B116E

AXD

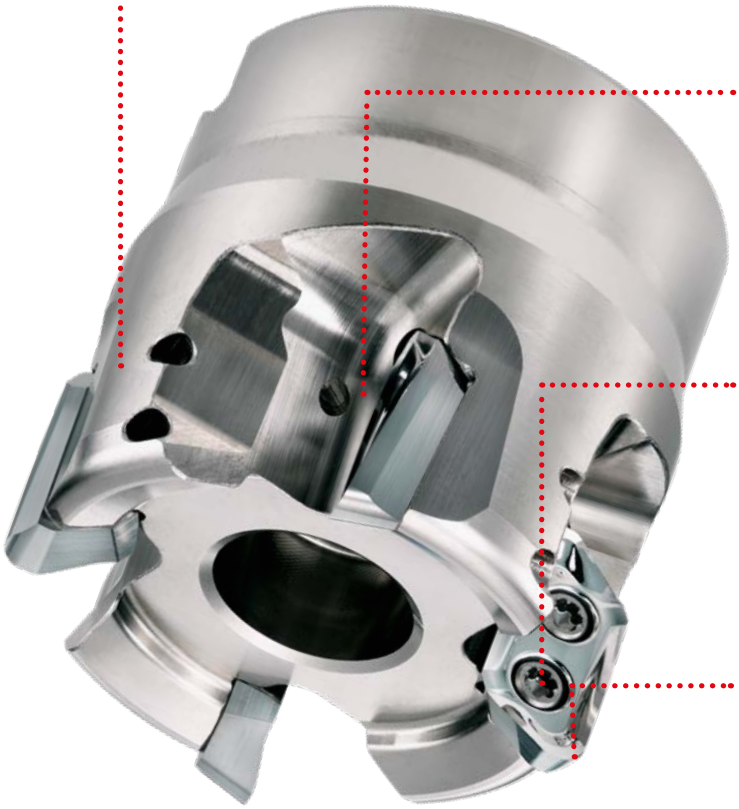
MULTI FUNCTIONAL MILLING CUTTER FOR HIGH SPEED MACHINING OF ALUMINIUM AND TITANIUM ALLOYS

DIAEDGE

MITSUBISHI MATERIALS

AXD4000A

FOR ULTRA-HIGH SPEED, SUPER EFFICIENT MACHINING OF ALUMINIUM ALLOYS



HIGH RIGIDITY BODY
The modified insert seat in combination with the rigid body design can withstand the high stresses and centrifugal forces that are exerted during high speed machining.

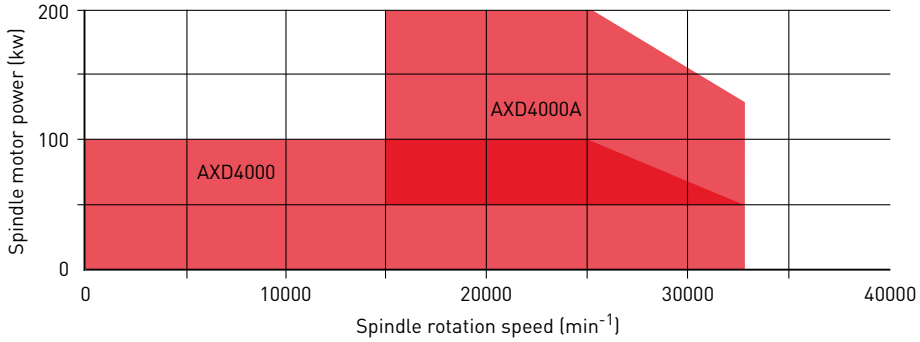
OPTIMUM CHIP POCKET DESIGN
Chip pocket specifically designed for optimal chip disposal during high-speed machining operations.

RELIABILITY
Improved anti-fly screws ensure 100% contact with the insert and can be tightened with double the torque specifications compared to the standard AXD4000. The extra torque rating ensures security of the insert clamping during high speed machining.

STABILITY
The proven and trusted AXD4000 inserts have a sharp cutting edge with a tough carbide substrate for reliability. These features also enable lower cutting forces together with substantial resistance to fracturing.

HOW TO CHOOSE AXD4000A OR AXD4000

AXD4000A is specifically engineered for continuous high-speed and ultra-high-speed machining of aluminium alloys and are best utilised on more powerful machines with high powered motors of more than an 80 kW.



NEW

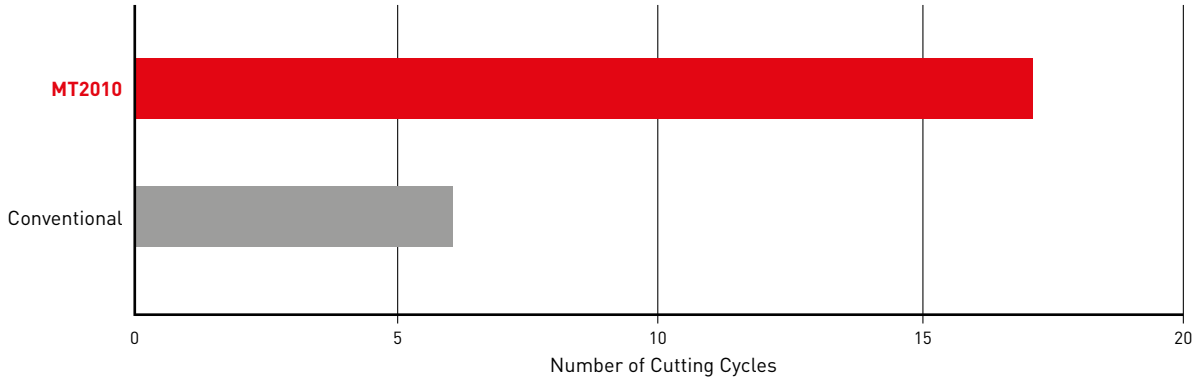
MT2010

CEMENTED CARBIDE GRADE FOR HIGH-SPEED MACHINING OF EXTRA SUPER DURALUMIN, ALUMINIUM AND LITHIUM ALLOYS

A high grade cemented carbide suitable for ultra-high speed machining at cutting speeds of 5000 m/min, combined with excellent wear resistance and toughness.

CUTTING PERFORMANCE

AL-LI ALLOY: COMPARISON OF WEAR RESISTANCE



Material	Al-Li Alloys
Tool	AXD4000A-050A04RD
Grade	XDGX175004PDFR-GM-MT2010
Vc (m/min)	5181
fz (mm/t.)	0.15
ap (mm)	1.5
ae (mm)	39
Cutting mode	Wet cutting Single insert

After 17 machining cycles

MT2010
Can continue machining

After 6 machining cycles

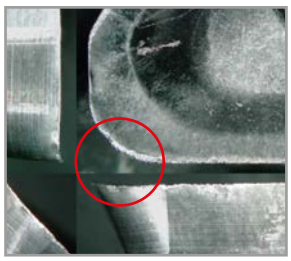
Conventional
Excessive wear created fracturing

JIS A7050: COMPARISON OF FRACTURE RESISTANCE

After 90 seconds machining

Material	JIS A7050
Tool	AXD4000A-050A04RD
Grade	XDGX175004PDFR-GM-MT2010
Vc (m/min)	5181
fz (mm/t.)	0.20
ap (mm)	5.0
ae (mm)	50
Cutting mode	Wet cutting

MT2010
Can continue machining



Conventional
Chipping occurred

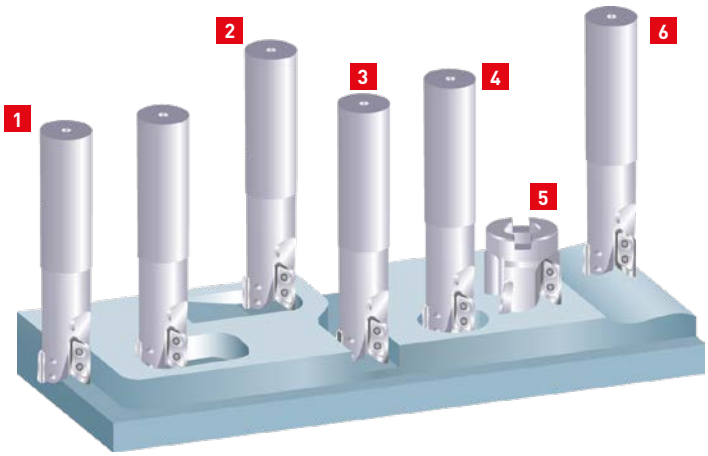
AXD

FOR MACHINING OF ALUMINIUM AND TITANIUM ALLOYS

AXD7000 for excellent ramping and overall performance.

