

## End milling – CoroMill® Plura

Solid carbide end mills



### GOOD CONDITIONS



- Small depths of cut.
- Continuous milling.
- Short overhang.

### First choice

### AVERAGE CONDITIONS



- General purpose milling

### DIFFICULT CONDITIONS



- Large depths of cut.
- Light interrupted milling.
- Long overhang.

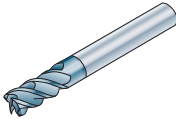
### All purpose end mill – Hardness ≤48 HRC

#### GC1620

Finishing.

Dry or wet machining.

Material hardness ≤48 HRC.

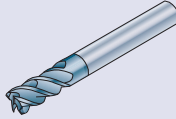


#### GC1630

Semi-finishing.

Dry or wet machining.

Material hardness ≤48 HRC.

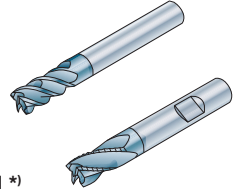


#### GC1640

Semi-finishing to roughing.

Wet machining.

Material hardness ≤48 HRC.



Kordell \*)

Hardness ≤24 HRC

### Ball nose end mill

Hardness 43≤HRC≤63

Hardness ≤48 HRC

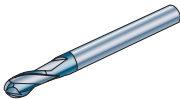
Hardness ≤48 HRC

#### GC1610

Finishing.

Dry machining.

Material hardness 43≤ HRC≤63.

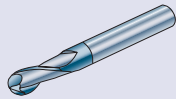


#### GC1620

Semi-finishing.

Dry machining.

Material hardness ≤48 HRC.

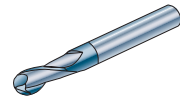


#### GC1620

Semi-finishing to roughing.

Dry machining.

Material hardness ≤48 HRC.



\*) For roughing end mills type Kordell, see main catalog page D132.

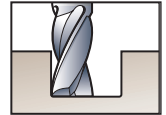
ISO/ANSI



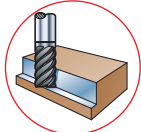
# End milling – CoroMill® Plura

Solid carbide end mills

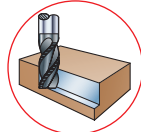
MILLING



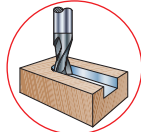
## Operations:



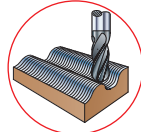
Finishing



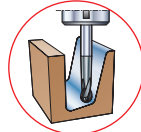
Roughing



Slotting



Profiling



Deep profiling

## Application areas

ISO **P M K**

<b>GC1620, GC1630, GC1640</b>	Dry	Wet
<b>Finishing</b>	GC1620	
<b>Semi finishing</b>		GC1630
<b>Roughing</b>		GC1640

ISO **N**

<b>GC1620</b>	Dry	Wet
<b>Finishing</b>		
<b>Semi finishing</b>	GC1620	GC1620
<b>Roughing</b>	GC1630	GC1630

ISO **S**

<b>GC1620, GC1630, GC1640</b>	Dry	Wet
<b>Finishing</b>	<b>X</b>	GC1620
<b>Semi finishing</b>		GC1630
<b>Roughing</b>		GC1640

ISO **H**

<b>GC1610, GC1620</b>	Dry	Wet
<b>Finishing</b>	GC1610 GC1620	<b>X</b>
<b>Semi finishing</b>		

## Cutting data

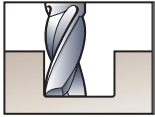
Use the PluraGuide for selection of tool and correct cutting data. Order number: C-2948-036



## CoroMill® Plura and CoroGrip® – made for each other

The advanced machining capabilities of Plura and the high precision CoroGrip holding chucks are a perfect match. CoroGrip's design provides clamping forces in excess of anything possible from shrink fit holders or hydraulic chucks, and a level of high stability which makes it the first choice for High Speed Machining (HSM).





