

High-Efficiency Milling Cutter for Aluminum Alloy

**ALNEX ANX** series

Rev.4

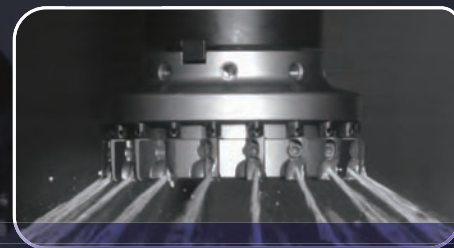
# Ultra-High-Efficiency Machining Excellent Chip Control



**SUMICRYSTAL**

*New*

Introducing the new  
**High-strength CVD Single Crystal Diamond SCV10  
Wiper Blade WS Type,  
Realising a burr-free mirror finish**



**Through-Blade Coolant**



## ■ Features

- **Drastically Reduced Runout Adjustment Time**  
Simple screw-fastening structure enables fine adjustments to be made easily
- **Through-Blade Coolant**  
Ensures coolant supply to the cutting edge and breaks chips
- **Lightweight Aluminum Alloy Body (ANXA Type)**  
Utilises aluminum alloy to achieve a total weight of less than 1.3kg for a ø125mm cutter with 22 teeth
- **Introducing the high-strength CVD Single Crystal Diamond SCV10 Wiper Blade WS Type**

## ■ Product Range

Type	Cat. No.	Body Material	Max. Diameter (mm)																					
			ø25	ø30	ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø160												
Shell	ANXA 16000R <span style="border: 1px solid black; padding: 1px;">Inch</span>	Aluminum Alloy								6	10	14	8	12	18	10	14	22	12	20	28			
	ANXA 16000RS	Aluminum Alloy											6	10	14	8	12	18	10	14	22	12	20	28
	ANXS 16000R <span style="border: 1px solid black; padding: 1px;">Inch</span>	Steel								6	8	12	6	10	14	8	12	18	10	14	22			
	ANXS 16000RS	Steel				4	6	4	6	9	6	8	12	6	10	14	8	12	18	10	14	22		
Shank	ANXS 16000E	Steel	2	3	4	3	4	4	6	4	6	9												
Modular	ANXS 16000M	Steel	2	3	4	3	4	4	6															

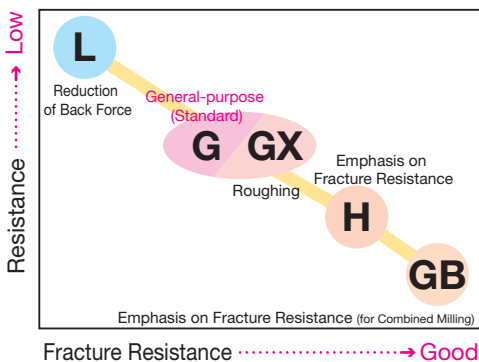
Number in ● shows the number of teeth Inch Inch Bore

## ■ Blade Selection Guide

Work Material	N									
Applications	Finishing/Light Cutting	General-purpose	Roughing		Combined Milling <sup>*1</sup>	Corner Radius Milling	Corner Radius Milling	Finishing	Burr-free / Mirror Finishing	
Features	Low Cutting Force	Standard	Long Edge	High Strength	High Strength	Corner Radius 0.4	Corner Radius 0.8	Wiper	Wiper	
Cutting Edge Shape	L	G	GX	H	GB	-	-	W	WS	
Edge Length (*2)	6.0mm	6.0mm	9.0mm	6.0mm	6.0mm	6.0mm	6.0mm	2.0mm	-	

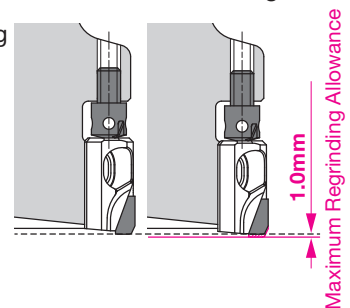
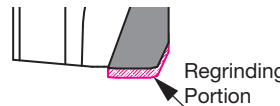
\*1 Machining of components combining aluminum alloy and cast iron. W type and WS type cannot be used together.

## ■ Blade Selection Reference



## ● Regrinding possible up to 1.0mm. Reduced running costs

Assuming 0.2mm of regrinding each time, an edge can be used up to 6 times.  
(Peripheral edge and WS type cannot be regrinded.)



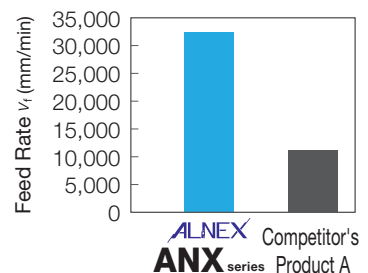
## ■ High-speed/High-efficiency Cutting

Realises ultra-high-efficiency machining with  $v_f = 30,000\text{mm/min}$



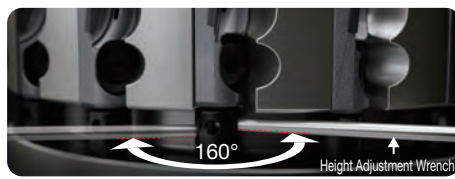
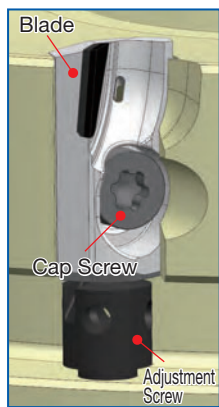
Cutter diameter ø100mm comparison

	Spindle Speed $\text{min}^{-1}$	Number of Teeth	Feed Rate $v_f$ (mm/min)
ALNEX ANX series	18,000	18	32,400
Competitor's Product A	9,500	12	11,400



## ■ Drastically Reduced Runout Adjustment Time

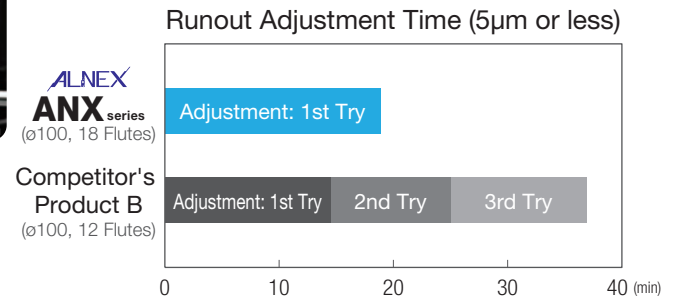
- Simple screw-fastening structure
- Enables fine adjustments to be made easily
- High-rigidity body (reduces deformation due to tightening)



Adjustment is easy thanks to the large movable range of the height adjustment wrench.



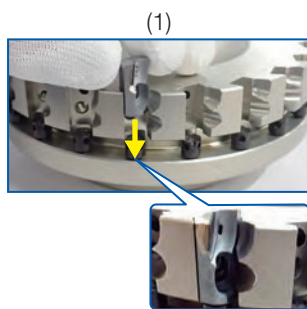
We recommend keeping cutting edge height variation during runout adjustment to within 5µm.



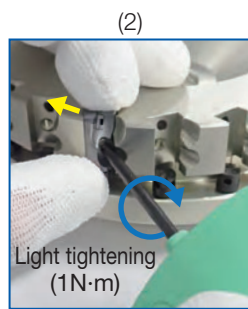
Completed on 1st Try, Adjustment Time Reduced

\* Because the cutting edge chips off easily, care is required when mounting on the cutter body. Use a non-contact tool presetter.

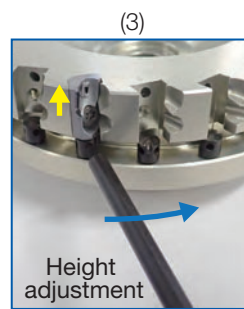
## ■ Blade Mounting/Runout Adjustment



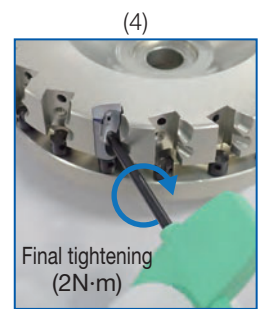
(1) Slide the blade into the cutter teeth groove.



(2) Lightly tighten the cap screw while pressing the blade against the restraining face. (1N·m)



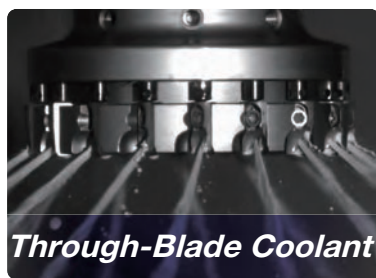
(3) Adjust the blade to the required height by using the dedicated wrench to turn the height adjustment screw.



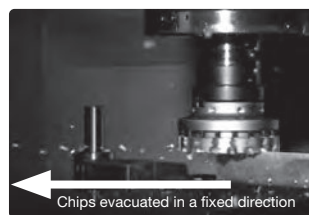
(4) Perform final tightening of the cap screw. (2N·m)

## ■ Chip Control

### Through-Blade Coolant Chip Breaking



Through-Blade Coolant



Controls the chips' scatter direction.



The chip pocket catches the chips and suppresses damage to the body.