MULTI FUNCTIONAL MILLING

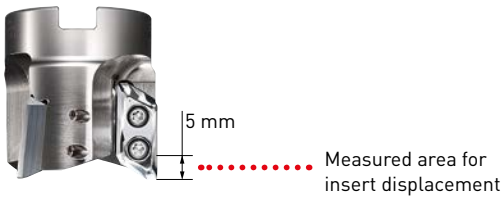
1. Shoulder milling
2. Ramping
3. Slotting
4. Helical milling
5. Face milling
6. 3D copying



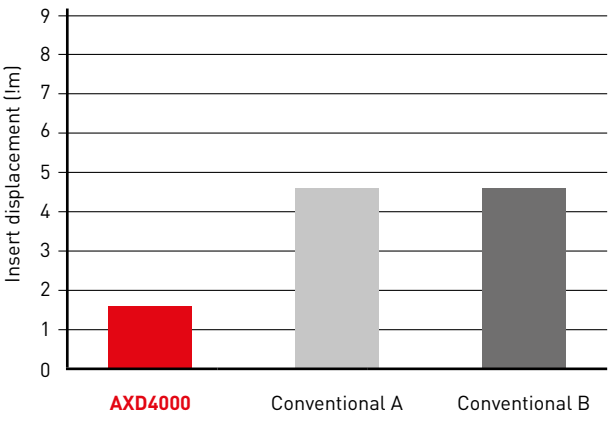
EXTREMELY STABLE UNDER HIGH CENTRIFUGAL FORCES

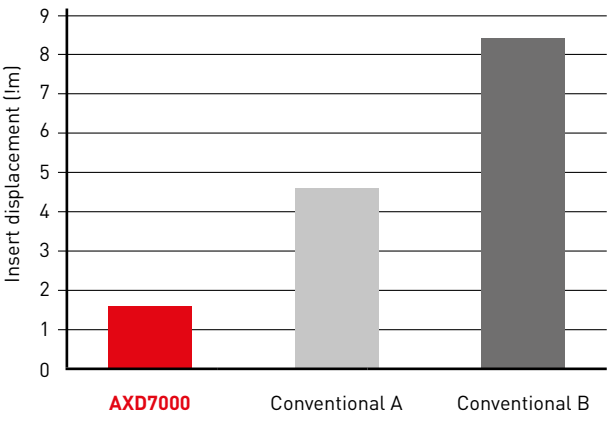
At high spindle speeds the double clamping screws prevent insert displacement caused by centrifugal force. The double clamping offers both reliability and safety.

Tools	AXD4000-050A04RA
	AXD7000-050A03RA
Insert	XDGX175008PDFR-GL
	XDGX227008PDFR-GL
Revolution	20000 min^{-1}



INSERT DISPLACEMENT DUE TO CENTRIFUGAL FORCE





AXD

HIGH SPINDLE SPEEDS

Safe and reliable high spindle speed milling can be achieved due to the use of the double screw clamping and Mitsubishi Material's proprietary "Anti Fly Insert" mechanism (Double AFI).

Double AFI mechanism

BALANCE QUALITY

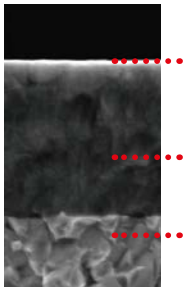
The holder is balanced to G6.3 or better at 10000 min^{-1}, according to the ISO1940 standard.
(The holder is balanced without the inserts and the screws in place)

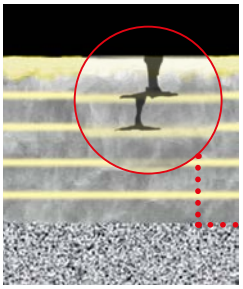
GRADE FEATURES

MP9120

ACCUMULATING AL-TI-CR-N COATING

- PVD coatings have properties such as toughness, low coefficient of friction and excellent welding, wear and heat resistance. This results in tough, precision grades such as MP9120.





(Graphical representation)

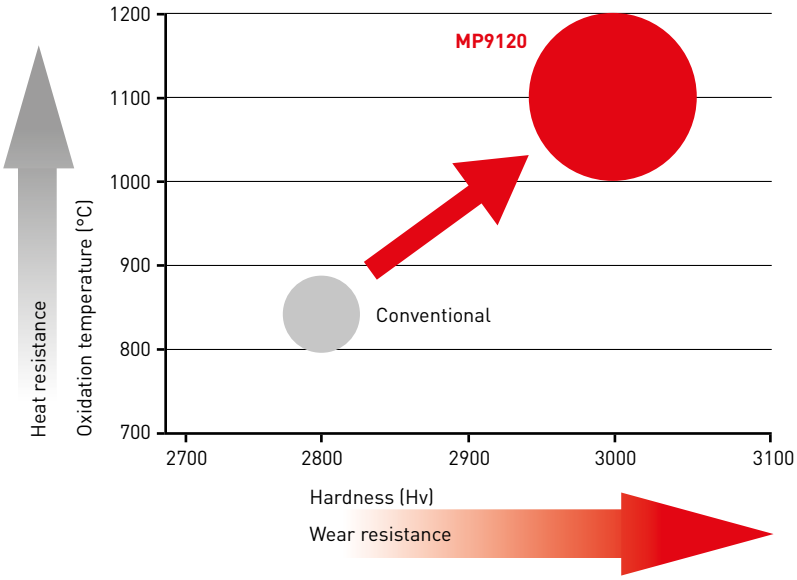
Base layer high Al-(Al, Ti)N

The new technology Al-(Al, Ti)N coating provides stabilisation of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.

Multi-layering of the coating prevents any cracks penetrating through to the substrate.

TOUGH-Σ

A fusion of the separate coating technologies; PVD and multi-layering, realises extra toughness.



S	Titanium alloy, Heat resistant alloy	MP9120	0.3 *
		Conventional	0.7 *

*Coefficient of friction/Ti-6Al-4V / Measured at 600 °C

AXD4000 / 7000

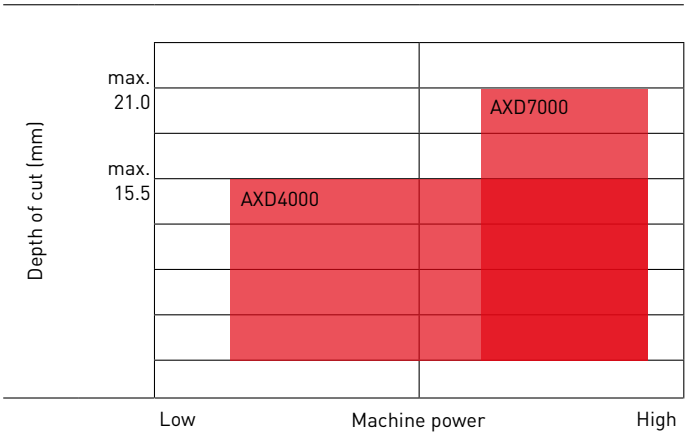
GM / AXD4000

Improved fracture resistance compared to GL breaker

GL / AXD4000 / AXD7000

Low cutting resistance breaker emphasises the excellent sharpness

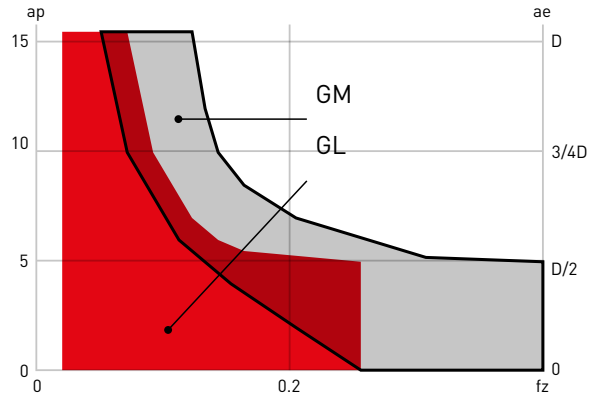
AXD4000 AND AXD7000 RECOMMENDATION



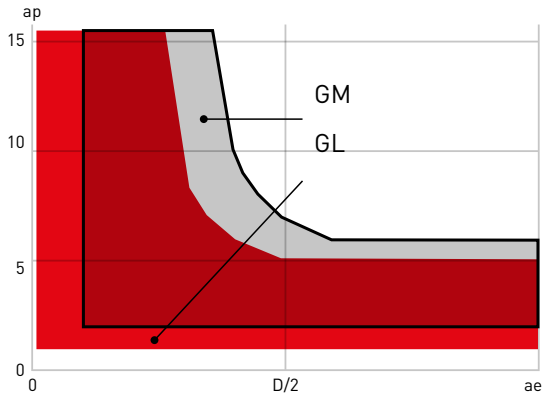
AXD4000 SELECTION OF INSERT

It is necessary to choose the best insert according to the cutting conditions.
1st recommendation for stable cutting conditions is the GL breaker.

Selection of insert according to the feed per tooth
and the required cutting depth



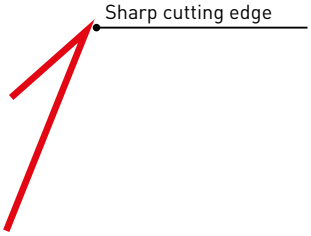
Selection of insert according to the width of cut
and the required cutting depth



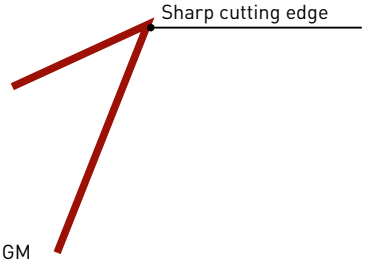
1st recommendation for machining aluminium alloys is the GL breaker.
Under high load conditions such as deep cutting or high feed cutting, it is advisable to use the GM breaker.

