

SPECIALTY END MILLS



CONICAL<sup>TM</sup>  
CARBIDE MINIATURES



AMERICAN  
MADE



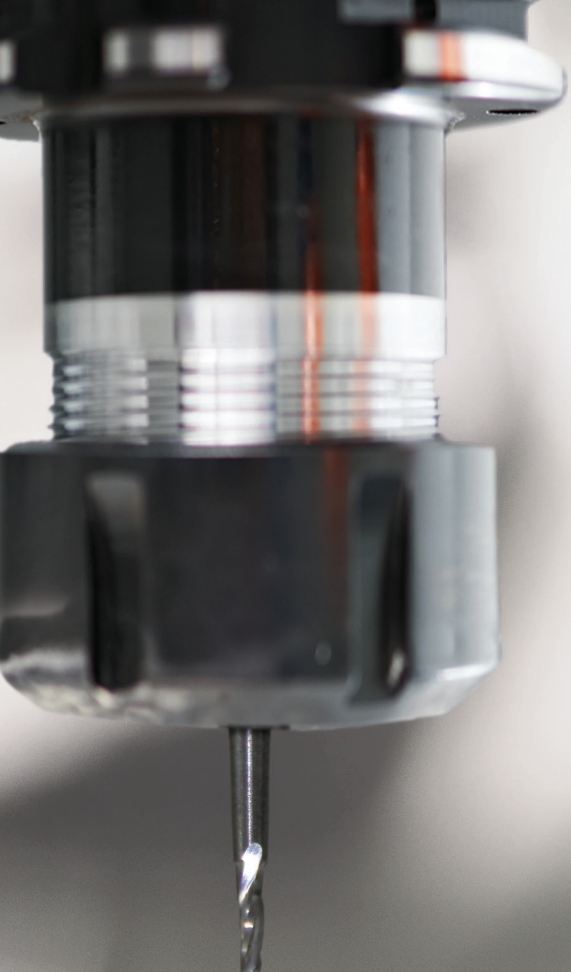
GLOBALLY  
RENOWNED

SPECIALTY END MILLS

FOR MICRO PRECISION MACHINING OF DRAFT ANGLES & CHAMFERS



[www.conicalendmills.com](http://www.conicalendmills.com) | [www.globalcuttingtools.com](http://www.globalcuttingtools.com)



**CONICAL**<sup>TM</sup>  
CARBIDE MINIATURES

# MICRO PRECISION MACHINING

IN ALL MATERIALS

## FEATURES & BENEFITS

Regardless of their size, these end mills will rapidly and accurately remove material from precision and micro machining operations. The smart vibration dampening geometry, works to demonstrate almost surgical milling. This end mill is perfect for applications ranging from medical instruments to electronics. We persistently refine our engineering and after witnessing the results, one would be hard-pressed to find a better tool.

### General Inquiries:

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### Sales & Distribution:

**T:** (888) 531-8500

**E:** [sales@conicaltool.com](mailto:sales@conicaltool.com)

### Custom Tooling:

**E:** [quotes@conicaltool.com](mailto:quotes@conicaltool.com)

**W:** [conicalendmills.com/custom-tool-ordering](http://conicalendmills.com/custom-tool-ordering)



**CONICAL**<sup>TM</sup>  
CUTTING TOOLS



## SERIES: CCM

For finish milling of draft angles / chamfers and slotting of tapered walls in most materials; wet or dry; from easy to difficult machinability materials.