## CoroMill® Plura end mill

All purpose end mill – Variable flute depth tool

Diameter 4 – 20 mm

Metric design



Hardness:  $\leq 48\text{HRc}$

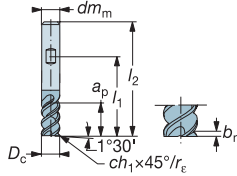
Helix angle:  $-50^\circ$

Differential pitch

Tolerances:

$D_c = h10$

$dm_m = h6$



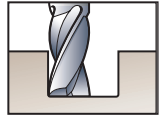
$z_n$	$D_c$ mm inch	Ordering code	Dimensions, mm							P		M		K		S			
			$l_1$	$l_2$	$a_p^{1)}$	$dm_m$	$ch_1$	$b_n$	$r_e$	GC1620	GC1630	GC1640	GC1620	GC1630	GC1640	GC1620	GC1630	GC1640	
4	6 .236	<b>Weldon shank</b>																	
	8 .315	R216.34-06050-BC13P	39	57	13	6	0.10	0.25	-										
	10 .394	08050-BC19P	45	63	19	8	0.10	0.25	-										
	12 .472	10050-BC22P	52	72	22	10	0.10	0.25	-	☆	★	☆	★	☆	★	☆	★	☆	
	14 .551	12050-BC26P	61	83	26	12	0.10	0.25	-										
	16 .630	14050-BC26P	61	83	26	14	0.12	0.35	-										
	20 .787	16050-BC32P	68	92	32	16	0.12	0.35	-										
		20050-BC38P	79	104	38	20	0.12	0.35	-										
4	6 .236	R216.24-06050CBC13P	39	57	13	6	-	-	1										
	8 .315	08050EBC19P	45	63	19	8	-	-	2										
	10 .394	10050EBC22P	52	72	22	10	-	-	2										
	12 .472	12050GBC26P	61	83	26	12	-	-	3	☆	★	☆	★	☆	★	☆	★	☆	
	14 .551	14050GBC26P	61	83	26	14	-	-	3										
	16 .630	16050IBC32P	68	92	32	16	-	-	4										
	20 .787	20050IBC38P	79	104	38	20	-	-	4										
3	4 .157	<b>Cylindrical shank</b>																	
	5 .197	R216.33-04050-AK11P	-	57	11.2	6	0.10	0.25	-										
		05050-AK13P	-	57	14	6	0.10	0.25	-	☆	★	☆	★	☆	★	☆	★	☆	
4	6 .236	R216.34-06050-AK13P	-	65	13	6	0.10	0.25	-										
	8 .315	08050-AK19P	-	80	19	8	0.10	0.25	-										
	10 .394	10050-AK22P	-	100	22	10	0.10	0.25	-										
	12 .472	12050-AK26P	-	100	26	12	0.10	0.25	-	☆	★	☆	★	☆	★	☆	★	☆	
	14 .551	14050-AK26P	-	104	26	14	0.15	0.35	-										
	16 .630	16050-AK32P	-	115	32	16	0.15	0.35	-										
	20 .787	20050-AK38P	-	125	38	20	0.15	0.35	-										
3	4 .157	R216.23-04050CAK11P	-	57	11	6	-	-	1	☆	★	☆	★	☆	★	☆	★	☆	
	5 .197	05050CAK13P	-	57	13	6	-	-	1										
4	6 .236	R216.34-06050CAK13P	-	65	13	6	-	-	1										
	8 .315	08050EAK19P	-	80	19	8	-	-	2										
	10 .394	10050EAK22P	-	100	22	10	-	-	2										
	12 .472	12050GAK26P	-	100	26	12	-	-	3	☆	★	☆	★	☆	★	☆	★	☆	
	14 .551	14050GAK26P	-	104	26	14	-	-	3										
	16 .630	16050IAK32P	-	115	32	16	-	-	4										
	20 .787	20050IAK38P	-	125	38	20	-	-	4										

<sup>1)</sup> Maximum cutting edge length.

