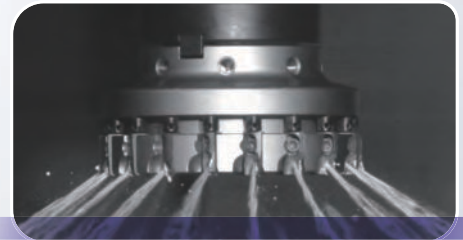


High-Efficiency Milling Cutter for Aluminum Alloy

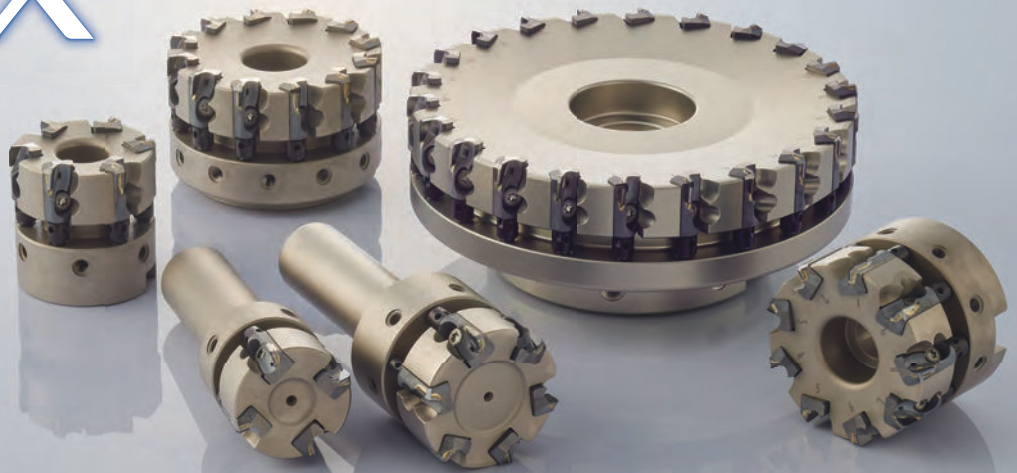
ALNEX **ANX** Series

**Ultra-High
Efficiency Machining
Excellent Chip Control**



Blade Through Coolant





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

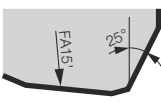
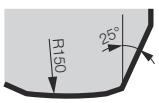
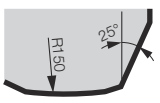
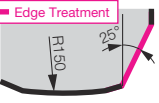
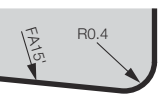
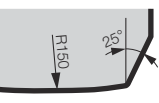
Utilising aluminum alloy to achieve a total weight of less than 1.3kg for a $\phi 125$ mm cutter with 22 teeth.

Series

Number in ● is the number of teeth  Inch Bore

Type	Cat. No.	Body Material	Diameter Range (mm)							
			ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø160
Shell type	ANXA 16000RS	Aluminum Alloy					10 14	12 18	14 22	20 28
	ANXA 16000R 	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 	Steel				8 12	10 14	12 18	14 22	
Shank type	ANXS 16000E	Steel	4	6						

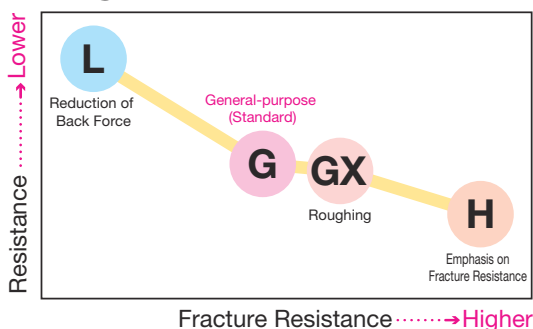
Blade Selection Guide

Work Materials	N					
Type	L	G	GX	H	—	W
Cutting Edge Shape						
Features	Low Resistance	Standard	Long Edge	High Strength		
Applications	Finishing/Light Cutting	General-purpose	Roughing		Corner Radius Milling	Wiper
Edge Length ℓ	6.0mm	6.0mm	9.0mm	6.0mm		



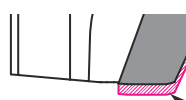
*Edge Length
GX Type only 9.0mm

Edge Selection Guide

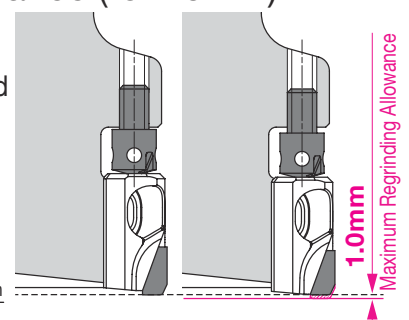


- Reduces running costs by drastically increasing insert regrinding allowance (to 1.0mm)

Assuming 0.2mm of regrinding each time, an edge can be used up to 6 times.
(*Peripheral edge cannot be reground.)