 Standard square end to create sharp corners in finishing operations

 Three flute design to balance chip evacuation and tool engagement

Variable lead helix provides increased tool engagement and rigidity

Variable Core Design maximizes chip evacuation and provides increased rigidity when the cutter is fully engaged

Ball end option for high performance contour milling in finishing operations. Available in 24 to 48 hours 

Corner radius option protects corners in roughing operations and difficult to machine materials by preventing corner chipping and tool failure. Available in 24 to 48 hours 

Premium micro-grain carbide substrate resists chipping, tool deflection, and has a high transverse rupture strength for greater feeds and speeds 



Uncoated for versatility. More than 16 available coatings can be added to increase tool life for your specific application and material

Universal design allows for a multitude of applications, from slotting to finishing

TIP & END			SHANK & LENGTH					FLUTE CONFIGURATION				MATERIAL	COATING	
														

## RESULTS

When the workload requires surgical precision, detail and tight tolerances, you can rely on our Conical Tapered Miniatures to be the most finely tuned tools in the industry. Our tapered minis hold tighter tolerances and create a more superior surface finish than traditional micro

machining tools. Fabricated from the best performing micro-grain carbide available, the Conical Tapered Miniatures provide the results you need, instead of extra stress you need to avoid.

**Series CCM:** Micro-Grain Carbide, 3 Flutes, 17 - 22° Variable Lead Helix

**Subseries:** CM0XD, CM01D, CM1XD, CM02D, CM03D, CM05D

**Configuration:** Varying Angles; Varying Diameters; Stub & Regular Lengths; 17 - 22° Variable Lead Helix; Square End, Corner Radius & Ball End

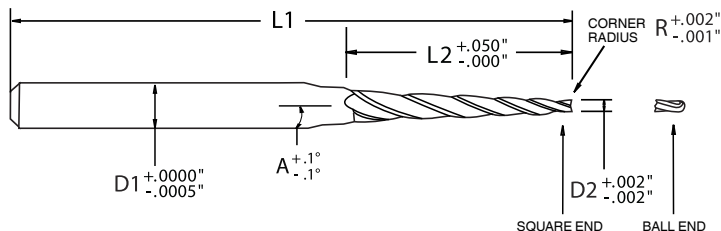
## CONICAL TAPERED MINIS

SERIES CCM - CARBIDE, 3 FLUTE, 17 - 22° VARIABLE LEAD HELIX

## DETAILED, TIGHT TOLERANCE MACHINING

These tools excel at detailed, tight tolerance machining, to make draft angles and chamfers in all materials. Fabricated from the best performing micro-grain carbide available.

- Standard square end to create sharp corners in finishing operations
  - Three flute design to balance chip evacuation and tool engagement
  - Corner radius option protects corners in roughing operations and difficult to machine materials by preventing corner chipping and tool failure.
- Available in 24 to 48 hours

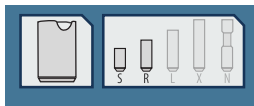


To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

## TIP &amp; END



## SHANK &amp; LENGTH



## FLUTE CONFIGURATION



## MATERIAL



## COATING



## SERIES CM0XD - 1/2 DEGREE, VARYING LENGTHS



ANGLE PER SIDE (A)	TIP DIAMETER (D2)		LARGE DIAMETER (D1)	SHANK DIAMETER (D1)		FLUTE LENGTH (L2)		OVERALL LENGTH (L1)		# OF FLUTES	SQUARE END		BALL END	
											PART #	EDP #	PART #	EDP #
.5°	1/32	0.031	0.036	1/8	0.125	1/4	0.250	2 1/2	2.500	3	CM-AX-0001	6Y01S	CM-AX-0001-BE	6Y01B
			0.040			1/2	0.500				CM-AX-0002	6Y02S	CM-AX-0002-BE	6Y02B
	3/64	0.047	0.051	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-AX-011	6Y03S	CM-AX-011-BE	6Y03B
			0.056			1/2	0.500				CM-AX-012	6Y04S	CM-AX-012-BE	6Y04B
	1/16	0.063	0.067	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-AX-001	6Y05S	CM-AX-001-BE	6Y05B
			0.071			1/2	0.500				CM-AX-002	6Y06S	CM-AX-002-BE	6Y06B
			0.076			3/4	0.750				CM-AX-003	6Y07S	CM-AX-003-BE	6Y07B
			0.080			1	1.000				CM-AX-004	6Y08S	CM-AX-004-BE	6Y08B
	5/64	0.078	0.087	1/8	0.125	1/2	0.500	2 1/2	2.500		CM-AX-022	6Y09S	CM-AX-022-BE	6Y09B
			0.091			3/4	0.750				CM-AX-023	6Y10S	CM-AX-023-BE	6Y10B
			0.096			1	1.000				CM-AX-024	6Y11S	CM-AX-024-BE	6Y11B