Ordering example: 10 pcs R216.34-06050-BC13P 1630

**CoroMill® Plura end mill**

All purpose end mill – Variable flute depth tool  
Diameter 0.187-0.750 in.  
Inch design



Hardness: ≤48HRc

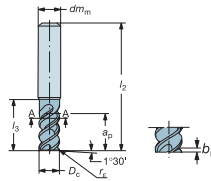
Helix angle: -50°

Differential pitch

Tolerances:

$D_c = h10$

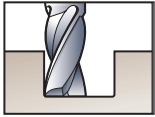
$dm_m = h6$



z <sub>n</sub>	D <sub>c</sub> inch mm		Ordering code	Dimensions, inch					r <sub>e</sub>	P	M	K	N	S
				l <sub>1</sub>	l <sub>2</sub>	a <sub>p</sub> <sup>1)</sup>	dm <sub>m</sub>	GCT1620		GCT1630	GCT1620	GCT1630	GCT1620	GCT1630
3	.187 4.75		<b>RA216.23-1250AAK09P</b>	3.000	.750	.562	.250	.015	★	☆	☆	☆	☆	☆
	.187 4.75		<b>1250BAK09P</b>	3.000	.750	.562	.250	.031	★	☆	☆	☆	☆	☆
4	.250 6.35		<b>RA216.24-1650AAK12P</b>	3.000	-	.500	.250	.015	★	☆	☆	☆	☆	☆
	.250 6.35		<b>1650BAK12P</b>	3.000	-	.750	.250	.031						
	.312 7.92		<b>2050AAK15P</b>	3.500	1.250	.937	.375	.015						
	.312 7.92		<b>2050BAK15P</b>	3.500	1.250	.937	.375	.031						
	.375 9.52		<b>2450AAK18P</b>	3.500	-	1.125	.375	.015						
	.375 9.52		<b>2450BAK18P</b>	3.500	-	1.125	.375	.031						
	.500 12.70		<b>3250BAK24P</b>	4.000	-	1.500	.500	.031						
	.500 12.70		<b>3250DAK24P</b>	4.000	-	1.500	.500	.062						
.625 15.88		<b>4050DAK30P</b>	4.500	-	1.875	.625	.062							
.750 19.05		<b>4850DAK36P</b>	5.000	-	2.250	.750	.062							
3	.187 4.75		<b>RA216.23-1250AAK06P</b>	3.000	.500	.375	.250	.015	★	☆	☆	☆	☆	☆
	.250 6.35		<b>RA216.24-1650AAK08P</b>	3.000	-	.500	.250	.015	★	☆	☆	☆	☆	
.312 7.92		<b>2050AAK10P</b>	3.500	.750	.625	.375	.015							
.375 9.52		<b>2450AAK12P</b>	3.500	-	.750	.375	.015							
.500 12.70		<b>3250BAK16P</b>	4.000	-	1.000	.500	.031							
.625 15.88		<b>4050BAK20P</b>	4.500	-	1.250	.625	.031							
.750 19.05		<b>4850BAK24P</b>	5.000	-	1.500	.750	.031							

<sup>1)</sup> Maximum cutting edge length.

Ordering example: 10 pcs **RA216.23-1250AAK09P 1630**



## CoroMill® Plura ball nose end mill

For profiling in steel, stainless steel, cast iron and HRSA  
Diameter 1 – 20 mm  
Metric design

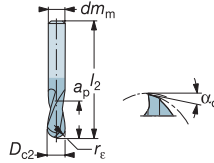
ISO/ANSI



Hardness: ≤48HRc

Helix angle: -30°

Tolerances:

 $D_{c2} = h9$  $dm_m = h6$ 

$z_n$	$D_{c2}$ mm    inch		Ordering code	Dimensions, mm					P	M	K	S			
				$r_ε$ ±0.01	$l_2$	$a_p^{1)}$	$dm_m$	$α_o$					GC1620	GC1620	GC1620
 2			Cylindrical shank												
		1	.039	R216.42-01030-AC30P	0.5	57	3	6	20						
		1.5	.059	01530-AC30P	0.75	57	3	6	20						
		2	.079	02030-AC60P	1.0	57	6	6	20						
		2.5	.098	02530-AC70P	1.25	57	7	6	20						
		3	.118	03030-AC07P	1.5	57	7	6	20						
		4	.157	04030-AC08P	2.0	57	8	6	14						
		5	.197	05030-AC10P	2.5	57	10	6	14						
		6	.236	06030-AC10P	3.0	57	10	6	14						
		7	.276	07030-AC13P	3.5	63	13	8	14	★	★	★	★		
		8	.315	08030-AC16P	4.0	63	16	8	14						
		9	.354	09030-AC16P	4.5	72	16	10	12						
		10	.394	10030-AC19P	5.0	72	19	10	12						
		12	.472	12030-AC22P	6.0	83	22	12	12						
	14	.551	14030-AC22P	7.0	83	22	14	12							
	16	.630	16030-AC26P	8.0	92	26	16	12							
	18	.709	18030-AC26P	9.0	92	26	18	12							
	20	.787	20030-AC32P	10.0	104	32	20	10							
 4			Cylindrical shank												
		3	.118	R216.44-03030-AK08N	1.5	80	8	6	20						
		4	.157	04030-AK11N	2.0	80	11	6	14						
		5	.197	05030-AK13N	2.5	80	13	6	14						
		6	.236	06030-AK13N	3.0	80	13	6	14						
		7	.276	07030-AK16N	3.5	100	16	8	14						
		8	.335	08030-AK19N	4.0	100	19	8	14	★	★	★	★		
		9	.354	09030-AK19N	4.5	100	19	10	12						
		10	.394	10030-AK22N	5.0	100	22	10	12						
		12	.472	12030-AK26N	6.0	100	26	12	12						
		16	.630	16030-AK32N	8.0	100	32	16	12						
	20	.787	20030-AK38N	10.0	125	38	20	10							

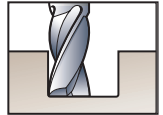
<sup>1)</sup> Maximum cutting edge length.

Ordering example: 10 pcs R216.42-01030-AC30P 1620



# CoroMill® Plura ball nose end mill

For profiling in steel, stainless steel, cast iron, aluminum and HRSA  
 Diameter 0.062 - 0.500 in.  
 Inch design



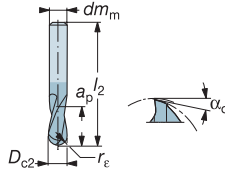
Hardness: ≤48HRc



Helix angle: -30°

Tolerances:

$D_c = h10$

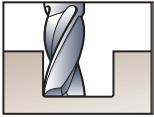
$dm_m = h6$



$z_n$	$D_c$ inch    mm		Ordering code	Dimensions, inch					$r_e$ $\pm .0004$	$l_2$	$a_p^{1)}$	$dm_m$	$a_o^\circ$	P	M	K	N	S	
				GCT1620	GCT1620	GCT1620	GCT1620	GCT1620											
 2			Cylindrical shank																
			<b>RA216.42-0430-AK08P</b>	.031	3.000	.125	.250	20°											
			<b>0630-AK12P</b>	.046	3.000	.187	.250	20°											
			<b>0830-AK04P</b>	.062	3.000	.250	.250	20°											
			<b>1030-AK05P</b>	.078	3.000	.312	.250	14°											
			<b>1230-AK06P</b>	.093	3.000	.375	.250	14°							★	★	★	★	★
			<b>1630-AK08P</b>	.125	3.000	.500	.250	14°											
			<b>2030-AK10P</b>	.156	3.500	.625	.375	14°											
			<b>2430-AK12P</b>	.187	3.500	.750	.375	12°											
			<b>3230-AK16P</b>	.250	4.000	1.000	.500	12°											
 4			Cylindrical shank																
			<b>RA216.44-0430-AK08N</b>	.031	3.000	.125	.250	20°											
			<b>0630-AK12N</b>	.046	3.000	.187	.250	20°											
			<b>0830-AK04N</b>	.062	3.000	.250	.250	20°											
			<b>1030-AK05N</b>	.078	3.000	.312	.250	14°											
			<b>1230-AK06N</b>	.093	3.000	.375	.250	14°							★	★	★	★	★
			<b>1630-AK08N</b>	.125	3.000	.500	.250	14°											
			<b>2030-AK10N</b>	.156	3.500	.625	.375	14°											
			<b>2430-AK12N</b>	.187	3.500	.750	.375	12°											
			<b>3230-AK16N</b>	.250	4.000	.000	.500	12°											

<sup>1)</sup> Maximum cutting edge length.