Regrinding Portion



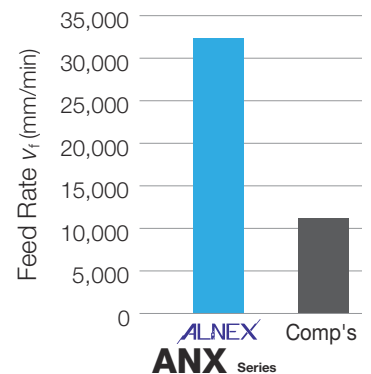
High-speed/High-efficiency Cutting

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



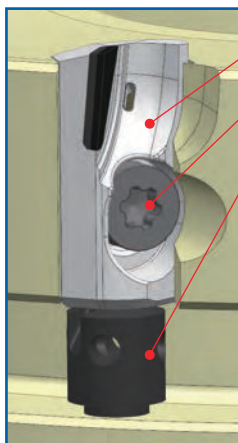
Cutter diameter $\phi 100\text{mm}$ comparison

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



Drastically Reduced Runout Adjustment Time

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

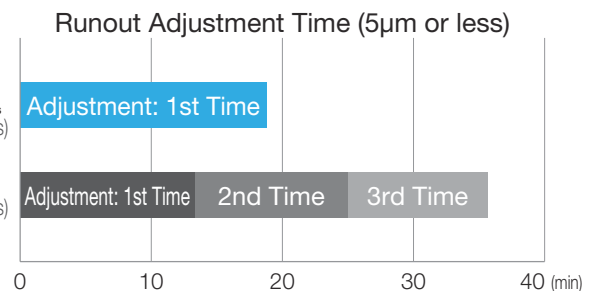


Blade
Clamp Screw
Adjustment Screw



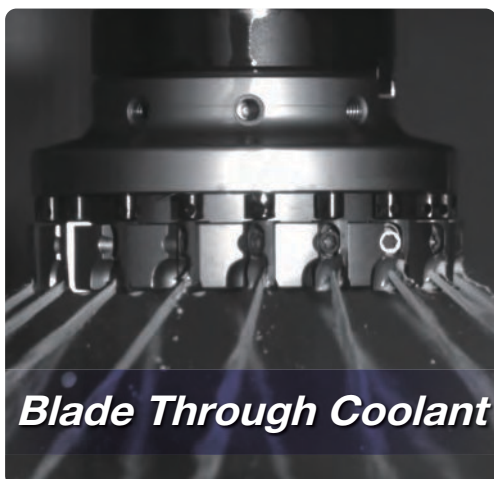
ALNEX
ANX Series
($\phi 100$, 18 Flutes)

Comp's
($\phi 100$, 12 Flutes)



1st Time Completed, Adjustment Time Reduced

Chip Control



Blade-Through Coolant Chip Breaking



ALNEX ANX Series



Competitor's

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



Fig 1

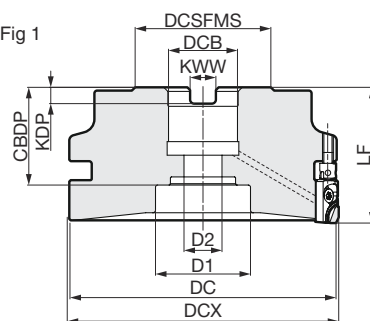
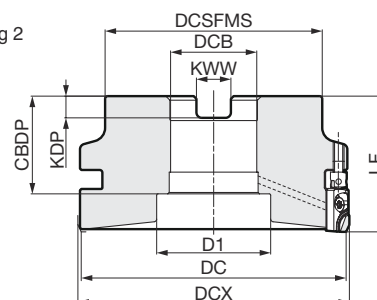


Fig 2



Body (Steel)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss Dia. DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
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
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 Code