SELECTION OF INSERT ACCORDING TO CUTTING EDGE

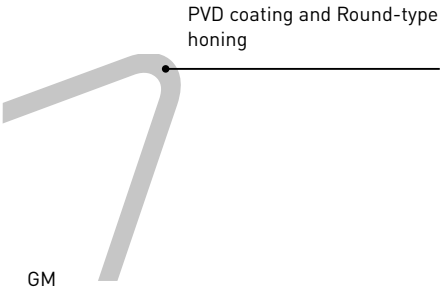
Insert type



GL
TF15/LC15TF
Low cutting resistance

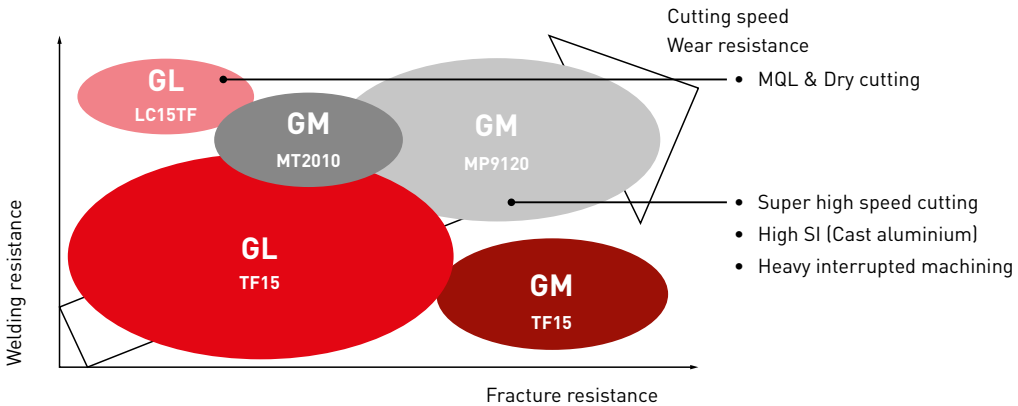


GM
TF15
Tougher cutting edge



GM
MP9120
Tougher cutting edge & wear resistance
Machining of difficult-to-cut materials & aluminium

SELECTION OF INSERT ACCORDING TO WEAR RESISTANCE



- MQL & Dry cutting
- Super high speed cutting
- High SI (Cast aluminium)
- Heavy interrupted machining

AXD4000

ARBOR TYPE

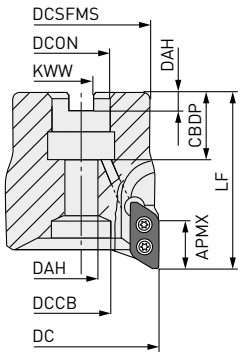
N S

C H :0°
A.R :+14°–15°
R.R :+21°–+26°

T :+21°–+26°
I :+14°–+15°

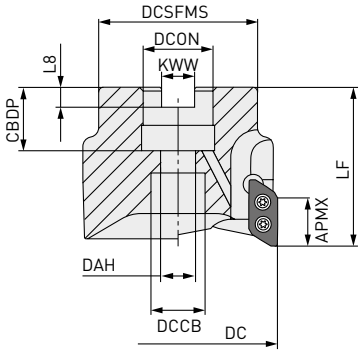
1

Ø40



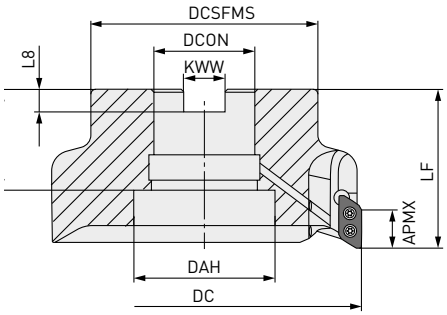
2

Ø50
Ø63
Ø80
Ø100

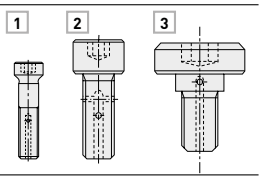


3

Ø125



Right hand tool holder only.

DC	Set bolt		Geometry
Ø40	HFF08043H	1	
Ø50, Ø63	HSC10030H		
Ø80	12035H	2	
Ø100	16040H		
Ø125	MBA20040H	3	

Order number	Stock	APMX	DC	DCON	LF	RPMX	WT	ZEFP	Type	RE
A TYPE										
AXD4000-040A02RA	★	15.5	40	16	50	41000	0.3	2	1	
AXD4000-040A03RA	●	15.5	40	16	50	41000	0.3	3	1	
AXD4000-050A02RA	★	15.5	50	22	50	35000	0.4	2	2	
AXD4000-050A04RA	●	15.5	50	22	50	35000	0.4	4	2	0.4 – 3.2
AXD4000A-050A04RD	●	15.5	50	22	50	34000	0.4	4	2	
AXD4000-063A05RA	●	15.5	63	22	50	30000	0.6	5	2	
AXD4000-080A05RA	●	15.5	80	27	50	27000	1.0	5	2	
AXD4000-100A06RA	●	15.5	100	32	63	23000	2.0	6	2	
AXD4000-125B07RA	●	15.5	125	40	63	20000	2.8	7	3	

● : Inventory maintained. ★ : Inventory maintained in Japan.

AXD4000

Order number	Stock	APMX	DC	DCON	LF	RPMX	WT	ZEFP	Type	RE
B TYPE										
AXD4000-40A02RB	★	14.8	40	16	50	41000	0.3	2	1	
AXD4000-40A03RB	●	14.8	40	16	50	41000	0.3	3	1	
AXD4000-50A02RB	★	14.8	50	22	50	35000	0.4	2	2	
AXD4000-50A04RB	●	14.8	50	22	50	35000	0.4	4	2	4.0 – 5.0
AXD4000A-050A04RE	●	14.8	50	22	50	34000	0.4	4	2	
AXD4000-63A05RB	●	14.8	63	22	50	30000	0.6	5	2	
AXD4000-80A05RB	●	14.8	80	27	50	27000	1.0	5	2	
AXD4000-100A06RB	●	14.8	100	32	63	23000	2.0	6	2	
AXD4000-125B07RB	●	14.8	125	40	63	20000	2.8	7	3	

1. The maximum allowable spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
3. Note for inserts with a corner radius of 1.6 and above, as the corner radius increases the LF dimension decreases.
4. Clamp screws are important parts from the viewpoint of safety. Use clamp screws with the correct part number. If the spindle speed is equal to or higher than the values shown in Table 2, it is recommended to replace the clamp screws with new ones when changing inserts.

14 Vc

MOUNTING DIMENSIONS

Order number	CBDP	DAH	DCSFMS	KWW	L8	DCCB
A TYPE						
AXD4000-040A02RA	18	8.5	34	8.4	5.6	12
AXD4000-040A03RA	18	8.5	34	8.4	5.6	12
AXD4000-050A02RA	20	11	45	10.4	6.3	17
AXD4000-050A04RA	20	11	45	10.4	6.3	17
AXD4000A-050A04RD	20	11	45	10.4	6.6	17
AXD4000-063A05RA	20	11	50	10.4	6.3	17
AXD4000-080A05RA	23	13	60	12.4	7	20
AXD4000-100A06RA	26	17	78	14.4	8	26
AXD4000-125B07RA	40	56	90	16.4	9	—
B TYPE						
AXD40000-40A02RB	18	8.5	34	8.4	5.6	12
AXD40000-40A03RB	18	8.5	34	8.4	5.6	12
AXD40000-50A02RB	20	11	45	10.4	6.3	17
AXD40000-50A04RB	20	11	45	10.4	6.3	17
AXD4000A-050A04RE	20	11	45	10.4	6.3	17
AXD40000-63A05RB	20	11	50	10.4	6.3	17
AXD40000-80A05RB	23	13	60	12.4	7	20
AXD4000-100A06RB	26	17	78	14.4	8	26
AXD4000-125B07RB	40	56	90	16.4	9	—

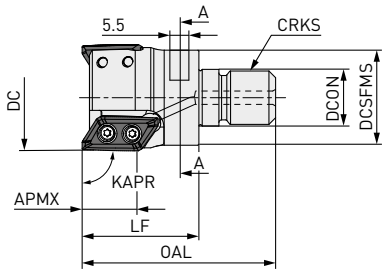
NEW

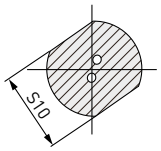
AXD4000

SCREW-IN TYPE

N S

1





A-A Section

Right hand tool holder only.

