

A vertical lime green bar is positioned to the left of the text "Radial Milling Cutters", which is written in a large, white, sans-serif font against a light blue background.

Since our beginning over 70 years ago, LMT Onsrud has endeavored to innovate and to develop the best cutting tool solutions on the market. LMT Onsrud is recognized as a leading manufacturer of solid round tooling for a wide range of materials from plastics to composites to exotic metals.

Today our promise remains the same - to consistently provide premium cutting tool solutions to meet your needs and to provide exceptional support throughout all phases of planning, development and production.



Aerospace Industry



Medical Industry



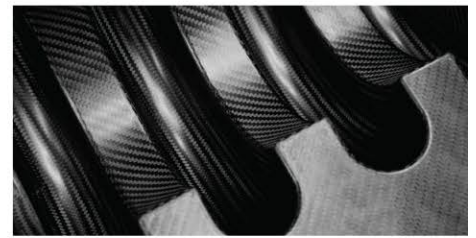
Energy Industry



Woods



Metals



Composites



Tooling Development



Training and Support



Innovation

Materials cut:

- Composites
- Exotic Metals
- Honeycomb
- Non-Ferrous Metals
- Plastics and Acrylics
- Solid Surface
- Stainless Steels
- Wood and Composite Woods

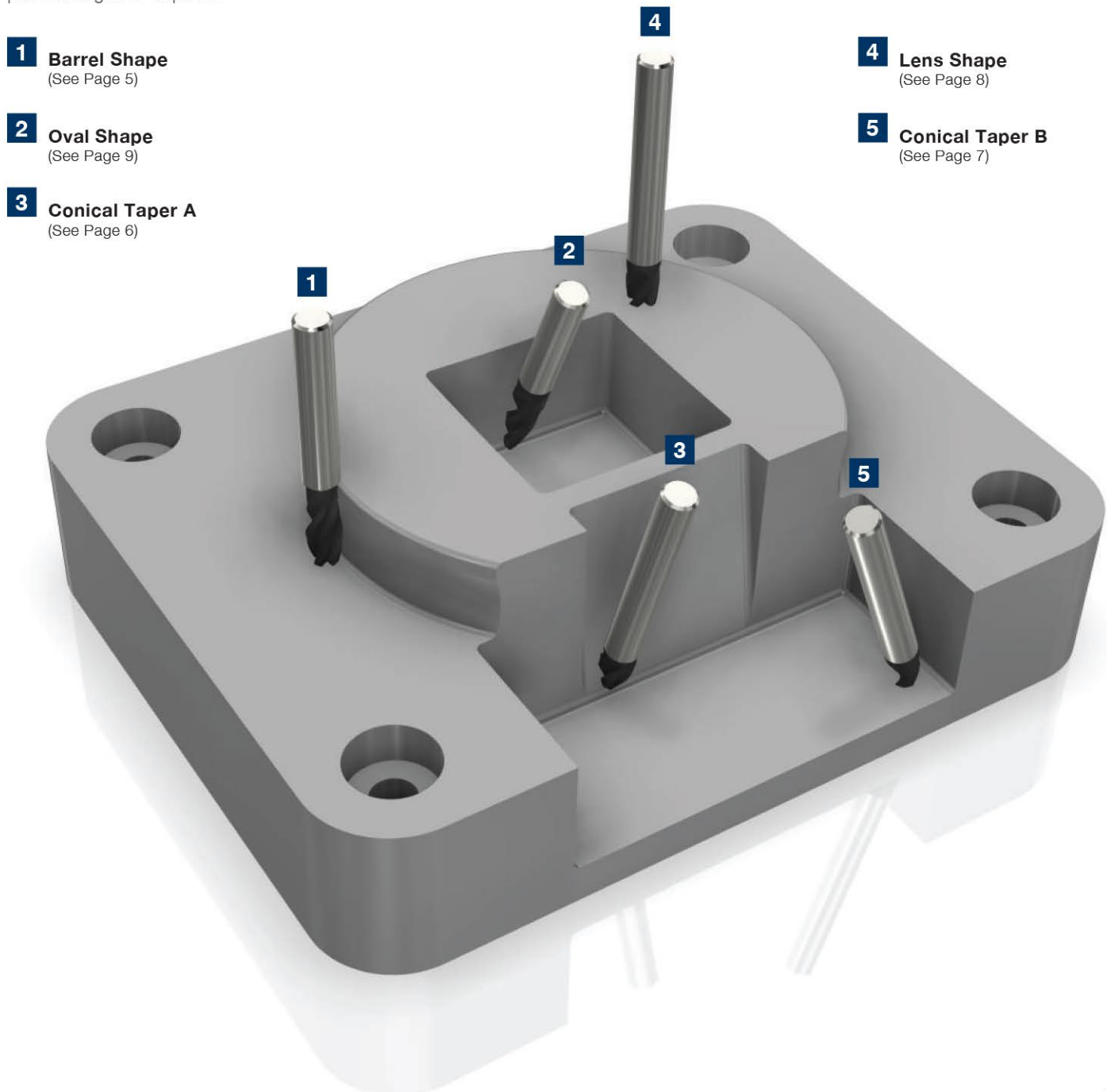
The Perfect Solution

Reduced Cycle Times. Increased Surface Quality.

A new breed of cutting tools powered by the latest in CAM technology is ready to take on some of the toughest challenges in the machining of complex parts.