ANX S 16 100 R S 18

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

Maximum Allowable Spindle Speed

Cat. No.	$n \max(\min^{-1})$
ANXS 16040RS06	25,000
ANXS 16050RS06	25,000
ANXS 16050RS09	25,000
ANXS 16063RS08	22,000
ANXS 16063RS12	22,000
ANXS 16080RS10	20,000
ANXS 16080RS14	20,000
ANXS 16100RS12	18,000
ANXS 16100RS18	18,000
ANXS 16125RS14	16,000
ANXS 16125RS22	16,000
ANXS 16063R08	22,000
ANXS 16063R12	22,000
ANXS 16080R10	20,000
ANXS 16080R14	20,000
ANXS 16100R12	18,000
ANXS 16100R18	18,000
ANXS 16125R14	16,000
ANXS 16125R22	16,000

Parts

(Sold Separately)

Applicable Cutter	Clamp Screw	Adjustment Screw	Wrench	Adjustment Wrench	Centre Bolt	Assembly Wrench
ANXS 16040RS06	BXA0310IP	2.0	HFJ	TRXW10IP	ANT	HFVT
ANXS 16050RS00						
ANXS 16063RS00						
ANXS 16080RS00						
ANXS 16100RS00						
ANXS 16125RS00						
ANXS 16063R00						
ANXS 16080R00						
ANXS 16100R00						
ANXS 16125R00						
					BXH0825-D13	
					BXH1030-D16	
					BXH1235-D33	
					BXH1635-D40	
					BXH2036-D50	
					BXH1235-D18	
					BXH1235-D33	
					BXH1635-D40	
					BXH2036-D50	

Recommended Tightening Torque (N·m)

● mark: Standard stocked item

Blade

Dimensions (mm)

Grade		SUMIDIA			
Process	High-speed/Light	N			
	General-purpose	N			
	Roughing	N			
Cat. No.		DA1000	Cutting Edge Length	Wiper Edge Shape	Applications
ANB 1600R-L		●	6.0	Linear	Low Resistance
ANB 1600R-G		●	6.0	Arc-Shaped	General-purpose
ANB 1600R-H		●	6.0	Arc-Shaped	Strong Edge
ANB 1600R-GX		●	9.0	Arc-Shaped	Long Edge
ANB 1604R		●	6.0	Linear	Corner Radius
ANB 1600R-W		●	—	Arc-Shaped	Wiper

Fig 1

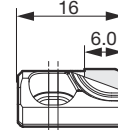


Fig 2

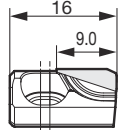


Fig 3

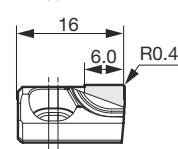
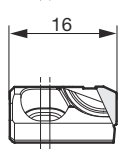


Fig 4



Wiper Blade

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

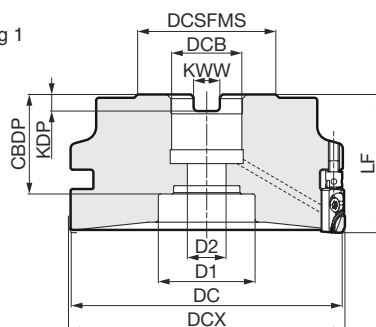
Si content of over 12.6%

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

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.



Fig 1



Body (Aluminum Alloy)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss Dia. DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)
ANXA 16080RS10	●	78	80	50	50	27	12.4	7	34	35	14	10	0.5
ANXA 16080RS14	●	78	80	50	50	27	12.4	7	34	35	14	14	0.5
ANXA 16100RS12	●	98	100	50	50	27	12.4	7	34	35	14	12	0.8
ANXA 16100RS18	●	98	100	50	50	27	12.4	7	34	35	14	18	0.9
ANXA 16125RS14	●	123	125	50	50	27	12.4	7	34	35	14	14	1.2
ANXA 16125RS22	●	123	125	50	50	27	12.4	7	34	35	14	22	1.3
ANXA 16160RS20	●	158	160	80	63	40	16.4	9	35	52	29	20	2.6
ANXA 16160RS28	●	158	160	80	63	40	16.4	9	35	52	29	28	2.6
ANXA 16080R10	●	78	80	50	50	25.4	9.5	6	34	35	14	10	0.5
ANXA 16080R14	●	78	80	50	50	25.4	9.5	6	34	35	14	14	0.5
ANXA 16100R12	●	98	100	50	50	25.4	9.5	6	34	35	14	12	0.9
ANXA 16100R18	●	98	100	50	50	25.4	9.5	6	34	35	14	18	0.9
ANXA 16125R14	●	123	125	50	50	25.4	9.5	6	34	35	14	14	1.2
ANXA 16125R22	●	123	125	50	50	25.4	9.5	6	34	35	14	22	1.3
ANXA 16160R20	●	158	160	80	63	38.1	15.9	10	42.5	55	30	20	2.4
ANXA 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 Code

