

MASTERmill™ Series CA

With the availability of higher spindle speeds from today's machines, choosing the right end mills becomes increasingly important. Metal Removal's **Series CA** tools can help you achieve the productivity you want from your machines. Conventional tools just don't do the job!

Specifically designed for machining aluminum, **Series CA** tools provide superior performance in slotting, profiling, and ramping operations while running at high SFM and feed rates. Using special substrate material and unique geometries, **Series CA** tools offer greater resistance to chipping compared to conventional carbide tools. This enables the tool and machine to achieve much higher overall metal removal rates.

Ideal for contouring aluminum, copper, and other non-ferrous materials, **Series CA** end mills ensure precision, enhance performance, and boost productivity. All inch size **Series CA** end mills are available in bright or TiCN coatings.

- 2-flute styles for deep pocketing
- 3-flute styles for high-volume metal removal rates and close tolerance slotting
- High rake angle for faster chip flow
- Concentric margins for stability during the machining process
- Reduces chatter at high spindle speeds
- Achieves excellent surface finishes
- Provides extended tool life

Suggested Speeds for Series CA End Mills *(see page 185 for metric recommendations)*

SFM for End Mills Series CA-2, CA-2M, CA-2B, CA-3, CA-3M

Reduce Speeds and CLPT 20 % for Slotting Operations

Surface Feet per Minute (SFM)

Material	Preferred Coating	Alternate Coating	Hardness		Speed Range	Uncoated	TiN Coated	TiCN Coated
			Brinell	HRC				
Low-Silicon Aluminum & Other Non-Ferrous Alloys	TiCN	TiN	50-150	—	Low	800	880	960
					High	4000	4800	5600
High-Silicon Aluminum	TiCN	TiN	—	—	Low	600	660	720
					High	2000	2400	2800

The 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 cutter diameter for slotting.

Suggested Feeds for Series CA End Mills *(see page 185 for metric recommendations)*

Chip Load per Tooth for End Mills Series CA-2, CA-2M, CA-2B, CA-3, CA-3M

Chip Load per Tooth

Material	Hardness		Chip Load per Tooth									
	Brinell	HRC	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Low-Silicon Aluminum & Other Non-Ferrous Alloys	50-150	—	0.0007	0.0011	0.0018	0.0025	0.0034	0.0040	0.0048	0.0060	0.0072	0.0096
			0.0006	0.0010	0.0016	0.0023	0.0031	0.0037	0.0044	0.0056	0.0067	0.0089

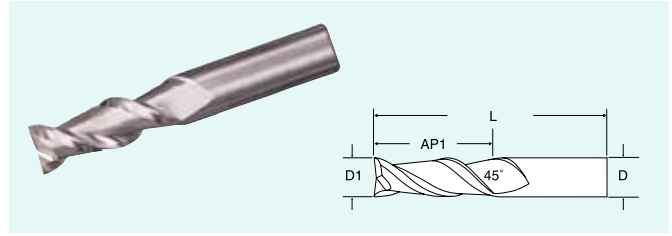
Note: The above speeds and feeds are recommended starting points only and depend upon setup conditions; higher or lower parameters may be required to achieve optimum conditions.



Series CA-2

Features

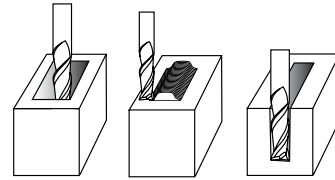
- 2-flute, right-hand helix, right-hand cut
- Center cutting
- Square end
- High helix angle for faster chip flow
- Concentric margins for stability during machining and superior finishes on parts
- Uncoated and TiCN coated standard; other coatings available as a modification



Old Series 560, 570, 580, 585

Applications

- For deep pocketing and contouring applications in non-ferrous materials.
- Feed and speed recommendations are listed on page 68.



Series CA-2 Offering

D1 inch	D inch	AP1 inch	L inch	Uncoated EDP No.	TiCN Coated EDP No.
1/8	1/8	1/4	1-1/2	M30532	M30455
1/8	1/8	3/8	1-1/2	M30240	M30095
1/8	1/8	3/4	2-1/4	M30241	M30105
5/32	3/16	9/16	2	M30242	M30114
3/16	3/16	5/16	2	M30540	M30464
3/16	3/16	9/16	2	M30250	M30115
3/16	3/16	3/4	2-1/2	M30251	M30124
7/32	1/4	3/4	2-1/2	M30252	M30125
1/4	1/4	3/8	2-1/2	M30541	M30465
1/4	1/4	3/4	2-1/2	M30262	M30144
1/4	1/4	1-1/8	3	M30270	M30145
1/4	1/4	1-1/2	4	M30271	M30154
5/16	5/16	13/16	2-1/2	M30272	M30155
5/16	5/16	1-1/8	3	M30292	M30164
11/32	3/8	1	2-1/2	M30301	M30165
3/8	3/8	1/2	2-1/2	M30542	M30474
3/8	3/8	7/8	2-1/2	M30302	M30175
3/8	3/8	1-1/8	3	M30312	M30184
3/8	3/8	1-3/4	4	M30322	M30185
7/16	7/16	9/16	2-1/2	M30550	M30475
7/16	7/16	7/8	2-1/2	M30330	M30205
7/16	7/16	1	2-1/2	M35970	M35205
7/16	7/16	2	4-1/2	M30331	M30214
1/2	1/2	5/8	3	M30551	M30484
1/2	1/2	1	3	M30332	M30215
1/2	1/2	1-1/4	3	M36322	M35315
1/2	1/2	2	4-1/2	M30350	M30235
1/2	1/2	3	5	M30351	M30244
1/2	1/2	3-1/8	6	M36330	M35324
5/8	5/8	3/4	3-1/2	M30552	M30485
5/8	5/8	1-1/4	3-1/2	M30352	M30245
5/8	5/8	1-5/8	4	M35365	M36360
5/8	5/8	2-1/4	5	M30360	M30254
5/8	5/8	3-3/4	6	M30361	M30255
3/4	3/4	1	4	M30560	M30494
3/4	3/4	1-1/2	4	M30362	M30264
3/4	3/4	2-1/4	5	M30370	M30265
3/4	3/4	4	6-1/4	M30371	M30274
1	1	1-1/4	5	M30561	M30495
1	1	1-1/2	4	M30372	M30275
1	1	2-1/4	5	M30380	M30284
1	1	2-5/8	6	M36331	M35325
1	1	3-1/4	6	M36332	M35334
1	1	4	6-1/2	M30381	M30294

Metric sizes listed on next page

SOLID CARBIDE END MILLS

SOLID CARBIDE DRILLS

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BURS

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