SumiDrill
WDX Type

Valley Tool

General Features

The SumiDrill WDX type has excellent cutting balance that provides stable hole drilling on a wide range of work materials from general steel to stainless steel and aluminium alloy.
Available in four original chipbreaker styles, the inserts feature improved chip control and reduced cutting force for use in low rigidity contexts.

Series Configuration

Depth of Machined Hole	Holder Diameter (mm)
2D	Ø 13,0 – Ø 68,0
3D	Ø 13,0 – Ø 68,0
4D	Ø 13,0 – Ø 63,0
5D	Ø 13,0 – Ø 55,0

Features and Applications

Design

Cutting force during drilling is balanced between central insert and peripheral insert. The relative position of each insert is optimised to provide stable drilling.

Excellent Chip Control

The chip evacuation direction can be controlled with the chip control groove at the centre of the breaker, enabling good chip control.

Versatile Tool for a Variety of Machining Applications

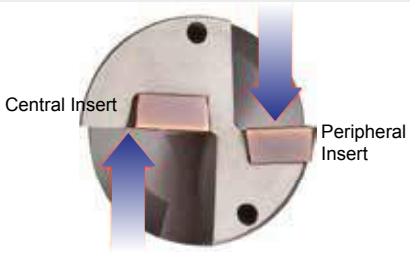
Select among four types of breakers for different applications, allowing optimal drilling for a variety of work materials and conditions. Suitable for a wide range of applications including hole expansion, spot facing, external turning and internal boring.

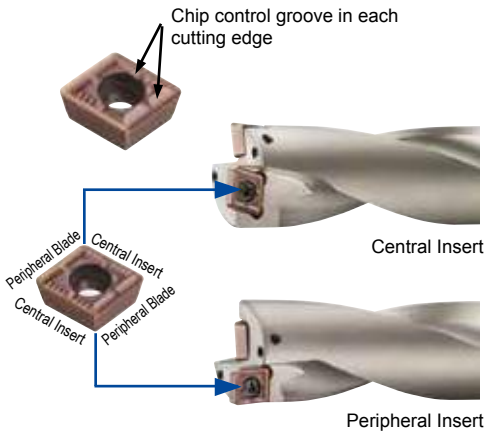
Economical Four-Cornered Insert

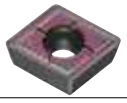
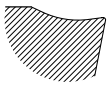
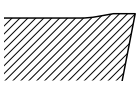
Inserts can be used in either central or peropheral positions with two corners for each position - a total of four corners.

Design

Cutting force of central insert = that periphal insert





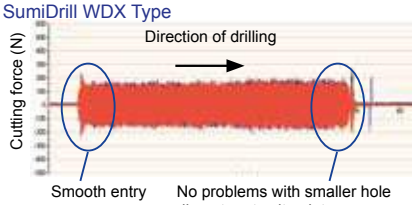
Type	L	G		H	M
Features	For low feed with chip control	General Purpose	For non-ferrous metal drilling	Strong edge type	For stainless steel drilling
Appearance					
Figure					

Performance

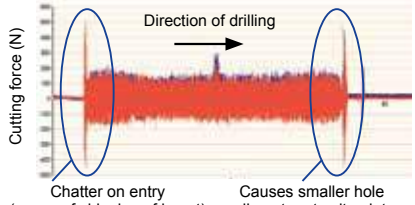
Balanced Design
(Comparison of Horizontal Component Values)

Balance is maintained at the strong hole entry and exit points and drilling is stable.

SumiDrill WDX Type



Conventional and Competitor's Products



Improved Chip Control

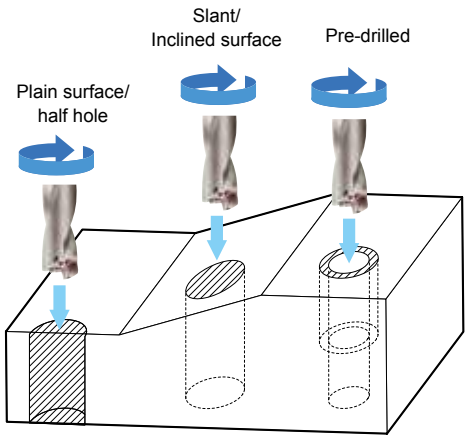
Work Material: X5CrNiS18 10
Holder: WDX 200D3S25 (Ø 20,0)
Cutting Data: v_c = 130 m/min, f = 0,06 mm/rev, H = 50 mm, wet

SumiDrill WDX Type

Conventional and Competitor's Products

Multi-Purpose Functionality

Applications for Machining Centre



Recommended conditions - reduce feed rate to 70 %

SumiDrill
WDX Type

ACM300
For Machining of Stainless Steel

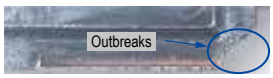
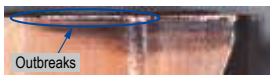
Features
Chip control by the newly developed M chip breaker for stainless steel machining achieves stable hole quality.

Holder	WDX **M** Type	WDX **G** Type	Competitor's Product
Hole			
Chips			

Work Material: X2CrNiMo17 13 2
Holder: WDX200D3S25
Insert: WDXT063006 M (ACM300)
Cutting Data: v_c = 150 m/min, f = 0,08 mm/rev, H = 60 mm, wet

ACP100
For High-speed Drilling of Steel and Cast Iron

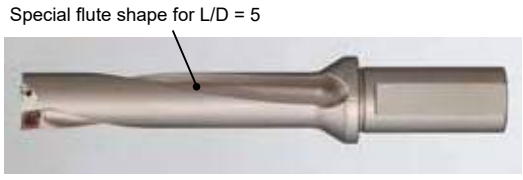
Features
Provides excellent wear resistance and high reliability thanks to our coating stress control technology and the ultra-fine crystal grain coating film of the Super FF Coat achieved through our proprietary technology.

