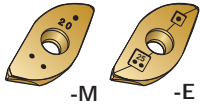


CoroMill® Ball Nose

Robust metal remover for profile milling

Productivity with both security and precision inserts



Two effective cutting edges give smooth cutting action and up to twice the table feed of a single edge cutter. The M-inserts are designed for a high security level and effective transportation of the heat generated by heavy cuts. The new E-inserts are designed for highest edge sharpness and precision.

Dia .375 – .750 inch
Dia 10 – 16 mm

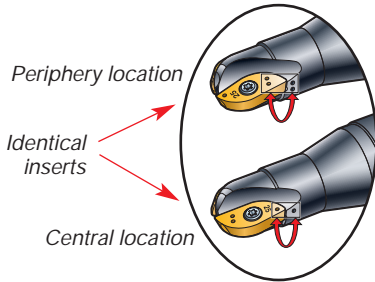
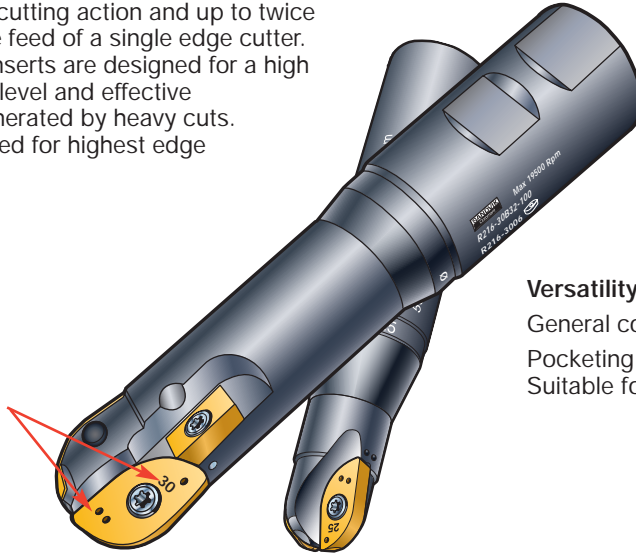
Permanent marking
Important product information on insert and cutter body

Versatility

General contouring and profiling.
Pocketing by ramping or helical interpolation.
Suitable for HSM, high speed machining.

Insert location

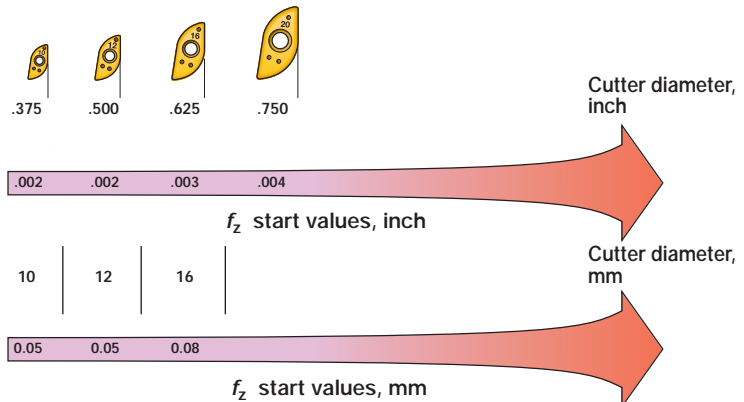
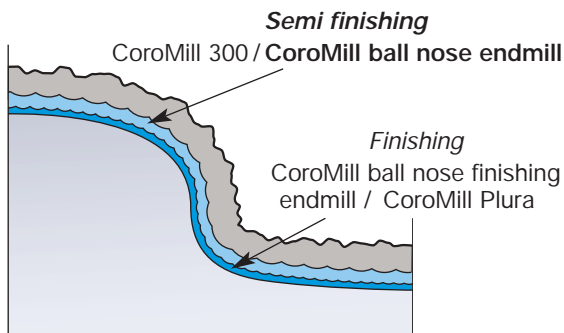
The insert has two cutting edges, one for periphery location and one for central. Follow the marking on insert and cutter body.