ALNEX ANX series



Competitor's Product C

Work Material: ADC12, Cutting Conditions:  $v_c = 2,500\text{m/min}$   $f_z = 0.05\text{mm/t}$   $a_p = 0.5\text{mm Wet}$

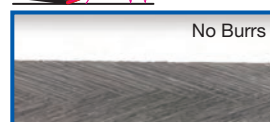
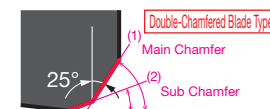
## ■ Burr Control

### Reduces burrs by using a double-chamfered cutting edge (L/G/GX/H/GB Types)

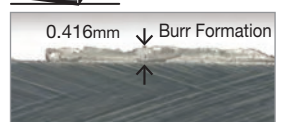
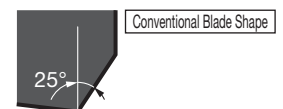


Drastically reduces burrs by preventing plastic deformation that causes burrs.

Work Material: A6061 Sheet Metal  
Cutting Conditions:  $v_c = 3,142\text{m/min}$   
 $f_z = 0.1\text{mm/t}$   
 $a_p = 0.5\text{mm Dry}$



ALNEX ANX series



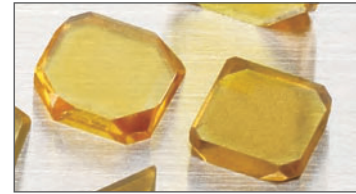
Conventional Tool

**New** CVD Single Crystal Diamond SCV10 Wiper Blade WS Type

- Wiper blade adopts high-strength single-crystal diamond using Sumitomo Electric Hardmetal's vapour phase synthesis technology
- Sharp cutting edge achieves burr-free mirror finish in aluminum alloy machining
- Superior wear resistance maintains cutting edge sharpness for a long time, reducing total tool costs



Conventional single-crystal diamond

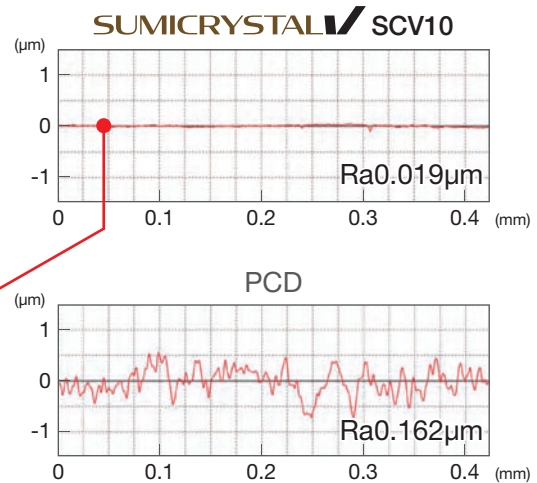
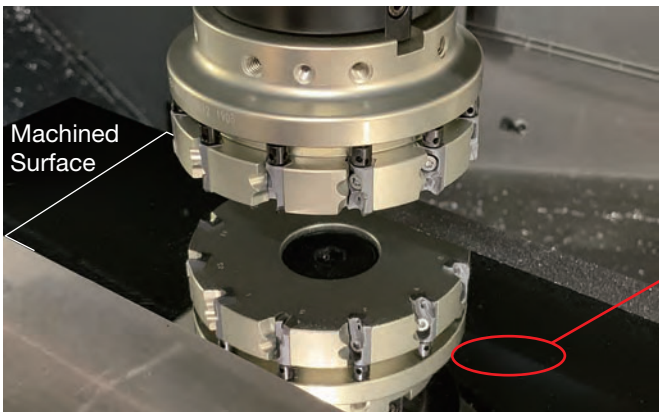


**◆ Superb mirror surface and burr control through sharp cutting edge**

Realizes a mirror finish in milling of aluminum alloys, copper alloys, and other non-ferrous metals, with long-term burr control

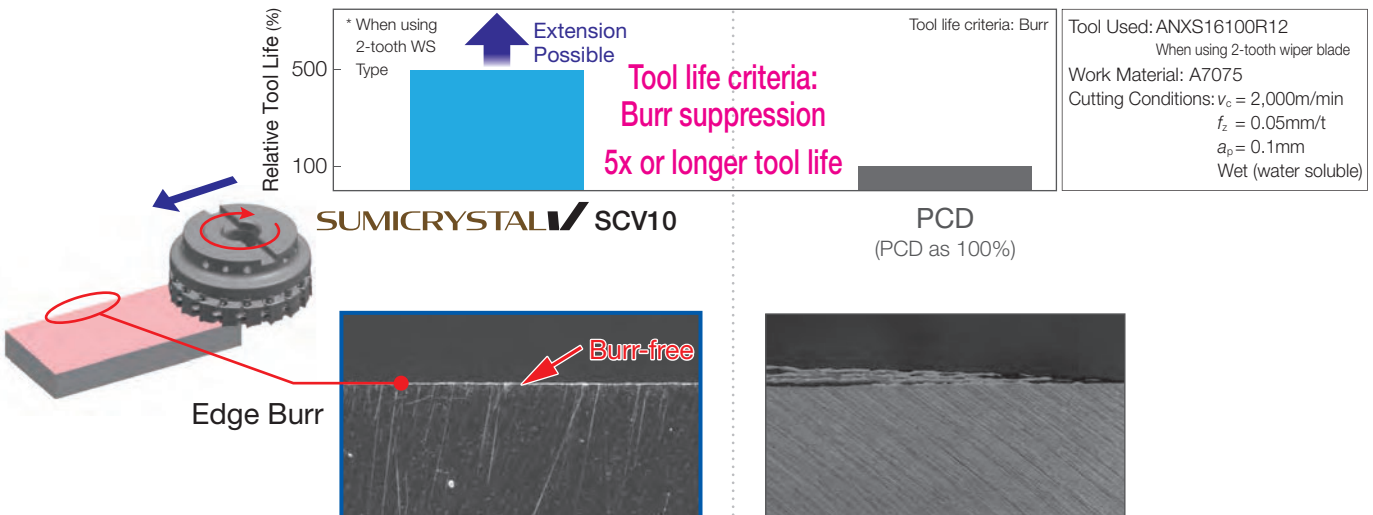
**■ Mirror Finish** (Wiper Blade WS Type)

Sharp cutting edge achieves mirror finish with cutting alone



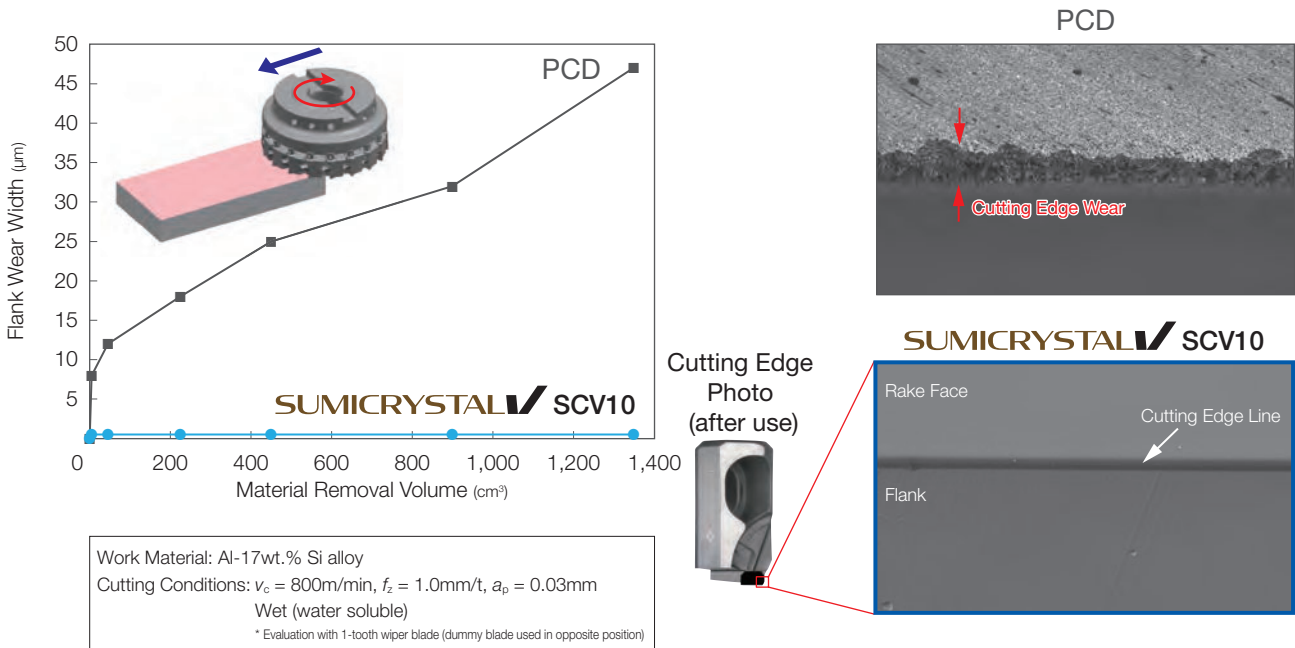
**■ Burr-Free** (Wiper Blade WS Type)

Sharp cutting edge and excellent wear resistance suppress burrs over a long period