		ACP100	Competitor's Product
Peripheral Insert	Rake Face		
	Flank		
Central Insert	Rake Face		
	Flank		

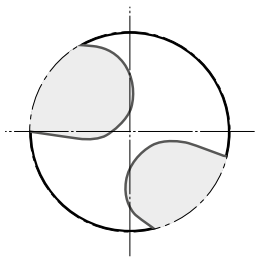
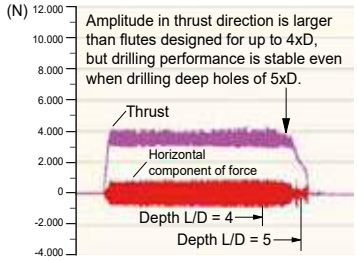
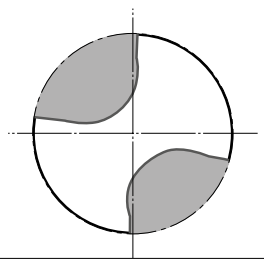
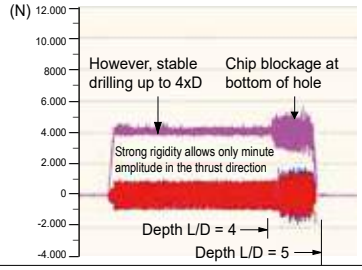
Work Material: C50
Holder: WDX250D3S25
Insert: WDXT063006 G (ACP100)
Cutting Data: v_c = 200 m/min, f = 0,12 mm/rev, H = 50 mm through hole, wet

Drills for Deep Hole Drilling L/D = 5

Features
The SumiDrill WDX type for 5xD drilling features a specially designed flute shape and enlarged coolant hole for excellent chip evacuation even during hole drilling.



Performance

Characteristics	Figure	Cutting Resistance	Machined Surface (Exit)
WDX260D5S32 Flutedesign L/D = 5 Designed with emphasis on chip evacuation Expanded flute design improves chip evacuation for stable drilling performance even with holes up to 5xD.			Produces an excellent surface finish - full hole depth 
Comparison Tool Flutedesign L/D = 4 Designed with emphasis on drill rigidity Flute design for greater rigidity of the drill enables stable drilling of deep holes up to 4xD.			Poor machined surface due to chip blockage at bottom of hole (near 5xD) 

Insert: WDXT073506-G Work Material: X5CrNiS18 10
Cutting Data: v_c = 150 m/min, f = 0,05 mm/rev, H = 130 mm, through hole, wet

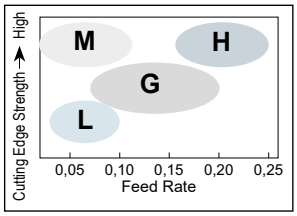
SumiDrill
WDX Type

Insert Selection Guide – The WDX Insert Series has a Variety of Options

5 Grades

	ACP100	ACP300	ACM300	ACK300	DL1500
P High-speed Drilling	○				
P General Drilling		○			
M Stainless Steel		○	○		
K High-speed Drilling	○				
K General Drilling				○	
N Non-ferrous Metal					○

4 Types of Chipbreakers



11 Combinations

ACP100	ACP300	ACM300	ACK300	DL1500
P K L	P L		P K L	
P K G	P M G		P K G	N G
P K H	P H		K H	
		M M		

2nd Recommendation — P

P — For low Feed with Chip Control

L ACP300

For drilling of St 42-3, 15,CrMo5, 20CrMo5, etc.

High speed and low feed is recommended if there are issues with chip control.

Decrease the feed if vibration occurs due to burnt chips.

P Improved chip control (low carbide steel, etc.)

P — General Purpose

G ACP100

For drilling of general steel and alloy steel, when prone to significantly large flank wear.

P — For low feed with chip control

L ACP100

For low-feed conditions.

P Insufficient wear resistance

P — Strong Edge Type

H ACP300

For drilling with interruptions (entry/through) due to slanted entry, reduce the feed rate in the interrupted area (around f = 0,05).

For insufficient cutting edge strength due to drilling of hardened steel (heat treated).

P Initial chipping measures (interruption, high hardness, etc.)

1st Recommendation — P M K N

General Purpose

G

For general steel and alloy steel drilling

P ACP300

For cast iron drilling

K ACK300

For non-ferrous metal drilling

N DL1500

K Insufficient wear resistance (high-speed machining)

K Initial chipping measures (interruption, high feed, etc.)

For stainless steel drilling

M ACM300

Dedicated for Stainless steel

M

M Lack of chip evacuation (ex-tension)

2nd Recommendation — K M

K — General Purpose

G ACP100

When heavy flank wear occurs in cast iron drilling.

To limit wear in high-speed, low to medium feed conditions.

K — Strong Edge Type

H ACK300

When interrupted drilling is performed due to slanted entry, etc. as with steel drilling.

For macining of SS400, SCM415, SCM420

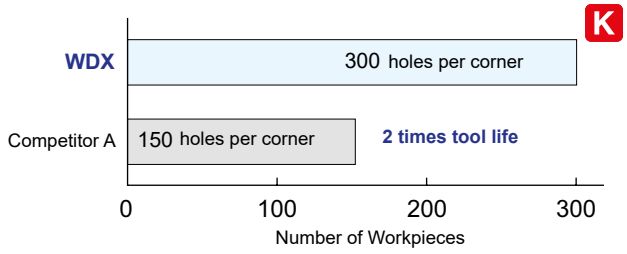
M — General Purpose

G ACP300

When chips extend and clog.

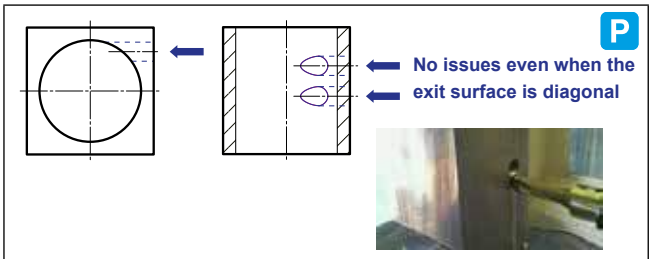
ACP100 is the first recommendation for steel with a hardness of 200HB or greater or for high-speed drilling of steel.

Application Examples



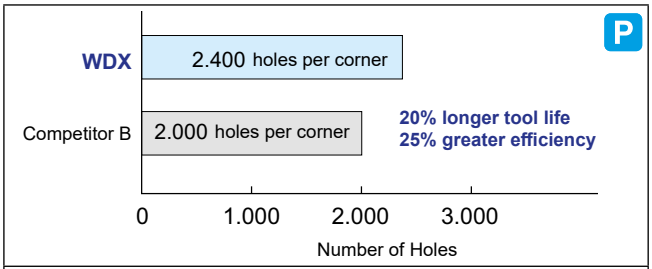
Work Material: Machine component (GGG-40.3)
Holder: WDX205D3S25
Insert: WDXT063006 G (ACK300)
Cutting Data: v_c = 122 m/min, f = 0,15 mm/rev, H = 33 mm, through, wet

Significant increase in tool life; twice that conventional tools.
Stable cutting with minimal cutting force.