## SERIES CM0XD - 1 DEGREE, VARYING LENGTHS



ANGLE PER SIDE (A)	TIP DIAMETER (D2)		LARGE DIAMETER (D1)	SHANK DIAMETER (D1)		FLUTE LENGTH (L2)		OVERALL LENGTH (L1)		# OF FLUTES	SQUARE END		BALL END	
											PART #	EDP #	PART #	EDP #
1°	1/32	0.031	0.040	1/8	0.125	1/4	0.250	2 1/2	2.500	3	CM-A-0001	6A01S	CM-A-0001-BE	6A01B
			0.049			1/2	0.500				CM-A-0002	6A02S	CM-A-0002-BE	6A02B
	3/64	0.047	0.056	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-A-011	6A03S	CM-A-011-BE	6A03B
			0.064			1/2	0.500				CM-A-012	6A04S	CM-A-012-BE	6A04B
	1/16	0.063	0.071	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-A-001	6A05S	CM-A-001-BE	6A05B
			0.080			1/2	0.500				CM-A-002	6A06S	CM-A-002-BE	6A06B
			0.089			3/4	0.750				CM-A-003	6A07S	CM-A-003-BE	6A07B
			0.097			1	1.000				CM-A-004	6A08S	CM-A-004-BE	6A08B
	5/64	0.078	0.096	1/8	0.125	1/2	0.500	2 1/2	2.500		CM-A-022	6A09S	CM-A-022-BE	6A09B
			0.104			3/4	0.750				CM-A-023	6A10S	CM-A-023-BE	6A10B
			0.113			1	1.000				CM-A-024	6A11S	CM-A-024-BE	6A11B



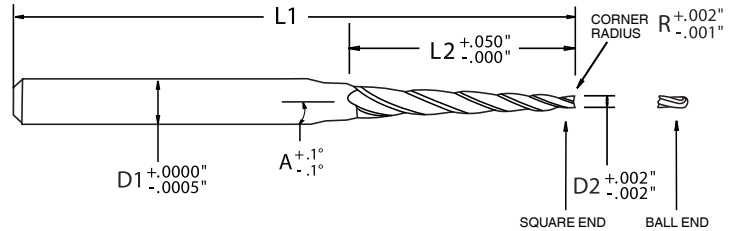
# CONICAL TAPERED MINIS

SERIES CCM - CARBIDE, 3 FLUTE, 17 - 22° VARIABLE LEAD HELIX

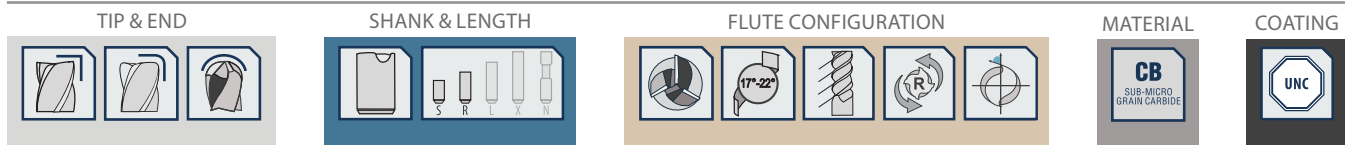
## RAPIDLY & ACCURATELY REMOVE MATERIAL

Conical Tapered Minis can be used for slotting tapered walls and microfinishing applications. These end mills will rapidly and accurately remove material from precision and micro machining operations.

- Variable Core Design maximizes chip evacuation and provides increased rigidity when the cutter is fully engaged
- Ball end option for high performance contour milling in finishing operations. Available in 24 to 48 hours
- Variable lead helix provides increased tool engagement and rigidity



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.