Order number	Stock	APMX	DC	DCON	LF	OAL	RPMX	WT	ZEFP	Type	RE
A TYPE											
AXD4000R252AM1228A	●	15.0	25	12.5	28	50	49000	0.06	2	1	
AXD4000R282AM1228A	●	15.0	28	12.5	28	50	48500	0.07	2	1	
AXD4000R322AM1635A	●	15.0	32	17.0	35	58	48000	0.15	2	1	0.4–3.2
AXD4000R353AM1635A	●	15.0	35	17.0	35	58	41000	0.15	3	1	
AXD4000R403AM1635A	●	15.0	40	17.0	35	58	38000	0.18	3	1	
B TYPE											
AXD4000R252AM1228B	●	14.8	25	12.5	28	50	49000	0.06	2	1	
AXD4000R282AM1228B	●	14.8	28	12.5	28	50	48500	0.07	2	1	
AXD4000R322AM1635B	●	14.8	32	17.0	35	58	48000	0.15	2	1	4.0–5.0
AXD4000R353AM1635B	●	14.8	35	17.0	35	58	41000	0.15	3	1	
AXD4000R403AM1635B	●	14.8	40	17.0	35	58	38000	0.18	3	1	

14 Vc

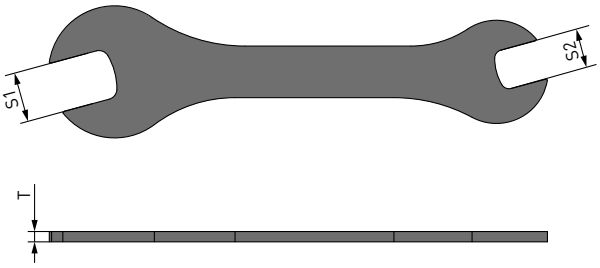
MOUNTING DIMENSIONS

Order number	CRKS	S10	DCON	DCSFMS
A TYPE				
AXD4000R252AM1228A	M12	19	12.5	23.5
AXD4000R282AM1228A	M12	19	12.5	23.5
AXD4000R322AM1635A	M16	24	17.0	28.5
AXD4000R353AM1635A	M16	24	17.0	28.5
AXD4000R403AM1635A	M16	24	17.0	28.5
B TYPE				
AXD4000R252AM1228B	M12	19	12.5	23.5
AXD4000R282AM1228B	M12	19	12.5	23.5
AXD4000R322AM1635B	M16	24	17.0	28.5
AXD4000R353AM1635B	M16	24	17.0	28.5
AXD4000R403AM1635B	M16	24	17.0	28.5

AXD4000

PARTS SOLD SEPARATELY

ARBOR MOUNTING SPANNER



Order number	S1*	S2*	T
AKY1924050A	24	19	5

* Clamp Torque (N • m) : 19 = 80, 24 = 90

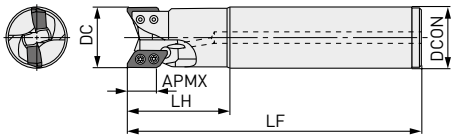
1. Due to the structure of the head, it may not be possible to use a commercially available spanner to attach the arbor. It is recommended to use the dedicated spanner.

AXD4000

SHANK TYPE

N S

1



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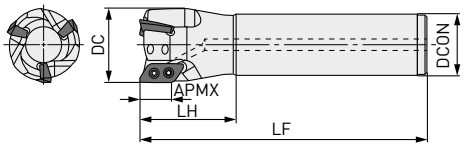


Right hand tool holder only.

Order number	Stock	APMX	DC	DCON	LF	LH	RPMX	ZEFP	Type	RE
A TYPE										
AXD4000R201SA20SA	●	15.5	20	20	110	35	15000	1	1	
AXD4000R252SA25SA	●	15.5	25	25	125	50	49000	2	1	
AXD4000R252SA25LA	●	15.5	25	25	170	80	49000	2	1	
AXD4000R282SA25SA	●	15.5	28	25	125	50	48500	2	2	
AXD4000R282SA25ELA	●	15.5	28	25	220	50	48500	2	2	
AXD4000R322SA32SA	●	15.5	32	32	150	50	48000	2	1	0.4 – 3.2
AXD4000R322SA32LA	●	15.5	32	32	200	80	48000	2	1	
AXD4000R352SA32SA	●	15.5	35	32	150	50	45000	2	2	
AXD4000R352SA32ELA	●	15.5	35	32	250	50	45000	2	2	
AXD4000R403SA32SA	●	15.5	40	32	150	50	41000	3	2	
AXD4000R403SA42SA	●	15.5	40	42	170	80	41000	3	1	
AXD4000R403SA32ELA	●	15.5	40	32	250	50	41000	3	2	
B TYPE										
AXD4000R201SA20SB	●	14.8	20	20	110	35	15000	1	1	
AXD4000R252SA25SB	●	14.8	25	25	125	50	49000	2	1	
AXD4000R252SA25LB	●	14.8	25	25	170	80	49000	2	1	
AXD4000R282SA25SB	●	14.8	28	25	125	50	48500	2	2	
AXD4000R282SA25ELB	●	14.8	28	25	220	50	48500	2	2	
AXD4000R322SA32SB	●	14.8	32	32	150	50	48000	2	1	4.0 – 5.0
AXD4000R322SA32LB	●	14.8	32	32	200	80	48000	2	1	
AXD4000R352SA32SB	●	14.8	35	32	150	50	45000	2	2	
AXD4000R352SA32ELB	●	14.8	35	32	250	50	45000	2	2	
AXD4000R403SA32SB	●	14.8	40	32	150	50	41000	3	2	
AXD4000R403SA42SB	●	14.8	40	42	170	80	41000	3	1	
AXD4000R403SA32ELB	●	14.8	40	32	250	50	41000	3	2	

1. The maximum allowable revolutions are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
3. Note for inserts with a corner radius of 1.6 and above, as the corner radius increases the LF and LH dimensions decreases.

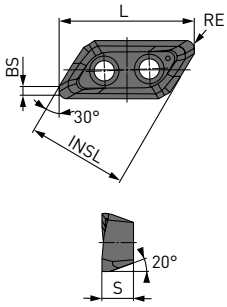
14 Vc

● : Inventory maintained. ★ : Inventory maintained in Japan.

AXD4000

INSERTS

N	Aluminium alloy	✣	◔	◔	**Cutting conditions:**
S	Titanium alloy	✣ ●			●: Stable cutting ◔: General cutting ✣: Unstable cutting
					Honing: F: Sharp E: Round

Order number	Class	Honing	Coated		Carbide		L	INSL	S	BS	RE	Shape	Geometry
			LC15TF	MP9120	MT2010	TF15							
XDGX175004PDFR-GL	G	F	★			●	23.0	17.5	5	1.7	0.4		
XDGX175008PDFR-GL	G	F	★			●	23.0	17.5	5	1.3	0.8		
XDGX175012PDFR-GL	G	F	★			★	23.0	17.5	5	0.9	1.2		
XDGX175016PDFR-GL	G	F	★			●	22.0	17.5	5	1.4	1.6		
XDGX175020PDFR-GL	G	F	★			●	22.0	17.5	5	1.0	2.0		
XDGX175024PDFR-GL	G	F	★			★	22.0	17.5	5	0.6	2.4		
XDGX175030PDFR-GL	G	F	★			●	21.1	17.5	5	0.8	3.0		
XDGX175032PDFR-GL	G	F	★			★	21.1	17.5	5	0.6	3.2		
XDGX175040PDFR-GL	G	F	★			●	20.0	17.5	5	0.8	4.0		
XDGX175050PDFR-GL	G	F	★			●	19.4	17.5	5	0.4	5.0		
XDGX175004PDER-GM	G	E		●			23.0	17.5	5	1.7	0.4		
XDGX175008PDER-GM	G	E		●			23.0	17.5	5	1.3	0.8		
XDGX175012PDER-GM	G	E		●			23.0	17.5	5	0.9	1.2		
XDGX175016PDER-GM	G	E		●			22.0	17.5	5	1.4	1.6		
XDGX175020PDER-GM	G	E		●			22.0	17.5	5	1.0	2.0		
XDGX175024PDER-GM	G	E		●			22.0	17.5	5	0.6	2.4		
XDGX175030PDER-GM	G	E		●			21.1	17.5	5	0.8	3.0		
XDGX175032PDER-GM	G	E		●			21.1	17.5	5	0.6	3.2		
XDGX175040PDER-GM	G	E		●			20.0	17.5	5	0.5	4.0		
XDGX175050PDER-GM	G	E		●			19.4	17.5	5	0.4	5.0		
XDGX175004PDFR-GM	G	F			●	●	23.0	17.5	5	1.7	0.4		
XDGX175008PDFR-GM	G	F			●	●	23.0	17.5	5	1.3	0.8		
XDGX175012PDFR-GM	G	F			★	●	23.0	17.5	5	0.9	1.2		
XDGX175016PDFR-GM	G	F			●	●	22.0	17.5	5	1.4	1.6		
XDGX175020PDFR-GM	G	F			●	●	22.0	17.5	5	1.0	2.0		
XDGX175024PDFR-GM	G	F			★	●	22.0	17.5	5	0.6	2.4		
XDGX175030PDFR-GM	G	F			●	●	21.1	17.5	5	0.8	3.0		
XDGX175032PDFR-GM	G	F			★	●	21.1	17.5	5	0.6	3.2		
XDGX175040PDFR-GM	G	F			●	●	20.0	17.5	5	0.5	4.0		
XDGX175050PDFR-GM	G	F			●	●	19.4	17.5	5	0.4	5.0		

SPARE PARTS

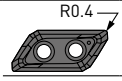
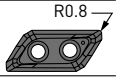
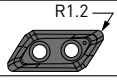
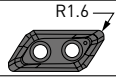
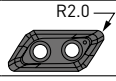
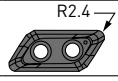
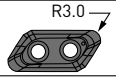
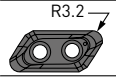
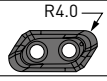
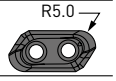
ARBOR TYPE / SCREW-IN TYPE / SHANK TYPE

Tool holder type	Clamp screw *	Wrench	Anti-seize lubricant	Insert
AXD4000R201SA20SA	TS3SBS	TKY08D	MK1KS	XDGX1750○○ PD○R-○○
AXD4000R201SA20SB				
A TYPE	TS3SB			
B TYPE				
AXD4000A	TPS3SB			