ANX A 16 100 R S 18

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

Parts

(Sold Separately)

Applicable Cutter	Clamp Screw	Adjustment Screw	Wrench	Adjustment Wrench	Centre Bolt	Assembly Wrench
ANXA 16080RS00	BXA0310IP	2.0	HFJ	TRXW10IP	ANT	HFVT
ANXA 16100RS00						
ANXA 16125RS00						
ANXA 16160RS00						
ANXA 16080R00						
ANXA 16100R00						
ANXA 16125R00						
ANXA 16160R00						

Recommended Tightening Torque (N·m)

Maximum Allowable Spindle Speed

Cat. No.	n max(min ⁻¹)
ANXA 16080RS10	20,000
ANXA 16080RS14	20,000
ANXA 16100RS12	18,000
ANXA 16100RS18	18,000
ANXA 16125RS14	16,000
ANXA 16125RS22	16,000
ANXA 16160RS20	14,000
ANXA 16160RS28	14,000
ANXA 16080R10	20,000
ANXA 16080R14	20,000
ANXA 16100R12	18,000
ANXA 16100R18	18,000
ANXA 16125R14	16,000
ANXA 16125R22	16,000
ANXA 16160R20	14,000
ANXA 16160R28	14,000

Blade

Dimensions (mm)

Grade		SUMIDIA				
Process	High-speed/Light	N				
	General-purpose	N				
	Roughing	N				
Cat. No.		DA1000	Cutting Edge Length	Wiper Edge Shape	Applications	Fig
ANB 1600R-L		●	6.0	Linear	Low Resistance	1
ANB 1600R-G		●	6.0	Arc-Shaped	General-purpose	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	Linear	Corner Radius	3
ANB 1600R-W		●	—	Arc-Shaped	Wiper	4

Fig 1

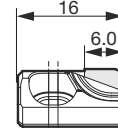


Fig 2

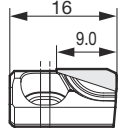


Fig 3

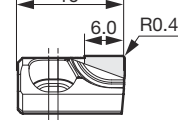
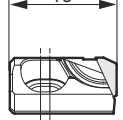


Fig 4



Wiper Blade

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

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.

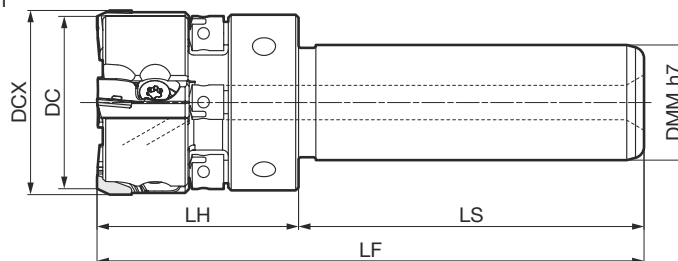
Rake Angle	Radial	-2 to 0°
	Axial	+5°

3mm	90°
-----	-----

N	N
Non-Ferrous Metal	Aluminum Alloy



Fig 1



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)
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 Code

ANX S 16 032 E 04

Cutter Series	Steel Body	Blade Size	Cutter Dia.	With Shank	Number of Teeth
---------------	------------	------------	-------------	------------	-----------------

Maximum Allowable Spindle Speed

Cat. No.	$n \max(\min^{-1})$
ANXS 16032E04	10,000
ANXS 16040E06	10,000

Parts

(Sold Separately)

Applicable Cutter	Clamp Screw	Adjustment Screw	Wrench	Adjustment Wrench	Assembly Wrench
ANXS 16032E04					
ANXS 16040E06	BXA0310IP 2.0	HFJ	TRXW10IP	ANT	HFVT

Recommended Tightening Torque (N·m)

Blade

Dimensions (mm)

Grade		SUMIDIA			
Process	High-speed/Light	N			
	General-purpose	N			
	Roughing	N			
Cat. No.		DA1000	Cutting Edge Length	Wiper Edge Shape	Applications
ANB 1600R-L		●	6.0	Linear	Low Resistance
ANB 1600R-G		●	6.0	Arc-Shaped	General-purpose
ANB 1600R-H		●	6.0	Arc-Shaped	Strong Edge
ANB 1600R-GX		●	9.0	Arc-Shaped	Long Edge
ANB 1604R		●	6.0	Linear	Corner Radius
ANB 1600R-W		●	—	Arc-Shaped	Wiper