## SERIES CM01XD - 1 1/2 DEGREE, VARYING LENGTHS

ANGLE PER SIDE (A)	TIP DIAMETER (D2)		LARGE DIAMETER (D1)	SHANK DIAMETER (D1)		FLUTE LENGTH (L2)		OVERALL LENGTH (L1)		# OF FLUTES	SQUARE END		BALL END	
											PART #	EDP #	PART #	EDP #
1.5°	1/32	0.031	0.044	1/8	0.125	1/4	0.250	2 1/2	2.500	3	CM-AAX-0001	6Z01S	CM-AAX-0001-BE	6Z01B
			0.057			1/2	0.500				CM-AAX-0002	6Z02S	CM-AAX-0002-BE	6Z02B
	3/64	0.047	0.060	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-AAX-011	6Z03S	CM-AAX-011-BE	6Z03B
			0.073			1/2	0.500				CM-AAX-012	6Z04S	CM-AAX-012-BE	6Z04B
	1/16	0.063	0.076	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-AAX-001	6Z05S	CM-AAX-001-BE	6Z05B
			0.089			1/2	0.500				CM-AAX-002	6Z06S	CM-AAX-002-BE	6Z06B
			0.102			3/4	0.750				CM-AAX-003	6Z07S	CM-AAX-003-BE	6Z07B
			0.115	3/16	0.188	1	1.000	3	3.000		CM-AAX-004	6Z08S	CM-AAX-004-BE	6Z08B
	5/64	0.078	0.104	1/8	0.125	1/2	0.500	2 1/2	2.500		CM-AAX-022	6Z09S	CM-AAX-022-BE	6Z09B
			0.117			3/4	0.750				CM-AAX-023	6Z10S	CM-AAX-023-BE	6Z10B
			0.130			3/16	0.188				1	1.000	3	3.000

## SERIES CM02D - 2 DEGREE, VARYING LENGTHS

ANGLE PER SIDE (A)	TIP DIAMETER (D2)		LARGE DIAMETER (D1)	SHANK DIAMETER (D1)		FLUTE LENGTH (L2)		OVERALL LENGTH (L1)		# OF FLUTES	SQUARE END		BALL END	
												PART #	EDP #	PART #
2°	1/32	0.031	0.049	1/8	0.125	1/4	0.250	2 1/2	2.500	3	CM-B-0001	6B01S	CM-B-0001-BE	6B01B
			0.066			1/2	0.500				CM-B-0002	6B02S	CM-B-0002-BE	6B02B
	3/64	0.047	0.064	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-B-011	6B03S	CM-B-011-BE	6B03B
			0.082			1/2	0.500				CM-B-012	6B04S	CM-B-012-BE	6B04B
	1/16	0.063	0.080	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-B-001	6B05S	CM-B-001-BE	6B05B
			0.097			1/2	0.500				CM-B-002	6B06S	CM-B-002-BE	6B06B
			0.115			3/4	0.750				CM-B-003	6B07S	CM-B-003-BE	6B07B
			0.132			3/16	0.188				1	1.000	3	3.000
	5/64	0.078	0.113	1/8	0.125	1/2	0.500	2 1/2	2.500		CM-B-022	6B09S	CM-B-022-BE	6B09B
			0.131			3/4	0.750				CM-B-023	6B10S	CM-B-023-BE	6B10B
			0.148	3/16	0.188	1	1.000	3	3.000		CM-B-024	6B11S	CM-B-024-BE	6B11B

# CONICAL TAPERED MINIS

SERIES CCM - CARBIDE, 3 FLUTE, 17 - 22° VARIABLE LEAD HELIX

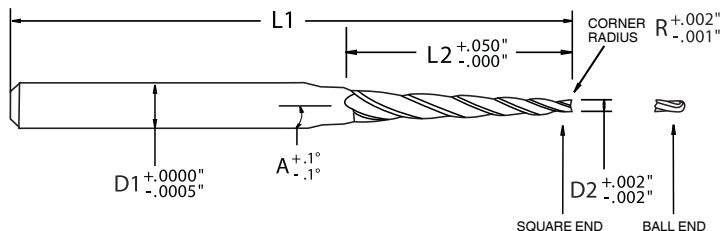
## VIBRATION DAMPENING GEOMETRY

The smart vibration dampening geometry, works to demonstrate almost surgical milling. This end mill is perfect for applications ranging from medical instruments to electronics.