LMT Onsrud's new Radial Milling Cutter family, with their large radii profiles, emulate ballnose tooling on an entirely different scale. The large radii increases your step over distance between tool paths. This enables more efficient strategies in blade machining, mold making, and the production of thin-walled aerostructures.

To take full advantage of this concept, a 5-axis machining center and a CAM system capable of supporting the tool path strategies is required.



1 Barrel Shape
(See Page 5)

2 Oval Shape
(See Page 9)

3 Conical Taper A
(See Page 6)

4 Lens Shape
(See Page 8)

5 Conical Taper B
(See Page 7)

Quality, Productivity, Reliability

Conventional Ballnose Milling

Generally utilized for contour milling, ballnose tools use approximately half of the tool's cutting edge during machining. This, therefore, requires multiple machining passes to create a smooth sidewall or surface finish leading to longer production timeframes.

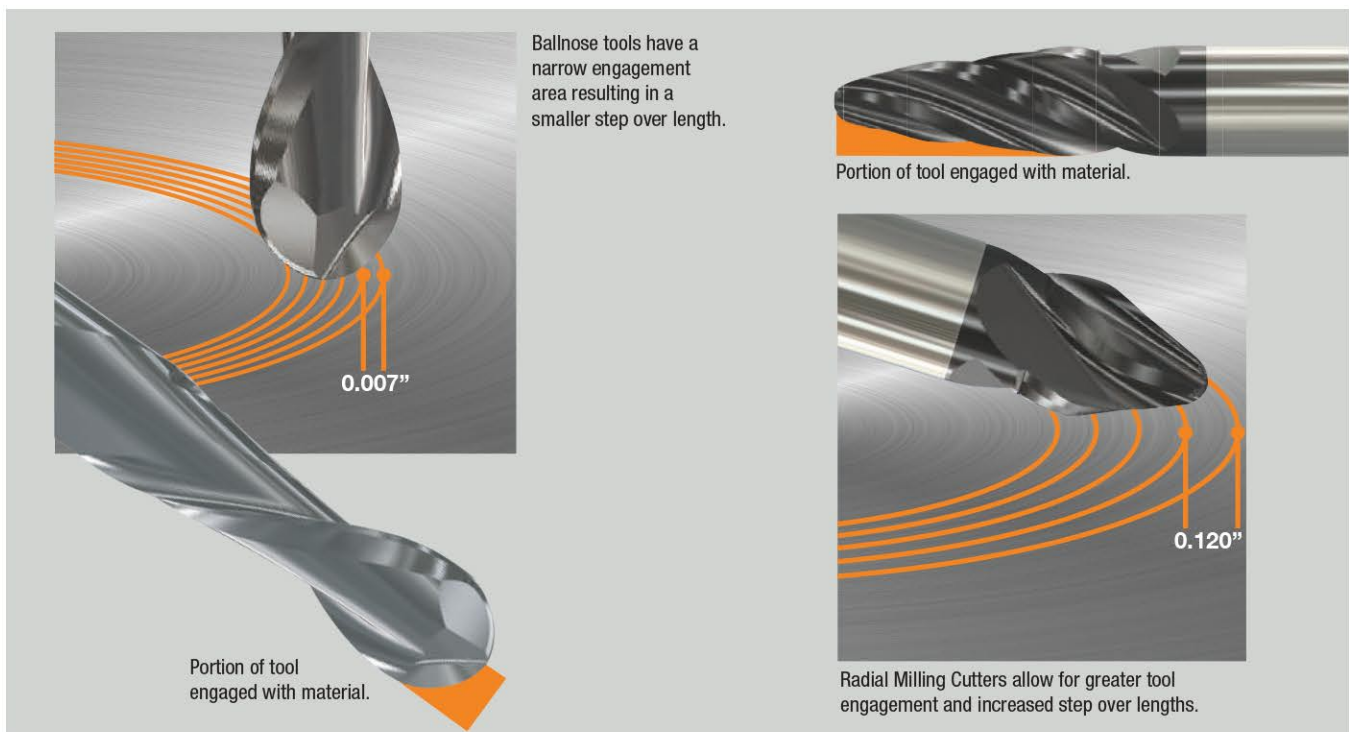
During machining, ballnose end mills remain in constant contact with the material being cut leading to increased axial forces on the tool and, potentially, increased vibration within the machined part itself. Higher vibration tends to reduce tool life, while diminishing the part finish within a 3-axis work pattern.

