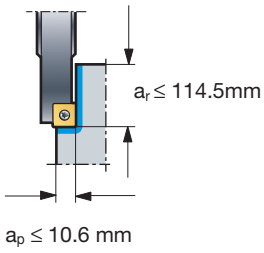


# CoroMill® 331

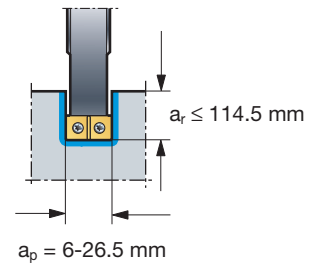
## Multi-purpose side and face milling cutter

High precision capability

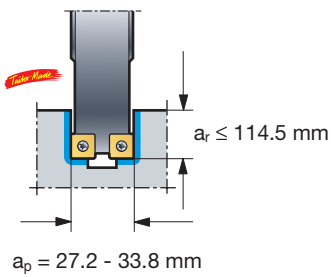
Half side



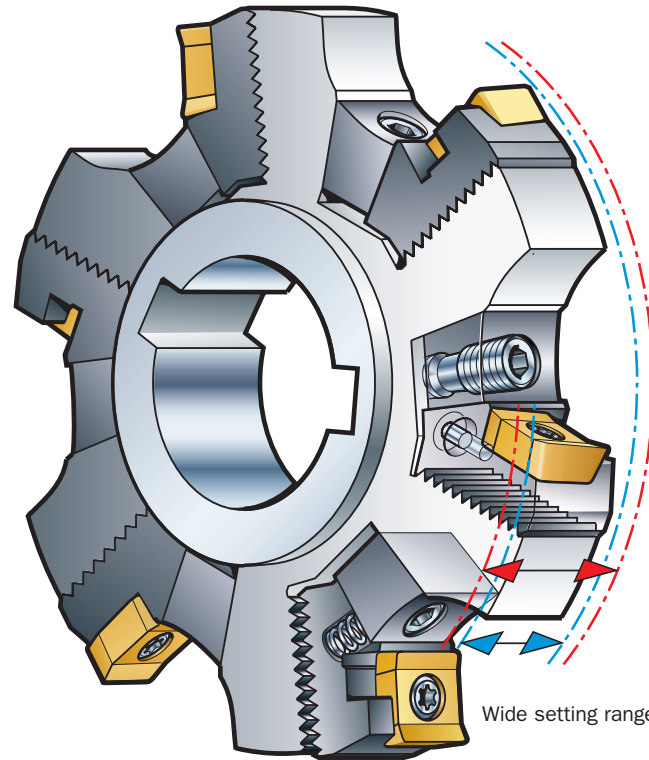
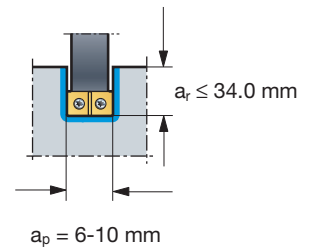
Full slot Cassette version



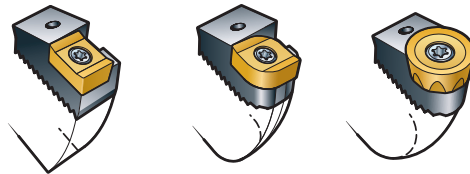
Double half side Tailor Made



Full slot Fixed pocket version



Wide setting range



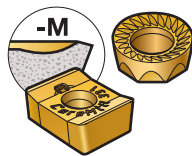
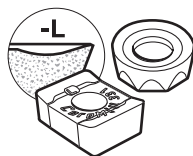
ISO application areas:

**P M K**

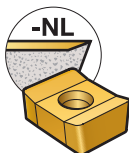
**N S H**

**N S**

Geometries:



General



$f_z = 0.05 \text{ mm } 0.40 \text{ mm}$

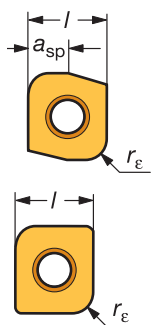
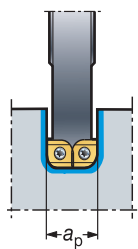
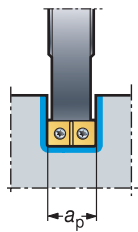
*Tailor Made*

Tool options designed to individual customer requirements are available. For information on our Tailor Made program see page I2

# Inserts for CoroMill® 331

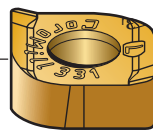
Only five insert sizes needed

A comprehensive program of standard and Tailor Made inserts for the manufacturing of all types of grooves shoulders, backfaces and bores



$$a_{sp} \approx \frac{a_p}{2} + 0,2$$

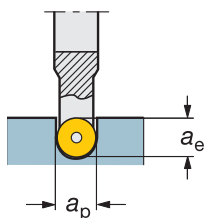
Insert size					
Min. width	Groove width (ap)				
	6.0	8.0	10.0	15.0	20.5
Cutter widths, mm					
-CM (ap 6.0 - 8.0)					
-DM (ap 8.0 - 10.0)					
-EM (ap 1.0 - 12.0)					
-KM (ap 15.0 - 17.5)					
-QM (ap 20.5 - 23.5)					
Max. width	8.0	10.0	12.0	17.5	23.5
Cutter widths, mm					
-FM (ap 12.0 - 15.0)					
-LM (ap 17.5 - 20.5)					
-RM (ap 23.5 - 26.5)					
			15.0	20.5	26.5



