

Al-based Alloy Cutting at High-Speed

# ALNEX ANX Series

Ultra-High Efficiency Machining and Excellent Chip Control





**■ Features**

**Drastically Reduced Runout Adjustment Time**

Simple screw-fastening structure enables fine adjustments to be made easily.

**Blade Through Coolant**

Secures a supply of coolant to the cutting edge and breaks chips thoroughly.

**Lightweight Aluminum Alloy Body**

Utilizing aluminum alloy to achieve a total weight of less than 1,3 kg for a Ø 125 mm cutter with 22 teeth.

**■ Product Range**

Type	Cat. No.	Body Material	Diameter Range (mm) / No of Teeth							
			Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø160
Shell	ANXA 16000RS	Aluminum Alloy					10, 14	12, 18	14, 22	20, 28
	ANXA 16000R (Inch)	Aluminum Alloy					10, 14	12, 18	14, 22	20, 28
	ANXS 16000RS	Steel		6	6, 9	8, 12	10, 14	12, 18	14, 22	
	ANXS 16000R (Inch)	Steel				8, 12	10, 14	12, 18	14, 22	
Shank	ANXS 16000E	Steel	4	6						

[Inch] Inch Bore

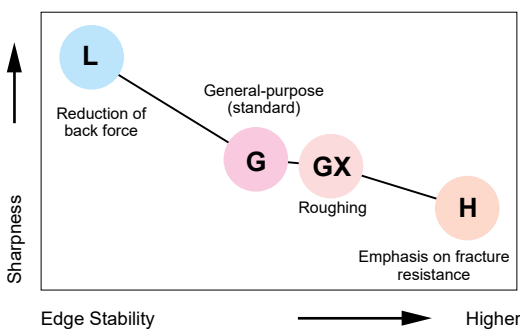
**■ Blade Selection Guide**

Work Material	N					
Type	L	G	GX	H	—	W
Cutting Edge Shape						
Features	Low Cutting Force	Standard	Long Edge	High Strength		
Applications	Finishing / Light Cutting	General Purpose	Roughing		Corner Radius	Wiper
Edge Length*	6,0 mm	6,0 mm	9,0 mm	6,0 mm		



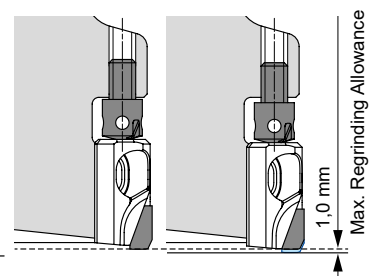
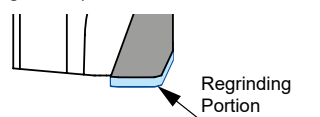
\*Edge length GX type = 9,0 mm

**■ Edge Selection Guide**



**● Reduces Running Costs by Drastically Increasing Blade, Insert Regrinding Allowance (to 1,0 mm)**

Assuming 0,2 mm of regrinding each time, an edge can be used up to 6 times. (Peripheral edge cannot be reground.)



If you wish to use reground blades you shall use sets of blades with matching size of the same level in order to keep the balance.

## ■ Performances

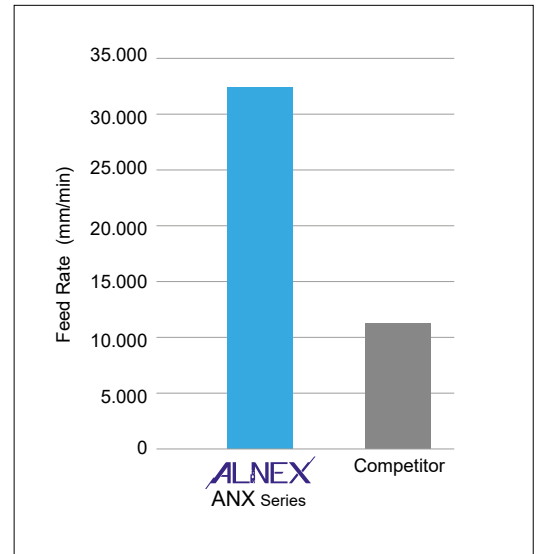
### ● High-Speed / High-Efficiency Cutting