- Premium micro-grain carbide substrate resists chipping, tool deflection, and has a high transverse rupture strength for greater feeds and speeds

- Uncoated for versatility. More than 16 available coatings can be added to increase tool life for your specific application and material

- Universal design allows for a multitude of applications, from slotting to finishing



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

### TIP & END



### SHANK & LENGTH



### FLUTE CONFIGURATION



### MATERIAL



### COATING



## SERIES CM03D - 3 DEGREE, VARYING LENGTHS



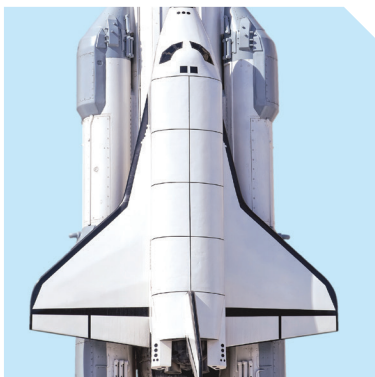
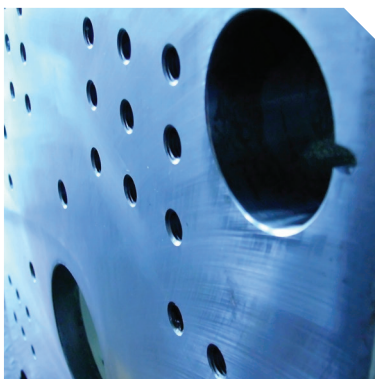
ANGLE PER SIDE (A)	TIP DIAMETER (D2)		LARGE DIAMETER (D1)	SHANK DIAMETER (D1)		FLUTE LENGTH (L2)		OVERALL LENGTH (L1)		# OF FLUTES	SQUARE END		BALL END	
											PART #	EDP #	PART #	EDP #
3°	1/32	0.031	0.057	1/8	0.125	1/4	0.250	2 1/2	2.500	3	CM-C-0001	6C01S	CM-C-0001-BE	6C01B
			0.084			1/2	0.500				CM-C-0002	6C02S	CM-C-0002-BE	6C02B
	3/64	0.047	0.073	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-C-011	6C03S	CM-C-011-BE	6C03B
			0.099			1/2	0.500				CM-C-012	6C04S	CM-C-012-BE	6C04B
	1/16	0.063	0.115	1/8	0.125	1/2	0.500	2 1/2	2.500		CM-C-001	6C05S	CM-C-001-BE	6C05B
			0.115			1/2	0.500				CM-C-002	6C06S	CM-C-002-BE	6C06B
			0.141	3/16	0.188	3/4	0.750	3	3.000		CM-C-003	6C07S	CM-C-003-BE	6C07B
			0.167			1	1.000				CM-C-004	6C08S	CM-C-004-BE	6C08B
	5/64	0.078	0.131	3/16	0.188	1/2	0.500	3	3		CM-C-022	6C09S	CM-C-022-BE	6C09B
			0.157			3/4	0.750				CM-C-023	6C10S	CM-C-023-BE	6C10B
0.183			1			1.000	CM-C-024			6C11S	CM-C-024-BE	6C11B		