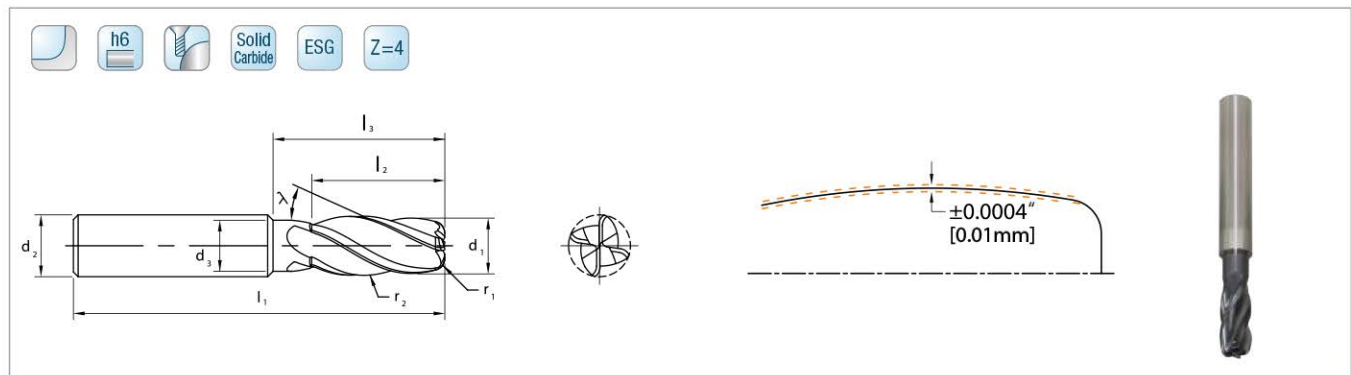
It is because of these aspects of machining that LMT Onsrud has developed a line of Radial Milling Cutters.

Radial Milling

Created to be used within a 5-axis machining environment, Radial Milling Cutters have been designed to allow for increased tool engagement with the material being cut. This increase allows for greater productivity through higher material removal rates per pass, while reducing machining time.

In addition to fewer machining passes required, material vibration or "chatter" is also lessened creating a superior work piece finish. Less stress is also being placed onto the tool itself resulting in greater tool life.