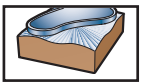


Individual insert sizes for each cutter diameter

The unique insert design permits use of the same insert in the periphery as well as in the center insert pocket.

Start values in feed per insert (f_z) should be adjusted depending on tool length, overall stability and engagement of the cutter.





CoroMill® ball nose endmill

Inch design

Diameter .375-.750 inch¹⁾



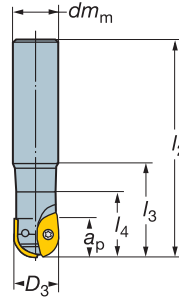
Machine tools: All types

Material:

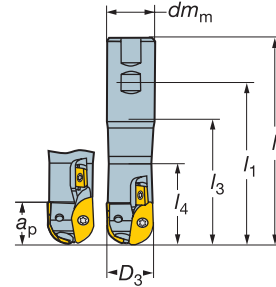


Inclination angle: -10°

Cylindrical



Weldon



l_1 = programming length

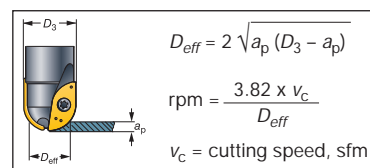
Ordering code		Dimensions, inch									Inserts ²⁾	
D_3			l_1	l_2	l_3	l_4	dm_m	Max ⁴⁾ a_p	n_{max} ³⁾		Main insert	
Cylindrical - Extra long ⁴⁾												
.375	RA216- 10016L-038	2	.40	-	6.00	1.500	.625	.625	.310	-	RA216-1002	-
.500	RA216- 13016L-051	2	.70	-	9.00	2.000	1.370	.625	.444	-	RA216-1302	-
.625	16016L-043	2	.73	-	9.00	1.689	-	.625	.559	-	RA216-1603	-
.750	19019L-051	2	1.18	-	10.00	2.000	-	.750	.669	-	RA216-19T3	-
Weldon, short												
.500	RA216- 13M19-038	2	.4	2.744	3.531	1.500	.750	.750	.444	21,000	RA216-1302	-
.625	16M19-038	2	.4	2.744	3.531	1.500	1.000	.750	.559	20,000	RA216-1603	-
Weldon, long												
.500	RA216- 13M19-057	2	.4	3.494	4.281	2.250	.750	.750	.444	21,000	RA216-1302	-
.625	16M19-057	2	.4	3.494	4.281	2.250	1.000	.750	.559	20,000	RA216-1603	-

1) See main rotating tools catalog for larger sizes and complete CoroMill ball nose endmill assortment.
 2) Inserts are ordered separately.
 3) n_{max} (max RPM) for holders must also be considered.

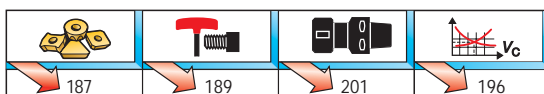
4) Caution should be taken when machining with long overhangs at high RPM and a_p .

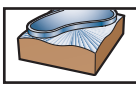
Ordering example: 2 pieces RA216-10016-038

CoroMill ball nose endmill - effective diameter calculation



For best productivity, calculate the effective diameter for your application.





CoroMill® ball nose endmill

Metric design

Diameter 10–16 mm¹⁾



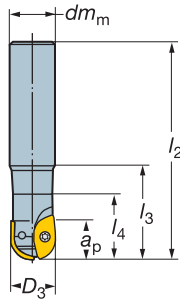
Machine tools: All types

Material:

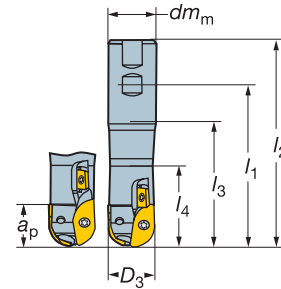


Inclination angle: -10°

Cylindrical



Weldon



l_1 = programming length

Ordering code		Dimensions, mm								Inserts ²⁾	
D_3 mm				l_1	l_2	l_3	l_4	dm_m	Max a_p	n_{max} ³⁾	Main insert
Cylindrical											
10	R216- 10A16-050	2	-	-	160	50	20	16	8.6	15,900	R216-10 02
12	12A20-045	2	0.4	-	200	45	20	20	10.8	21,000	12 02
16	16A20-045	2	0.4	-	200	45	27	20	14.4	20,000	16 03
Weldon, short											
12	R216- 12B20-040	2	0.2	66	91	40	20	20	10.8	21,000	R216-12 02
16	16B20-040	2	0.2	66	91	40	27	20	14.4	20,000	16 03
Weldon, long											
12	R216- 12B20-060	2	0.2	86	111	60	20	20	10.8	21,000	R216-12 02
16	16B20-060	2	0.2	86	111	60	27	20	14.4	20,000	16 03

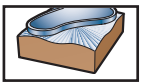
¹⁾ See main rotating tools catalog for large sizes and complete CoroMill ball nose endmill assortment.

²⁾ Inserts are ordered separately.

³⁾ n_{max} (max RPM) for holders must also be considered.

Ordering example: 2 pieces R216-10A16-050

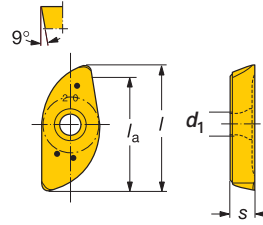




Inserts for CoroMill® Ball nose endmill

Inch design

Main inserts



For cutter dia. r_ϵ	Insert code	Coromant grades										Dimensions, inch							
		P		M		K		N		SH		l_a	l	d_1	s	iW	ϵ_r	$r_{\epsilon 1}$	$r_{\epsilon 2}$
		GC	- GC	GC	- GC	GC	- GC	GC	- GC	GC	- GC								
.375	.1875	RA216-10 02 E-M	☆																
.500	.250	RA216-13 02 E-M RA216-13 02 M-M	☆	☆															
.625	.3125	RA216-16 03 E-M RA216-16 03 M-M	☆	☆															
.750	.375	RA216-19 T3 E-M RA216-19 T3 M-M	☆	☆															

GC = Coated cermet/ carbide
- = Uncoated cemented carbide

Ordering example: 10 pieces RA216-10 02 E-M 1025

Grade selection

GC1025

First choice when general machining
Best choice when
- using short - medium tool assemblies
- medium - high speeds

SM30

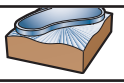
Good choice when rough machining
Best results when
- unstable conditions
- using long tool assemblies
- low to moderate speeds

H13A

Good choice for cast iron with:
- long tool assemblies
- less stable spindles
- low speeds

Recommended feed		
Cutter dia. D_3 , inch	f_z (feed in inch/tooth)	
	Starting value	(min - max.)
.375	.002	(.001 - .004)
.500	.002	(.002 - .004)
.625	.003	(.003 - .006)
.750	.004	(.004 - .008)

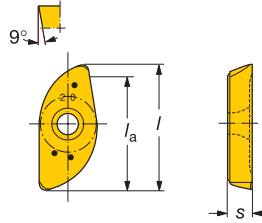
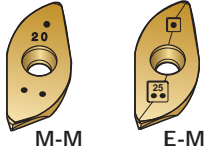
Cutting speed recommendation, see page 196.



