Contents

Style No.	Flutes	Description	Finish	Page No.
High-Performance Variable Index End Mills				
Operating Parameters				2
MSE-V-4R	.4-flute	.corner radius	bright, TiAlN	3-5
MSE-V-4B	.4-flute	.ball nose	bright, TiAlN	5
MSE-V2-5R	.5-flute	.corner radius	bright, TiAlN	6-8
High-Performance End Mills for Steel and Stainless Steel				
Operating Parameters				9
HPDEM-5	.5-flute	.square end, double end	bright, TiCN, TiAlN	.10
HPEM-3	.3-flute	.square end	bright, TiCN, TiAlN	.11
HPEM-5	.5-flute	.square end	bright, TiCN, TiAlN	.12
HPEM-6	.6-flute	.square end	bright, TiAlN	.13
High-Performance End Mills for Aluminum				
Operating Parameters				.14
HPAM-2	.2-flute	.square end	bright, TiCN	.15
HPAM-3	.3-flute	.square end	bright, TiCN	.16
High-Performance Roughing End Mills				
Operating Parameters				.17
MRS	.multi-flute	.square end . . . for steel	bright, TiCN	.17
MRA	.multi-flute	.square end . . . for aluminum	bright, TiCN	.18
General-Purpose End Mills				
Operating Parameters				.19
Double End				
MDE-2	.2-flute	.square end	bright, TiCN	.20
MDE-2B	.2-flute	.ball nose	bright, TiCN	.21
MDE-4	.4-flute	.square end	bright, TiCN	.22
MDE-4B	.4-flute	.ball nose	bright, TiCN	.23
Single End				
MSE-2	.2-flute	.square end	bright, TiCN	24-25
MSE-2B	.2-flute	.ball nose	bright, TiCN	26-27
MSE-3	.3-flute	.square end	bright, TiCN	.28
MSE-4	.4-flute	.square nose	bright, TiCN	29-31
MSE-4B	.4-flute	.ball nose	bright, TiCN	32-33
Straight Flute				
MSEST-2	.2-flute	.square end	bright	.34
Engraving Tool				
MEG-2	.2-flute	.ball nose	TiCN	.34
Chamfer Tools				
MCH-2R	.2-flute	.single end	bright	.35
MCH-2D	.2-flute	.double end	bright	.35
MCH-4R	.4-flute	.single end	bright	.35
MCH-4D	.4-flute	.double end	bright	.35

Tolerances for Solid Carbide End Mills

Cutting Diameter: 1/32" through 1/4" +.000 –.002
17/64" through 1" +.000 –.003

Shank Diameter: h6

General-Purpose End Mills

Features and Benefits of General-Purpose End Mills

- 10% cobalt submicron grain carbide substrate.
- 30° right-hand spiral, right-hand cut helix designed for maximum chip clearance.
- 2-, 3-, and 4-flute configurations available.
- Square end and ball nose end geometries available.
- Multiple lengths in select styles and sizes.
- TiCN-coated tools available in most styles.

Applications for General-Purpose End Mills

- Use in general milling applications in medium to low-carbon steels, cast iron, non-ferrous light metals, and plastics.
- Double-end end mills economically increase productivity.
- 2-flute end mills are generally used for plunging, slotting, and heavy peripheral cuts.
- 3-flute end mills provide a compromise between the chip clearance of a 2-flute tool and the rigidity and wear resistance of a 4-flute tool; especially useful for many slotting operations.
- 4-flute end mills are most commonly used in profiling and in harder materials; stiffer construction results in minimal deflection. They also provide good surface finishes and wear-resistant characteristics for excellent size control.

Cutting Data for General-Purpose Solid Carbide End Mills

Material	Hardness Brinell	Hardness HRc	Surface Feet per Minute		Chip Load per Tooth 1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
low and plain carbon, alloy and tool steels	<220 HB	<19	Low	270	.0004	.0006	.0010	.0015	.0020	.0025	.0030	.0035	.0040	.0045
			High	360										
plain carbon, alloy, and tool steels	225-286	20-30	Low	180	.0004	.0006	.0010	.0015	.0020	.0025	.0030	.0035	.0040	.0045
			High	270										
	294-371	31-40	Low	135	.0003	.0004	.0007	.0011	.0014	.0018	.0021	.0025	.0028	.0032
			High	180										
austenitic stainless steels 200 and 300 series	135-275	<28	Low	180	.0002	.0004	.0006	.0010	.0015	.0020	.0025	.0030	.0035	.0040
			High	315										
ductile and malleable cast iron	120-320	<35	Low	160	.0003	.0004	.0007	.0011	.0014	.0018	.0021	.0025	.0028	.0032
			High	270										
cast iron (gray)	120-220	<18	Low	315	.0008	.0012	.0020	.0030	.0040	.0050	.0060	.0070	.0080	.0090
			High	450										
	220-320	19-34	Low	225	.0005	.0007	.0012	.0018	.0024	.0030	.0036	.0042	.0048	.0055
			High	315										
low-silicon aluminum & other non-ferrous alloys	50-150	—	Low	720	.0006	.0010	.0016	.0024	.0032	.0040	.0048	.0560	.0064	.0072
			High	900										
cobalt-based high-temperature alloys	150-425	<45	Low	30	.0004	.0006	.0010	.0015	.0020	.0025	.0030	.0035	.0040	.0045
			High	45										
nickel-based high-temperature alloys	140-300	<32	Low	45	.0002	.0004	.0006	.0009	.0012	.0015	.0018	.0021	.0024	.0027
			High	90										
	300-475	32-50	Low	40	.0002	.0004	.0006	.0009	.0012	.0015	.0018	.0021	.0024	.0027
			High	70										

Higher values for surface speed should be used for radial depths of cut less than 25% of the diameter. Lower values for surface speed should be used for radial depths of cut greater than 25% of the diameter. The above recommendations are for axial lengths of cut not to exceed 1 times the cutter diameter for profiling and .5 times the diameter for slotting.