## SERIES CM05D - 5 DEGREE, VARYING LENGTHS



ANGLE PER SIDE (A)	TIP DIAMETER (D2)		LARGE DIAMETER (D1)	SHANK DIAMETER (D1)		FLUTE LENGTH (L2)		OVERALL LENGTH (L1)		# OF FLUTES	SQUARE END		BALL END	
											PART #	EDP #	PART #	EDP #
5°	1/32	0.031	0.075	1/8	0.125	1/4	0.250	2 1/2	2.500	3	CM-E-0001	6E01S	CM-E-0001-BE	6E01B
			0.119	3/16	0.188	1/2	0.500	3	3.000		CM-E-0002	6E02S	CM-E-0002-BE	6E02B
	3/64	0.047	0.091	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-E-011	6E03S	CM-E-011-BE	6E03B
			0.134	3/16	0.188	1/2	0.500	3	3.000		CM-E-012	6E04S	CM-E-012-BE	6E04B
	1/16	0.063	0.106	1/8	0.125	1/4	0.250	2 1/2	2.500		CM-E-001	6E05S	CM-E-001-BE	6E05B
			0.150			1/2	0.500				CM-E-002	6E06S	CM-E-002-BE	6E06B
			0.194	1/4	0.250	3/4	0.750	2 1/2	2.500		CM-E-003	6E07S	CM-E-003-BE	6E07B
			0.237			1	1.000				CM-E-004	6E08S	CM-E-004-BE	6E08B
	5/64	0.078	0.166	3/16	0.188	1/2	0.500	3	3.000		CM-E-022	6E09S	CM-E-022-BE	6E09B
			0.209	1/4	0.250	3/4	0.750				CM-E-023	6E10S	CM-E-023-BE	6E10B
		0.253	3/8	0.375	1	1.000	2 1/2	2.500	CM-E-024	6E11S	CM-E-024-BE	6E11B		





# OUR INDUSTRIES

The original tapered end mill manufacturer, Conical Tool's industry expertise runs deep and we have maintained exceptional relationships with some of the world's largest companies. Our commitment to the industry as hands-on technical experts cross many sectors and geographies. Our 70 year history coupled with analytical, innovative thinking allows us to provide our customers with the most practical and efficient solutions to their tooling needs.

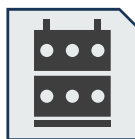
Our industry foresight is based on identifying the key issues our customers face, and developing rigorous programs to provide the most appropriate and beneficial solutions. These are only a small percentage of the industries we serve, contact us today for more information and to find out what we can do for you.



Hard Milling



Aerospace



Tool & Die



Medical



Automotive



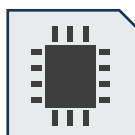
Dept. of Defense



Casting & Foundries



General Machining



Electronics



Agriculture



Furniture / Wood



Energy

NEARLY 7,000 DISTRIBUTORS WORLDWIDE & HUNDREDS OF THOUSANDS OF END USERS CAN'T BE WRONG

The manufacturing and materials industry is changing at an unprecedented pace and simply saying we supply tools to the metalworking industry would leave out a large portion of our customer base. Our tools have been used in every application imaginable, from sculptural ice carving to precision manufacturing of custom nuclear reactor parts.





## 70 YEARS OF INNOVATION



### SURGICAL PRECISION

Once again, we standardized the performance of micro precision end milling with our Conical Tapered Miniatures. These little tools excel at detailed, tight tolerance machining, to make draft angles and chamfers in all materials.

Consisting of the best micro-grain carbide available and the Conical standard variable geometries, the Conical Tapered Mini's can be used for slotting tapered walls and micro-finishing applications. The size of the core does matter, even for smaller

applications. By balancing flute depth and helix angle, we create a stable tool for high speed finishing.

The true value of a tool isn't fully known until the machine is running and you hear it is working properly. When you need to struggle to hear anything at all, you can be assured you have the consistent and smooth engineering of our Conical Tapered Miniature end mill, finishing your parts.

## GLOBALLY RENOWNED

Our roster of skilled tool makers and excellent support staff has made the transition from a manufacturer of specialty tapered end mills to a premier manufacturer of high performance cutting tools, seamless. Don't be deceived by our global capacity, we pride ourselves on our ability to benefit all our small business partners, through mutual respect and professionalism.

Global Cutting Tools  
Conical Tool Company

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