PER TOOTH							
STAINLESS STEELS	**ISO-M**										
Precipitation											
13-8, 15-5, 17-4PH	Slotting .5 x Dia.	110-200	80-115	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.0040
	Profiling ≤ .5 x Dia.	110-200	80-115	0.0006	0.0012	0.0015	0.0018	0.0025	0.0031	0.0038	0.0050
Austenitic											
302, 303, 304L, 316L	Slotting .5 x Dia.	150-275	80-180	0.0005	0.0011	0.0014	0.0016	0.0023	0.0029	0.0035	0.0046
	Profiling ≤ .5 x Dia.	150-275	80-180	0.0007	0.0014	0.0018	0.0021	0.0030	0.0038	0.0045	0.0060
Martensitic											
403, 410, 416	Slotting .5 x Dia.	200-400	80-160	0.0005	0.0011	0.0014	0.0016	0.0023	0.0029	0.0035	0.0046
	Profiling ≤ .5 x Dia.	200-400	80-160	0.0007	0.0014	0.0018	0.0021	0.0030	0.0038	0.0045	0.0060
HIGH TEMP ALLOYS	**ISO-S**										
Cobalt Base											
Stellite, Haynes 25, 188, X-40,	Slotting .5 x Dia.	60-125	60-125	0.0004	0.0007	0.0009	0.0011	0.0015	0.0019	0.0023	0.0030
L-605	Profiling ≤ .5 x Dia.	60-125	60-125	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.0040
Nickel Base											
Inconel 600, 625, 718, Nickel 200,	Slotting .5 x Dia.	60-125	60-125	0.0004	0.0007	0.0009	0.0011	0.0015	0.0019	0.0023	0.0030
270, Invar, Monel 400, 405, K-Monel, PermaNickel 300, Incoly 600	Profiling ≤ .5 x Dia.	60-125	60-125	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.0040
Iron Base											
Incoloy 800-802, Multimet N-155,	Slotting .5 x Dia.	60-125	60-125	0.0004	0.0007	0.0009	0.0011	0.0015	0.0019	0.0023	0.0030
Timken 16-26-6	Profiling ≤ .5 x Dia.	60-125	60-125	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.0040
STEELS	**ISO-P**										
High Strength Steels											
4140, 4340, 52100	Slotting .5 x Dia.	150-300	80-180	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.004
	Profiling ≤ .5 x Dia.	150-300	80-180	0.0006	0.0010	0.0012	0.0018	0.0025	0.0031	0.0038	0.005
High Alloy Steels - Mold & Die											
A-2, P20, 01, 02, D2, H-13	Slotting .5 x Dia.	150-275	80-185	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.004
	Profiling ≤ .5 x Dia.	150-275	80-185	0.0006	0.0010	0.0012	0.0018	0.0025	0.0031	0.0038	0.005
Medium Alloy Steels											
200, 250, 300	Slotting .5 x Dia.	175-350	100-225	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.004
	Profiling ≤ .5 x Dia.	175-350	100-225	0.0006	0.0010	0.0012	0.0018	0.0025	0.0031	0.0038	0.005
Low Alloy Steels-Maraging											
10XX, 11XX, 13XX	Slotting .5 x Dia.	200-450	100-250	0.0006	0.0012	0.0015	0.0018	0.0025	0.0031	0.0038	0.005
	Profiling ≤ .5 x Dia.	200-450	100-250	0.0007	0.0014	0.0018	0.0021	0.0030	0.0038	0.0045	0.006
CAST IRONS	**ISO-K**										
Ductile Iron											
Ductile Cast Iron	Slotting .5 x Dia.	120-325	80-140	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.0040
	Profiling ≤ .5 x Dia.	120-325	80-140	0.0006	0.0012	0.0015	0.0018	0.0025	0.0031	0.0038	0.0050
Cast Iron											
Grey Cast Iron	Slotting .5 x Dia.	250-425	125-285	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.0040
	Profiling ≤ .5 x Dia.	250-425	125-285	0.0006	0.0012	0.0015	0.0018	0.0025	0.0031	0.0038	0.0050
TITANIUMS	**ISO-S**										
Titanium Alloys											
6AL-4V, ASTM 1, 2, 3, 6AL-2S	Slotting .5 x Dia.	140-200	90-145	0.0005	0.0010	0.0012	0.0014	0.0020	0.0025	0.0030	0.0040
For 5553, decrease SFM and IPM by 25%	Profiling ≤ .5 x Dia.	140-200	90-145	0.0006	0.0012	0.0015	0.0018	0.0025	0.0031	0.0038	0.0050
ALUMINUM	**ISO-N**										
Aluminum Alloys											
6061-T6, 7075	Slotting .5 x Dia.	600-1000	NA	0.0006	0.0012	0.0015	0.0018	0.003	0.005	0.006	0.0080
	Profiling ≤ .5 x Dia.	600-1000	NA	0.0007	0.0014	0.0018	0.0025	0.0035	0.006	0.0068	0.0100

All technical data provided are suggested starting points. They may be increased or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE TEAM with questions.

Calculations

End mill speed & feed formulas are the various individual equations that determine the proper overall machining setup or more specifically the speed of the cutting tool and the rate which it is fed into the work piece. Each individual formula is distinct in what it determines but coordinates with the others to ensure successful cutting tool application. You can visit the TECHNICAL section on www.melintool.com for more information.

INCH

RPM = Revolutions Per Minute
3.82 x SFM / Tool Dia

SFM = Surface Foot Per Minute
.262 x RPM x Tool Dia

CPT or IPT = Chip-Load Per Tooth
IPM / RPM / No. Of Flutes

IPM = Inches Per Minute
CPT x RPM x No. Of Flutes

MRRCI = Metal Removal Rate Cubic Inches
IPM x Axial Doc x Radial Woc

IPR = Inches Per Revolution
IPM / RPM

METRIC

RPM = Revolutions Per Minute
1000 x M/MIN / (3.14 x D)

M/MIN = Meters Per Minute
(3.14 x D x RPM) / 1000

Fz OR CPT = Chip-Load Per Tooth
Feedrate (mm) per MIN / (Z x RPM)

VF OR FPM = Feedrate (mm) Per Minute
Feerate (mm) per Tooth x Z x RPM

D = Cutter Dia.
Z= No. Of Teeth.

EQUIVALENTS & CONVERSIONS:

ABBREVIATIONS	
RPM	Revolutions Per Minute
SFM	Surface Feet Per Minute
CPT	Chip Load Per Tooth
IPM	Inches Per Minute
V_f	Millimeters Per Minute
ae	Radial Width of Cut
ap	Axial Depth of Cut
Vc	Surface Meters Per Minute
Fz	Metric Chip Load Per Tooth

N, n or Min-^{1} = RPM
Vc or M/MIN = SFM
Fz or mm/TOOTH = CPT
V_f or mm/MIN = IPM

SFM / 3.281 = M/MIN
M/MIN x 3.281 = SFM
mm/MIN / 25.4 = IPM
mm/TOOTH /25.4 = CPT

IMPERIAL ⟷ METRIC
Inch x 25.4 = Millimeter
Millimeter x .03937 = Inch