Light cutting radius inserts in H tolerance for most materials

Insert size	0.5	0.8	1.52	2.29	3.05	4.83	6.35
04							
05							
08							
11							
14							

## Recommendations for full slot milling with round inserts

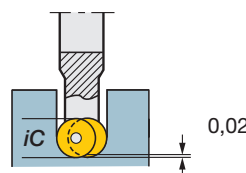


Max axial depth of cut (ap) = insert size (iC)

Max radial depth of cut (ae) = ap

**Note!**

The contact length of the cutting edge is 180°

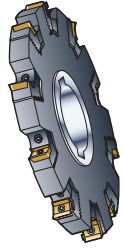


For slots deeper than iC a 0.5 mm adjustment of each cassette is recommended. This will widen the groove 0.5+0.5 mm and reduce the contact length for each insert to 90°.

## Full side and facemill

Diameter 80–315 mm

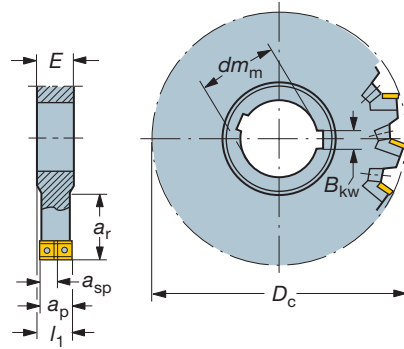
Positive rake



Cassettes, see page D78.

Width 6.0-12.0 mm

Bore with keyway\*)



\*) Number of keyways, see page D72.

 $l_1$  = programming length

Slot width	$a_p$ mm	Mounting	D <sub>c</sub> mm		$a_p$	$r_e$	$a_p$	D <sub>c</sub> mm		Zn	2)	
			Zn	Zn				Zn	Zn			
6.0–8.0	Bore with keyway		80	6	N331.32-080S27CM	*xx.xx*	N331.32-080S27CMX	*xx.xx*	–	–	04	
			100	8	N331.32-100S32CM	*xx.xx*	N331.32-100S32CMX	*xx.xx*	–	–	04	
			125	10	N331.32-125S40CM	*xx.xx*	N331.32-125S40CMX	*xx.xx*	–	–	04	
			160	12	N331.32-160S40CM	*xx.xx*	N331.32-160S40CMX	*xx.xx*	–	–	04	
			200	16	N331.32-200S50CM	*xx.xx*	N331.32-200S50CMX	*xx.xx*	–	–	04	
	Arbor		80	6	R331.32-080Q27CM	*xx.xx*	R331.32-080Q27CMX	*xx.xx*	–	–	04	
			100	8	R331.32-100Q27CM	*xx.xx*	R331.32-100Q27CMX	*xx.xx*	–	–	04	
			125	10	R331.32-125Q32CM	*xx.xx*	R331.32-125Q32CMX	*xx.xx*	–	–	04	
			160	12	R331.32-160Q40CM	*xx.xx*	R331.32-160Q40CMX	*xx.xx*	–	–	04	
			200	16	R331.32-200Q40CM	*xx.xx*	R331.32-200Q40CMX	*xx.xx*	–	–	04	
Cylindrical		80	6	R331.32-080A32CM	*xx.xx*	–	–	–	–	04		
		100	8	R331.32-100A42CM	*xx.xx*	–	–	–	–	04		
7.9–10.0	Bore with keyway		80	6	N331.32-080S27DM	*xx.xx*	N331.32-080S27DMX	*xx.xx*	–	–	05	
			100	8	N331.32-100S32DM	*xx.xx*	N331.32-100S32DMX	*xx.xx*	–	–	05	
			125	10	N331.32-125S40DM	*xx.xx*	N331.32-125S40DMX	*xx.xx*	–	–	05	
			160	12	N331.32-160S40DM	*xx.xx*	N331.32-160S40DMX	*xx.xx*	–	–	05	
			200	16	N331.32-200S50DM	*xx.xx*	N331.32-200S50DMX	*xx.xx*	–	–	05	
	Arbor		80	6	R331.32-080Q27DM	*xx.xx*	R331.32-080Q27DMX	*xx.xx*	–	–	05	
			100	8	R331.32-100Q27DM	*xx.xx*	R331.32-100Q27DMX	*xx.xx*	–	–	05	
			125	10	R331.32-125Q32DM	*xx.xx*	R331.32-125Q32DMX	*xx.xx*	–	–	05	
			160	12	R331.32-160Q40DM	*xx.xx*	R331.32-160Q40DMX	*xx.xx*	–	–	05	
			200	16	R331.32-200Q40DM	*xx.xx*	R331.32-200Q40DMX	*xx.xx*	–	–	05	
Cylindrical		80	6	R331.32-080A32DM	*xx.xx*	–	–	–	–	05		
		100	8	R331.32-100A42DM	*xx.xx*	–	–	–	–	05		
10.0–12.0	Bore with keyway		80	6	N331.32-080S27EM	*xx.xx*	N331.32-080S27EMX	*xx.xx*	82	6	N331.32-082S27EMQ <sup>1)</sup>	08
			100	8	N331.32-100S32EM	*xx.xx*	N331.32-100S32EMX	*xx.xx*	102	8	N331.32-102S32EMQ <sup>1)</sup>	08
			125	10	N331.32-125S40EM	*xx.xx*	N331.32-125S40EMX	*xx.xx*	127	10	N331.32-127S40EMQ <sup>1)</sup>	08
			160	12	N331.32-160S40EM	*xx.xx*	N331.32-160S40EMX	*xx.xx*	162	12	N331.32-162S40EMQ <sup>1)</sup>	08
			200	16	N331.32-200S50EM	*xx.xx*	N331.32-200S50EMX	*xx.xx*	202	16	N331.32-202S50EMQ <sup>1)</sup>	08
	Arbor		80	6	R331.32-080Q27EM	*xx.xx*	R331.32-080Q27EMX	*xx.xx*	82	6	R331.32-082Q27EMQ <sup>1)</sup>	08
			100	8	R331.32-100Q27EM	*xx.xx*	R331.32-100Q27EMX	*xx.xx*	102	8	R331.32-102Q27EMQ <sup>1)</sup>	08
			125	10	R331.32-125Q32EM	*xx.xx*	R331.32-125Q32EMX	*xx.xx*	127	10	R331.32-127Q32EMQ <sup>1)</sup>	08
			160	12	R331.32-160Q40EM	*xx.xx*	R331.32-160Q40EMX	*xx.xx*	162	12	R331.32-162Q40EMQ <sup>1)</sup>	08
			200	16	R331.32-200Q40EM	*xx.xx*	R331.32-200Q40EMX	*xx.xx*	202	16	R331.32-202Q40EMQ <sup>1)</sup>	08
Cylindrical		80	6	R331.32-080A32EM	*xx.xx*	–	–	–	–	08		
		100	8	R331.32-100A42EM	*xx.xx*	–	–	–	–	08		