**◆ Superior wear resistance maintains cutting edge sharpness for a long time**

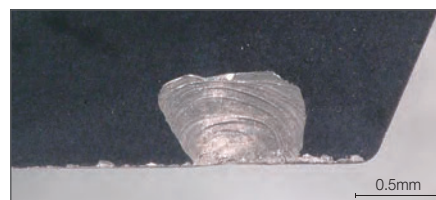
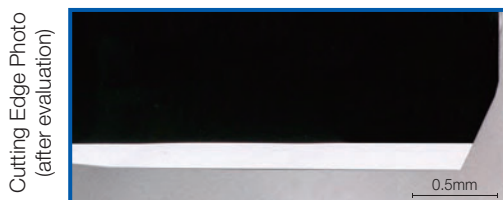
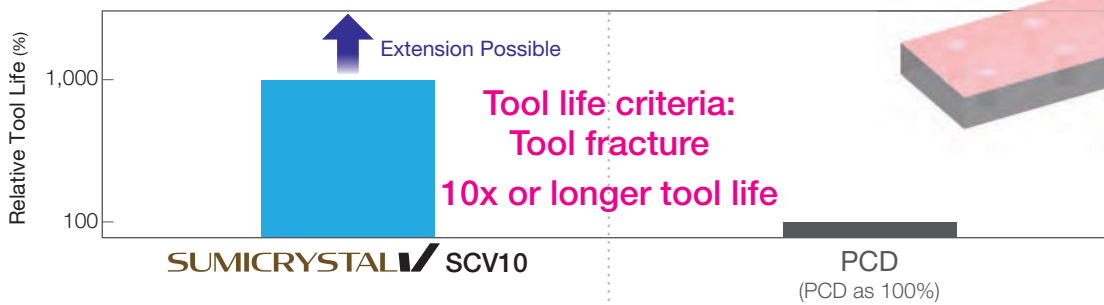
Wear resistance evaluation in high-silicon aluminum alloy machining



Long-term mirror finish with burrs suppressed and no flank wear progress

**◆ Jet-black high-strength single-crystal diamond grade**

Fracture resistance evaluation in aluminum alloy-ceramic composite machining

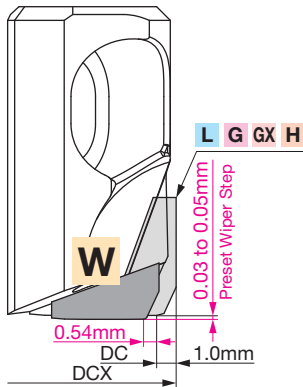


Work Material: Aluminum Alloy + Ceramic Composite  
 Cutting Conditions:  $v_c = 2,500\text{m/min}$ ,  $f_z = 1.0\text{mm/t}$ ,  $a_p = 0.03\text{mm}$   
 Wet (water soluble)  
 \* Evaluation with 1-tooth wiper blade (dummy blade used in opposite position)

10x or more fracture resistance compared to PCD in finishing at low depth of cut (0.05 mm or less)

## Precautions when Using W Type/WS Type Wiper Blades

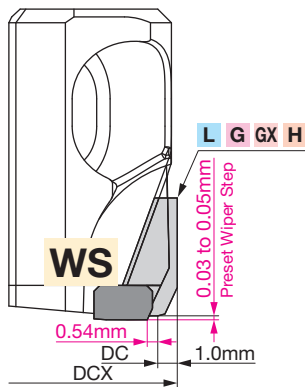
### ■ W Type Setting



#### ⚠ Precautions

In order to maintain cutter balance when using the W Type wiper blade, use a cutter with an even-number of cutting teeth and place another W Type wiper blade at the opposite teeth position.

### ■ WS Type Setting



#### ⚠ Precautions

In order to maintain cutter balance when using the WS Type (SCV10 wiper blade), use a cutter with an even-number of cutting teeth and place another WS Type wiper blade (or dummy blade ANBD) at the opposite teeth position. \* The dummy blade is dedicated for use with WS Type.

### ■ WS Type Recommended Feed Rate

WS Cutting Edge Feed Rate per Tooth <sup>*1</sup> $f_{zws}$ (mm/ $t_{ws}$ )	$D \leq 0.5$	$0.5 < D \leq 1.7$	$1.7 < D$
Burr-free Finish	◎ Excellent		Impossible
Mirror Finishing	◎ Excellent	○ Good	
Target Surface Roughness Ra ( $\mu\text{m}$ )	0.015 to 0.05	up to 0.6	

\*1 Feed Rate per WS Cutting Edge Tooth  $f_{zws}$

$$f_{zws}(\text{mm}/t_{ws}) = \frac{f_z \times (\text{Total No. of Teeth})^2}{(\text{WS Type No. of Teeth})^3}$$

Feed Rate per Tooth  $f_z$

$$f_z(\text{mm}/t) = \frac{\text{Feed Rate } v_f (\text{mm}/\text{min})}{\text{Spindle Speed } n (\text{min}^{-1}) \times (\text{Total No. of Teeth})}$$

\*2 Total number of teeth includes dummy blade and wiper blade (WS Type).

\*3 WS Type number of teeth does not include dummy blade.

## Polycrystalline Diamond SUMIDIA DA1000/DA90

Through the ideal combination of diamond particle size and binder, SUMIDIA DA1000/DA90 possess various features and can be applied to all kinds of applications such as machining of aluminum alloy and cemented carbide.

### ■ Grade Characteristics

Grade	Content (%)	Average grain size of diamond particles (μm)	Hardness HK (GPa)	TRS (GPa)	Features
<b>DA1000</b>	90 to 95	Up to 0.5	50 to 60	≈ 2.60	High-density sintered grade made of ultra-fine grain diamond that exhibits excellent wear and fracture resistance as well as edge sharpness.
<b>DA90</b>	90 to 95	Up to 50	50 to 65	≈ 1.10	Contains coarser diamond particles than other grades, giving it good wear resistance suitable for the machining of carbides and high-silicon aluminum. Shows the highest diamond content for excellent wear resistance.

### ■ Application Range

Work Material		Applicable Grade	Example Parts
<b>Aluminum</b>	Sintered Aluminum, Wrought Aluminum Alloy	<b>DA1000</b>	Piston Liners, Machine Parts, etc.
	Alloys for Die Casting		Transmission Case, Oil Pan, Cylinder Block
	Alloys for Casting Low Si (≤12%)		Cylinder Head
	Alloys for Casting High Si (>12%)		Cylinder Block
<b>Non-aluminum</b>	Non-Ferrous Sintered Alloy	<b>DA1000</b>	Bush
	Gunmetal, Carbon		Connecting Rod
	Fe Combined	<b>DA90</b>	Cylinder Block, Bearing Cap

## CVD Single Crystal Diamond SCV10

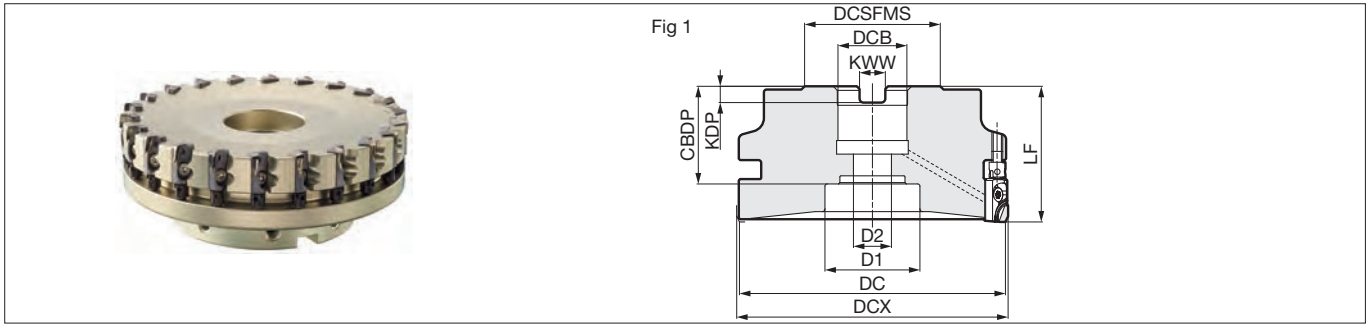
With the high-strength single crystal diamond created through vapour phase synthesis technology, excellent wear resistance and a sharp cutting edge realise a burr-free mirror finish in aluminum alloy machining.