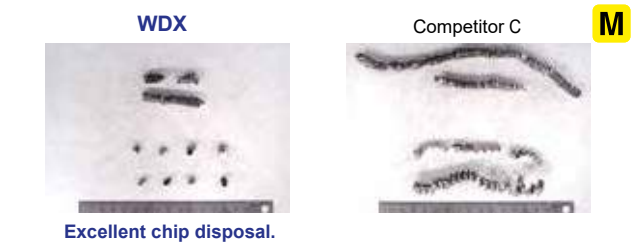
Work Material: Plate (C15)
Holder: WDX430D3S40
Insert: WDXT125012 H (ACP300)
Cutting Data: v_c = 136 m/min, f = 0,15 mm/rev, H = 60+50 mm (semicircle area), through, wet

Enables drilling even in unstable conditions (interrupted cutting at deepest point)
Quieter cutting than conventional tools.



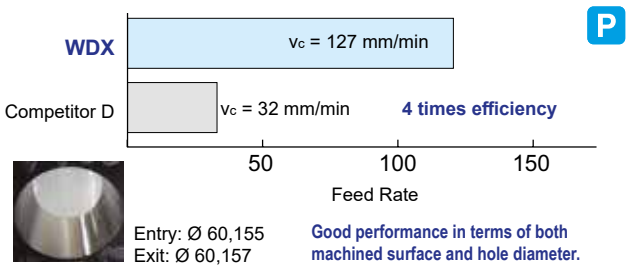
Work Material: Machine component (42CrMo4)
Holder: WDX200D3S25
Insert: WDXT063006 G (ACP300)
Cutting Data: v_c = 157 m/min, f = 0,19 mm/rev, H = 19 mm, through, wet
Competitor B: v_c = 157 m/min, f = 0,15 mm/rev, H = 19 mm, through, wet

Good chip control even in high-efficiency conditions. Good stability with low vibration during cutting. 25% greater efficiency and 20% longer tool life.



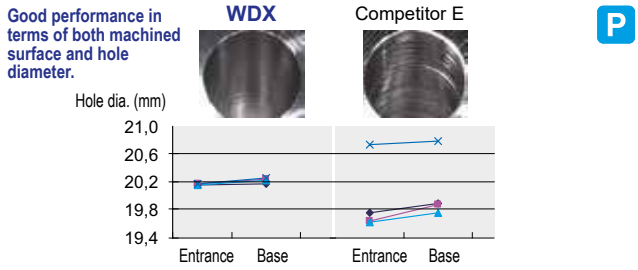
Work Material: Piping parts (X5CrNiS18 10)
Holder: WDX210D3S25
Insert: WDXT063006 M (ACM300)
Cutting Data: v_c = 105 m/min, f = 0,08 mm/rev, H = 34 mm, wet

Improved chip control and better stable machining.



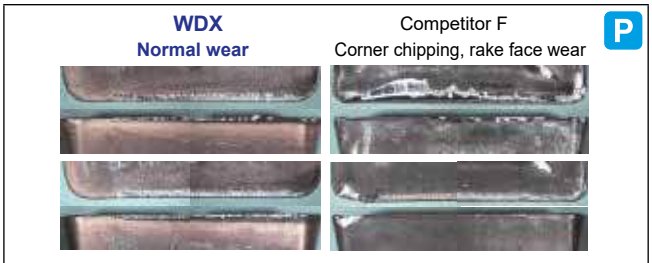
Work Material: Plate (C48)
Holder: WDX600D3S40
Insert: WDXT186012 G (ACP300)
Cutting Data: v_c = 150 m/min, f = 0,16 mm/rev, H = 60 mm, through, wet
Competitor D: v_c = 30 m/min, f = 0,20 mm/rev, H = 60 mm, through, wet

Achieves steady machining even at large diameters.
Achieves 4 times the efficiency of conventional tools.



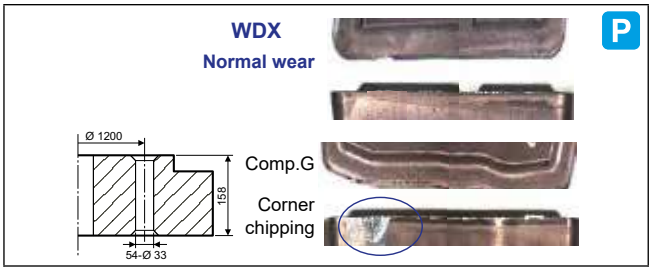
Work Material: Machine component (15CrMo5)
Holder: WDX200D5S25
Insert: WDXT063006 G (ACP300)
Cutting Data: v_c = 185 m/min, f = 0,12 mm/rev, H = 87mm, through, wet

Good machined surface.
Consistent bore diameter.



Work Material: Tractor links (35MnBM)
Holder: WDX205D5S25
Insert: WDXT063006 G (ACP300)
Cutting Data: v_c = 100 m/min, f = 0,11 mm/rev, H = 60 mm, through, wet

Achieves steady machining even at L/D = 5.
Reduces insert chipping and wear for stable tool life.



Work Material: Bearing for wind power generator (equivalent to 42CrMo4)
Holder: WDX330D5S40
Insert: WDXT094008 L (ACP300)
Cutting Data: v_c = 146 m/min, f = 0,10 mm/rev, H = 158 mm, through, wet

Eliminates defects in workpieces caused by insert chipping.