4-Flute

P	■
M	■
K	■
N	■
S	■
H	■

Series	Cutting Diameter d ₁	LOC l ₂	Overall Length l ₁	Neck Length l ₃	Neck Diameter d ₃	Shank Diameter d ₂	Flutes z	Corner Radius r ₁	Barrel Radius r ₂	Ident No.
RMC-B	3/8	7/8	3	1 1/8	0.278	3/8	4	0.080	2.000	RMC2647625
RMC-B	1/2	1	3	1 3/8	0.399	1/2	4	0.080	2.500	RMC2647626

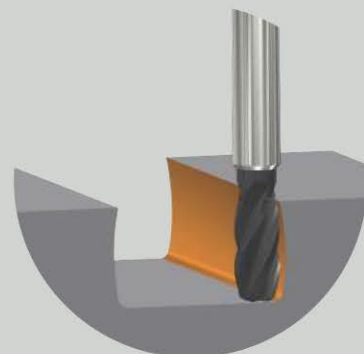
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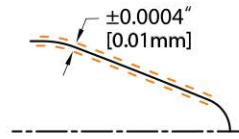
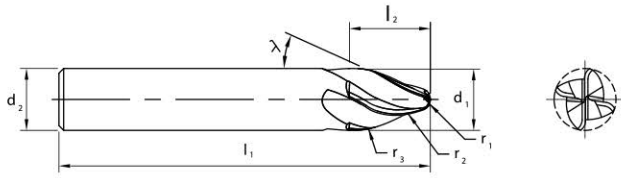
RMC-B	10	21	73	30	8	10	4	1	60	RMC2647642
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Cutting data recommendations on Page 10

■ = First Choice
□ = Second Choice

The Barrel Shape has a continuous radius along the length of cut and a reduced neck.





4-Flute

P		■
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N		■
S		■
H		■

Series	Cutting Diameter d_1	LOC l_2	Overall Length l_1	Neck Length l_3	Neck Diameter d_3	Shank Diameter d_2	Flutes z	Radius r_1	Radius r_2	Radius r_3	Tilt Angle	Ident No.
RMC-CTA	1/4	0.425	2 1/2	-	-	1/4	4	0.040	10	0.120	12.5°	RMC2647631
RMC-CTA	5/8	1 1/4	4	-	-	5/8	4	0.080	40	0.190	12.5°	RMC2647632
RMC-CTA	5/16	0.450	3	-	-	5/16	4	0.060	10	0.150	17.5°	RMC2647633
RMC-CTA	3/8	0.475	3	-	-	3/8	4	0.080	10	0.190	20°	RMC2647634
RMC-CTA	1/2	1/2	3	-	-	1/2	4	0.120	10	0.250	20°	RMC2647635
RMC-CTA	5/8	5/8	4	-	-	5/8	4	0.160	60	0.250	20°	RMC2647636

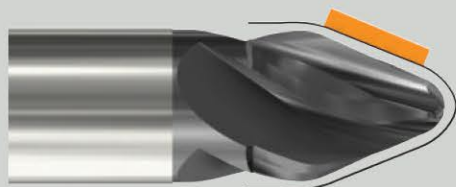
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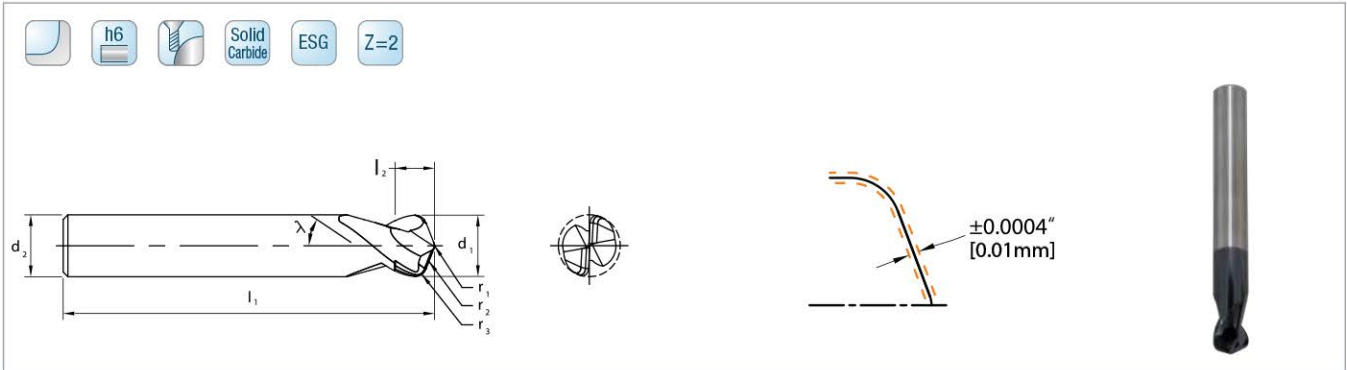
RMC-CTA	16	24	109	-	-	16	4	4	1000	5	12.5°	RMC2647646
RMC-CTA	6	9.5	64	-	-	6	4	1	250	3	17.5°	RMC2647647
RMC-CTA	10	12.5	80	-	-	10	4	2	250	5	20°	RMC2647648
RMC-CTA	12	22	88	-	-	12	4	3	250	6	20°	RMC2647649