### ■ Work Material

Grade	Work Material
<b>SCV10</b>	Aluminum Alloy, Copper Alloy Other Non-ferrous Sintered Alloys

Rake Angle	Radial	+5°
	Axial	+5°

3mm	90°
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## Body (Aluminum Alloy)

Dimensions (mm)

	Cat. No.	Stock	Dimensions (mm)												
			Dia. DC	Max. Dia. DCX	Boss Dia. DCSFMS	Overall Length LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	ANXA 16080RS06	●	78	80	50	50	27	12.4	7	22	35	14	6	0.5	1
	ANXA 16080RS10	●	78	80	50	50	27	12.4	7	22	35	14	10	0.5	1
	ANXA 16080RS14	●	78	80	50	50	27	12.4	7	22	35	14	14	0.5	1
	ANXA 16100RS08	●	98	100	50	50	27	12.4	7	22	35	14	8	0.8	1
	ANXA 16100RS12	●	98	100	50	50	27	12.4	7	22	35	14	12	0.8	1
	ANXA 16100RS18	●	98	100	50	50	27	12.4	7	22	35	14	18	0.9	1
	ANXA 16125RS10	●	123	125	50	50	27	12.4	7	22	35	14	10	1.2	1
	ANXA 16125RS14	●	123	125	50	50	27	12.4	7	22	35	14	14	1.2	1
	ANXA 16125RS22	●	123	125	50	50	27	12.4	7	22	35	14	22	1.3	1
	ANXA 16160RS12	●	158	160	80	63	40	16.4	9	29	52	29	12	2.6	1
	ANXA 16160RS20	●	158	160	80	63	40	16.4	9	29	52	29	20	2.6	1
ANXA 16160RS28	●	158	160	80	63	40	16.4	9	29	52	29	28	2.6	1	
Inch	ANXA 16080R06	●	78	80	50	50	25.4	9.5	6	25	35	14	6	0.5	1
	ANXA 16080R10	●	78	80	50	50	25.4	9.5	6	25	35	14	10	0.5	1
	ANXA 16080R14	●	78	80	50	50	25.4	9.5	6	25	35	14	14	0.5	1
	ANXA 16100R08	●	98	100	50	50	25.4	9.5	6	25	35	14	8	0.8	1
	ANXA 16100R12	●	98	100	50	50	25.4	9.5	6	25	35	14	12	0.9	1
	ANXA 16100R18	●	98	100	50	50	25.4	9.5	6	25	35	14	18	0.9	1
	ANXA 16125R10	●	123	125	50	50	25.4	9.5	6	25	35	14	10	1.2	1
	ANXA 16125R14	●	123	125	50	50	25.4	9.5	6	25	35	14	14	1.2	1
	ANXA 16125R22	●	123	125	50	50	25.4	9.5	6	25	35	14	22	1.3	1
	ANXA 16160R12	●	158	160	80	63	38.1	15.9	10	35.5	55	30	12	2.3	1
	ANXA 16160R20	●	158	160	80	63	38.1	15.9	10	35.5	55	30	20	2.4	1
ANXA 16160R28	●	158	160	80	63	38.1	15.9	10	35.5	55	30	28	2.6	1	

Blades are sold separately.

If using blades with corner radius (ANB1604R/ANB1608R), DC = DCX.

Weight indicated includes the weight with blades and other spare parts (excluding the centre bolt).

All aluminum alloy cutter bodies from (DCX) ø80 to ø125 have similar bore diameter (DCB) (metric ø27/inch ø25.4).

Note: The values in red have been changed from Rev. 3 and the 2021-2022 General Catalogue.

## Identification Code

# ANX A 16 100 R S 18

Series Aluminum Alloy Body Blade Size Dia. Feed Direction Metric Bore Number of Teeth

## Spare Parts

Applicable Cutter	Clamp Screw	Wrench	Adjustment Screw	Adjustment Wrench	Centre Bolt
	ANXA 16080R(S)○○ ANXA 16100R(S)○○ ANXA 16125R(S)○○ ANXA 16160R(S)○○	BXA0310IP 2.0	TRXW10IP	HFJ	ANT

Recommended Tightening Torque (N-m)

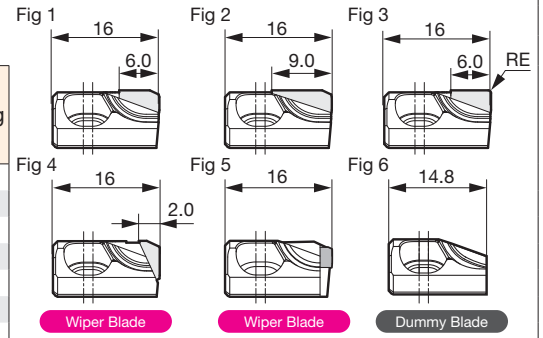
The adjustment wrench (ANT) can also be used for height adjustment of the High-speed Cutter RF Type and High-efficiency Cutter HF Type.



## Blades

Dimensions (mm)

Grade Classification		SUMIDIA		SUMICRYSTAL V						
Applications	High-speed/Light	N	K/N	N						
	General-purpose	N	K/N							
	Roughing	N	K/N							
Cat. No.	DA1000	DA90	SCV10	Cutting Edge Length	Corner Radius RE	Wiper Flat Shape	Applications	Fig		
ANB 1600R-L	●		—	6.0	—	Linear	Low Resistance	1	Fig 1	
ANB 1600R-G	●		—	6.0	—	Arc-Shaped	General-purpose	1	Fig 2	
ANB 1600R-GB		●	—	6.0	—	Arc-Shaped	Combined Milling <sup>*1</sup>	1	Fig 3	
ANB 1600R-H	●	—	—	6.0	—	Arc-Shaped	Strong Edge	1	Fig 4	
ANB 1600R-GX	●		—	9.0	—	Arc-Shaped	Long Edge	2	Fig 5	
ANB 1604R	●		—	6.0	0.4	Linear	Corner Radius	3	Fig 6	
ANB 1608R	●		—	6.0	0.8	Linear	Corner Radius	3		
ANB 1600R-W	●		—	—	—	Arc-Shaped	Wiper	4		
ANB 1600R-WS	—	—	●	—	—	Arc-Shaped	Wiper	5		
ANBD	—	—	● <sup>*2</sup>	—	—	—	Dummy Blade	6		



\*1 Cast Iron/Aluminum Alloy \*2 Dummy blade for use with WS type (cemented carbide), refer to P6 "Precautions when Using Wiper Blades" (Mounting Precautions).

## Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
N	Aluminum Alloy	—	2,000 - 2,500 - 3,000	0.05 - 0.13 - 0.20	DA1000

Si content of over 12.6%

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
N	Aluminum Alloy	—	400 - 600 - 800	0.05 - 0.13 - 0.20	DA1000

## Combined Milling of Cast Iron/Aluminum Alloy

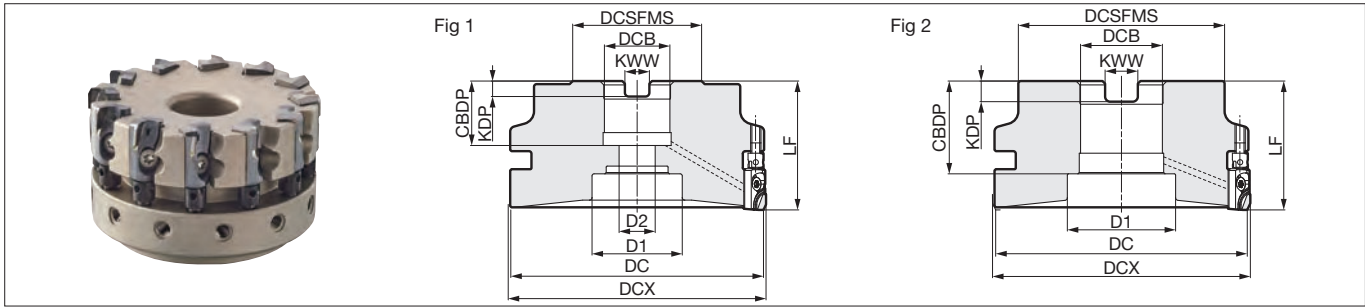
ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
K N	Cast Iron/ Aluminum Alloy	—	300 - 400 - 500	0.05 - 0.13 - 0.20	DA90

**Note** The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.  
For combined milling of cast iron/aluminum alloy, we recommend DA90.

Maximum Allowable  
Spindle Speed

Cat. No.	$n$ max (min <sup>-1</sup> )
ANXA 16080RS06	20,000
ANXA 16080RS10	20,000
ANXA 16080RS14	20,000
ANXA 16100RS08	18,000
ANXA 16100RS12	18,000
ANXA 16100RS18	18,000
ANXA 16125RS10	16,000
ANXA 16125RS14	16,000
ANXA 16125RS22	16,000
ANXA 16160RS12	14,000
ANXA 16160RS20	14,000
ANXA 16160RS28	14,000
ANXA 16080R06	20,000
ANXA 16080R10	20,000
ANXA 16080R14	20,000
ANXA 16100R08	18,000
ANXA 16100R12	18,000
ANXA 16100R18	18,000
ANXA 16125R10	16,000
ANXA 16125R14	16,000
ANXA 16125R22	16,000
ANXA 16160R12	14,000
ANXA 16160R20	14,000
ANXA 16160R28	14,000