Realizes ultra-high efficiency machining with  $v_f = 30.000 \text{ mm/min}$



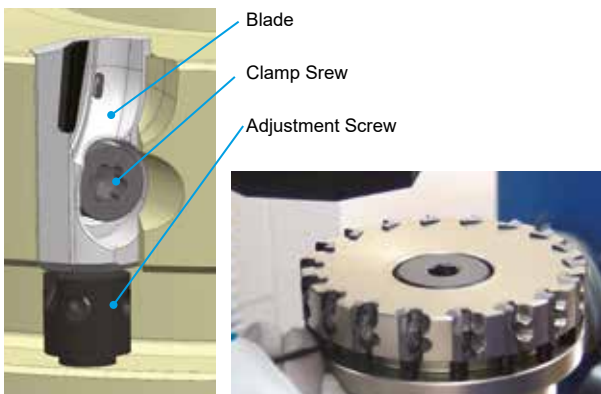
Comparison: Cutter Diameter  $\varnothing 100 \text{ mm}$

	Spindle Speed $\text{min}^{-1}$	Number of Teeth	Feed Rate $v_f \text{ (mm/min)}$
ANX Series	18.000	18	32.400
Competitor	9.500	12	11.400

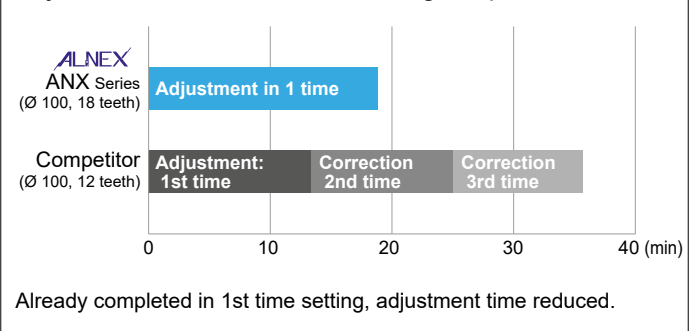


### ● Drastically Reduces Runout Adjustment Time

- Simple screw-fastening structure
- Enables fine adjustments to be made easily
- High-rigidity body



### Adjustment Time for Runout Setting $\leq 5 \mu\text{m}$



### ● Chip Control



### Blade-Through Coolant Chip Breaking



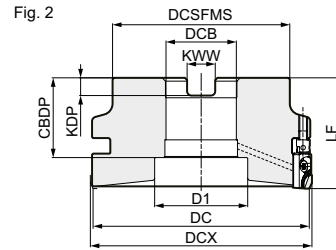
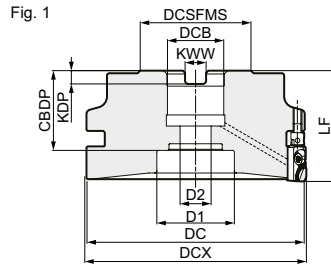
ALNEX ANX Series

Competitor

Work Material: G-AISI12Cu  
Cutting Conditions:  $v_c = 2500 \text{ m/min}$ ,  $f_z = 0,05 \text{ mm/t}$ ,  $a_p = 0,5 \text{ mm}$ , wet

# ALNEX ANXS 16000 R(S)

Rake Angle	Radial	+5°	3 mm	90°
	Axial	+5°		



## Body - ANXS (Steel)

Dimensions (mm)

Cat. No.	Stock	DC	DCX	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	D2	No. of Teeth	Weight (kg)	Fig.	
Metric	ANXS 16040RS06	○	38	40	38,5	40	16	8,4	5,6	26	14	9	6	0,3	1
	16050RS06	○	48	50	48,5	40	22	10,4	6,3	26	18	11	6	0,4	1
	16050RS09	○	48	50	48,5	40	22	10,4	6,3	26	18	11	9	0,5	1
	16063RS08	○	61	63	50	40	22	10,4	6,3	26	18	11	8	0,7	1
	16063RS12	○	61	63	50	40	22	10,4	6,3	26	18	11	12	0,7	1
	16080RS10	○	78	80	50	50	27	12,4	7	34	35	14	10	1,2	1
	16080RS14	○	78	80	50	50	27	12,4	7	34	35	14	14	1,2	1
	16100RS12	○	98	100	80	50	32	14,4	8	32	46	-	12	2,0	2
	16100RS18	○	98	100	80	50	32	14,4	8	32	46	-	18	2,0	2
	16125RS14	○	123	125	80	63	40	16,4	9	35	52	-	14	3,9	2
16125RS22	○	123	125	80	63	40	16,4	9	35	52	-	22	3,9	2	
Inch	ANXS 16063R08	○	61	63	50	50	25,4	9,5	6	31	20	14	8	0,9	1
	16063R12	○	61	63	50	50	25,4	9,5	6	31	20	14	12	0,9	1
	16080R10	○	78	80	50	50	25,4	9,5	6	34	35	14	10	1,2	1
	16080R14	○	78	80	50	50	25,4	9,5	6	34	35	14	14	1,2	1
	16100R12	○	98	100	80	50	31,75	12,7	8	36	42	-	12	2,0	2
	16100R18	○	98	100	80	50	31,75	12,7	8	36	42	-	18	2,0	2
	16125R14	○	123	125	80	63	38,1	15,9	10	42,5	52	-	14	3,9	2
	16125R22	○	123	125	80	63	38,1	15,9	10	42,5	52	-	22	3,9	2