* Clamp Torque (N • m) : TS3SB(S)=1.5, TPS3SB = 3.0

AXD4000

HOLDER AND INSERT CORNER RADIUS COMBINATION

	A Type holder								B Type holder	
	AXD4000–○○○○○○○○A AXD4000R○○○○○○○○○A								AXD4000–○○○○○○○○B AXD4000R○○○○○○○○○B	
Applicable insert corner R (RE)	R0.4	R0.8	R1.2	R1.6	R2.0	R2.4	R3.0	R3.2	R4.0	R5.0
										
	XDGX 175004PD○R-○○	XDGX 175008PD○R-○○	XDGX 175012PD○R-○○	XDGX 175016PD○R-○○	XDGX 175020PD○R-○○	XDGX 175024PD○R-○○	XDGX 175030PD○R-○○	XDGX 175032PD○R-○○	XDGX 175040PD○R-○○	XDGX 175050PD○R-○○

1. Note there is no compatibility between an insert for an A type holder and for a B type holder.

RECOMMENDED CUTTING CONDITIONS

	Material	Properties	Grade		Vc	ae	ap	fz DC Ø20	fz DC Ø25–Ø28	fz DC Ø32–Ø35	fz DC Ø40	fz DC Ø50–Ø125
N	Aluminium alloy (A6061, A7075)	Si<5%	TF15 LC15TF	GL	1000 (200–3000)	<0.25 DC	<5	<0.05	<0.25	<0.25	<0.25	<0.25
							<10	<0.05	<0.2	<0.2	<0.2	<0.2
							<14.5	<0.05	<0.15	<0.15	<0.15	<0.15
						<0.5 DC	<5	<0.05	<0.25	<0.25	<0.25	<0.25
							<10	—	<0.2	<0.2	<0.2	<0.2
							<14.5	—	<0.15	<0.15	<0.15	<0.15
						<0.75 DC	<5	<0.05	<0.25	<0.25	<0.25	<0.25
							<10	—	<0.2	<0.2	<0.2	<0.2
							<14.5	—	<0.15	<0.15	<0.15	<0.15
						DC	<5	<0.05	<0.25	<0.25	<0.25	<0.25
							<10	—	—	—	—	—
							<14.5	—	—	—	—	—
	Aluminium alloy (A6061, A7075)	Si<5%	TF15 MP9120	GM	1000 (200–3000)	<0.25 DC	<5	<0.05	<0.35	<0.35	<0.4	<0.4
							<10	<0.05	<0.3	<0.3	<0.35	<0.35
							<14.5	<0.05	<0.25	<0.25	<0.3	<0.3
						<0.5 DC	<5	<0.05	<0.35	<0.35	<0.35	<0.4
							<10	—	<0.3	<0.3	<0.3	<0.35
							<14.5	—	<0.2	<0.25	<0.25	<0.3
						<0.75 DC	<5	<0.05	<0.3	<0.3	<0.3	<0.35
							<10	—	<0.25	<0.25	<0.25	<0.3
							<14.5	—	<0.2	<0.2	<0.2	<0.25
						DC	<5	<0.05	<0.25	<0.25	<0.3	<0.35
							<10	—	—	—	—	—
							<14.5	—	—	—	—	—
	Aluminium alloy (AC4B) Aluminium alloy (ADC12, A390)	5%≤Si≤10% Si>10%	MP9120	GM	200 (200–3000)	<0.25 DC	<5	<0.05	<0.35	<0.35	<0.4	<0.4
							<10	<0.05	<0.3	<0.3	<0.35	<0.35
							<14.5	<0.05	<0.25	<0.25	<0.3	<0.3
						<0.5 DC	<5	<0.05	<0.35	<0.35	<0.35	<0.4
							<10	—	<0.3	<0.3	<0.3	<0.35
							<14.5	—	<0.2	<0.25	<0.25	<0.3
						<0.75 DC	<5	<0.05	<0.3	<0.3	<0.3	<0.35
							<10	—	<0.25	<0.25	<0.25	<0.3
							<14.5	—	<0.2	<0.2	<0.2	<0.25
						DC	<5	<0.05	<0.25	<0.25	<0.3	<0.35
							<10	—	—	—	—	—
							<14.5	—	—	—	—	—

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	Material	Properties	Grade		Vc	ae	ap	fz DC Ø20	fz DC Ø25–Ø28	fz DC Ø32–Ø35	fz DC Ø40	fz DC Ø50–Ø125
S	Titanium alloy (Ti6Al4V)		MP9120	GM	40 (30–60)	<0.25 DC	<5	<0.05	<0.1	<0.1	<0.1	<0.1
							<10	<0.05	<0.1	<0.1	<0.1	<0.1
							<14.5	<0.05	<0.1	<0.1	<0.1	<0.1
						<0.5 DC	<5	<0.05	<0.08	<0.1	<0.1	<0.1
							<10	—	<0.08	<0.1	<0.1	<0.1
							<14.5	—	<0.08	<0.1	<0.1	<0.1
						<0.75 DC	<5	<0.05	<0.05	<0.08	<0.1	<0.1
							<10	—	<0.05	<0.08	<0.1	<0.1
							<14.5	—	<0.05	<0.08	<0.1	<0.1
						DC	<5	<0.05	<0.05	<0.05	<0.05	<0.05
							<10	—	—	—	—	—
							<14.5	—	—	—	—	—

1. The cutting conditions above are determined based on high workpiece and machine rigidity, where no vibration occurred. If vibration occurs, make adjustments according to the machining conditions.
2. Note, vibration may occur in the following conditions.
   When using long tool overhang.
   When pocket machining corner radii.
   When the workpiece is not rigid or has poor clamping rigidity or when the machine rigidity is low, vibrations can occur easily. If so, reduce cutting conditions such as width and depth of cut and feed per tooth.

AXD4000A

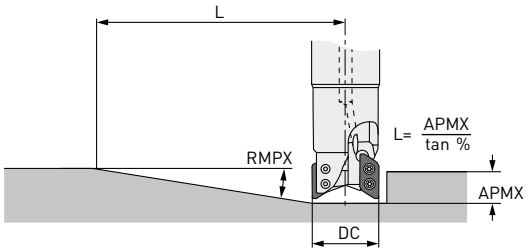
	Material	Properties	Grade		Vc	ae	ap	fz DC Ø50
N	Aluminium alloy (A7050, A7075, A2024, A6061)	Si<5%	MT2010 TF15 MP9120	GM	4000 (200–5000)	≤0.5 D1	≤5	≤ 0.35
							≤10	≤ 0.30
							≤14.5	≤ 0.25
						≤0.75 D1	≤5	≤ 0.30
							≤10	≤ 0.25
							≤14.5	≤ 0.20
						D1	≤5	≤ 0.30
			TF15 LC15TF	GL	4000 (200–5000)	≤0.75 D1	≤5	≤ 0.20
							≤10	≤ 0.15
							≤14.5	≤ 0.10
						D1	≤5	≤ 0.20

1. The above cutting conditions are determined based on high workpiece materials and machine rigidity, where no vibration occurred. If vibrations occur make adjustments according to the machining conditions.
2. Note, vibrations may occur in the following conditions.
   When using a long tool overhang.
   When pocket machining corner radii.
   When the workpiece materials has poor clamping rigidity or when the machine rigidity or workpiece material rigidity is low, vibrations can occur easily, if so, reduce cutting conditions such as width and depth of cut and feed per tooth.