Rake Angle	Radial	+5°
	Axial	+5°



## Body (Steel)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss Dia. DCSFMS	Overall Length LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
ANXS 16040RS04	●	38	40	38.5	40	16	8.4	5.6	18	14	9	4	0.3	1
ANXS 16040RS06	●	38	40	38.5	40	16	8.4	5.6	18	14	9	6	0.3	1
ANXS 16050RS04	●	48	50	48.5	40	22	10.4	6.3	20	18	11	4	0.4	1
ANXS 16050RS06	●	48	50	48.5	40	22	10.4	6.3	20	18	11	6	0.4	1
ANXS 16050RS09	●	48	50	48.5	40	22	10.4	6.3	20	18	11	9	0.5	1
ANXS 16063RS06	●	61	63	50	40	22	10.4	6.3	20	18	11	6	0.7	1
ANXS 16063RS08	●	61	63	50	40	22	10.4	6.3	20	18	11	8	0.7	1
ANXS 16063RS12	●	61	63	50	40	22	10.4	6.3	20	18	11	12	0.7	1
ANXS 16080RS06	●	78	80	50	50	27	12.4	7	22	35	14	6	1.2	1
ANXS 16080RS10	●	78	80	50	50	27	12.4	7	22	35	14	10	1.2	1
ANXS 16080RS14	●	78	80	50	50	27	12.4	7	22	35	14	14	1.2	1
ANXS 16100RS08	●	98	100	80	50	32	14.4	8	32	46	—	8	1.9	2
ANXS 16100RS12	●	98	100	80	50	32	14.4	8	32	46	—	12	2.0	2
ANXS 16100RS18	●	98	100	80	50	32	14.4	8	32	46	—	18	2.0	2
ANXS 16125RS10	●	123	125	80	63	40	16.4	9	29	52	29	10	3.8	1
ANXS 16125RS14	●	123	125	80	63	40	16.4	9	29	52	29	14	3.9	1
ANXS 16125RS22	●	123	125	80	63	40	16.4	9	29	52	29	22	3.9	1
ANXS 16063R06	●	61	63	50	50	25.4	9.5	6	25	20	14	6	0.9	1
ANXS 16063R08	●	61	63	50	50	25.4	9.5	6	25	20	14	8	0.9	1
ANXS 16063R12	●	61	63	50	50	25.4	9.5	6	25	20	14	12	0.9	1
ANXS 16080R06	●	78	80	50	50	25.4	9.5	6	25	35	14	6	1.2	1
ANXS 16080R10	●	78	80	50	50	25.4	9.5	6	25	35	14	10	1.2	1
ANXS 16080R14	●	78	80	50	50	25.4	9.5	6	25	35	14	14	1.2	1
ANXS 16100R08	●	98	100	80	50	31.75	12.7	8	36	42	—	8	1.9	2
ANXS 16100R12	●	98	100	80	50	31.75	12.7	8	36	42	—	12	2.0	2
ANXS 16100R18	●	98	100	80	50	31.75	12.7	8	36	42	—	18	2.0	2
ANXS 16125R10	●	123	125	80	63	38.1	15.9	10	35.5	52	29	10	3.9	1
ANXS 16125R14	●	123	125	80	63	38.1	15.9	10	35.5	52	29	14	3.9	1
ANXS 16125R22	●	123	125	80	63	38.1	15.9	10	35.5	52	29	22	3.9	1

Blades are sold separately.

If using blades with corner radius (ANB1604R/ANB1608R), DC = DCX.

Weight indicated includes the weight with blades and other spare parts (excluding the centre bolt).

Note: The values in red have been changed from Rev. 3 and the 2021-2022 General Catalogue.

## Identification Code

# ANX S 16 100 R S 18

Series Steel Body Blade Size Dia. Feed Direction Metric Bore Number of Teeth

## Spare Parts

Applicable Cutter	Clamp Screw	Wrench	Adjustment Screw	Adjustment Wrench	Centre Bolt
ANXS 16040RS○○					BXH0825-D13 <b>15</b>
ANXS 16050RS○○					BXH1030-D16 <b>25</b>
ANXS 16063RS○○	BXA0310IP <b>2.0</b>	TRXW10IP	HFJ	ANT	BXH1235-D33 <b>50</b>
ANXS 16080RS○○					BXH1635-D40 <b>100</b>
ANXS 16100RS○○					BXH2036-D50 <b>200</b>
ANXS 16125RS○○					BXH1235-D18 <b>40</b>
ANXS 16063R○○					BXH1235-D33 <b>50</b>
ANXS 16080R○○	BXA0310IP <b>2.0</b>	TRXW10IP	HFJ	ANT	BXH1635-D40 <b>100</b>
ANXS 16100R○○					BXH2036-D50 <b>200</b>
ANXS 16125R○○					

Recommended Tightening Torque (N-m)

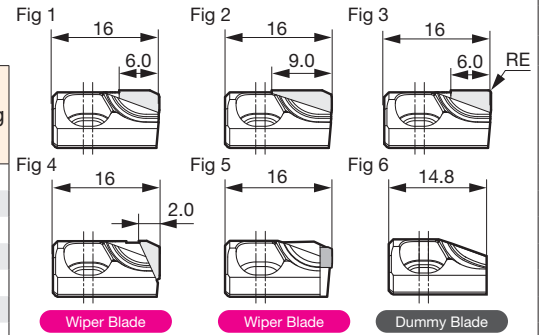
The adjustment wrench (ANT) can also be used for height adjustment of the High-speed Cutter RF Type and High-efficiency Cutter HF Type.

● mark: Standard stocked item

## Blades

Dimensions (mm)

Grade Classification		SUMIDIA		SUMICRYSTAL V					
Applications	High-speed/Light	N	K/N		N				
	General-purpose	N	K/N						
	Roughing	N	K/N						
Cat. No.	DA1000	DA90	SCV10	Cutting Edge Length	Corner Radius RE	Wiper Flat Shape	Applications	Fig	
ANB 1600R-L	●		—	6.0	—	Linear	Low Resistance	1	
ANB 1600R-G	●		—	6.0	—	Arc-Shaped	General-purpose	1	
ANB 1600R-GB		●	—	6.0	—	Arc-Shaped	Combined Milling <sup>*1</sup>	1	
ANB 1600R-H	●	—	—	6.0	—	Arc-Shaped	Strong Edge	1	
ANB 1600R-GX	●		—	9.0	—	Arc-Shaped	Long Edge	2	
ANB 1604R	●		—	6.0	0.4	Linear	Corner Radius	3	
ANB 1608R	●		—	6.0	0.8	Linear	Corner Radius	3	
ANB 1600R-W	●		—	—	—	Arc-Shaped	Wiper	4	
ANB 1600R-WS	—	—	●	—	—	Arc-Shaped	Wiper	5	
ANBD	—	—	● <sup>*2</sup>	—	—	—	Dummy Blade	6	



\*1 Cast Iron/Aluminum Alloy \*2 Dummy blade for use with WS type (cemented carbide), refer to P6 "Precautions when Using Wiper Blades" (Mounting Precautions).

## Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
N	Aluminum Alloy	—	2,000 - 2,500 - 3,000	0.05 - 0.13 - 0.20	DA1000

Si content of over 12.6%

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
N	Aluminum Alloy	—	400 - 600 - 800	0.05 - 0.13 - 0.20	DA1000

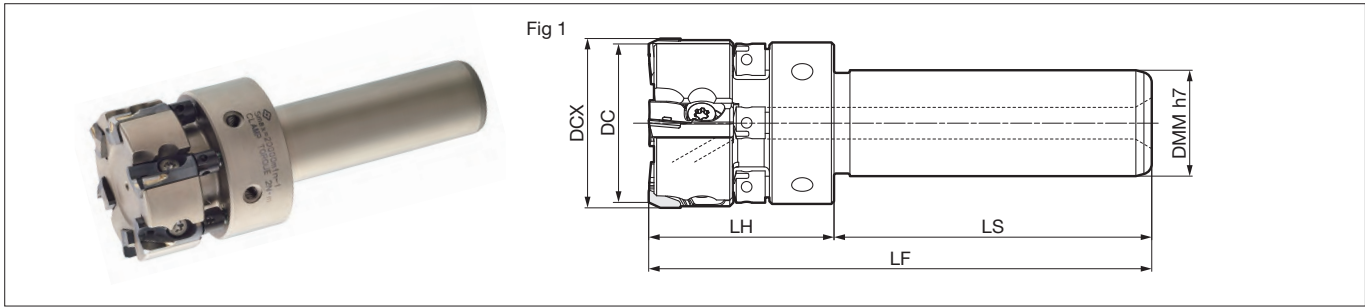
## Combined Milling of Cast Iron/Aluminum Alloy

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
K/N	Cast Iron/ Aluminum Alloy	—	300 - 400 - 500	0.05 - 0.13 - 0.20	DA90

**Note:** The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.  
For combined milling of cast iron/aluminum alloy, we recommend DA90.

## Maximum Allowable Spindle Speed

Cat. No.	$n$ max (min <sup>-1</sup> )
ANXS 16040RS04	25,000
ANXS 16040RS06	25,000
ANXS 16050RS04	25,000
ANXS 16050RS06	25,000
ANXS 16050RS09	25,000
ANXS 16063RS06	25,000
ANXS 16063RS08	22,000
ANXS 16063RS12	22,000
ANXS 16080RS06	20,000
ANXS 16080RS10	20,000
ANXS 16080RS14	20,000
ANXS 16100RS08	18,000
ANXS 16100RS12	18,000
ANXS 16100RS18	18,000
ANXS 16125RS10	16,000
ANXS 16125RS14	16,000
ANXS 16125RS22	16,000
ANXS 16063R06	22,000
ANXS 16063R08	22,000
ANXS 16063R12	22,000
ANXS 16080R06	20,000
ANXS 16080R10	20,000
ANXS 16080R14	20,000
ANXS 16100R08	18,000
ANXS 16100R12	18,000
ANXS 16100R18	18,000
ANXS 16125R10	16,000
ANXS 16125R14	16,000
ANXS 16125R22	16,000



## Body (Steel)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
ANXS 16025E02	●	23	25	20	35	60	95	2	0.2	1
ANXS 16030E03	●	28	30	20	35	60	95	3	0.3	1
ANXS 16030E04	●	28	30	20	35	60	95	4	0.3	1
ANXS 16032E03	●	30	32	20	35	60	95	3	0.3	1
ANXS 16032E04	●	30	32	20	35	60	95	4	0.3	1
ANXS 16040E04	●	38	40	20	40	60	100	4	0.4	1
ANXS 16040E06	●	38	40	20	40	60	100	6	0.5	1
ANXS 16050E04	●	48	50	32	40	80	120	4	1.0	1
ANXS 16050E06	●	48	50	32	40	80	120	6	1.0	1
ANXS 16050E09	●	48	50	32	40	80	120	9	1.0	1

Blades are sold separately.