1) Slot width,  $a_p$  = insert size

2) For insert radius range, r

\*xx.xx\* = in the ordering code indicates the width  $a_{Bp}$  in mm to two decimal places.X = in the ordering code indicates the insert radius range ( $r_e$ ) A, B, D, E or Q.

D74



D76



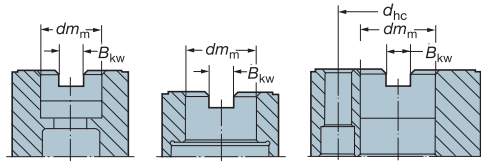
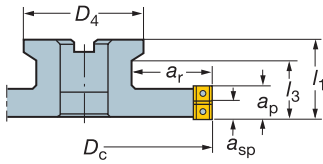
G3



D2

# Full side and facemill

## Arbor

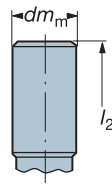


ISO A

ISO B

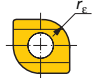
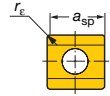
ISO C

## Cylindrical



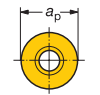
Effective number of teeth:

$$Z_c = \frac{Z_n}{2}$$



Effective number of teeth:

$$Z_c = Z_n$$



$l_1$  = programming length

For insert radius range, r

For insert radius range, r					Dimensions, mm													
A	B	D	E	Q	$a_r$	$dm_m$	$D_{5m}$	ISO	E	$B_{KW}$	$l_1^{(3)}$	min.-max	$l_2$	$l_3$	$a_{sp}$	$D_4$	$D_{hc}$	$n_{max}^{(4)}$
Insert size	Insert size	Insert size	Insert size	Insert size														
04					0.3	19.5	27		14	7	10-11	-	-	4.4	-	-	19 300	
04					0.8	25.5	32		14	8	10-11	-	-	4.4	-	-	17 100	
04					0.8	34.0	40		14	10	10-11	-	-	4.4	-	-	15 100	
04					1.1	51.5	40		14	10	10-11	-	-	4.4	-	-	13 200	
04					2.1	64.5	50		14	12	10-11	-	-	4.4	-	-	11 700	
04					0.8	20	27	A	-	12.4	63-64	-	40	4.4	54.0	-	19 300	
04					1.6	22	27	A	-	12.4	63-64	-	-	4.4	54.0	-	17 100	
04					1.8	29.5	32	B	-	14.4	63-64	-	-	4.4	64.0	-	15 100	
04					2.6	41	40	B	-	16.4	63-64	-	-	4.4	76.0	-	13 200	
04					6.7	51	40	C	-	16.4	63-64	-	-	4.4	96.0	66.7	11 700	
					1	23	32		-	-	-	132	-	4.4	-	-	19 300	
					1	28	42		-	-	-	152	-	4.4	-	-	17 100	
05	05				0.3	19.5	27		16	7	12-13	-	-	5.6	-	-	15 000	
05	05				0.5	25.5	32		16	8	12-13	-	-	5.6	-	-	13 200	
05	05				0.8	34.0	40		16	10	12-13	-	-	5.6	-	-	11 700	
05	05				1.3	51.5	40		16	10	12-13	-	-	5.6	-	-	10 200	
05	05				2.1	64.5	50		16	12	12-13	-	-	5.6	-	-	9 100	
05	05				0.8	20	27	A	-	12.4	63-64	-	40	5.6	54.0	-	15 000	
05	05				1.2	22	27	A	-	12.4	63-64	-	-	5.6	54.0	-	13 200	
05	05				1.8	29.5	32	B	-	14.4	63-64	-	-	5.6	64.0	-	11 700	
05	05				2.6	41	40	B	-	16.4	63-64	-	-	5.6	76.0	-	10 200	
05	05				7	51	40	C	-	16.4	63-64	-	-	5.6	96.0	66.7	9 100	
					1	23	32		-	-	-	132	-	6.2	-	-	15 000	
					1.9	28	42		-	-	-	152	-	6.2	-	-	13 200	
08	08			10	0.3	19.5 <sup>5)</sup>	27		16	7	13-14	-	-	6.2	-	-	18 100	
08	08			10	0.5	25.5 <sup>5)</sup>	32		16	8	13-14	-	-	6.2	-	-	15 900	
08	08			10	0.8	34.0 <sup>5)</sup>	40		16	10	13-14	-	-	6.2	-	-	14 100	
08	08			10	1.3	51.5 <sup>5)</sup>	40		16	10	13-14	-	-	6.2	-	-	12 400	
08	08			10	2.1	64.5 <sup>5)</sup>	50		16	12	13-14	-	-	6.2	-	-	11 000	
08	08			10	1.1	20 <sup>5)</sup>	27	A	-	12.4	63-64	-	40	6.2	54.0	-	18 100	
08	08			10	1.7	22 <sup>5)</sup>	27	A	-	12.4	63-64	-	-	6.2	54.0	-	15 900	
08	08			10	1.8	29.5 <sup>5)</sup>	32	B	-	14.4	63-64	-	-	6.2	64.0	-	14 100	
08	08			10	2.6	41 <sup>5)</sup>	40	B	-	16.4	63-64	-	-	6.2	76.0	-	12 400	
08	08			10	4.3	51 <sup>5)</sup>	40	C	-	16.4	63-64	-	-	6.2	96.0	66.7	11 000	
					1	23	32		-	-	-	132	-	6.2	-	-	18 100	
					1.9	28	42		-	-	-	152	-	6.2	-	-	15 900	

<sup>3)</sup> The programming length,  $l_1$ , depends on cutter width setting.

<sup>4)</sup>  $n_{max}$  (max. rev/min) for holders must also be considered.

<sup>5)</sup> Cutters with round inserts =  $a_r + 1$ mm

Ordering example for a size 80 cutter pre-set to 6.26 mm:  
2 pieces N331.32-080S27CM\*06.26\*

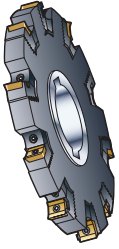
Orders without width specifications are delivered set to minimum dimensions.

Ordering example: 2 pieces N331.32-080S27CM

# Full side and facemill

Diameter 80–315 mm

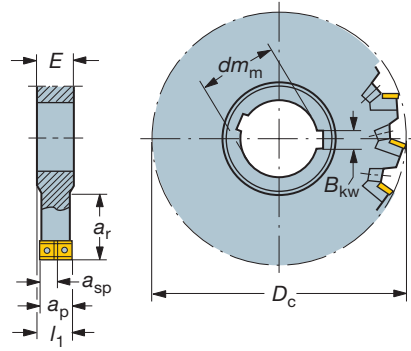
Positive rake



Cassettes, see page D78.

Width 12.0-26.5 mm

Bore with keyway\*)



\*) Number of keyways, see page D72.