AXD4000

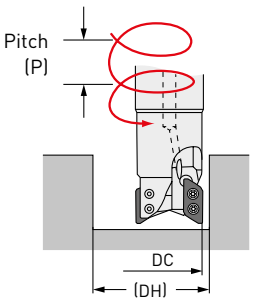
RAMPING / HELICAL MILLING

1 Ramping

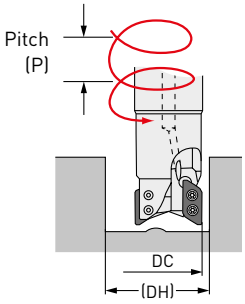


2 Helical milling

2.1 Blind holes, Flat bottom



2.2 Through holes



DC	RE	1		2.1				2.2	
		RMPX	L*1	DH max.	P max.	DH min.	P max.	DH min.	P max.
A TYPE									
20	0.4–1.2	20.7	42	37.1 *2	14	36.1	14	22	2
	1.6–2.4	19.9	43	34.7 *3	13	34.6	13	22	2
	3.0–3.2	18.9	46	33.1 *4	12	33.3	12	22	1
25	0.4–1.2	23.1	37	47.1 *2	14	46	14	32	8
	1.6–2.4	22.0	39	44.7 *3	13	44.4	13	32	8
	3.0–3.2	18.7	46	43.1 *4	12	43	12	32	7
28	0.4–1.2	19.2	45	53.1 *2	14	52	14	36	8
	1.6–2.4	18.5	47	50.7 *3	13	50.4	13	36	8
	3.0–3.2	16.7	52	49.1 *4	12	48.9	12	36	7
32	0.4–1.2	15.4	57	61.1 *2	14	59.9	14	46	11
	1.6–2.4	14.7	60	58.7 *3	13	58.3	13	46	11
	3.0–3.2	13.8	64	57.1 *4	12	56.8	12	46	10
35	0.4–1.2	13.4	66	67.1 *2	14	65.8	14	50	11
	1.6–2.4	12.7	69	64.7 *3	13	64.3	13	50	10
	3.0–3.2	11.8	75	63.1 *4	12	62.8	12	50	9
40	0.4–1.2	11.1	80	76.7 *2	14	75.9	14	62	13
	1.6–2.4	10.4	85	74.3 *3	13	74.2	13	62	12
	3.0–3.2	9.7	91	72.7 *4	12	72.7	12	62	11
50	0.4–1.2	8.2	108	96.7 *2	14	95.6	14	81	14
	1.6–2.4	7.6	117	94.3 *3	13	94	13	81	13
	3.0–3.2	6.9	129	92.7 *4	12	92.4	12	81	11
63	0.4–1.2	6.1	146	122.7 *2	14	121.6	14	107	14
	1.6–2.4	5.6	159	120.3 *3	13	119.9	13	107	13
	3.0–3.2	5.2	171	118.7 *4	12	118.4	12	107	12
80	0.4–1.2	4.6	193	156.7 *2	14	155.6	14	141	14
	1.6–2.4	4.2	212	154.3 *3	13	153.9	13	141	13
	3.0–3.2	3.8	234	152.7 *4	12	152.4	12	141	12
100	0.4–1.2	3.5	254	196.7 *2	14	195.5	14	181	14
	1.6–2.4	3.2	278	194.3 *3	13	193.9	13	181	13
	3.0–3.2	2.9	306	192.7 *4	12	192.3	12	181	12
125	0.4–1.2	2.7	329	246.7 *2	14	245.5	14	231	14
	1.6–2.4	2.5	356	244.3 *3	13	243.8	13	231	13
	3.0–3.2	2.3	386	242.7 *4	12	242.3	12	231	12

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DC	RE	1		2.1				2.2	
		RMPX	L*1	DH max.	P max.	DH min.	P max.	DH min.	P max.
B TYPE									
20	4	17.5	47	31.5	10	31.8	10	22	1
	5	16.6	71	29.5	6	31.1	7	22	1
25	4	15.1	55	41.5	10	41.4	10	32	5
	5	13.7	61	39.5	9	40.6	9	32	5
28	4	14.1	59	47.5	10	47.2	10	36	6
	5	13	65	45.5	9	46.4	9	36	5
32	4	12.7	66	55.5	10	55.1	10	46	9
	5	12	70	53.5	9	54.3	9	46	8
35	4	10.8	78	61.5	10	61	10	50	8
	5	10.2	83	59.5	9	60.2	9	50	8
40	4	8.8	96	71.1	10	70.9	10	62	10
	5	8.2	103	69.1	9	70.1	9	62	9
50	4	6.3	135	91.1	10	90.6	10	81	10
	5	5.8	146	89.1	9	89.8	9	81	9
63	4	4.6	184	117.1	10	116.6	10	107	10
	5	4.2	202	115.1	9	115.7	9	107	9
80	4	3.4	250	151.1	10	150.5	10	141	10
	5	3.1	274	149.1	9	149.6	9	141	9
100	4	2.6	326	191.1	10	190.5	10	181	10
	5	2.4	354	189.1	9	189.6	9	181	9
125	4	2	424	241.1	10	240.5	10	231	10
	5	1.8	471	239.1	9	239.6	9	231	9

1. The recommended ramping feed is 0.05 mm/tooth or under.

*1 Using the maximum ramping angle, the distance to reach the maximum depth of cut is as follows:
L= (maximum depth of cut APMX/tan %). Maximum depth of cut A type is 15.5 mm, B type is 14.8 mm.
*2 Corner radius of 1.2 mm. For other corner radii, use the following formula.
{(DC)–(RE)–0.25}×2
*3 Corner radius of 2.4 mm. For other corner radii, use the following formula.
{(DC)–(RE)–0.25}×2
*4 Corner radius of 3.2 mm. For other corner radii, use the following formula.
{(DC)–(RE)–0.25}×2

MAX. DRILLING DEPTH

	RE	DC					
		Ø20	Ø25	Ø28	Ø32	Ø35	Ø40–Ø125
A type	0.4	5.3	5.2	5.2	5.2	5.3	5.3
	0.8	5.3	5.2	5.2	5.2	5.3	5.3
	1.2	5.3	5.2	5.2	5.2	5.3	5.3
	1.6	4.8	4.6	4.7	4.7	4.9	4.8
	2.0	4.8	4.6	4.7	4.7	4.9	4.8
	2.4	4.8	4.6	4.7	4.7	4.9	4.8
	3.0	4.3	3.7	4.2	4.2	4.4	4.4
	3.2	4.3	3.7	4.2	4.2	4.4	4.4
B type	4.0	3.7	2.7	3.7	3.6	3.8	3.8
	5.0	3.4	2.3	3.3	3.3	3.5	3.5

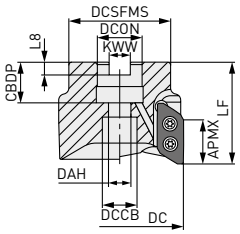
AXD7000

ARBOR TYPE

N

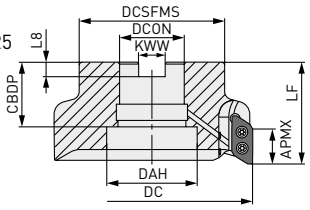
1

Ø50
Ø63
Ø80
Ø100



2

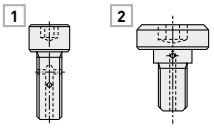
Ø125



C H: 0°
A.R: +11°
R.R: +26°–+29°

T: +26°–+29°
I : +11°

Right hand tool holder only.

DC	Set bolt		Geometry
Ø50, Ø63	HSC10030H	1	
Ø80	HSC12035H		
Ø100	HSC16040H		
Ø125	MBA20040H	2	

Order number	Stock	APMX	DC	DCON	LF	RPMX	WT	ZEFP	Type	RE
A TYPE										
AXD7000-050A03RA	●	21	50	22	50	30000	0.4	3	1	XDGX2270○○ PDFR-GL
AXD7000-063A03RA	●	21	63	22	50	25000	0.5	3	1	
AXD7000-080A04RA	●	21	80	27	63	23000	1.2	4	1	
AXD7000-100A05RA	●	21	100	32	63	19000	1.8	5	1	
AXD7000-125B06RA	●	21	125	40	63	16000	2.7	6	2	
B TYPE										
AXD7000-050A03RB	●	20.4	50	22	50	30000	0.4	3	1	XDGX2270○○ PDFR-GL
AXD7000-063A03RB	●	20.4	63	22	50	25000	0.5	3	1	
AXD7000-080A04RB	●	20.4	80	27	63	23000	1.2	4	1	
AXD7000-100A05RB	●	20.4	100	32	63	19000	1.8	5	1	
AXD7000-125B06RB	●	20.4	125	40	63	16000	2.7	6	2	

1. The maximum allowable revolutions are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
3. Note for inserts with a corner radius of 1.6 and above, as the corner radius increases the LF and LH dimensions decreases.

22 Vc

● : Inventory maintained. ★ : Inventory maintained in Japan.

AXD7000

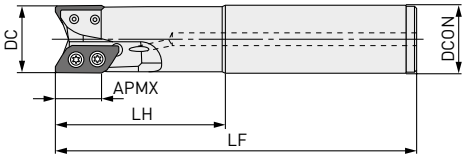
MOUNTING DIMENSIONS

Order number	CBDP	DAH	DCCB	DCSFMS	KWW	L8
A TYPE						
AXD7000-050A03RA	20	11	17	45	10.4	6.3
AXD7000-063A03RA	20	11	17	50	10.4	6.3
AXD7000-080A04RA	23	13	20	63	12.4	7
AXD7000-100A05RA	26	17	26	70	14.4	8
AXD7000-125B06RA	40	56	—	90	16.4	9
B TYPE						
AXD7000-050A03RB	20	11	17	45	10.4	6.3
AXD7000-063A03RB	20	11	17	50	10.4	6.3
AXD7000-080A04RB	23	13	20	63	12.4	7
AXD7000-100A05RB	26	17	26	70	14.4	8
AXD7000-125B06RB	40	56	—	90	16.4	9

AXD7000

SHANK TYPE

N S



Right hand tool holder only.

Order number	Stock	APMX	DC	DCON	LF	LH	RPMX	ZEFP	RE
A TYPE									
AXD7000R322SA32SA	●	21	32	32	170	80	41000	2	0.8–3.2
AXD7000R402SA42SA	●	21	40	42	170	80	36000	2	
B TYPE									
AXD7000R322SA32SB	●	20.4	32	32	170	80	41000	2	4.0–5.0
AXD7000R402SA42SB	●	20.4	40	42	170	80	36000	2	

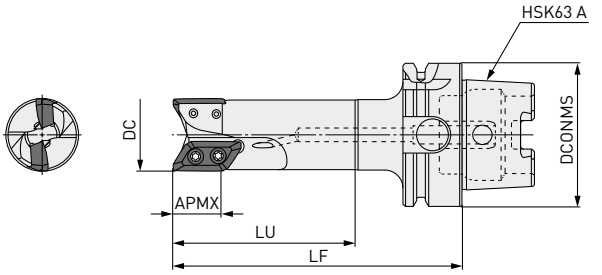
1. The maximum allowable revolutions are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
3. Note for inserts with a corner radius of 3.0 and above, as the corner radius increases the LF and LH dimensions decreases.