WDX Type Inch 2D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 2D | Indexable

Fig 1

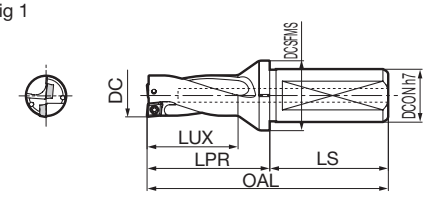


Fig 2

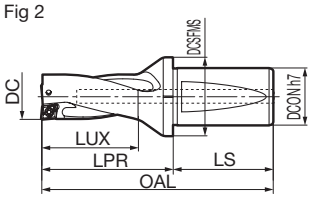
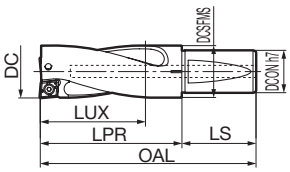


Fig 3



Holder Diameter ø0.5625" to 2.6250"

Dimensions (inch)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Applicable Insert	Coolant Connection	Fig
0.5625	•	WDX0562D2S075	1.2420	1.8330	3.8330	2.0000	1.1020	0.7500	WDXT042004	1/8 NPT	1
0.5937	•	WDX0594D2S075	1.3060	1.8960	3.8960						1
0.6250	•	WDX0625D2S100	1.3680	1.9590	4.4590	2.5000	1.2600	1.0000	WDXT052504	1/4 NPT	1
0.6562	•	WDX0656D2S100	1.4300	2.0210	4.5210						1
0.6875	•	WDX0687D2S100	1.4920	2.0830	4.5830						1
0.7500	•	WDX0750D2S100	1.6180	2.2090	4.7090	2.5000	1.2990	1.0000	WDXT063006		1
0.7870	•	WDX0787D2S100	1.6920	2.2830	4.7830						1
0.8125	•	WDX0812D2S100	1.7430	2.3340	4.8340						1
0.8750	•	WDX0875D2S100	1.8680	2.4590	4.9590						1
0.9375	•	WDX0937D2S125	1.9930	2.7020	5.2020	2.5000	1.6140	1.2500	WDXT073506		2
1.0000	•	WDX1000D2S125	2.1180	2.8270	5.3270						2
1.0625	•	WDX1062D2S125	2.2430	2.9520	5.9520	3.0000	1.6140	1.2500			2
1.1250	•	WDX1125D2S125	2.3680	3.0770	6.0770						2
1.1875	•	WDX1187D2S125	2.5320	3.3590	6.3590	3.0000	1.9680	1.2500	WDXT094008		2
1.2500	•	WDX1250D2S125	2.6570	3.4840	6.4840						2
1.3125	•	WDX1312D2S150	2.7820	3.7270	6.7270	3.0000	2.1260	1.5000			2
1.3750	•	WDX1375D2S150	2.9070	3.8520	6.8520						2
1.4375	•	WDX1437D2S150	3.0320	3.9770	6.9770						2
1.5000	•	WDX1500D2S150	3.1570	4.1020	7.1020	3.0000	1.9490	1.5000	WDXT125012		2
1.5625	•	WDX1562D2S150	3.2810	4.2260	7.2260						2
1.6250	•	WDX1625D2S150	3.4070	4.3520	7.3520	3.0000	1.9490	1.5000			2
1.6875	•	WDX1687D2S150	3.5330	4.4780	7.4780						3
1.7500	•	WDX1750D2S150	3.6570	4.6020	7.6020						3
1.8125	•	WDX1812D2S150	3.7830	4.7280	7.7280	3.0000	1.9490	1.5000	WDXT156012		3
1.8750	•	WDX1875D2S150	3.9070	4.8520	7.8520						3
1.9375	•	WDX1937D2S150	4.0330	4.9780	7.9780						3
2.0000	•	WDX2000D2S150	4.1570	5.1020	8.1020						3
2.1250	•	WDX2125D2S150	4.4070	5.3520	8.3520						3
2.2500	•	WDX2250D2S150	4.8150	6.0750	9.0750	3.0000	2.1730	1.5000	WDXT186012		3
2.3750	•	WDX2375D2S150	5.0670	6.3270	9.3270		2.2950				3
2.5000	•	WDX2500D2S150	5.3150	6.5750	9.5750		2.4210				3
2.6250	•	WDX2625D2S150	5.5670	6.8270	9.8270		2.5470				3

Identification Code - Inch

WDX 05625 D2 S075

- 05625: Dia. DC (ø0.5625")
- D2: Flute Length L/D (2D)
- S075: Shank Dia. DCON (ø0.750")

Parts

Applicable Holder	Flat Screw	N·m	Wrench	Wrench
WDX0562D2S075 to WDX0594D2S075	BFTX01604N	0.3	TRX06	-
WDX0625D2S100 to WDX0687D2S100	BFTX0204N	0.5	TRX06	-
WDX0750D2S100 to WDX0875D2S100	BFTY02206	1.0	-	TRD07
WDX0937D2S125 to WDX1125D2S125	BFTX02506N	1.5	-	TRD08
WDX1187D2S125 to WDX1437D2S150	BFTX03584	3.5	-	TRD15
WDX1500D2S150 to WDX1750D2S150	BFTX0511N	5.0	-	TRD20
WDX1812D2S150 to WDX2625D2S150	BFTX0615N	5.0	-	TRD25

Radial Offset Amount J122

●: USA Stocked Item

N·m Recommended Tightening Torque (N·m)

WDX Type Inch 3D (Internal Coolant Supply)

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 3D | Indexable

Fig 1

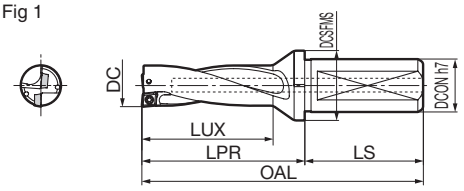


Fig 2

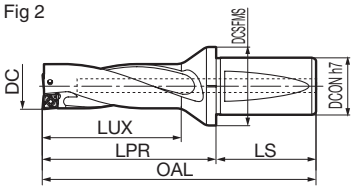
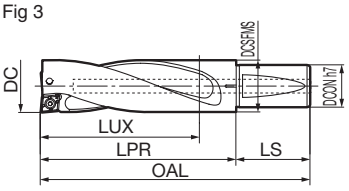


Fig 3



Holder Diameter ø0.5625" to 2.6250"