$l_1$  = programming length

Slot width								For insert radius range, r 0.2-1.54					
$a_p$ mm	Mounting	$D_c$ mm	Zn	$a_p$	$r_e$	$a_p$	$D_c$	Zn	Insert size				
<b>Bore with keyway</b>													
12.0–15.0	<b>Arbor</b>	80	6	N331.32-080S27FM	*xx.xx*	N331.32-080S27FMX	*xx.xx*	82	6	N331.32-082S27FMQ <sup>1)</sup>	08		
		100	8	N331.32-100S32FM	*xx.xx*	N331.32-100S32FMX	*xx.xx*	102	8	N331.32-102S32FMQ <sup>1)</sup>	08		
		125	10	N331.32-125S40FM	*xx.xx*	N331.32-125S40FMX	*xx.xx*	127	10	N331.32-127S40FMQ <sup>1)</sup>	08		
		160	12	N331.32-160S40FM	*xx.xx*	N331.32-160S40FMX	*xx.xx*	162	12	N331.32-162S40FMQ <sup>1)</sup>	08		
		200	16	N331.32-200S50FM	*xx.xx*	N331.32-200S50FMX	*xx.xx*	202	16	N331.32-202S50FMQ <sup>1)</sup>	08		
		80	6	R331.32-080Q27FM	*xx.xx*	R331.32-080Q27FMX	*xx.xx*	82	6	R331.32-082Q27FMQ <sup>1)</sup>	08		
		100	8	R331.32-100Q27FM	*xx.xx*	R331.32-100Q27FMX	*xx.xx*	102	8	R331.32-102Q27FMQ <sup>1)</sup>	08		
		125	10	R331.32-125Q32FM	*xx.xx*	R331.32-125Q32FMX	*xx.xx*	127	10	R331.32-127Q32FMQ <sup>1)</sup>	08		
		160	12	R331.32-160Q40FM	*xx.xx*	R331.32-160Q40FMX	*xx.xx*	162	12	R331.32-162Q40FMQ <sup>1)</sup>	08		
		200	16	R331.32-200Q40FM	*xx.xx*	R331.32-200Q40FMX	*xx.xx*	202	16	R331.32-202Q40FMQ <sup>1)</sup>	08		
15.0–17.5	<b>Bore with keyway</b>	100	6	N331.32-100S32KM	*xx.xx*	N331.32-100S32KMX	*xx.xx*	102	6	N331.32-102S32KMQ <sup>1)</sup>	11		
		125	8	N331.32-125S40KM	*xx.xx*	N331.32-125S40KMX	*xx.xx*	127	8	N331.32-127S40KMQ <sup>1)</sup>	11		
		160	10	N331.32-160S40KM	*xx.xx*	N331.32-160S40KMX	*xx.xx*	162	10	N331.32-162S40KMQ <sup>1)</sup>	11		
		200	12	N331.32-200S50KM	*xx.xx*	N331.32-200S50KMX	*xx.xx*	202	12	N331.32-202S50KMQ <sup>1)</sup>	11		
		250	16	N331.32-250S50KM	*xx.xx*	N331.32-250S50KMX	*xx.xx*	–	–	–	11		
		315	20	N331.32-315S60KM	*xx.xx*	N331.32-315S60KMX	*xx.xx*	–	–	–	11		
		<b>Arbor</b>	100	6	R331.32-100Q27KM	*xx.xx*	R331.32-100Q27KMX	*xx.xx*	102	6	R331.32-102Q27KMQ <sup>1)</sup>	11	
			125	8	R331.32-125Q32KM	*xx.xx*	R331.32-125Q32KMX	*xx.xx*	127	8	R331.32-127Q32KMQ <sup>1)</sup>	11	
			160	10	R331.32-160Q40KM	*xx.xx*	R331.32-160Q40KMX	*xx.xx*	162	10	R331.32-162Q40KMQ <sup>1)</sup>	11	