Cutting data recommendations on Page 10

- = First Choice
- = Second Choice

The Conical Taper Form A is a side cutting end mill with a multiple radii blend for milling steep walls with a tilt angle <math><45^\circ</math>.





2-Flute

P	■
M	■
K	■
N	■
S	■
H	■

Series	Cutting Diameter d ₁	LOC l ₂	Overall Length l ₁	Neck Length l ₃	Neck Diameter d ₃	Shank Diameter d ₂	Flutes z	Radius r ₁	Radius r ₂	Radius r ₃	Tilt Angle	Ident No.
RMC-CTB	3/8	1/4	3	-	-	3/8	2	0.040	8	0.060	70°	RMC2647637

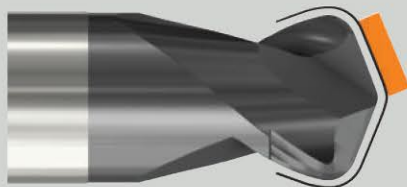
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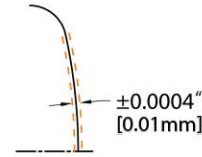
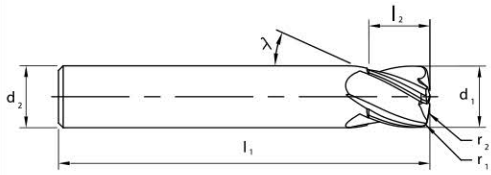
RMC-CTB	10	6	81	-	-	10	2	1	200	2	70°	RMC2647650
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Cutting data recommendations on Page 10

■ = First Choice
□ = Second Choice

The Conical Taper Form B has an end cutting geometry for tilt angles >45° for semi-finishing and finishing workpiece floors.





4-Flute

P		■
M		■
K		■
N		■
S		■
H		■

Series	Cutting Diameter d_1	LOC l_2	Overall Length l_1	Neck Length l_3	Neck Diameter d_3	Shank Diameter d_2	Flutes z	Corner Radius r_1	Lens Radius r_2	Ident No.
RMC-L	0.1575	1/4	2 1/2	3/4	0.1575	1/4	4	0.010	0.250	RMC2647638
RMC-L	5/16	5/16	2 1/2	-	-	5/16	4	0.030	0.600	RMC2647639
RMC-L	3/8	3/8	3	-	-	3/8	4	0.040	0.800	RMC2647640
RMC-L	1/2	1/2	3	-	-	1/2	4	0.050	1.000	RMC2647641

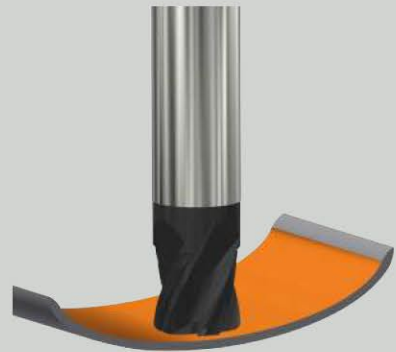
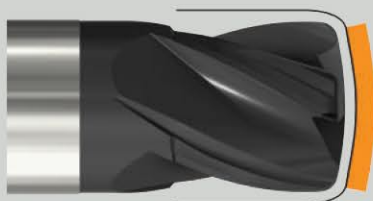
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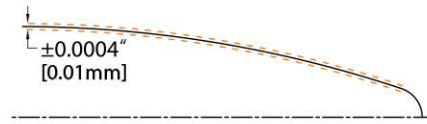
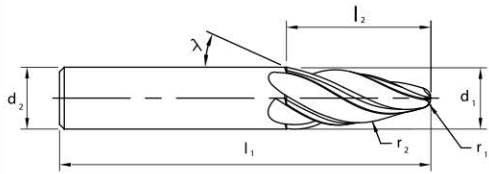
RMC-L	16	16	100	-	-	16	4	2	30	RMC2647651
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Cutting data recommendations on Page 10