Ordering example: 10 pcs RA216.42-0430-AK08P



## CoroMill® Plura ball nose end mill

For profiling in steel, cast iron and hardened materials

Diameter 0.062 - 0.500 in.

Inch and metric design



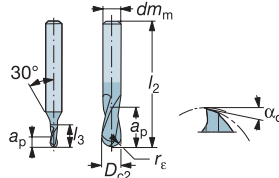
Hardness:  $\leq 48\text{HRc}$

Helix angle:  $-30^\circ$

Tolerances:

$D_c = h7$

$dm_m = h5$



Cylindrical shank

$z_n$	$D_c$ inch mm		Ordering code	Dimensions, inch						P	K	H				
				$r_\epsilon$ $\pm .0002$	$l_2$	$l_3$	$a_p^1$	$dm_m$	$a_o^\circ$	GC1610	GC1620	GC1610	GC1620	GC1610	GC1620	
			<b>Inch version</b>													
2	.062	1.57	RA216.42-0430-AK08G	.031	3.000	—	.125	.250	20°							
	.093	2.36	0630-AK12G	.046	3.000	—	.187	.250	20°							
	.125	3.18	0830-AK04G	.062	3.000	—	.250	.250	20°							
	.156	3.96	1030-AK05G	.078	3.000	—	.312	.250	14°							
	.187	4.75	1230-AK06G	.093	3.000	—	.375	.250	14°	★		★			★	
	.250	6.35	1630-AK08G	.125	3.000	—	.500	.250	14°							
	.312	7.92	2030-AK10G	.156	3.500	—	.625	.375	14°							
	.375	9.53	2430-AK12G	.187	3.500	—	.750	.375	12°							
	.500	12.70	3230-AK16G	.250	4.000	—	1.000	.500	12°							
				<b>Metric version</b>												
2	1	.039	R216.42-01030-AC15G	0.5	57	4.5	1.5	6	6°							
	2	.078	02030-AC30G	1	57	6	3	6	6°							
	3	.118	03030-AC04G	1.5	57	6.9	4	6	6°							
	4	.157	04030-AC05G	2	57	14	5	6	6°	★			★	★		
	5	.197	05030-AC06G	2.5	57	15	6	6	6°							
	6	.236	06030-AC10G	3	57	—	10	6	6°							
	8	.315	08030-AC16G	4	63	—	16	6	6°							
	10	.394	10030-AC19G	5	72	—	19	10	10°							
	12	.472	12030-AC22G	6	83	—	22	12	12°							
				<b>Metric version</b>												
2	1	.039	R216.42-01030-AK15G	0.5	57	3	1.5	6	20°	★	☆		★	★	☆	
	1.5	.059	01530-AK20G	0.75	57	4	2	6	20°							
	2	.078	02030-AK30G	1.0	57	6	3	6	20°							
	2.5	.098	02530-AK30G	1.25	57	6	3	6	20°							
	3	.118	03030-AK04G	1.5	57	7	4	6	20°							
	4	.157	04030-AK05G	2.0	80	8	5	6	14°							
	5	.197	05030-AK06G	2.5	80	10	6	6	14°							
	6	.236	06030-AK10G	3.0	80	—	10	6	14°							
	8	.315	08030-AK16G	4.0	100	—	16	8	14°							
	10	.394	10030-AK19G	5.0	100	—	19	10	12°							
12	.472	12030-AK22G	6.0	100	—	22	12	12°								
16	.630	16030-AK32G	8.0	125	—	32	16	12°								

<sup>1)</sup> Maximum cutting edge length.

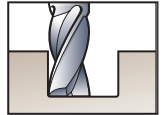
Ordering example: 10 pcs RA216.42-0430-AK08G

ISO/ANSI

**P N**  
**M S**  
**K H**

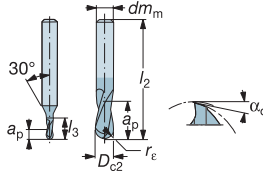
**CoroMill® Plura ball nose end mill**  
For profiling in steel and HRSA  
Diameter 1 – 12 mm  
Metric design