22 Vc

AXD7000

HSK63A MONOBLOCK

N S



Right hand tool holder only.

Order number	Stock	APMX	DC	DCONMS	LF	LU	RPMX	ZEFP	RE
A TYPE									
AXD7000R03202A-H63A	●	21	32	63	127	80	41000	2	0.8–3.2
AXD7000R04002A-H63A	●	21	40	63	132	85	36000	2	
AXD7000R05003A-H63A	●	21	50	63	137	90	30000	3	

1. The maximum allowable spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
3. Note for inserts with a corner radius of 3.0 and above, as the corner radius increases the LF and LU dimensions decrease.
4. There is no hole for a data chip.

22 Vc

SPARE PARTS

ARBOR TYPE / SHANK TYPE / MONOBLOCK

Tool holder type	Clamp screw *	Wrench	Anti-seize lubricant	Insert
AXD7000R322SA32SA/B	TS4SB	TKY15D	MK1KS	XDGX2270□□ PDFR-GL
AXD7000R03202A-H63A				
AXD7000R402SA42SA/B	TS4SBL			
AXD7000-□□□□□□RA/RB				
AXD7000R04002A-H63A				
AXD7000R05003A-H63A				

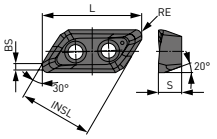
* Clamp Torque (N • m) : TS4SB(L) = 3.5

● : Inventory maintained. ★ : Inventory maintained in Japan.

AXD7000

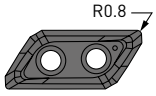
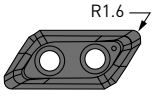
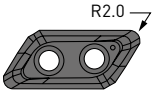
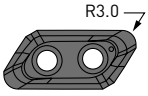
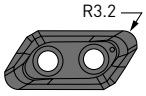
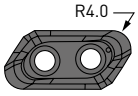
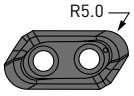
INSERTS

N	Aluminium alloy	✤	◔	**Cutting conditions:** ●: Stable cutting ◔: General cutting ✤: Unstable cutting Honing: F: Sharp E: Round

			Coated	Carbide							
Order number	**Class**	**Honing**	**LC15TF**	**TF15**	**L**	**INSL**	**S**	**BS**	**RE**	**Shape**	**Geometry**
XDGX227008PDFR-GL	G	F	★	●	30	22.5	7	2.0	0.8		
XDGX227016PDFR-GL	G	F	★	●	30	22.5	7	1.2	1.6		
XDGX227020PDFR-GL	G	F	★	●	30	22.5	7	0.8	2.0		
XDGX227030PDFR-GL	G	F	★	●	28.8	22.5	7	0.8	3.0		
XDGX227032PDFR-GL	G	F	★	●	28.8	22.5	7	0.6	3.2		
XDGX227040PDFR-GL	G	F	★	●	27.5	22.5	7	0.9	4.0		
XDGX227050PDFR-GL	G	F	★	●	27	22.5	7	0.4	5.0		

22 Vc

HOLDER AND INSERT CORNER RADIUS COMBINATION

	A Type holder					**B Type holder**	
	AXD7000–□□□□□□□□A AXD7000R□□□□□□□□A AXD7000R□□□□□A-H63A					AXD7000–□□□□□□□□B AXD7000R□□□□□□□□B	
Applicable insert corner R (RE)	R0.8	R1.6	R2.0	R3.0	R3.2	R4.0	R5.0
							
	XDGX 227008PDFR-GL	XDGX 227016PDFR-GL	XDGX 227020PDFR-GL	XDGX 227030PDFR-GL	XDGX 227032PDFR-GL	XDGX 227040PDFR-GL	XDGX 227050PDFR-GL

1. Note that there is no compatibility between an insert for an A type holder and for a B type holder.

● : Inventory maintained. ★ : Inventory maintained in Japan.

AXD7000

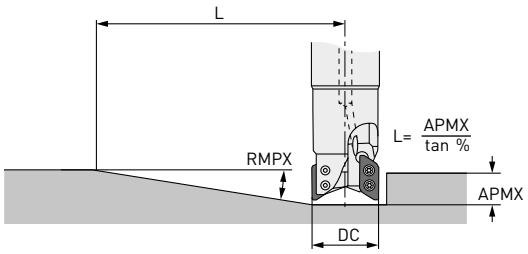
RECOMMENDED CUTTING CONDITIONS

	Material	Grade		Vc	ae	ap	fz		
							DC		
							Ø32	Ø40	Ø50–Ø125
N	Aluminium alloy	LC15TF TF15	GL	1000 (200–3000)	<0.25 DC	<5	<0.35	<0.40	<0.40
						5–10	<0.30	<0.35	<0.35
						10–15	<0.25	<0.30	<0.30
						15–20	<0.20	<0.25	<0.25
					<0.5 DC	<5	<0.35	<0.35	<0.40
						5–10	<0.30	<0.30	<0.35
						10–15	<0.25	<0.25	<0.30
						15–20	<0.20	<0.20	<0.25
					<0.75 DC	<5	<0.30	<0.30	<0.35
						5–10	<0.25	<0.25	<0.30
						10–15	<0.20	<0.20	<0.25
						15–20	<0.15	<0.15	<0.20
					<DC	<5	<0.25	<0.30	<0.35
						5–10	<0.20	<0.25	<0.30
						10–15	<0.15	<0.20	<0.25
							<0.10	<0.15	<0.20

1. The above cutting conditions are determined based on high workpiece and machine rigidity, where no vibration occurred.
   If vibrations occur make adjustments according to the machining conditions.
2. Note, vibrations may occur in the following conditions.
   When using long tool overhang.
   When pocket machining corner radii.
   When the workpiece isn not rigid or has poor clamping rigidity or when the machine rigidity is low, vibrations can occur easily.
   If so, reduce cutting conditions such as width and depth of cut and feed per tooth.

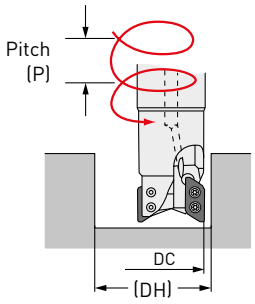
RAMPING / HELICAL MILLING

1 Ramping

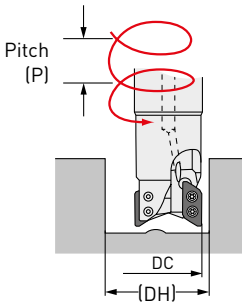


2 Helical milling

2.1 Blind holes, Flat bottom



2.2 Through holes



DC	1		2.1				2.2	
	Maximum Ramping Angle α°	*1 L	*2 DH max.	P max.	*3 DH min.	P max.	DH min.	P max.
A TYPE								
32	19	61	61.8	21	58.2	20	41	7
40	13	91	77.8	18	74.2	17	57	9
50	9	133	97.8	16	94.2	16	77	10
63	7	171	123.8	15	120.2	15	103	11
80	5	240	157.8	16	154.2	15	137	12
100	4	300	197.8	15	194.2	15	177	12
125	3	401	247.8	12	244.2	12	227	11
B TYPE								
32	18	63	55.4	16	54.0	16	41	7
40	11	105	71.4	14	70.0	14	57	8
50	8	146	91.4	13	90.0	12	77	8
63	6	195	117.4	11	116.0	11	103	8
80	4	293	151.4	11	150.0	11	137	9
100	3	391	191.4	9	190.0	9	177	8
125	2	587	241.4	12	240.0	12	227	11

1. The recommended ramping feed is 0.05 mm/tooth or under.

*1 Using the maximum ramping angle, the distance to reach the maximum depth of cut is as follows:
L= (maximum depth of cut APMX/tan %). Maximum depth of cut A type is 21 mm, B type is 20.4 mm.

*2 The maximum diameter when machining a blind hole with a flat face using a corner radius of 0.8 mm for A type and 4 mm for B type.
For other corner radii, use the below formula.
{(DC)−(RE)−0.3)}×2

*3 The minimum diameter when machining a blind hole with a flat face using a corner radius of 0.8 mm for A type and 4 mm for B type.
For other corner radii, use the below formula.
{(DC)−(RE)−(BS)−0.1)}×2

MAX. DRILLING DEPTH

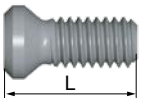
	RE	Max. drilling depth (mm)
A type	0.8–3.2	5
B type	4.0–5.0	4

CAUTION FOR USE

PROCEDURE FOR ATTACHING INSERTS

1. Use an air blower or brush to clean the insert seats before attaching the inserts.
2. Holding the inserts firmly against the insert seat, tighten the clamp screws using the wrench provided.
3. Tighten the clamp screws in the order shown in Figure 1.
4. Apply anti-seize lubricant to the clamp screws and tighten them with the torque specified.
   The specified torque is as follows.
   AXD7000 3.5 N•m (2.58ft•lb)
   AXD4000 1.5 N•m (1.11ft•lb)
   AXD4000A 3.0 N•m (2.11ft•lb)
5. Clamp screws are important parts from the viewpoint of safety. Use clamp screws with the correct part number.
   If the spindle speed is equal to or higher than the values shown in Table 2, it is recommended to replace the clamp screws with new ones when changing inserts.