			200	12	R331.32-200Q40KM	*xx.xx*	R331.32-200Q40KMX	*xx.xx*	202	12	R331.32-202Q40KMQ <sup>1)</sup>	11	
250	16		R331.32-250Q60KM	*xx.xx*	R331.32-250Q60KMX	*xx.xx*	–	–	–	11			
315	20		R331.32-315Q60KM	*xx.xx*	R331.32-315Q60KMX	*xx.xx*	–	–	–	11			
17.5–20.5	<b>Bore with keyway</b>	125	8	N331.32-125S40LM	*xx.xx*	N331.32-125S40LMX	*xx.xx*	–	–	–	11		
		160	10	N331.32-160S40LM	*xx.xx*	N331.32-160S40LMX	*xx.xx*	–	–	–	11		
		200	12	N331.32-200S50LM	*xx.xx*	N331.32-200S50LMX	*xx.xx*	–	–	–	11		
		250	16	N331.32-250S50LM	*xx.xx*	N331.32-250S50LMX	*xx.xx*	–	–	–	11		
		315	20	N331.32-315S60LM	*xx.xx*	N331.32-315S60LMX	*xx.xx*	–	–	–	11		
		<b>Arbor</b>	125	8	R331.32-125Q32LM	*xx.xx*	R331.32-125Q32LMX	*xx.xx*	–	–	–	11	
			160	10	R331.32-160Q40LM	*xx.xx*	R331.32-160Q40LMX	*xx.xx*	–	–	–	11	
			200	12	R331.32-200Q40LM	*xx.xx*	R331.32-200Q40LMX	*xx.xx*	–	–	–	11	
			250	16	R331.32-250Q60LM	*xx.xx*	R331.32-250Q60LMX	*xx.xx*	–	–	–	11	
			315	20	R331.32-315Q60LM	*xx.xx*	R331.32-315Q60LMX	*xx.xx*	–	–	–	11	
20.5–23.5	<b>Bore with keyway</b>	160	10	N331.32-160S40QM	*xx.xx*	N331.32-160S40QM	*xx.xx*	–	–	–	14		
		200	12	N331.32-200S50QM	*xx.xx*	N331.32-200S50QM	*xx.xx*	–	–	–	14		
		250	16	N331.32-250S50QM	*xx.xx*	N331.32-250S50QM	*xx.xx*	–	–	–	14		
		315	20	N331.32-315S60QM	*xx.xx*	N331.32-315S60QM	*xx.xx*	–	–	–	14		
		<b>Arbor</b>	160	10	R331.32-160Q40QM	*xx.xx*	R331.32-160Q40QM	*xx.xx*	–	–	–	14	
			200	12	R331.32-200Q40QM	*xx.xx*	R331.32-200Q40QM	*xx.xx*	–	–	–	14	
			250	16	R331.32-250Q60QM	*xx.xx*	R331.32-250Q60QM	*xx.xx*	–	–	–	14	
			315	20	R331.32-315Q60QM	*xx.xx*	R331.32-315Q60QM	*xx.xx*	–	–	–	14	
			23.5–26.5	<b>Bore with keyway</b>	160	10	N331.32-160S40RM	*xx.xx*	N331.32-160S40RM	*xx.xx*	–	–	–
		200			12	N331.32-200S50RM	*xx.xx*	N331.32-200S50RM	*xx.xx*	–	–	–	14
250	16	N331.32-250S50RM			*xx.xx*	N331.32-250S50RM	*xx.xx*	–	–	–	14		
315	20	N331.32-315S60RM			*xx.xx*	N331.32-315S60RM	*xx.xx*	–	–	–	14		
<b>Arbor</b>	160	10			R331.32-160Q40RM	*xx.xx*	R331.32-160Q40RM	*xx.xx*	–	–	–	14	
	200	12			R331.32-200Q40RM	*xx.xx*	R331.32-200Q40RM	*xx.xx*	–	–	–	14	
	250	16			R331.32-250Q60RM	*xx.xx*	R331.32-250Q60RM	*xx.xx*	–	–	–	14	
	315	20			R331.32-315Q60RM	*xx.xx*	R331.32-315Q60RM	*xx.xx*	–	–	–	14	