Fig 1

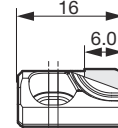


Fig 2

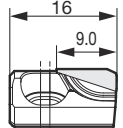


Fig 3

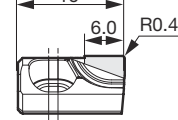
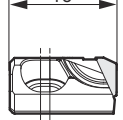


Fig 4



Wiper Blade

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

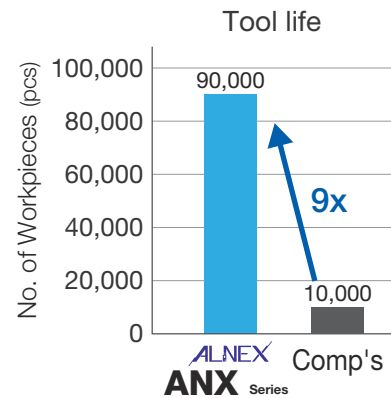
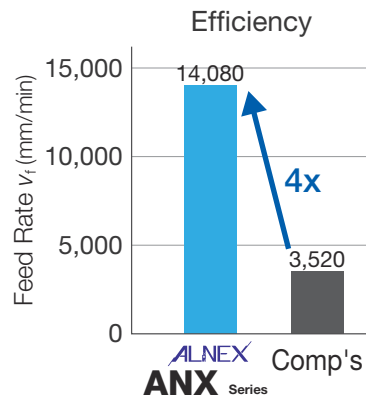
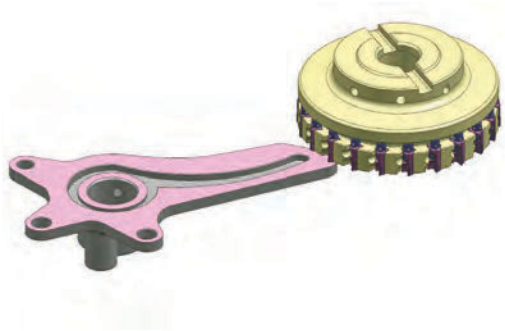
Si content of over 12.6%

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

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.

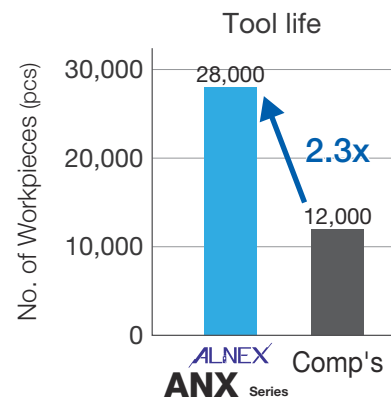
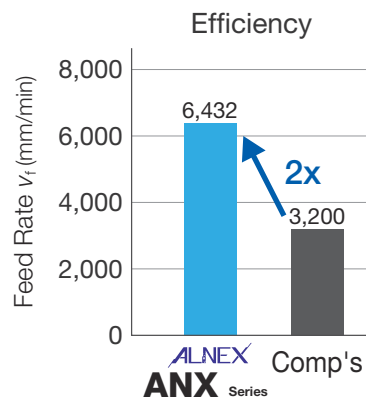
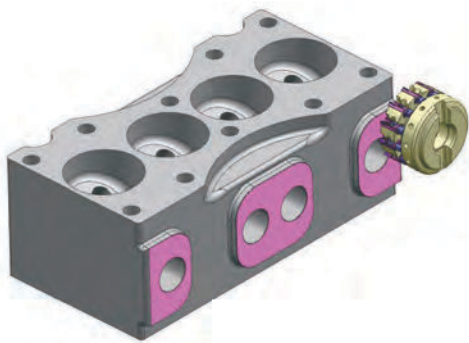
Application Examples