Blades are sold separately. If using a blade for corner radius machining (ANB1604R), DC = DCX.

## Identification Details

**ANX S 16 100 R S 18**

Cutter Series	Steel Body	Blade Size	Cutter Diameter	Feed Direction	Metric	Number of Teeth
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## Blades

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## Recommended Cutting Conditions

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## Spare Parts

Applicable Cutters	Clamp Screw		Adjustment Screw	Wrench	Adjustment Wrench	Centre Bolt	Assembly Wrench
ANXS 16040RS06 16050RS__ 16063RS__ 16080RS__ 16100RS__ 16125RS__ 16063R__ 16080R__ 16100R__ 16125R__	BXA0310IP	2,0	HFJ	TRXW10IP	ANT	BXH0825-D13 BXH1030-D16 BXH1235-D33 BXH1635-D40 BXH2036-D50 BXH1235-D18 BXH1235-D33 BXH1635-D40 BXH2036-D50	HFVT

Sold separately.

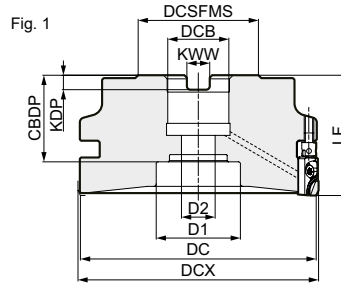
## Max. Allowable Spindle Speed

Cat. No.	n max (min <sup>-1</sup> )
ANXS 16040RS06	25.000
16050RS06	25.000
16050RS09	25.000
16063RS08	22.000
16063RS12	22.000
16080RS10	20.000
16080RS14	20.000
16100RS12	18.000
16100RS18	18.000
16125RS14	16.000
16125RS22	16.000
ANXS 16063R08	22.000
16063R12	22.000
16080R10	20.000
16080R14	20.000
16100R12	18.000
16100R18	18.000
16125R14	16.000
16125R22	16.000

○ = Japan stock

# ALNEX ANXA 16000 R(S)

Rake Angle	Radial	+5°	3 mm	90°
	Axial	+5°		



## Body - ANXA (Aluminum Alloy)

Dimensions (mm)

Cat. No.		Stock	DC	DCX	DCSFMS	Lf	DCB	KWW	KDP	CDBP	D1	D2	No. of Teeth	Weight (kg)
Metric	ANXA 16080RS10	○	78	80	50	50	27	12,4	7	34	35	14	10	0,5
	16080RS14	○	78	80	50	50	27	12,4	7	34	35	14	14	0,5
	16100RS12	○	98	100	50	50	27	12,4	7	34	35	14	12	0,8
	16100RS18	○	98	100	50	50	27	12,4	7	34	35	14	18	0,9
	16125RS14	○	123	125	50	50	27	12,4	7	34	35	14	14	1,2
	16125RS22	○	123	125	50	50	27	12,4	7	34	35	14	22	1,3
	16160RS20	○	158	160	80	63	40	16,4	9	35	52	29	20	2,6
16160RS28	○	158	160	80	63	40	16,4	9	35	52	29	28	2,6	
Inch	ANXA 16080R10	○	78	80	50	50	25,4	9,5	6	34	35	14	10	0,5
	16080R14	○	78	80	50	50	25,4	9,5	6	34	35	14	14	0,5
	16100R12	○	98	100	50	50	25,4	9,5	6	34	35	14	12	0,9
	16100R18	○	98	100	50	50	25,4	9,5	6	34	35	14	18	0,9
	16125R14	○	123	125	50	50	25,4	9,5	6	34	35	14	14	1,2
	16125R22	○	123	125	50	50	25,4	9,5	6	34	35	14	22	1,3
	16160R20	○	158	160	80	63	38,1	15,9	10	42,5	55	30	20	2,4
16160R28	○	158	160	80	63	38,1	15,9	10	42,5	55	30	28	2,6	

Blades are sold separately. If using a blade for corner radius machining (ANB1604R), DC = DCX.