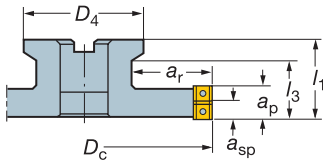
<sup>1)</sup> Slot width,  $a_p$  = insert size

\*xx.xx\* = in the ordering code indicates the width  $a_p$  in mm to two decimal places.

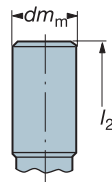
X = in the ordering code indicates the insert radius range ( $r_e$ ) A, B, D, E or Q.

# Full side and facemill

Arbor

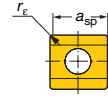


Cylindrical



Effective number of teeth:

$$Z_c = \frac{Z_n}{2}$$

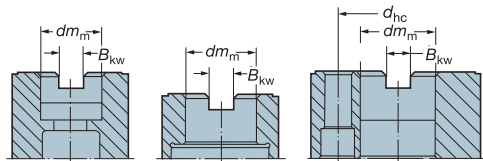


Effective number of teeth:

$$Z_c = Z_n$$



$l_1 = \text{programming length}$



ISO A

ISO B

ISO C

For insert radius range, r

For insert radius range, r					Dimensions, mm														
A	B	C	D	Q	$r_{max}$	$a_r$	$dm_m$	$D_{5m}$	ISO	E	$B_{KW}$	$l_1^{(2)}$	min.-max	$l_2$	$l_3$	$a_{sp}$	$D_4$	$d_{ch}$	$n_{max}^{(3)}$
Insert size	Insert size	Insert size	Insert size	Insert size															
08	08			12	0.4	19.5 <sup>4)</sup>	27	16	7		14-15.5	-	-	7.6	-	-	18	100	
08	08			12	0.6	25.5 <sup>4)</sup>	32	16	8		14-15.5	-	-	7.6	-	-	15	900	
08	08			12	0.9	34.0 <sup>4)</sup>	40	16	10		14-15.5	-	-	7.6	-	-	14	100	
08	08			12	1.6	51.5 <sup>4)</sup>	40	16	10		14-15.5	-	-	7.6	-	-	12	400	
08	08			12	2.5	64.5 <sup>4)</sup>	50	16	12		14-15.5	-	-	7.6	-	-	11	000	
08				12	1.2	20.0 <sup>4)</sup>	27	A	-	12.4	63-64.5	-	40	7.6	54.0	-	18	100	
08				12	1.8	22.0 <sup>4)</sup>	27	A	-	12.4	63-64.5	-	-	7.6	54.0	-	15	900	
08				12	2	29.5 <sup>4)</sup>	32	B	-	14.4	63-64.5	-	-	7.6	64.0	-	14	100	
08				12	3	41.0 <sup>4)</sup>	40	B	-	16.4	63-64.5	-	-	7.6	76.0	-	12	400	
08				12	7.6	51.0 <sup>4)</sup>	40	C	-	16.4	63-64.5	-	-	7.6	96.0	66.7	11	000	
11	11	11	11	16	0.8	25.5 <sup>4)</sup>	32	18.5	8		16.8-18	-	-	10.6	-	-	14	000	
11	11	11	11	16	1.2	34.0 <sup>4)</sup>	40	18.5	10		16.8-18	-	-	10.6	-	-	12	400	
11	11	11	11	16	2	51.5 <sup>4)</sup>	40	18.5	10		16.8-18	-	-	10.6	-	-	10	800	
11	11	11	11	16	3.2	64.5 <sup>4)</sup>	50	18.5	12		16.8-18	-	-	10.6	-	-	9	600	
11	11	11	11		5.1	89.5	50	18.5	12		16.8-18	-	-	10.6	-	-	8	500	
11	11	11			8.1	114.5	60	18.5	14		16.8-18	-	-	10.6	-	-	7	600	
11	11	11	11	16	1.7	25.7 <sup>4)</sup>	27	A	-	12.4	63-64.25	-	40	10.6	54.0	-	14	000	
11	11	11	11	16	2.3	29.5 <sup>4)</sup>	32	B	-	14.4	63-64.25	-	-	10.6	64.0	-	12	400	
11	11	11	11	16	3.3	41.0 <sup>4)</sup>	40	B	-	16.4	63-64.25	-	-	10.6	76.0	-	10	800	
11	11	11	11	16	8	51.0 <sup>4)</sup>	40	C	-	16.4	63-64.25	-	-	10.6	96.0	66.7	9	600	
11	11	11	11		9.5	56.0	60	C	-	25.7	63-64.25	-	-	10.6	136.0	101.6	8	500	
11	11	11	11		16.7	88.5	60	C	-	25.7	63-64.25	-	-	10.6	136.0	101.6	7	600	