MILLING



Hardness: 43≤HRC≤63  
Helix angle: -30°

Tolerances:  
 $D_{c2} = h7$   
 $dm_m = h5$

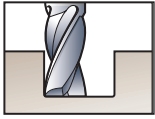


$z_n$	$D_{c2}$ mm	inch	Ordering code	Dimensions, mm						<b>P</b>	<b>H</b>
				$r_{\epsilon}$ ±.0005	$l_2$	$l_3$	$a_p^{1)}$	$dm_m$	$\alpha_o^\circ$	GC1610	GC1610
 2	1	.039	Cylindrical shank <b>R216.42-01030-AK15H</b>	0.5	57	3	8	6	20		
	1.5	.059	<b>01530-AK20H</b>	0.75	57	4	11	6	20		
	2	.078	<b>02030-AK25H</b>	1.0	57	6	13	6	20		
	2.5	.098	<b>02530-AK30H</b>	1.25	57	6	13	6	20		
	3	.118	<b>03030-AK04H</b>	1.5	57	7	16	6	20		
	4	.157	<b>04030-AK05H</b>	2.0	80	8	19	6	14		
	5	.197	<b>05030-AK06H</b>	2.5	80	10	19	6	14	★	★
	6	.236	<b>06030-AK07H</b>	3.0	80	–	22	6	14		
	8	.315	<b>08030-AK09H</b>	4.0	100	–	26	8	14		
	10	.394	<b>10030-AK11H</b>	5.0	100	–	32	10	12		
	12	.472	<b>12030-AK12H</b>	6.0	100	–	38	12	12		

<sup>1)</sup> Maximum cutting edge length.