## Identification Details

<b>ANX</b>	<b>A</b>	<b>16</b>	<b>100</b>	<b>R</b>	<b>S</b>	<b>18</b>
Cutter Series	Aluminum Alloy Body	Blade Size	Cutter Diameter	Feed Direction	Metric	Number of Teeth

## Blades

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## Recommended Cutting Conditions

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## Spare Parts

Applicable Cutters	Clamp Screw		Adjustment Screw	Wrench	Adjustment Wrench	Centre Bolt	Assembly Wrench
ANXA 16080RS_	BXA0310IP	2,0	HFJ	TRXW10IP	ANT	BXH1235-D33	HFVT
16100RS_						BXH2036-D50	
16125RS_						BXH1235-D33	
16160RS_						BXH2036-D50	
16080R_							
16100R_							
16125R_							
16160R_							

Sold separately.

## Max. Allowable Spindle Speed

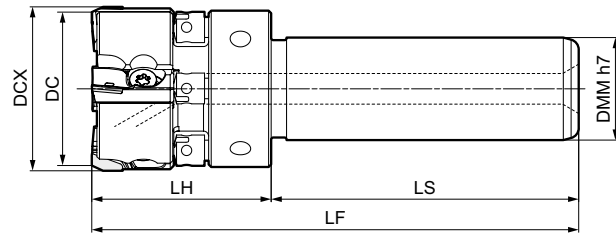
Cat. No.	n max (min <sup>-1</sup> )
ANXA 16080RS10	20.000
16080RS14	20.000
16100RS12	18.000
16100RS18	18.000
16125RS14	16.000
16125RS22	16.000
16160RS20	14.000
16160RS28	14.000
ANXA 16080R10	20.000
16080R14	20.000
16100R12	18.000
16100R18	18.000
16125R14	16.000
16125R22	16.000
16160R20	14.000
16160R28	14.000

○ = Japan stock

# ALNEX ANXS 16000 E



Rake Angle	Radial	-2 - 0°	3 mm	90°
	Axial	+5°		



## Body - ANXS (Steel)

Dimensions (mm)									
Cat. No.	Stock	DC	DCX	DMM	LH	LS	LF	No. of Teeth	Weight (kg)
ANXS 16032E04	○	30	32	20	35	60	95	4	0,3
16040E06	○	38	40	20	40	60	100	6	0,5

Blades are sold separately.  
If using a blade for corner radius machining (ANB1604R), DC = DCX.

## Identification Details

**ANX S 16 032 E 04**

Cutter Series    Steel Body    Blade Size    Cutter Diameter    Round Shank    Number of Teeth

## Spare Parts

Applicable Cutters	Clamp Screw		Adjustment Screw	Wrench	Adjustment Wrench	Assembly Wrench
ANXS 16032E04 16040E06	BXA0310IP	2,0	HFJ	TRXW10IP	ANT	HFVT

Sold separately.

## Max. Allowable Spindle Speed

Cat. No.	n max (min <sup>-1</sup> )
ANXS 16032E04	10.000
16040E06	10.000



## Blades

Application	SUMIDIA				
High Speed / Light Cut	<b>N</b>				
General Purpose	<b>N</b>				
Roughing	<b>N</b>				
Cat. No.	DA1000	Cutting Edge Length	Wiper Edge Shape	Applications	Fig.
ANB 1600R-L	○	6,0	Linear	Low Cutting Force	1
1600R-G	○	6,0	Arc-Shaped	General Purpose	1
1600R-H	○	6,0	Arc-Shaped	Strong Edge	1
1600R-GX	○	9,0	Arc-Shaped	Long Edge	2
1604R	○	6,0	Linear	Corner Radius	3
1600R-W	○	—	Arc-Shaped	Wiper	4

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Wiper Blade

## Recommended Cutting Conditions

Si content ≤ 12,6 %

Min. - **Optimum** - Max.