11	11	11	11		1.4	34.0	40	21.5	10		19.5-21	-	-	10.6	-	-	12	400	
11	11	11	11		2.4	51.5	40	21.5	10		19.5-21	-	-	10.6	-	-	10	800	
11	11	11	11		3.7	64.5	50	21.5	12		19.5-21	-	-	10.6	-	-	9	600	
11	11	11	11		6	89.5	50	21.5	12		19.5-21	-	-	10.6	-	-	8	500	
11	11	11	11		9.5	114.5	60	21.5	14		19.5-21	-	-	10.6	-	-	7	600	
11	11	11	11		2.5	29.5	32	B	-	14.4	63-64.5	-	-	10.6	64.0	-	12	400	
11	11	11	11		3.7	41.0	40	B	-	16.4	63-64.5	-	-	10.6	76.0	-	10	800	
11	11	11	11		5.9	51.0	40	C	-	16.4	63-64.5	-	-	10.6	96.0	66.7	9	600	
11	11	11	11		10	56.0	60	C	-	25.7	63-64.5	-	-	10.6	136.0	101.6	8	500	
11	11	11	11		13.6	88.5	60	C	-	25.7	63-64.5	-	-	10.6	136.0	101.6	7	600	
14	14	14	14		2.8	51.5	40	24.5	10		22.5-24	-	-	13.6	-	-	9	000	
14	14	14	14		4.4	64.5	50	24.5	12		22.5-24	-	-	13.6	-	-	8	000	
14	14	14	14		7.1	89.5	50	24.5	12		22.5-24	-	-	13.6	-	-	7	100	
14	14	14	14		11.3	114.5	60	24.5	14		22.5-24	-	-	13.6	-	-	6	300	
14	14	14	14		3.6	41.0	40	B	-	16.4	63-64.5	-	-	13.6	76.0	-	9	000	
14	14	14	14		8.8	51.0	40	C	-	16.4	63-64.5	-	-	13.6	96.0	66.7	8	000	
14	14	14	14		13.3	56.0	60	C	-	25.7	63-64.5	-	-	13.6	136.0	101.6	7	100	
14	14	14	14		19.2	88.5	60	C	-	25.7	63-64.5	-	-	13.6	136.0	101.6	6	300	
14	14	14	14		3.3	51.5	40	27.5	10		25.5-27	-	-	13.6	-	-	9	000	
14	14	14	14		4.3	64.5	50	27.5	12		25.5-27	-	-	13.6	-	-	8	000	
14	14	14	14		8.2	89.5	50	27.5	12		25.5-27	-	-	13.6	-	-	7	100	
14	14	14	14		13.1	114.5	60	27.5	14		25.5-27	-	-	13.6	-	-	6	300	
14	14	14	14		4.5	41.0	40	B	-	16.4	63-64.5	-	-	13.6	76.0	-	9	000	
14	14	14	14		9.2	51.0	40	C	-	16.4	63-64.5	-	-	13.6	96.0	66.7	8	000	
14	14	14	14		13.9	56.0	60	C	-	25.7	63-64.5	-	-	13.6	136.0	101.6	7	100	
14	14	14	14		20.4	88.5	60	C	-	25.7	63-64.5	-	-	13.6	136.0	101.6	6	300	

<sup>2)</sup> The programming length,  $l_1$ , depends on cutter width setting.

<sup>3)</sup>  $n_{max}$  (max. rev/min) for holders must also be considered.

<sup>4)</sup> Cutters with round inserts =  $a_r + 1\text{mm}$

Ordering example for a size 80 cutter pre-set to 13.05 mm:  
2 pieces N331.32-080S27FM\*13.05\*

Orders without width specifications are delivered set to minimum dimensions.

Ordering example: 2 pieces N331.32-080S27FM

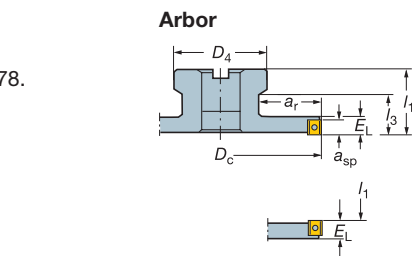
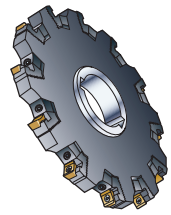
## Half side and facemill

Diameter 80-315 mm

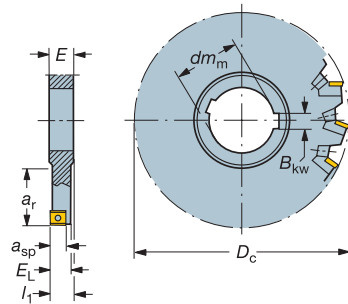
Max. axial depth 7.6 mm

Positive rake

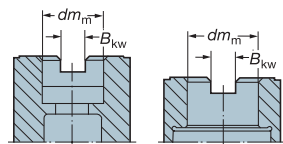
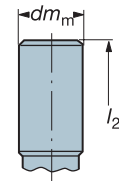
Cassettes, see page D78.