Ordering example: 10 pcs R216.42-01030-AK15H





## End milling/profiling Coromill® Plura

Cutting data – starting values – grade



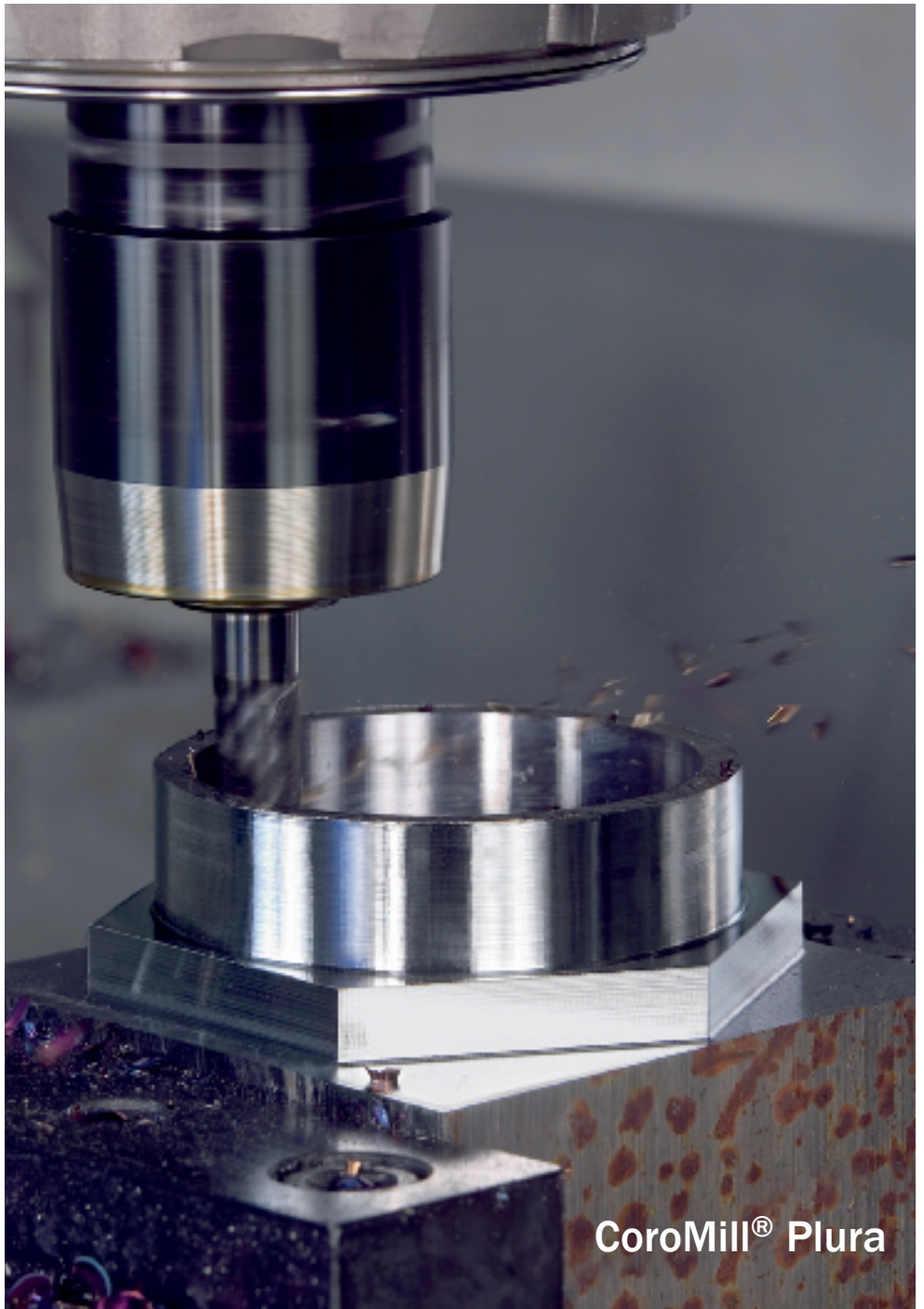
★ First choice ☆ Complementary grade	ISO/ANSI	CMC	Cutting speed, ft/min	Feed/tooth, inch <i>Metric tools</i>		Feed/tooth, inch <i>Inch tools</i>		GC1610	GC1620	GC1630	GC1640	
				$D_c$ mm	$f_z$	$D_c$ inch	$f_z$					
<b>Semi finishing Finishing</b>  $a_p = 1 \times D_c$ $a_e < 0.05 \times D_{c2}$  	<b>P</b>	02.2	820	1	.0002-.0004	.187	.0012-.0024	☆	★		☆	
	<b>M</b>	05.21	395	2-3	.0004-.0008	.250	.0016-.0031					
	<b>K</b>	08.1	590	4	.0008-.0016	.312	.0020-.0035	☆	★		☆	
	<b>N</b>	30.22	4100	5	.0012-.0024	.375	.0027-.0047					
	<b>S</b>	23.22	380	6	.0012-.0027	.500	.0031-.0051	☆	★		☆	
	<b>H</b>	04.1	385	7	.0016-.0031	.625	.0035-.0059					
				8	.0020-.0035	.750	.0039-.0063					
				9	.0027-.0039					★	☆	
<b>Roughing</b>  $a_p \times a_e > D_c$  	<b>P</b>	02.2	315	1	.0002-.0004	.187	.0008-.0012			★	☆	
	<b>M</b>	05.21	290	2	.0002-.0006	.250	.0008-.0016					
	<b>K</b>	08.1	430	3	.0004-.0008	.312	.0012-.0018			★	☆	
	<b>N</b>	30.22	3280	4	.0006-.0013	.375	.0014-.0020					
	<b>S</b>	23.22	150	5	.0008-.0012	.500	.0014-.0024			★	☆	
	<b>H</b>	04.1	230	6-7	.0008-.0016	.625	.0020-.0031					
				8-9	.0012-.0018	.750	.0024-.0031			★	☆	
				10	.0014-.0020							
<b>Profiling</b>  $a_p/a_e < 0.05 \times D_{c2}$  	<b>P</b>	02.2	1115	12	.0014-.0024							
	<b>M</b>	05.21	625	14	.0016-.0027							
	<b>K</b>	08.1	820	16	.0020-.0031							
	<b>N</b>	30.22	4270	18-20	.0024-.0031							
	<b>S</b>	23.22	710		.0027-.0047							
	<b>H</b>	04.1	555		.0031-.0051							
					.0031-.0059	.062	.0003-.0004	☆	★			
					.0035-.0063	.093	.0006-.0008	☆	★			

### Cutting data

Use the PluraGuide for selection of tool and correct cutting data.

Order number: C-2948-036





CoroMill® Plura