If using blades with corner radius (ANB1604R/ANB1608R), DC = DCX.

Weight indicated includes the weight with blades and other spare parts.

## Identification Code

**ANX S 16 032 E 04**

Series Steel Body Blade Size Dia. Shank Type Number of Teeth

## Spare Parts

Clamp Screw	Wrench	Adjustment Screw	Adjustment Wrench
BXA0310IP	2.0 TRXW10IP	HFJ	ANT

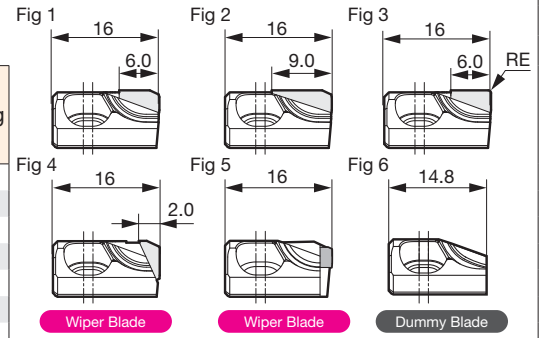
Recommended Tightening Torque (N·m)

The adjustment wrench (ANT) can also be used for height adjustment of the High-speed Cutter RF Type and High-efficiency Cutter HF Type.

Dimensions (mm)

## Blades

Grade Classification		SUMIDIA		SUMICRYSTAL V						
Applications	High-speed/Light	N	K/N	N						
	General-purpose	N	K/N							
	Roughing	N	K/N							
Cat. No.	DA1000	DA90	SCV10	Cutting Edge Length	Corner Radius RE	Wiper Flat Shape	Applications	Fig		
ANB 1600R-L	●		—	6.0	—	Linear	Low Resistance	1	Fig 1	
ANB 1600R-G	●		—	6.0	—	Arc-Shaped	General-purpose	1	Fig 2	
ANB 1600R-GB		●	—	6.0	—	Arc-Shaped	Combined Milling <sup>*1</sup>	1	Fig 3	
ANB 1600R-H	●	—	—	6.0	—	Arc-Shaped	Strong Edge	1	Fig 4	
ANB 1600R-GX	●		—	9.0	—	Arc-Shaped	Long Edge	2	Fig 5	
ANB 1604R	●		—	6.0	0.4	Linear	Corner Radius	3	Fig 6	
ANB 1608R	●		—	6.0	0.8	Linear	Corner Radius	3		
ANB 1600R-W	●		—	—	—	Arc-Shaped	Wiper	4		
ANB 1600R-WS	—	—	●	—	—	Arc-Shaped	Wiper	5		
ANBD	—	—	● <sup>*2</sup>	—	—	—	Dummy Blade	6		



\*1 Cast Iron/Aluminum Alloy \*2 Dummy blade for use with WS type (cemented carbide), refer to P6 "Precautions when Using Wiper Blades" (Mounting Precautions).

## Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
N	Aluminum Alloy	—	2,000 - 2,500 - 3,000	0.05 - 0.13 - 0.20	DA1000

Si content of over 12.6%

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
N	Aluminum Alloy	—	400 - 600 - 800	0.05 - 0.13 - 0.20	DA1000

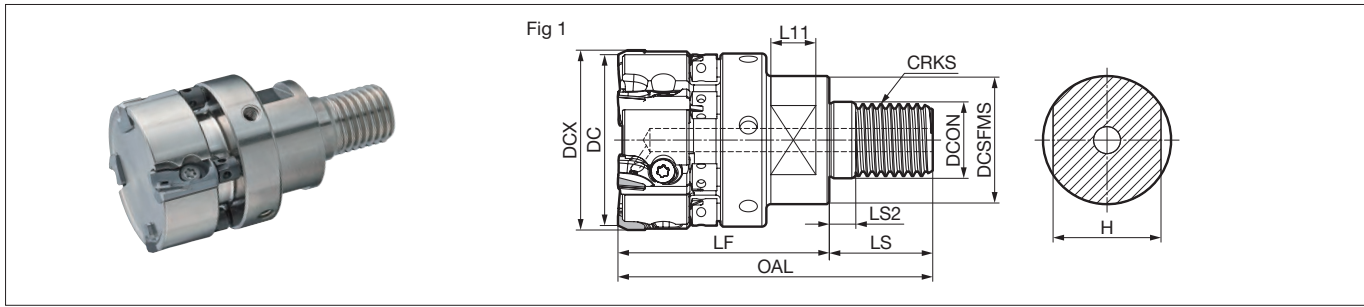
## Combined Milling of Cast Iron/Aluminum Alloy

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
K N	Cast Iron/ Aluminum Alloy	—	300 - 400 - 500	0.05 - 0.13 - 0.20	DA90

**Note:** The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.  
For combined milling of cast iron/aluminum alloy, we recommend DA90.

## Maximum Allowable Spindle Speed

Cat. No.	$n$ max (min <sup>-1</sup> )
ANXS 16025E02	10,000
ANXS 16030E03	10,000
ANXS 16030E04	10,000
ANXS 16032E03	10,000
ANXS 16032E04	10,000
ANXS 16040E04	10,000
ANXS 16040E06	10,000
ANXS 16050E04	10,000
ANXS 16050E06	10,000
ANXS 16050E09	10,000



## Body (Steel)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Neck LS2	Shank Length LS	Flat L11	Width H	Number of Teeth	Weight (kg)	Fig
ANXS 16025M12Z02	●	23	25	23	12.5	M12	61	40	5	21	10	19	2	0.1	1
ANXS 16030M16Z03	●	28	30	28.5	17.0	M16	70	47	5	23	10	24	3	0.2	1
ANXS 16030M16Z04	●	28	30	28.5	17.0	M16	70	47	5	23	10	24	4	0.2	1
ANXS 16032M16Z03	●	30	32	28.5	17.0	M16	70	47	5	23	10	24	3	0.3	1
ANXS 16032M16Z04	●	30	32	28.5	17.0	M16	70	47	5	23	10	24	4	0.3	1
ANXS 16040M16Z04	●	38	40	28.5	17.0	M16	70	47	5	23	10	24	4	0.4	1
ANXS 16040M16Z06	●	38	40	28.5	17.0	M16	70	47	5	23	10	24	6	0.4	1

Blades are sold separately.

If using blades with corner radius (ANB1604R/ANB1608R), DC = DCX.





Weight indicated includes the weight with blades and other spare parts.

## Identification Code

# ANX S 16 032 M16 Z03

Series Steel Body Blade Size Dia. Screw Size Number of Teeth

## Spare Parts

Clamp Screw	Wrench	Adjustment Screw	Adjustment Wrench
			
BXA0310IP	2.0 TRXW10IP	HFJ	ANT

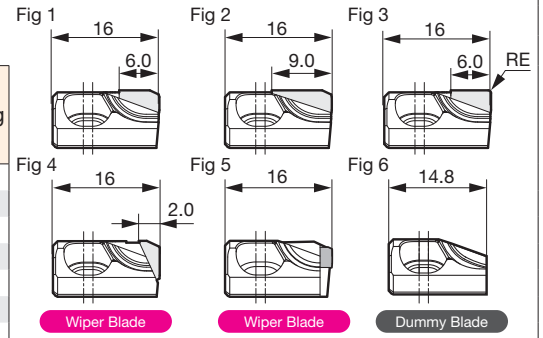
 Recommended Tightening Torque (N-m)

The adjustment wrench (ANT) can also be used for height adjustment of the High-speed Cutter RF Type and High-efficiency Cutter HF Type.

## Blades

Dimensions (mm)

Grade Classification		SUMIDIA		SUMICRYSTAL V						
Applications	High-speed/Light	<b>N</b>	<b>K</b>	<b>N</b>	Cutting Edge Length	Corner Radius RE	Wiper Flat Shape	Applications	Fig	
	General-purpose	<b>N</b>	<b>K</b>							
	Roughing	<b>N</b>	<b>K</b>							
Cat. No.	DA1000	DA90	SCV10							
ANB 1600R-L	●		—	6.0	—	Linear	Low Resistance	1		
ANB 1600R-G	●		—	6.0	—	Arc-Shaped	General-purpose	1		
ANB 1600R-GB		●	—	6.0	—	Arc-Shaped	Combined Milling <sup>*1</sup>	1		
ANB 1600R-H	●	—	—	6.0	—	Arc-Shaped	Strong Edge	1		
ANB 1600R-GX	●		—	9.0	—	Arc-Shaped	Long Edge	2		
ANB 1604R	●		—	6.0	0.4	Linear	Corner Radius	3		
ANB 1608R	●		—	6.0	0.8	Linear	Corner Radius	3		
ANB 1600R-W	●		—	—	—	Arc-Shaped	Wiper	4		
ANB 1600R-WS	—	—	●	—	—	Arc-Shaped	Wiper	5		
ANBD	—	—	● <sup>*2</sup>	—	—	—	Dummy Blade	6		



\*1 Cast Iron/Aluminum Alloy \*2 Dummy blade for use with WS type (cemented carbide), refer to P6 "Precautions when Using Wiper Blades" (Mounting Precautions).

## Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
<b>N</b>	Aluminum Alloy	—	2,000 - <b>2,500</b> - 3,000	0.05 - <b>0.13</b> - 0.20	DA1000

Si content of over 12.6%

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
<b>N</b>	Aluminum Alloy	—	400 - <b>600</b> - 800	0.05 - <b>0.13</b> - 0.20	DA1000

## Combined Milling of Cast Iron/Aluminum Alloy

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min) Min. - Optimum - Max.	Feed Rate $f_z$ (mm/t) Min. - Optimum - Max.	Blade Grade
<b>K</b> <b>N</b>	Cast Iron/ Aluminum Alloy	—	300 - <b>400</b> - 500	0.05 - <b>0.13</b> - 0.20	DA90

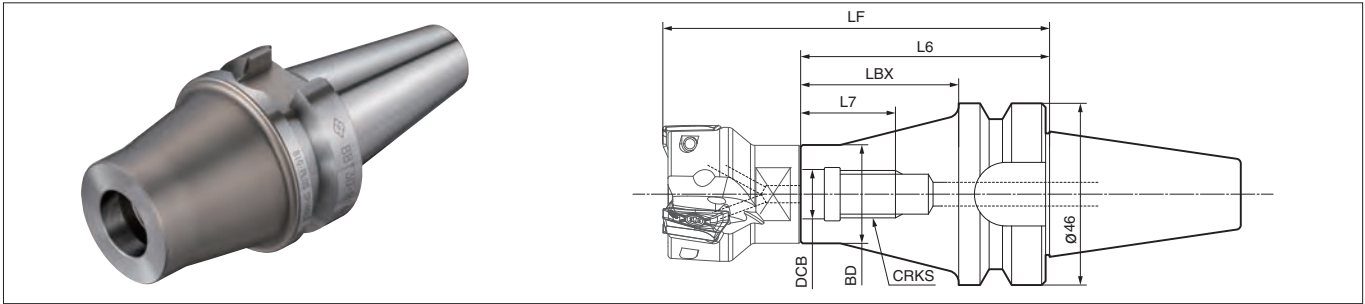
**Note:** The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.  
For combined milling of cast iron/aluminum alloy, we recommend DA90.

## Maximum Allowable Spindle Speed

Cat. No.	$n$ max (min <sup>-1</sup> )
ANXS 16025M12Z02	10,000
ANXS 16030M16Z03	10,000
ANXS 16030M16Z04	10,000
ANXS 16032M16Z03	10,000
ANXS 16032M16Z04	10,000
ANXS 16040M16Z04	10,000
ANXS 16040M16Z06	10,000

# Special Arbors

## ■ BBT Integrated Type - SEC-Modular Tools Special Arbors

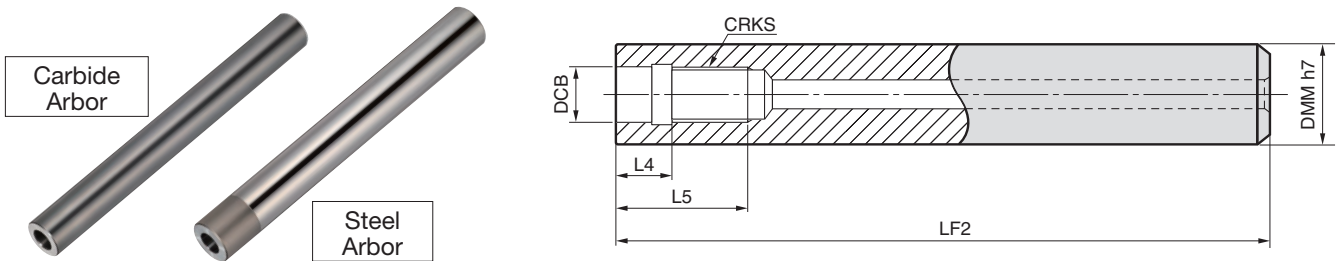


## ■ BBT Integrated Arbor

Cat. No.	Stock	Screw CRKS	Hole Dia. DCB	External Dia. BD	Body Overhang L6	Length LBX	Thread Depth L7	Dimensions (mm)	
								Overhang LF <sup>*1</sup>	Coolant Hole
<b>BBT30-M12-40</b>	●	<b>M12</b>	12.5	24.9	63	40	22	98	Yes
<b>BBT30-M16-35</b>	●	<b>M16</b>	17	31.9	58	35	24	98	Yes

\*1: Overhang length for LF is with head mounted. \* Can also be used with BT30 spindle machines.

## ■ SEC-Modular Tools - Special Arbors (Carbide Arbor/Steel Arbor)



## ■ Carbide Arbors

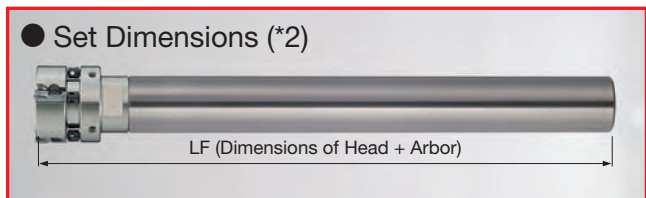
Cat. No.	Stock	Screw CRKS	Hole Dia. DCB	Shank DMM	Dimensions (mm)				
					Overall Length LF2	Depth L4	Thread Depth L5	Set Dimension LF <sup>*2</sup>	
<b>MA23M12L200C</b>	●	<b>M12</b>	12.5	23	200	10	22	235	
<b>MA23M12L250C</b>	●	<b>M12</b>	12.5	23	250	10	22	285	
<b>MA25M12L200C</b>	●	<b>M12</b>	12.5	25	200	10	22	235	
<b>MA25M12L250C</b>	●	<b>M12</b>	12.5	25	250	10	22	285	
<b>MA28M16L200C</b>	●	<b>M16</b>	17.0	28	200	10	24	240	
<b>MA28M16L300C</b>	●	<b>M16</b>	17.0	28	300	10	24	340	
<b>MA32M16L200C</b>	●	<b>M16</b>	17.0	32	200	10	24	240	
<b>MA32M16L300C</b>	●	<b>M16</b>	17.0	32	300	10	24	340	

## ■ Steel Arbors

Cat. No.	Stock	Screw CRKS	Hole Dia. DCB	Shank DMM	Dimensions (mm)				
					Overall Length LF2	Depth L4	Thread Depth L5	Set Dimension LF <sup>*2</sup>	
<b>MA25M12L200S</b>	●	<b>M12</b>	12.5	25	200	10	22	235	
<b>MA32M16L200S</b>	●	<b>M16</b>	17.0	32	200	10	24	240	

## ■ Cat. No. Identification Table

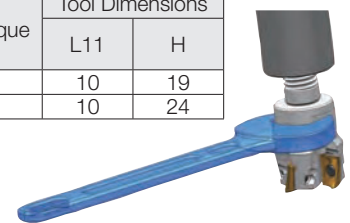
<b>MA</b>	<b>15</b>	<b>M08</b>	<b>L120</b>	<b>C</b>
Series	Shank Dia.	Mounting Screw Size	Arbor Overall Length	Arbor Materials (C: Carbide S: Steel)



### \* Take note when tightening the head.

- When mounting the head to an arbor, follow the standard tightening torque in the table below.
- Check the mounting screw size for the head and arbor beforehand.
- Refer to the ■ Body table on P14 for the "Tool Dimensions" below.