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min)	Feed Rate $f_z$ (mm/t)	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 ≥ 12,6 %

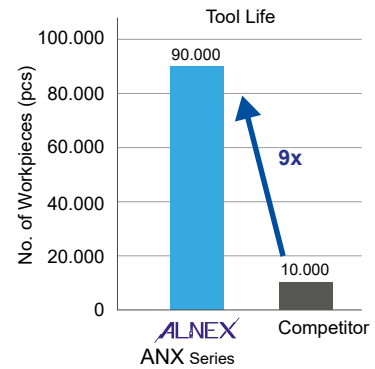
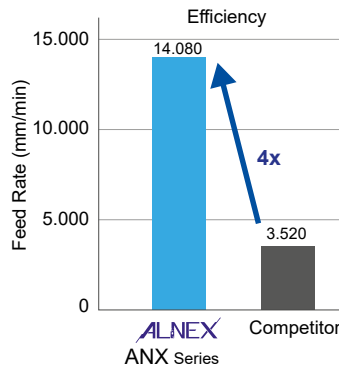
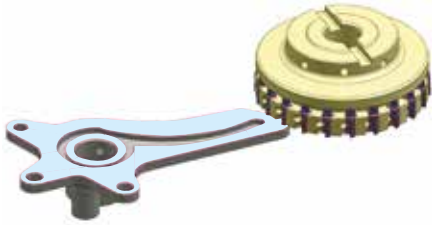
Min. - **Optimum** - Max.

ISO	Work Material	Hardness	Cutting Speed $v_c$ (m/min)	Feed Rate $f_z$ (mm/t)	Grade
<b>N</b>	Aluminum Alloy	—	400– <b>600</b> –800	0,05– <b>0,13</b> –0,20	DA1000

The above recommended cutting conditions are meant as a guide. Actual conditions will depend on the individual machine rigidity, work clamp rigidity, depth of cut and other factors.

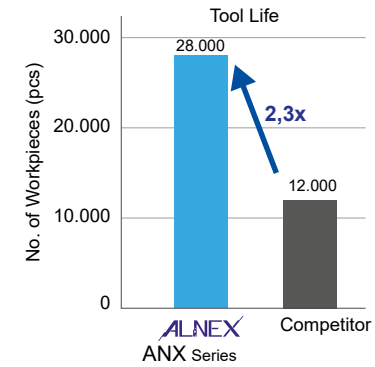
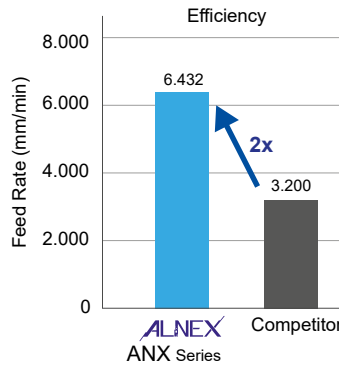
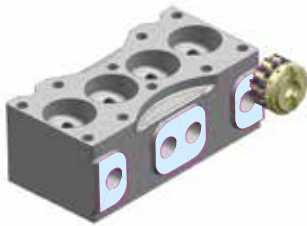
## Application Examples

Achieves 4 times the efficiency and 9 times the tool life.



Machine: Vertical Machining Centre BT30,  
 Work Material: G-AISI12Cu Automotive Component  
 Tool: ANXA 16125 R22 (Ø 125, 22 teeth, aluminum body, total weight with arbor 1,75 kg)  
 Blade: ANB 1600R-G (DA1000)  
 Cutting Conditions:  $v_c = 3.142$  m/min,  $v_f = 14.080$  mm/min,  $a_p = 0,8$  mm, wet

Achieves 2 times the efficiency and 2,3 times the tool life.



Machine: Vertical Machining Centre HSK63,  
 Work Material: G-AISI12Cu Cylinder Head  
 Tool: ANXS 16063 RS12 (Ø 63, 12 teeth, steel body)  
 Blade: ANB 1600R-G (DA1000)  
 Cutting Conditions:  $v_c = 1.583$  m/min,  $v_f = 6.432$  mm/min,  $a_p = 0,5$  mm, wet



(Germany)  
 SUMITOMO ELECTRIC Hartmetall GmbH  
 Konrad-Zuse-Straße 9, 47877 Willich

Tel. +49 2154 4992-0, Fax +49 2154 4992-161  
 Info@SumitomoTool.com  
 www.SumitomoTool.com



(UK and Ireland)  
 SUMITOMO ELECTRIC Hardmetal Ltd.  
 Summerleys Road, Princes Risborough  
 Buckinghamshire HP27 9PW, UK

Tel. +44 1844 342081, Fax: +44 1844 342415  
 InfoUK@SumitomoTool.com  
 www.SumitomoTool.com