Dimensions (inch)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Applicable Insert	Coolant Connection	Fig
0.5625	•	WDX0562D3S075	1.8040	2.3950	4.3950	2.0000	1.1020	0.7500	WDXT042004	1/8 NPT	1
0.5937	•	WDX0594D3S075	1.9000	2.4910	4.4910						1
0.6250	•	WDX0625D3S100	1.9930	2.5840	5.0840	2.5000	1.2600	1.0000	WDXT052504	1/4 NPT	1
0.6562	•	WDX0656D3S100	2.0860	2.6770	5.1770						1
0.6875	•	WDX0687D3S100	2.1790	2.7700	5.2700						1
0.7500	•	WDX0750D3S100	2.3680	2.9590	5.4590	2.5000	1.2990	1.0000	WDXT063006		1
0.7870	•	WDX0787D3S100	2.4790	3.0700	5.5700						1
0.8125	•	WDX0812D3S100	2.5560	3.1460	5.6460						1
0.8750	•	WDX0875D3S100	2.7430	3.3340	5.8340						2
0.9375	•	WDX0937D3S125	2.9310	3.6390	6.1390	2.5000	1.6140	1.2500	WDXT073506		2
1.0000	•	WDX1000D3S125	3.1180	3.8270	6.3270						2
1.0625	•	WDX1062D3S125	3.3060	4.0140	7.0140	3.0000	1.6140	1.2500			2
1.1250	•	WDX1125D3S125	3.4930	4.2020	7.2020						2
1.1875	•	WDX1187D3S125	3.7200	4.5470	7.5470	3.0000	1.9680	1.2500	WDXT094008		2
1.2500	•	WDX1250D3S125	3.9070	4.7340	7.7340						2
1.3125	•	WDX1312D3S150	4.0950	5.0400	8.0400	3.0000	2.1260	1.5000			2
1.3750	•	WDX1375D3S150	4.2820	5.2270	8.2270						2
1.4375	•	WDX1437D3S150	4.4700	5.4150	8.4150						2
1.5000	•	WDX1500D3S150	4.6970	5.8780	8.8780	3.0000	1.9490	1.5000	WDXT125012		2
1.5625	•	WDX1562D3S150	4.8830	6.0640	9.0640						2
1.6250	•	WDX1625D3S150	5.0720	6.2530	9.2530	3.0000	1.9490	1.5000			3
1.6875	•	WDX1687D3S150	5.2610	6.4420	9.4420						3
1.7500	•	WDX1750D3S150	5.4470	6.6280	9.6280						3
1.8125	•	WDX1812D3S150	5.6360	6.8170	9.8170	3.0000	1.9490	1.5000	WDXT156012		3
1.8750	•	WDX1875D3S150	5.8820	7.0030	10.0030						3
1.9375	•	WDX1937D3S150	6.0110	7.1920	10.1920						3
2.0000	•	WDX2000D3S150	6.1970	7.3780	10.3780						3
2.1250	•	WDX2125D3S150	6.5720	7.7530	10.7530						3
2.2500	•	WDX2250D3S150	7.0670	8.3270	11.3270	3.0000	2.1730	1.5000	WDXT186012		3
2.3750	•	WDX2375D3S150	7.4410	8.7010	11.7010		2.2950				3
2.5000	•	WDX2500D3S150	7.8150	9.0750	12.0750		2.4210				3
2.6250	•	WDX2625D3S150	8.1890	9.4490	12.4490		2.5470				3

Identification Code - Inch

WDX 05625 D3 S075

- WDX 05625: Dia. DC (ø0.5625")
- D3: Flute Length L/D (3D)
- S075: Shank Dia. DCON (ø0.750")

Parts

Applicable Holder	Flat Screw	N·m	Wrench	Wrench
WDX0562D3S075 to WDX0594D3S075	BFTX01604N	0.3	TRX06	-
WDX0625D3S100 to WDX0687D3S100	BFTX0204N	0.5	TRX06	-
WDX0750D3S100 to WDX0875D3S100	BFTY02206	1.0	-	TRD07
WDX0937D3S125 to WDX1125D3S125	BFTX02506N	1.5	-	TRD08
WDX1187D3S125 to WDX1437D3S150	BFTX03584	3.5	-	TRD15
WDX1500D3S150 to WDX1750D3S150	BFTX0511N	5.0	-	TRD20
WDX1812D3S150 to WDX2625D3S150	BFTX0615N	5.0	-	TRD25

Radial Offset Amount J122

●: USA Stocked Item

N·m Recommended Tightening Torque (N·m)

WDX Type Inch 4D (Internal Coolant Supply)

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 4D | Indexable

Fig 1

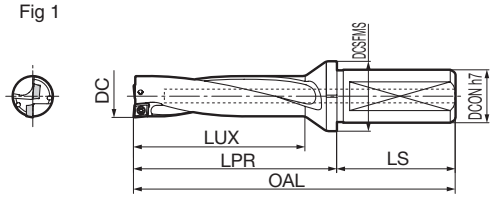


Fig 2

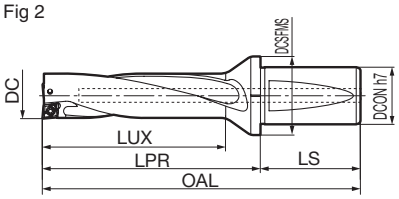
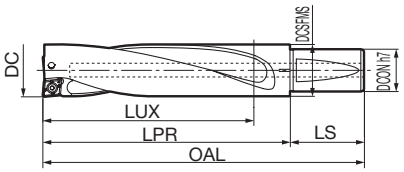


Fig 3



Holder Diameter ø0.5625" to 2.5000"