Bore with keyway\*)



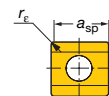
Cylindrical





ISO A

ISO B

Effective number of teeth:  $z_c = z_n$



$l_1$  = programming length

Mounting		Insert size <sup>1)</sup>		Dimensions, mm													
Max. $a_{sp}$	$D_c$ mm	$Z_n$			$\alpha_{KO}$	$a_r$	$dm_m$ $D_{5m}$	ISO	E	$B_{KW}$	$E_L$	$l_1$	$l_2$	$l_3$	$D_4$	$n_{max}^{2)}$	
7.6	Bore with keyway	80	6	R/L331.52-080S27EM	08	0.3	19.5	27	16	7	9.5	13	-	-	-	18 100	
		100	8	R/L331.52-100S32EM	08	0.5	25.5	32	16	8	9.5	13	-	-	-	15 900	
		125	10	R/L331.52-125S40EM	08	0.8	34.0	40	16	10	9.5	13	-	-	-	14 100	
		160	12	R/L331.52-160S40EM	08	1.3	51.5	40	16	10	9.5	13	-	-	-	12 400	
		80	6	R/L331.52-080S27FM	08	0.4	19.5	27	16	7	11.5	14	-	-	-	18 100	
		100	8	R/L331.52-100S32FM	08	0.6	25.5	32	16	8	11.5	14	-	-	-	15 900	
	125	10	R/L331.52-125S40FM	08	0.9	34.0	40	16	10	11.5	14	-	-	-	14 100		
	160	12	R/L331.52-160S40FM	08	1.6	51.5	40	16	10	11.5	14	-	-	-	12 400		
	Arbor	80	6	R331.52-080Q27EMR	08	0.8	20.0	27	A	-	12.4	9.5	63	-	40.0	54.0	18 100
		80	6	R331.52-080Q27EML	08	0.8	20.0	27	A	-	12.4	9.5	53	-	40.0	54.0	18 100
		100	8	R331.52-100Q27EMR	08	1.3	22.0	27	A	-	12.4	9.5	63	-	-	54.0	15 900
		100	8	R331.52-100Q27EML	08	1.2	22.0	27	A	-	12.4	9.5	53	-	-	54.0	15 900
		125	10	R331.52-125Q32EMR	08	2	29.5	32	B	-	14.4	9.5	63	-	-	64.0	14 100
		125	10	R331.52-125Q32EML	08	1.8	29.5	32	B	-	14.4	9.5	53	-	-	64.0	14 100
		160	12	R331.52-160Q40EMR	08	2.9	41.0	40	B	-	16.4	9.5	63	-	-	76.0	12 400
		160	12	R331.52-160Q40EML	08	2.6	41.0	40	B	-	16.4	9.5	53	-	-	76.0	12 400
		80	6	R331.52-080Q27FMR	08	0.9	20.0	27	A	-	12.4	11.5	63	-	40.0	54.0	18 100
		80	6	R331.52-080Q27FML	08	0.9	20.0	27	A	-	12.4	11.5	51	-	40.0	54.0	18 100
100		8	R331.52-100Q27FMR	08	1.3	22.0	27	A	-	12.4	11.5	63	-	-	54.0	15 900	
100		8	R331.52-100Q27FML	08	1.3	22.0	27	A	-	12.4	11.5	51	-	-	54.0	15 900	
125	10	R331.52-125Q32FMR	08	2.3	29.5	32	B	-	14.4	11.5	63	-	-	64.0	14 100		
125	10	R331.52-125Q32FML	08	2	29.5	32	B	-	14.4	11.5	51	-	-	64.0	14 100		
160	12	R331.52-160Q40FMR	08	3.3	41.0	40	B	-	16.4	11.5	63	-	-	76.0	12 400		
160	12	R331.52-160Q40FML	08	2.9	41.0	40	B	-	16.4	11.5	51	-	-	76.0	12 400		
Cylindrical	80	6	R331.52-080A32EMR	08	1.0	19.5	32	-	-	9.5	-	132.0	-	-	18 100		
	80	6	R331.52-080A32EML	08	1.0	19.5	32	-	-	9.5	-	131.5	-	-	18 100		
	100	8	R331.52-100A42EMR	08	1.9	25.5	42	-	-	9.5	-	152	-	-	15 900		
100	8	R331.52-100A42EML	08	1.9	25.5	42	-	-	9.5	-	151.5	-	-	15 900			

<sup>1)</sup> Inserts are ordered separately.

<sup>2)</sup>  $n_{max}$  (max. rev/min) for holders must also be considered.

Ordering example: 2 pieces R331.52-080S27EM

\*) Number of keyways, see page D72.



D74



D76



G3



D2

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to enhance downloading speeds.

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