Type	AXD4000		AXD7000	
DC	Ø20	Ø25–Ø125	Ø32	Ø40–Ø125
Clamp screw	TS3SBS	TS3SB	TS4SB	TS4SBL
Length L (mm)	6.5	8	9	10.5



6. Check that there are no gaps between the insert and the seat before use.

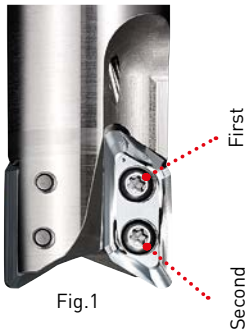
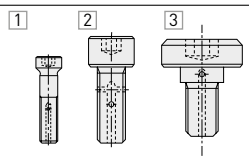


Fig.1

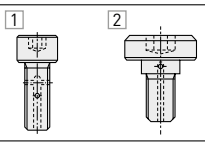
PROCEDURE FOR ATTACHING THE CUTTER TO AN ARBOR

1. Before attaching the cutter to the arbor, carefully clean the socket and end of the cutter and the end of the arbor.
2. Place the cutter on the arbor and tighten the attachment bolt provided. See the table below for the tightening torque.
3. The attachment bolt provided with the AXD is a special bolt for through coolant. Take care not to lose it.

AXD4000

Set bolt	(Nm)	DC		Geometry
HFF08043H	11	Ø40	1	
HSC10030H	40	Ø50, Ø63	2	
HSC12035H	80	Ø80	2	
HSC16040H	150	Ø100	2	
MBA20040H	320	Ø120	3	

AXD7000

Set bolt	(Nm)	DC		Geometry
HSC10030H	40	Ø50, Ø63	1	
HSC12035H	80	Ø80	1	
HSC16040H	150	Ø100	1	
MBA20040H	320	Ø120	2	

AXD4000 / AXD7000

TABLE 1 MAX. ALLOWABLE REVOLUTION

AXD4000

DC	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
RPMX	49000	48000	41000	35000	30000	27000	23000	20000

AXD7000

DC	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
RPMX	41000	36000	30000	25000	23000	19000	16000

Even when operating under the maximum allowable spindle speed, if the spindle speed is equal to or higher than the values shown in table 2, it is recommended that the balance quality (with the arbor or milling chuck) conforms to G6.3 or betterbased on ISO1940.
It is also recommended to replace the clamp screws with new ones when changing inserts.
Furthermore, ensure use of only machines that are provided with safety measures in case of cutter breakage.
(Note) The balance quality of the holder (without inserts and clamp screws) is G6.3 or better at 10000 min^{-1}.

TABLE 2 MAXIMUM SPINDLE SPEED WHEN BALANCING WITH THE ARBOR OR MILLING CHUCK HAS NOT BEEN ACHIEVED

AXD4000

DC	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
RPMX	12000	9500	7600	6000	4800	3800	3000	2400

AXD7000

DC	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
RPMX	9500	7600	6000	4800	3800	3000	2400

When setting the spindle speed, take into consideration the maximum allowable spindle speed of the arbor or milling chuck.
Use the specified set bolt when using the arbor type with through coolant.
The inserts have sharp cutting edges and handling them with bare hands may cause injuries.
Always wear safety gloves when handling the indexable inserts.

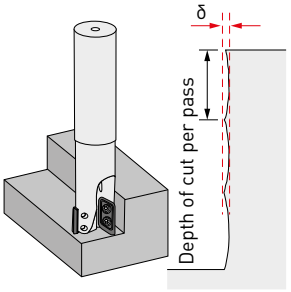
TECHNICAL DATA

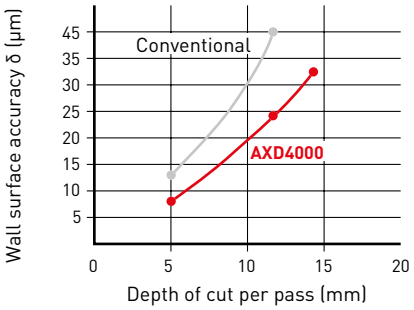
EXCELLENT WALL ACCURACY

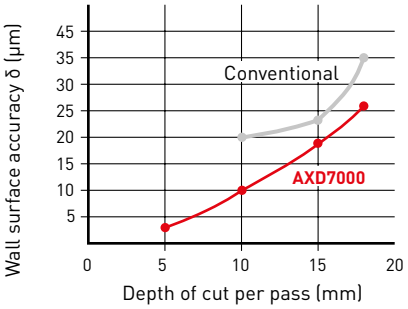
Specially designed G-class inserts with a helical cutting edge for excellent wall accuracy.

Tool	AXD4000R403SA42SA
Insert	XDGX175008PDFR-GL
Grade	TF15
Workpiece	7075
Vc (m/min)	1000
fz (mm/tooth)	0.2
ae (mm)	3
Coolant	Wet cutting

Tool	AXD7000R402SA42SA
Insert	XDGX227008PDFR-GL
Grade	TF15
Workpiece	7075
Vc (m/min)	2500
fz (mm/tooth)	0.2
ae (mm)	3
Coolant	Wet cutting

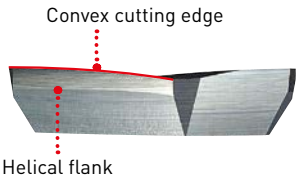




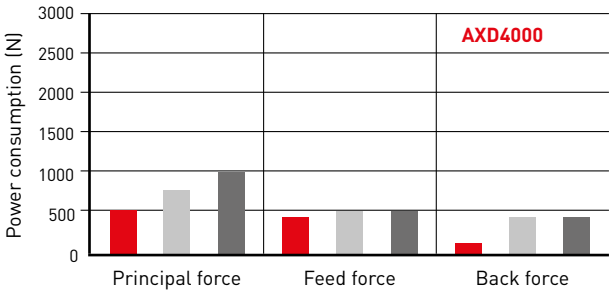


LOW RESISTANCE INSERTS

An optimised helical flank and flank angle offers cutting edge strength and also provides a large rake angle to reduce cutting resistance. Additionally a convex cutting edge is incorporated to ensure effective chip flow.



Tool	AXD4000-050A04RA
Insert (Single tooth)	XDGX175008PDFR-GL
Grade	TF15
Workpiece	7075
Vc (m/min)	1000
fz (mm/tooth)	0.2
ae (mm)	25
ap (mm)	10
Coolant	Wet cutting

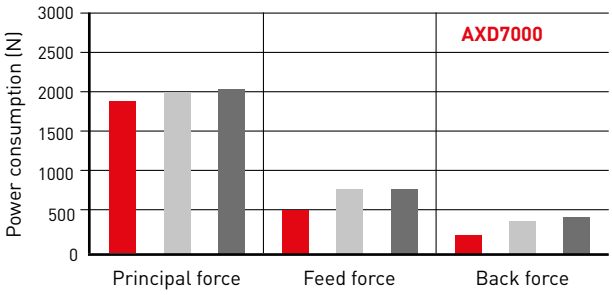


■ : AXD ■ A ■ B : Conventional tool

AXD4000 / AXD7000

LOW RESISTANCE INSERTS

Tool	AXD7000-050A03RA
Insert (Single tooth)	XDGX227008PDFR-GL
Grade	TF15
Workpiece	7075
Vc (m/min)	1000
fz (mm/tooth)	0.2
ae (mm)	25
ap (mm)	10
Coolant	Wet cutting



Tool	AXD4000-050A04RA
Insert (Single tooth)	XDGX175004PDER-GM
Workpiece	7075
Vc (m/min)	1000
fz (mm/tooth)	0.15
ae (mm)	30
ap (mm)	0.5
Coolant	Internal coolant

AXD4000-GM

Ra 0.120 µm Rz 1.132 µm

Conventional

Ra 0.675 µm Rz 3.725 µm

Tool	AXD4000-050A04RA
Insert (Single tooth)	XDGX175004PDER-GM
Grade	MP9120
Workpiece	Ti-6Al-4V
Vc (m/min)	30
fz (mm/tooth)	0.1
ae (mm)	40
ap (mm)	2
Coolant	Internal / External wet coolant

Cutting performance when milling Ti6Al4V

AXD4000-GM(MP9120)

After 0.8 m of machining

Conventional

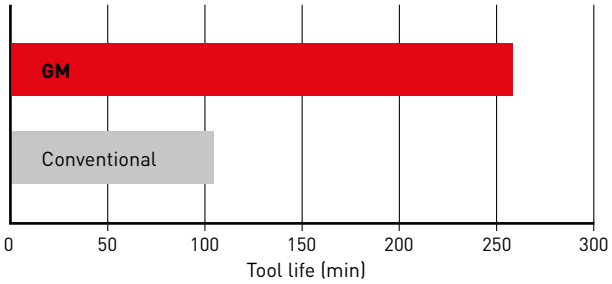
After 0.4 m of machining

CUTTING PERFORMANCE

CUTTING OF CAST ALUMINIUM ALLOY: SI CONTENT 9%

2.3 times longer tool life due to tougher cutting edge & PVD coating

Tool	AXD4000-040A02RA
Insert (Single tooth)	XDGX175008PDER-GM
Workpiece	Cast aluminium alloy: Si content 9%
Vc (m/min)	960
fz (mm/tooth)	0.1
ae (mm)	33
ap (mm)	6.0
Coolant	Wet cutting



MP9120 GM

Conventional

■ : AXD ■ A ■ B : Conventional tool

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