Achieves 4 times the efficiency and 9 times the tool life



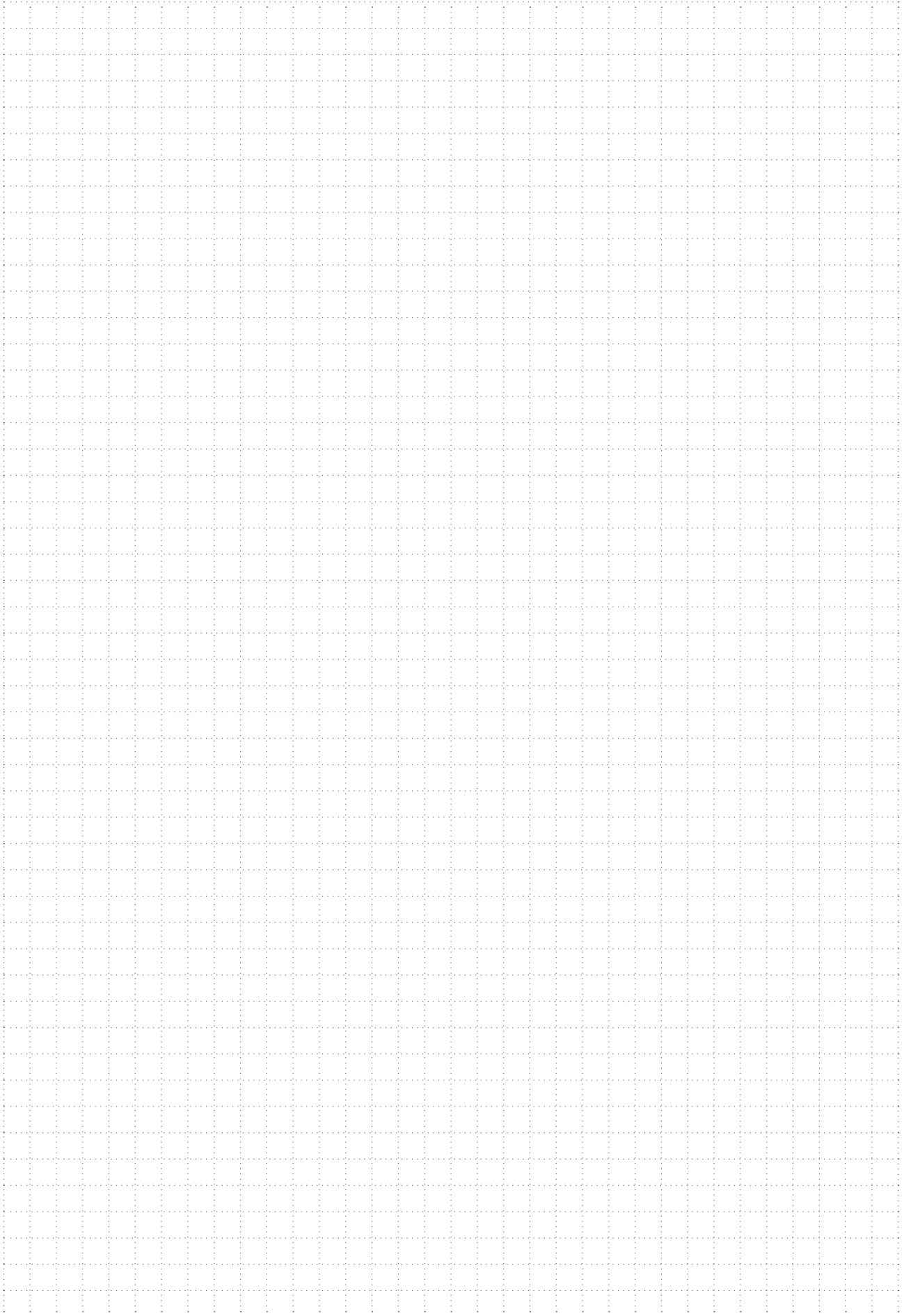
Machine: Vertical Machining Centre BT30 Work material: ADC12 Automotive Component Tool: ANXA 16125R22 ($\phi 125$, 22-flute, aluminum alloy body *Total weight with arbor 1.75kg)
Blade: ANB 1600R-G (DA1000) Cutting conditions: $v_c = 3,142\text{m/min}$, $v_f = 14,080\text{mm/min}$, $a_p = 0.8\text{mm}$ Wet

Achieves 2 times the efficiency and 2.3 times the tool life



Machine: Vertical Machining Centre HSK63 Work material: ADC12 Cylinder Head Tool: ANXS 16063RS12 ($\phi 63$, 12-flute, steel body)
Blade: ANB 1600R-G (DA1000) Cutting conditions: $v_c = 1,583\text{m/min}$, $v_f = 6,432\text{mm/min}$, $a_p = 0.5\text{mm}$ Wet

MEMO





- 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.

< SAFETY NOTES >

- 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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