Dimensions (inch)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Applicable Insert	Coolant Connection	Fig
0.5625	•	WDX0562D4S075	2.3660	2.9570	4.9570	2.0000	1.1020	0.7500	WDXT042004	1/8 NPT	1
0.5937	•	WDX0594D4S075	2.4940	3.0850	5.0850						1
0.6250	•	WDX0625D4S100	2.6180	3.2090	5.7090	2.5000	1.2600	1.0000	WDXT052504	1/4 NPT	1
0.6562	•	WDX0656D4S100	2.7420	3.3330	5.8330						1
0.6875	•	WDX0687D4S100	2.8660	3.4570	5.9570						1
0.7500	•	WDX0750D4S100	3.1180	3.7090	6.2090	2.5000	1.2990	1.0000	WDXT063006		1
0.7870	•	WDX0787D4S100	3.2660	3.8570	6.3570						1
0.8125	•	WDX0812D4S100	3.3680	3.9590	6.4590						1
0.8750	•	WDX0875D4S100	3.6180	4.2090	6.7090						2
0.9375	•	WDX0937D4S125	3.8680	4.5770	7.0770	2.5000	1.6140	1.2500	WDXT073506		2
1.0000	•	WDX1000D4S125	4.1180	4.8270	7.3270						2
1.0625	•	WDX1062D4S125	4.3680	5.0770	8.0770	3.0000	1.6140	1.2500			2
1.1250	•	WDX1125D4S125	4.6180	5.3270	8.3270						2
1.1875	•	WDX1187D4S125	4.9070	5.7340	8.7340	3.0000	1.9680	1.2500	WDXT094008		2
1.2500	•	WDX1250D4S125	5.1570	5.9840	8.9840						2
1.3125	•	WDX1312D4S150	5.4070	6.3520	9.3520	3.0000	2.1260	1.5000			2
1.3750	•	WDX1375D4S150	5.6570	6.6020	9.6020						2
1.4375	•	WDX1437D4S150	5.9070	6.8520	9.8520						2
1.5000	•	WDX1500D4S150	6.1970	7.3780	10.3780	3.0000	1.9490	1.5000	WDXT125012		2
1.5625	•	WDX1562D4S150	6.4450	7.6260	10.6260						2
1.6250	•	WDX1625D4S150	6.6970	7.8780	10.8780	3.0000	1.9490	1.5000			3
1.6875	•	WDX1687D4S150	6.9490	8.1300	11.1300						3
1.7500	•	WDX1750D4S150	7.1970	8.3780	11.3780						3
1.8125	•	WDX1812D4S150	7.4490	8.6300	11.6300	3.0000	1.9490	1.5000	WDXT156012		3
1.8750	•	WDX1875D4S150	7.6970	8.8780	11.8780						3
1.9375	•	WDX1937D4S150	7.9490	9.1300	12.1300						3
2.0000	•	WDX2000D4S150	8.1970	9.3780	12.3780						3
2.1250	•	WDX2125D4S150	8.6970	9.8780	12.8780						3
2.2500	•	WDX2250D4S150	9.3150	10.5750	13.5750	3.0000	2.1730	1.5000	WDXT186012		3
2.3750	•	WDX2375D4S150	9.8150	11.0750	14.0750		2.2950				3
2.5000	•	WDX2500D4S150	10.3150	11.5750	14.5750		2.4210				3

Identification Code - Inch

WDX 05625 D4 S075

- 05625: Dia. DC (ø0.5625")
- D4: Flute Length L/D (4D)
- S075: Shank Dia. DCON (ø0.750")

Parts

Applicable Holder	Flat Screw	N·m	Wrench	Wrench
WDX0562D4S075 to WDX0594D4S075	BFTX01604N	0.3	TRX06	-
WDX0625D4S100 to WDX0687D4S100	BFTX0204N	0.5	TRX06	-
WDX0750D4S100 to WDX0875D4S100	BFTY02206	1.0	-	TRD07
WDX0937D4S125 to WDX1125D4S125	BFTX02506N	1.5	-	TRD08
WDX1187D4S125 to WDX1437D4S150	BFTX03584	3.5	-	TRD15
WDX1500D4S150 to WDX1750D4S150	BFTX0511N	5.0	-	TRD20
WDX1812D4S150 to WDX2625D4S150	BFTX0615N	5.0	-	TRD25

Radial Offset Amount J122

●: USA Stocked Item

N·m Recommended Tightening Torque (N·m)

WDX Type Inch 5D (Internal Coolant Supply)

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 5D | Indexable

Fig 1

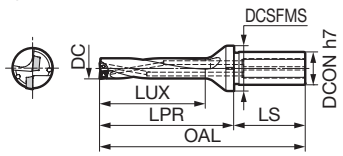


Fig 2

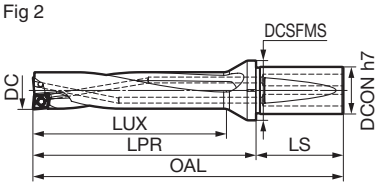
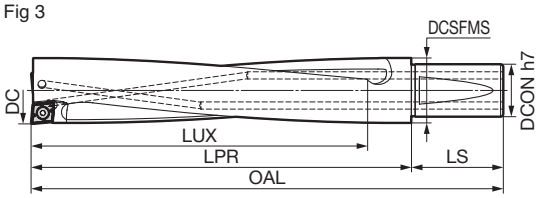


Fig 3



Holder Diameter ø0.5625" to 2.1250"

Dimensions (*inch*)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Applicable Insert	Coolant Connection	Fig
0.5625	•	WDX0562D5S075	2.9280	3.5190	5.5190	2.0000	1.1020	0.7500	WDXT042004	1/8 NPT	1
0.5937	•	WDX0594D5S075	3.0880	3.6790	5.6790						1
0.6250	•	WDX0625D5S100	3.2430	3.8340	6.3340	2.5000	1.2600	1.0000	WDXT052504	1/4 NPT	1
0.6562	•	WDX0656D5S100	3.3980	3.9890	6.4890						1
0.6875	•	WDX0687D5S100	3.5530	4.1440	6.6440						1
0.7500	•	WDX0750D5S100	3.8680	4.4590	6.9590	2.5000	1.2990	1.0000	WDXT063006		1
0.7870	•	WDX0787D5S100	4.0530	4.6440	7.1440						1
0.8125	•	WDX0812D5S100	4.1780	4.7690	7.2690						1
0.8750	•	WDX0875D5S100	4.4930	5.0840	7.5840						2
0.9375	•	WDX0937D5S125	4.8030	5.5120	8.0120	2.5000	1.6140	1.2500	WDXT073506		2
1.0000	•	WDX1000D5S125	5.1180	5.8270	8.3270						2
1.0625	•	WDX1062D5S125	5.4280	6.1370	9.1370	3.0000	1.6140	1.2500			2
1.1250	•	WDX1125D5S125	5.7430	6.4520	9.4520						2
1.1875	•	WDX1187D5S125	6.0930	6.9200	9.9200	3.0000	1.9680	1.2500	WDXT094008		2
1.2500	•	WDX1250D5S125	6.4080	7.2350	10.2350						2
1.3125	•	WDX1312D5S150	6.7180	7.6630	10.6630	3.0000	2.1260	1.5000			2
1.3750	•	WDX1375D5S150	7.0330	7.9780	10.9780						2
1.4375	•	WDX1437D5S150	7.3430	8.2880	11.2880						2
1.5000	•	WDX1500D5S150	7.6970	8.8780	11.8780	3.0000	1.9490	1.5000	WDXT125012		2
1.5625	•	WDX1562D5S150	8.0070	9.1880	12.1880						2
1.6250	•	WDX1625D5S150	8.3220	9.5030	12.5030	3.0000	1.9490	1.5000			3
1.6875	•	WDX1687D5S150	8.6320	9.8130	12.8130						3
1.7500	•	WDX1750D5S150	8.9470	10.1280	13.1280						3
1.8125		WDX1812D5S150	9.2570	10.4380	13.4380	3.0000	1.9490	1.5000	WDXT156012		3
1.8750	•	WDX1875D5S150	9.5720	10.7530	13.7530						3
1.9375		WDX1937D5S150	9.8820	11.0630	14.0630						3
2.0000	•	WDX2000D5S150	10.1970	11.3780	14.3780						3
2.1250	•	WDX2125D5S150	10.8220	12.0030	15.0030						3