- = First Choice
- = Second Choice

The Lens Shape Radial Milling Cutter utilizes a convex face cutting geometry which is useful for contoured floor finishing.





4-Flute

P	■
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K	■
N	■
S	■
H	■

Series	Cutting Diameter d ₁	LOC l ₂	Overall Length l ₁	Neck Length l ₃	Neck Diameter d ₃	Shank Diameter d ₂	Flutes z	Corner Radius r ₁	Oval Radius r ₂	Ident No.
RMC-O	1/4	0.830	2 1/2	-	-	1/4	4	0.040	3.750	RMC2647627
RMC-O	3/8	0.915	3	-	-	3/8	4	0.080	3.375	RMC2647628
RMC-O	1/2	1.100	3	-	-	1/2	4	0.080	3.125	RMC2647629
RMC-O	5/8	1.150	3 1/2	-	-	5/8	4	0.120	3.000	RMC2647630

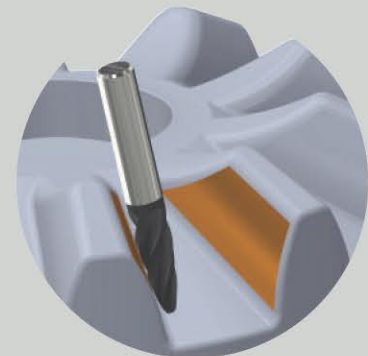
Metric

RMC-O	6	22	64	-	-	6	4	1	95	RMC2647643
RMC-O	10	24.5	73	-	-	10	4	2	90	RMC2647644
RMC-O	12	27	84	-	-	12	4	2	85	RMC2647645

Cutting data recommendations on Page 10

■ = First Choice
□ = Second Choice

The Oval Shape has a side cutting geometry with a continuous radius ending at the cutting diameter.