Recommended speeds above are for uncoated tools only and should be adjusted when using coated tools. Generally, speeds can be increased by the following factors:

- *TiCN-coated tools – 20-25% increase*
- *TiAlN-coated tools – 40-50% increase*

The above speeds are a recommended starting point only. If the tool is working well, without vibrations or significant noise, increase the SFM in 5-10% increments. Ultimate speeds will depend upon setup conditions. Higher or lower parameters may be required to achieve optimum conditions.

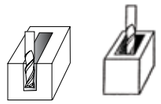
Double End General-Purpose

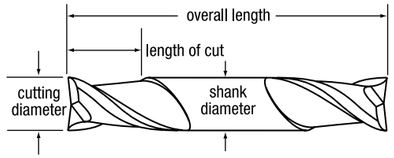
BASSETT

Series **MDE-2**

Applications | STAINLESS STEEL | CAST IRON | HI-TEMP ALLOYS | NON-FERROUS MATERIALS

Features | SOLID CARBIDE | 2 FLUTE CC | BRIGHT | TiCN | TiALN





cutting diameter fractional	decimal	metric	shank diameter		length of cut	overall length	no. of flutes	corner radius	EDP number bright	TiCN	TiAlN
1/16	.0625	1.59	1/8		1/8	1 1/2	2	0.000	B52801	B01681	B00207
3/32	.0938	2.38	1/8		3/16	1 1/2	2	0.000	B52803	B01682	B00208
1/8	.1250	3.18	1/8		1/4	1 1/2	2	0.000	B52805W	B01683W	B00209
1/8	.1250	3.18	3/8	*	3/8	3	2	0.000	B52401	B01577	B00220
5/32	.1562	3.97	3/16		5/16	2	2	0.000	B52807	B01684	B00210
5/32	.1562	3.97	3/8	*	7/16	3	2	0.000	B52403	B01578	B00221
3/16	.1875	4.76	3/16		3/8	2	2	0.000	B52809	B01685	B00211
3/16	.1875	4.76	3/8	*	1/2	3	2	0.000	B52405	B01579	B11987
7/32	.2188	5.56	3/8	*	9/16	3 1/2	2	0.000	B52407	B01580	B00212
1/4	.2500	6.35	1/4		1/2	2 1/2	2	0.000	B52814	B01687	B00213
1/4	.2500	6.35	3/8	*	5/8	3 1/2	2	0.000	B52410	B01581	B00222
9/32	.2812	7.14	3/8	*	11/16	3 1/2	2	0.000	B52412	B01582	B00215
5/16	.3125	7.94	3/8	*	3/4	3 1/2	2	0.000	B52414	B01583	B00224
3/8	.3750	9.53	3/8		9/16	3	2	0.000	B52818	B01689	B40779
3/8	.3750	9.53	3/8	*	3/4	3 1/2	2	0.000	B52418	B01585	B00225
7/16	.4375	11.11	1/2	*	7/8	4	2	0.000	B52420	B01586	B00226
1/2	.5000	12.70	1/2		5/8	3	2	0.000	B52823	B01691	B00217
1/2	.5000	12.70	1/2	*	1	4	2	0.000	B52423	B01587	B00227

** Weldon shank; all others plain shank*

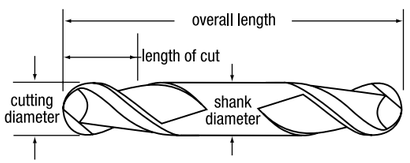
BASSETT

Double End General-Purpose

Series **MDE-2B**

Applications | CAST IRON | STEEL | HI-TEMP ALLOYS | NON-FERROUS MATERIALS

Features | SOLID CARBIDE | 2 FLUTE BALL CC | BRIGHT | TiCN | TiALN



cutting diameter fractional	decimal	metric	shank diameter		length of cut	overall length	no. of flutes	EDP number bright	TiCN	TiAlN
1/16	.0625	1.59	1/8		1/8	1 1/2	2	B52881	B01703	B69881
3/32	.0938	2.38	1/8		3/16	1 1/2	2	B52883	B01704	B69883
1/8	.1250	3.18	3/8	*	3/8	3	2	B52481	B01599	B69481
5/32	.1562	3.97	3/8	*	7/16	3	2	B52483	B01600	B69483
3/16	.1875	4.76	3/8	*	1/2	3	2	B52485	B01601	B69485
7/32	.2188	5.56	3/8	*	9/16	3 1/2	2	B52487	B01602	B69487
1/4	.2500	6.35	3/8	*	5/8	3 1/2	2	B52490	B01603	B69490
9/32	.2812	7.14	3/8	*	11/16	3 1/2	2	B52492	B01604	B69492
5/16	.3125	7.94	3/8	*	3/4	3 1/2	2	B52494	B01605	B69494
3/8	.3750	9.53	3/8	*	3/4	3 1/2	2	B52498	B01607	B69498
7/16	.4375	11.11	1/2	*	7/8	4	2	B52500	B01608	B69500
1/2	.5000	12.70	1/2	*	1	4	2	B52503	B01609	B69503

** Weldon shank; all others plain shank*