Inserts for CoroMill® Ball nose endmill

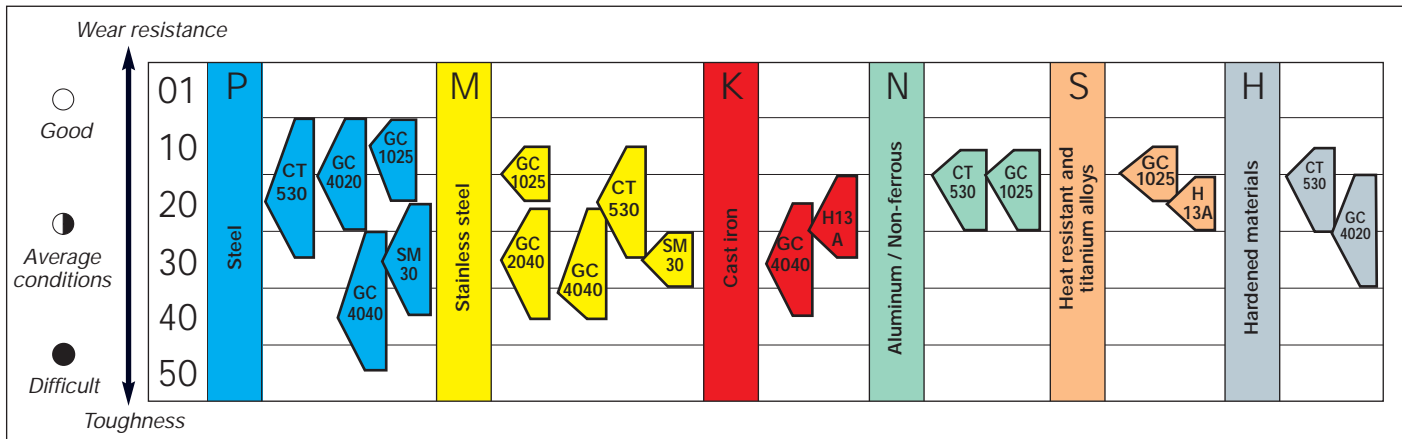
Metric design

Main inserts



For cutter dia.	Insert code	Coromant grades																		Dimensions, mm									
		P						M						K		N		S		H		l_a	l	d_1	s	iW	E_r	r_{E1}	r_{E2}
		CT	GC	GC	GC	-	CT	GC	GC	GC	-	-	GC	-	GC	GC	-	GC	GC	GC									
		530	1025	4020	4040	SM30	530	1025	2040	4040	SM30	H13A	4040	H13A	4040	1025	H13A	4040	530	4020	4040								
10	5 R216- 10 02 E-M	☆	☆				☆	☆							☆						8.6	9.8	2.2	1.7	-	-	-	-	
12	6 R216- 12 02 E-M 12 02 M-M	☆	☆		☆	☆	☆	☆		☆	☆	☆		☆	☆			☆			10.8	12.0	2.5	2.38	-	-	-	-	
16	8 R216- 16 03 E-M 16 03 M-M	☆	☆	☆	☆	☆	☆	☆		☆	☆	☆		☆	☆			☆	☆		14.4	16.0	2.9	3.18	-	-	-	-	

Ordering example: 10 pieces R216-12 02 M-M 1025



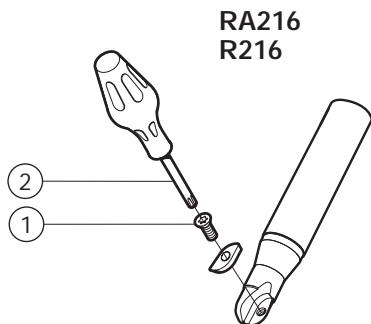
Recommended feed

Cutter dia. D_3 , mm	f_z (feed in inch/tooth)	
	Starting value	(min - max.)
10	.002	(.001 - .004)
12	.002	(.002 - .004)
16	.003	(.003 - .006)

Cutting speed recommendations, see page 196.



CoroMill Ball Nose



D_3 .375-.750 inch (10-16 mm)

CoroMill Ball Nose

Cutter RA216 R216	1		2		Torque value in.lbs (Nm)	Molykote	Torque ¹⁾ wrench
	D_3 inch/mm	Insert screw	Key (Torx Plus)				
	3/8" (10)	5513 020-40	5680 051-01 (6IP)	4 (0.5)	5683 010-01	5680 100-01	
	1/2" (12)	5513 020-36	5680 046-01 (8IP)	10 (1.2)	5683 010-01	5680 100-03	
	5/8" (16)	5513 020-36	5680 046-01 (8IP)	10 (1.2)	5683 010-01	5680 100-03	
	3/4" (20)	5513 020-16	5680 048-02 (10IP)	18 (2.0)	5683 010-01	5680 100-05	

¹⁾ Accessories, must be ordered separately.