Screw Size	Regulated Tightening Torque (N·m)	Tool Dimensions	
		L11	H
<b>M12</b>	<b>60</b>	10	19
<b>M16</b>	<b>80</b>	10	24





# MEMO

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## Application Example

Aluminum Alloy ADC12 Engine Component		Sumitomo	Comp's
Vertical Machining Centre HSK63A	Tool	ANXS16063RS12	PCD Cutter
	Grade	DA1000	—
	Blade Type	G	—
	Cutter Dia. (mm)	63	63
	Number of Teeth	12	6
	$v_c$ (m/min)	1,583	1,583
	$v_f$ (mm/min)	6,432	3,216
	$f_z$ (mm/t)	0.067	0.067
	$a_p$ (mm)	1	1
	$a_e$ (mm)	—	—
	Coolant	Wet (External Coolant Supply)	Wet (External Coolant Supply)
	Results	Doubled machining efficiency with increased number of teeth Tool life extended 2.3x, burrs reduced	



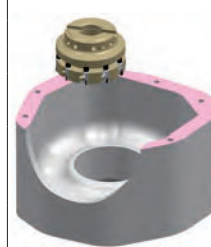
Aluminum Alloy ADC12 Engine Component		Sumitomo	—
Vertical Machining Centre BT50	Tool	ANXS16050E09	—
	Grade	DA1000	—
	Blade Type	R0.4	—
	Cutter Dia. (mm)	50	—
	Number of Teeth	9	—
	$v_c$ (m/min)	942	—
	$v_f$ (mm/min)	2,700	—
	$f_z$ (mm/t)	0.05	—
	$a_p$ (mm)	1	—
	$a_e$ (mm)	—	—
	Coolant	Wet (Internal Coolant Supply)	—
	Results	Usable with milling chucks and hydro chucks	



Aluminum Alloy ADC12 Case		Sumitomo	Comp's
Vertical Machining Centre HSK63A	Tool	ANXS16063RS12	PCD Cutter
	Grade	DA1000	—
	Blade Type	G	—
	Cutter Dia. (mm)	63	63
	Number of Teeth	12	8
	$v_c$ (m/min)	1,979	1,979
	$v_f$ (mm/min)	10,000	8,000
	$f_z$ (mm/t)	0.083	0.1
	$a_p$ (mm)	2	2
	$a_e$ (mm)	—	—
	Coolant	Wet (Internal Coolant Supply)	Wet (Internal Coolant Supply)
	Results	Machining efficiency increased 1.25x with increased number of teeth Tool life extended 3.6x with reduced load per feed	



Aluminum Alloy ADC12 Case		Sumitomo	Comp's
Vertical Machining Centre BT30	Tool	ANXA16080R14	PCD Cutter
	Grade	DA1000	—
	Blade Type	L	—
	Cutter Dia. (mm)	80	80
	Number of Teeth	14	8
	$v_c$ (m/min)	2,513	2,513
	$v_f$ (mm/min)	2,500	2,500
	$f_z$ (mm/t)	0.018	0.031
	$a_p$ (mm)	Roughing 2.0/Finishing 0.2	Roughing 2.0/Finishing 0.2
	$a_e$ (mm)	—	—
	Coolant	Wet (Internal Coolant Supply)	Wet (Internal Coolant Supply)
	Results	Improved flatness, burrs reduced Drastically reduced runout adjustment time	



Aluminum Alloy ADC12 Automotive Component		Sumitomo	Comp's
Vertical Machining Centre BT30	Tool	ANXA16125R22	PCD Cutter
	Grade	DA1000	—
	Blade Type	H	—
	Cutter Dia. (mm)	125	125
	Number of Teeth	22	6
	$v_c$ (m/min)	3,142	3,142
	$v_f$ (mm/min)	14,080	3,520
	$f_z$ (mm/t)	0.08	0.073
	$a_p$ (mm)	0.8	0.8
	$a_e$ (mm)	—	—
	Coolant	Wet (Internal Coolant Supply)	Wet (External Coolant Supply)
	Results	Machining efficiency improved 4x, tool life extended 11x, non-cutting time reduced with lighter body	



Aluminum Alloy ADC12 Automotive Component		Sumitomo	Comp's
Vertical Machining Centre BT30	Tool	ANXA16125R22	Carbide Cutter
	Grade	DA1000	Carbide
	Blade Type	G	—
	Cutter Dia. (mm)	125	125
	Number of Teeth	22	6
	$v_c$ (m/min)	3,534	1,000
	$v_f$ (mm/min)	Roughing 5,000/Finishing 10,000	1,200
	$f_z$ (mm/t)	Roughing 0.025/Finishing 0.05	0.08
	$a_p$ (mm)	Roughing 3.0/Finishing 0.5	Roughing 3.0/Finishing 0.5
	$a_e$ (mm)	—	—
	Coolant	Wet (External Coolant Supply)	Wet (External Coolant Supply)
	Results	Machining efficiency increased 6x with increased number of teeth Tool life extended 10x	





Aluminum Alloy ADC12 Automotive Component		Sumitomo	Comp's
Vertical Machining Centre BT30	Tool	ANXS16025E02	Brazed
	Grade	DA1000	PCD
	Blade Type	R0.4	—
	Cutter Dia. (mm)	25	25
	Number of Teeth	2	2
	$v_c$ (m/min)	471	471
	$v_f$ (mm/min)	900	900
	$f_z$ (mm/t)	0.075	0.075
	$a_p$ (mm)	0.3 to 1.5	0.3 to 1.5
	$a_e$ (mm)	7 to 10	7 to 10
	Coolant	Wet (Internal Coolant Supply)	Wet (External Coolant Supply)
	Results	Fine chips with internal coolant supply Economic with indexable blade	





CFRP Aerospace Jig		Sumitomo	—
Vertical Machining Centre BT50	Tool	ANXS16080R10	—
	Grade	DA1000	—
	Blade Type	G	—
	Cutter Dia. (mm)	80	—
	Number of Teeth	5	—
	$v_c$ (m/min)	565	—
	$v_f$ (mm/min)	3,000	—
	$f_z$ (mm/t)	0.27	—
	$a_p$ (mm)	1.55	—
	$a_e$ (mm)	—	—
	Coolant	Dry	—
	Results	Good machined surface quality	




Aluminum Alloy ADC12 Engine Case		New Product + Current Tool	Current Tool only	
Vertical Machining Centre BT40	Tool	ANXA16100R18	ANXA16100R18	
	Grade	DA1000+SCV10	DA1000	
	Setting	G Type 16 teeth WS Type 2 teeth	G Type 18 teeth	
	Cutter Dia. (mm)	100	100	
	Number of Teeth	18	18	
	$v_c$ (m/min)	1,000	1,000	
	$v_f$ (mm/min)	8,599	8,599	
	$f_z$ (mm/t)	0.15	0.15	
	$a_p$ (mm)	0.2	0.2	
	$a_e$ (mm)	—	—	
	Coolant	Wet (Internal Coolant Supply)	Wet (Internal Coolant Supply)	
	Results	6 times or more tool life with burr control Deburring in later processes can be omitted		
				
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Aluminum Alloy A7075 Electronic Device Housing		New Product + Current Tool	Current Tool only	
Vertical Machining Centre BT40	Tool	ANXS16080R06	ANXS16080R06	
	Grade	DA1000+SCV10	DA1000	
	Setting	G Type 4 teeth WS Type 1 tooth Dummy blade 1 tooth	G Type 5 teeth WS Type 1 tooth	
	Cutter Dia. (mm)	80	80	
	Number of Teeth	5 (+ Dummy Blade 1)	6	
	$v_c$ (m/min)	2,500	2,500	
	$v_f$ (mm/min)	2,986	2,986	
	$f_z$ (mm/t)	0.05	0.05	
	$a_p$ (mm)	0.1	0.1	
	$a_e$ (mm)	—	—	
	Coolant	Wet (Internal Coolant Supply)	Wet (Internal Coolant Supply)	
	Results	Achieves Ra0.019 $\mu$ m (for gloss finishing)		
				
	SUMICRYSTAL			

Aluminum Alloy ADC12 Automotive Component		Sumitomo	—	
Vertical Machining Centre BT30	Tool	ANXA16160RS12	—	
	Grade	DA1000	—	
	Blade Type	G	—	
	Cutter Dia. (mm)	160	—	
	Number of Teeth	12	—	
	$v_c$ (m/min)	3,014	—	
	$v_f$ (mm/min)	10,000	—	
	$f_z$ (mm/t)	0.14	—	
	$a_p$ (mm)	0.2	—	
	$a_e$ (mm)	—	—	
	Coolant	Wet (Internal Coolant Supply)	—	
	Results	Good machine surface accuracy Fine chips		
				

ADC12/FC250 Combined milling of engine components		Sumitomo	Comp's	
Horizontal M/C HSK100	Tool	ANXA16250R20*	PCD Cutter	
	Grade	DA90	—	
	Blade Type	GB	—	
	Cutter Dia. (mm)	250	250	
	Number of Teeth	20	24	
	$v_c$ (m/min)	785	785	
	$v_f$ (mm/min)	1,000	1,200	
	$f_z$ (mm/t)	0.05	0.05	
	$a_p$ (mm)	0.2	0.2	
	$a_e$ (mm)	—	—	
	Coolant	Wet (Internal Coolant Supply)	Wet (Internal Coolant Supply)	
	Results	3x tool life, burrs reduced Good machined surface quality		
				

\* Made-to-Order Product

ADC12/FC450 Combined milling of engine components		Sumitomo	Conventional Tool	
	Tool	ANXA16125RS22	ANXA16125RS22	
	Grade	DA90	DA1000	
	Blade Type	GB	H	
	Cutter Dia. (mm)	125	125	
	Number of Teeth	22	22	
	$v_c$ (m/min)	353	353	
	$v_f$ (mm/min)	4,372	4,372	
	$f_z$ (mm/t)	0.13	0.13	
	$a_p$ (mm)	0.15	0.15	
	$a_e$ (mm)	—	—	
	Coolant	Wet (Internal Coolant Supply)	Wet (Internal Coolant Supply)	
	Results	1.7x tool life Good machined surface quality		
				

Sumitomo Electric Cutting Tools Official Apps for iOS/Android



Cutting calculation App

## SumiTool Calculator



Grade & chipbreaker comparison App

## SumiTool Converter



### < SAFETY NOTES >



- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.

- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.

- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

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