●: USA Stocked Item

Identification Code - Inch

WDX 05625 D5 S075

- WDX
- 05625: Dia. DC (ø0.5625")
- D5: Flute Length L/D (5D)
- S075: Shank Dia. DCON (ø0.750")

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX0562D5S075 to WDX0594D5S075	BFTX01604N	0.3	TRX06	-
WDX0625D5S100 to WDX0687D5S100	BFTX0204N	0.5	TRX06	-
WDX0750D5S100 to WDX0875D5S100	BFTY02206	1.0	-	TRD07
WDX0937D5S125 to WDX1125D5S125	BFTX02506N	1.5	-	TRD08
WDX1187D5S125 to WDX1437D5S150	BFTX03584	3.5	-	TRD15
WDX1500D5S150 to WDX1750D5S150	BFTX0511N	5.0	-	TRD20
WDX1812D5S150 to WDX2625D5S150	BFTX0615N	5.0	-	TRD25

Radial Offset Amount J122

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions (for 2D)

		Work Material	Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	V_c (cutting speed) (SFM)	*f* (feed rate) (IPR) (Min. - **Optimum** - Max.) ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
2D	P	Steel, Carbon Steel SS400	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
		S15C		L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
		S45C	190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
		S45C Hardened		G	ACP100	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
		S75C	250 ~ 350	G	ACP100	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
		S75C Hardened		G	ACP100	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
		Low-alloy Steel SCM,SNCM	180 ~ 275	L	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
		SCM, SNCM Hardened		G	ACP100	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
		SCM, SNCM Hardened	275 ~ 350	G	ACP100	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
		SCM, SNCM Hardened		G	ACP100	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
		High-alloy Steel SKD,SKT,SKH	200 ~ 325	G	ACP100	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
		SKD, SKT, SKH (Sintered)		G	ACP100	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
	M	Stainless Steel SUS304, SUS316 (Austenitic)	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.005 - .010	.006 - .012
		SUS304, SUS316 (Austenitic)	280		ACP300	325 - 500	.002 - .006	.003 - .006	.004 - .008	.006 - .010
		SUS403/Others (Martensitic/Ferritic	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.004 - .010	.006 - .012
		SUS403/Others (Martensitic (hardened))	240	G	ACP300	325 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
	K	Cast Iron		H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
		Ductile Cast Iron		H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)	200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
	N	Aluminum Alloy		G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
		Copper Alloy		G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate *(f)* to 75% of the figures in the table above.

Recommended Cutting Conditions (for 3D)

		Work Material	Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	V_c (cutting speed) (SFM)	*f* (feed rate) (IPR) (Min. - **Optimum** - Max.) ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
	P	Steel, Carbon Steel SS400	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
		S15C		L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
		S45C	190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
		S45C Hardened		G	ACP100	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
		S75C	250 ~ 350	G	ACP100	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
		S75C Hardened		G	ACP100	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
		Low-alloy Steel SCM,SNCM	180 ~ 275	L	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
		SCM, SNCM Hardened		G	ACP100	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
		SCM, SNCM Hardened	275 ~ 350	G	ACP100	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
		SCM, SNCM Hardened		G	ACP100	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
		High-alloy Steel SKD,SKT,SKH	200 ~ 325	G	ACP100	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
		SKD, SKT, SKH (Sintered)		G	ACP100	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
	M	Stainless Steel SUS304, SUS316 (Austenitic)	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.005 - .010	.006 - .012
		SUS304, SUS316 (Austenitic)	280		ACP300	325 - 500	.002 - .006	.003 - .006	.004 - .008	.006 - .010
		SUS403/Others (Martensitic/Ferritic	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.004 - .010	.006 - .012
		SUS403/Others (Martensitic (hardened))	240	G	ACP300	325 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
	K	Cast Iron		H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
		Ductile Cast Iron		H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)	200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
	N	Aluminum Alloy		G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
		Copper Alloy		G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate *(f)* to 75% of the figures in the table above.

Recommended Cutting Conditions (for 4D)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (cutting speed) (SFM)	*f* (feed rate) (IPR) (Min. - **Optimum** - Max.)			
								ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
4D	P	Steel, Carbon Steel	SS400	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
			S15C		L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
			S45C	190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
			S45C Hardened		G	ACP100	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
			S75C	250 ~ 350	G	ACP100	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
			S75C Hardened		G	ACP100	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
		Low-alloy Steel	SCM,SNCM	180 ~ 275	L	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
			SCM, SNCM Hardened		G	ACP100	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
			SCM, SNCM Hardened	275 ~ 350	G	ACP100	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
			SCM, SNCM Hardened		G	ACP100	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
		High-alloy Steel	SKD,SKT,SKH	200 ~ 325	G	ACP100	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
			SKD, SKT, SKH (Sintered)		G	ACP100	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
	M	Stainless Steel	SUS304, SUS316 (Austenitic)	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.005 - .010	.006 - .012
			SUS304, SUS316 (Austenitic)	280		ACP300	325 - 500	.002 - .006	.003 - .006	.004 - .008	.006 - .010
			SUS403/Others (Martensitic/Ferritic	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.004 - .010	.006 - .012
			SUS403/Others (Martensitic (hardened))	240	G	ACP300	325 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
	K	Cast Iron			H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
		Ductile Cast Iron			H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
	N	Aluminum Alloy			G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
		Copper Alloy			G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

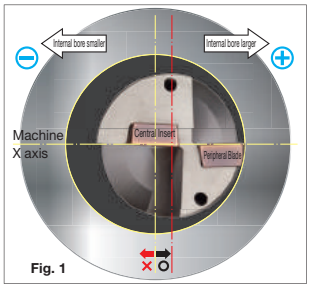
For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate *(f)* to 75% of the figures in the table above.