ISO Grade	Material / Grade	Lens Shape				Barrel Shape				Conical Taper Shape A&B				Oval Shape							
		SFM	Fz (inch)				SFM	Fz (inch)				SFM	Fz (inch)				SFM	Fz (inch)			
			1/4	3/8	1/2	5/8		1/4	3/8	1/2	5/8		1/4	3/8	1/2	5/8		1/4	3/8	1/2	5/8
P	Carbon Steel 10XX, 11XX 12XX, 15XX	900	.0010	.0015	.0020	.0025	900	.0013	.0019	.0025	.0031	900	.0008	.0011	.0015	.0019	900	.0013	.0019	.0025	.0031
	Alloy Steel 13XX, 40XX, 41XX, 43XX 44XX, 46XX, 47XX, 48XX	800	.0010	.0015	.0020	.0025	825	.0010	.0015	.0020	.0025	825	.0008	.0011	.0015	.0019	825	.0010	.0015	.0020	.0025
	Mold & Die Steel 300M, 4340, 52100, M50, A2, D2, H13, L2, M2, P20, S7, T15, W2	650	.0008	.0011	.0015	.0019	675	.0008	.0011	.0015	.0019	675	.0005	.0008	.0010	.0013	675	.0008	.0011	.0015	.0019
	Tool Steel PM STEELS	600	.0005	.0008	.0010	.0013	650	.0005	.0008	.0010	.0013	650	.0005	.0008	.0010	.0013	650	.0005	.0008	.0010	.0013
M	Austenitic Stainless 301, 302, 303, 304/304L/304H, 316/316L, 317L, 321/321H, 347/347H, Nitronic, 309/309S, 310/310S/310H, 330	400	.0005	.0008	.0010	.0013	275	.0005	.0008	.0010	.0013	275	.0005	.0008	.0010	.0013	275	.0005	.0008	.0010	.0013
	Martensitic Stainless 403, 405, 409, 410/410S/410HT, 416/416HT, 420, 422, 430, 440C	500	.0005	.0008	.0010	.0013	325	.0005	.0008	.0010	.0013	325	.0005	.0008	.0010	.0013	325	.0005	.0008	.0010	.0013
	Precipitation Stainless 13-8 PH, 15-5 PH, 15-7 PH 17-4 PH, 17-7 PH S143	300	.0003	.0004	.0005	.0006	200	.0003	.0004	.0005	.0006	200	.0003	.0004	.0005	.0006	200	.0003	.0004	.0005	.0006
K	Cast Iron Grey 20A, 25A, 30A, 35A, 40A, 45A, 50A	1000	.0013	.0019	.0025	.0031	925	.0013	.0019	.0025	.0031	925	.0010	.0015	.0020	.0025	925	.0013	.0019	.0025	.0031
	Cast Ductile / Nodular 40010, 60-40-18, 65-45-12 32510, 32518	900	.0010	.0015	.0020	.0025	825	.0010	.0015	.0020	.0025	825	.0010	.0015	.0020	.0025	825	.0010	.0015	.0020	.0025
N	Aluminum	2300	.0013	.0019	.0025	.0031	1950	.0013	.0019	.0025	.0031	1950	.0010	.0015	.0020	.0025	1950	.0013	.0019	.0025	.0031
	Brass / Bronze	1900	.0010	.0015	.0020	.0025	1300	.0010	.0015	.0020	.0025	1300	.0008	.0011	.0015	.0019	1300	.0013	.0019	.0025	.0031
	Copper Alloys	900	.0010	.0015	.0020	.0025	600	.0010	.0015	.0020	.0025	600	.0010	.0015	.0020	.0025	600	.0010	.0015	.0020	.0025
	Magnesium	1800	.0018	.0026	.0035	.0044	1300	.0018	.0026	.0035	.0044	1300	.0018	.0026	.0035	.0044	1300	.0018	.0026	.0035	.0044
S	Cobalt Base Haynes 21, 25, L-605, Mar-M302, NASA Co-W-Re Stellite, Ultimet	250	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006
	Iron Base A-286, Discaloy Incoloy 800-802, Multimet 16-25-6	250	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006
	Nickel Base Hastelloy, Haynes 242, Inconel 600, 625, 718, Invar, Kovar, Monel, Nimonic, Rene 41, 77, 95, Udimet, Waspaloy	250	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006	100	.0003	.0004	.0005	.0006
	Titanium 6Al-4V, Commercially Pure Titanium Aluminide	500	.0008	.0011	.0015	.0019	325	.0003	.0004	.0005	.0006	325	.0008	.0011	.0015	.0019	325	.0008	.0011	.0015	.0019
	Titanium Ti 10-2-3 Beta 21S Ti 5553	400	.0005	.0008	.0010	.0013	250	.0005	.0008	.0010	.0013	250	.0005	.0008	.0010	.0013	250	.0005	.0008	.0010	.0013

Inquiry Form Radial Milling Cutter



Send your completed form to:
info@onsrud.com

Customer Information			
Company		Contact	
Address		Phone	
		E-Mail	
		Date	

Material	
Material type:	
Material designation:	
Hardness:	
Additional info:	

Machine (5-Axis required)	
Spindle adaption:	
Max. spindle speed:	
Coolant:	<input type="checkbox"/> Oil <input type="checkbox"/> Emulsion ____ % <input type="checkbox"/> MQL <input type="checkbox"/> Air pressure <input type="checkbox"/> Dry <input type="checkbox"/> Dust collection

Tool data	
Quantity breaks (Minimum 6 pieces)	Coating: <input type="checkbox"/> Uncoated <input type="checkbox"/> TiN <input type="checkbox"/> ESG <input type="checkbox"/> Other <input type="checkbox"/> ESR <input type="checkbox"/> ZRN

<p>Face Geometry:</p>	<p>Construction Dimensions:</p>
<p>Type of Shank:</p> <input type="checkbox"/> HA <input type="checkbox"/> HE <input type="checkbox"/> HB	

Notes:



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