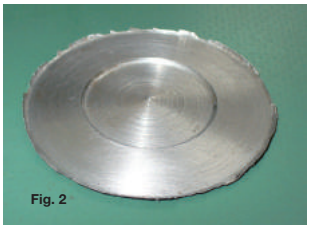
Recommended Cutting Conditions (for 5D)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (cutting speed) (SFM)	*f* (feed rate) (IPR) (Min. - **Optimum** - Max.)			
								ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
	P	Steel, Carbon Steel	SS400	<190	G	ACP300	450 - 780	.002 - .004	.003 - .006	.004 - .007	
			S15C		L	ACP300	450 - 750	.002 - .004	.002 - .005	.002 - .005	
			S45C	190 ~ 250	G	ACP300	400 - 700	.003 - .006	.003 - .007	.005 - .008	
			S45C Hardened		G	ACP100	400 - 700	.002 - .004	.002 - .005	.002 - .005	
			S75C	250 ~ 350	G	ACP100	350 - 550	.003 - .006	.003 - .007	.003 - .007	
			S75C Hardened		G	ACP100	350 - 525	.002 - .004	.002 - .004	.002 - .005	
		Low-alloy Steel	SCM,SNCM	180 ~ 275	L	ACP300	350 - 700	.003 - .006	.003 - .008	.004 - .008	
			SCM, SNCM Hardened		G	ACP100	350 - 650	.002 - .004	.002 - .005	.002 - .005	
			SCM, SNCM Hardened	275 ~ 350	G	ACP100	300 - 500	.003 - .005	.003 - .007	.004 - .008	
			SCM, SNCM Hardened		G	ACP100	300 - 500	.002 - .003	.002 - .004	.002 - .005	
		High-alloy Steel	SKD,SKT,SKH	200 ~ 325	G	ACP100	350 - 650	.003 - .006	.003 - .008	.004 - .008	
			SKD, SKT, SKH (Sintered)		G	ACP100	300 - 450	.002 - .004	.003 - .005	.003- .006	
	M	Stainless Steel	SUS304, SUS316 (Austenitic)	160	G	ACP300	400 - 650	.002 - .004	.003 - .006	.003 - .007	
			SUS304, SUS316 (Austenitic)	280		ACP300	325 - 500	.001 - .003	.003 - .005	.003 - .006	
			SUS403/Others (Martensitic/Ferritic	160	G	ACP300	400 - 650	.002 - .004	.003 - .006	.003 - .007	
			SUS403/Others (Martensitic (hardened))	240	G	ACP300	325 - 600	.001 - .003	.003 - .005	.003 - .006	
	K	Cast Iron			H	ACK300	400 - 650	.004 - .008	.004 - .010	.005 - .011	
		Ductile Cast Iron			H	ACK300	300 - 500	.004 - .008	.004 - .010	.005 - .011	
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200 ~ 375	G	ACP300	80 - 250	.002 - .004	.003 - .006	.003 - .007	
	N	Aluminum Alloy			G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	
		Copper Alloy			G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate *(f)* to 75% of the figures in the table above.

■ Lathe Machining Guidelines





■ Drill Mounting

- Set the drill so that the peripheral insert is parallel to the X axis of the machine. (Fig.1)
- Press the end of the flange of the drill tightly against the face of the holder when tightening the bolt.

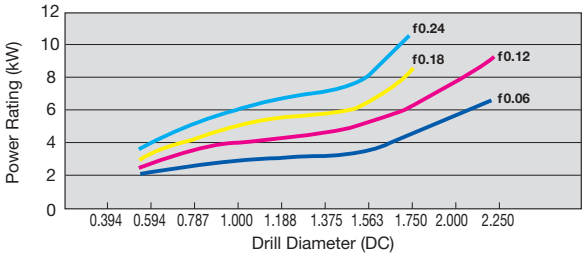
■ Adjusting work diameter (offset)

- The work diameter is adjustable by moving the machine X axis.
- Make the adjustment by moving in the positive direction of the X axis (enlarging the bore diameter). Moving the X axis in the negative direction (to reduce the bore diameter) is not recommended as the holder may interfere with the hole. (See Fig. 1)
- The maximum allowable adjustment (offset) differs depending on the drill diameter. Refer to Radial Offset (Max) in the Holder dimension tables on pages J111, J114, J117, J120.

■ Other notes

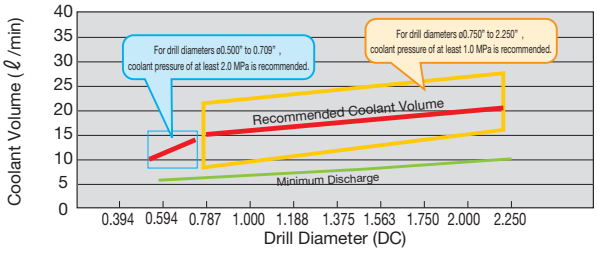
- When the drill is mounted on a lathe, the centre of the central insert is designed to be 0.15 to 0.2 mm below the centre of the spindle.
- If the spindle deviates so far off centre that the centre of the central insert lies above the spindle centre, the central insert will break.
- Set the depth of cut for turning or internal boring work to 1/5 or less of the drill diameter (max. 5 mm or less). (Example: Set depth of cut to 4 mm or less for a drill diameter of ø20 mm)
- Install a cover to prevent injury from possible chip fly-out (see disc-shaped chip in Figure 2) when through boring on a lathe. If your equipment has no cover, attach a cover or similar part for your safety.

■ Typical Power Ratings



<CAUTIONS>
- Power ratings are subject to change based on conditions such as work material and cutting speed, and should only be used for reference.
- Cutting Conditions (Reference)
  Work Material: S50C (230HB)
  Cutting Speed: v_c=492 SFM

■ Typical Coolant Volume

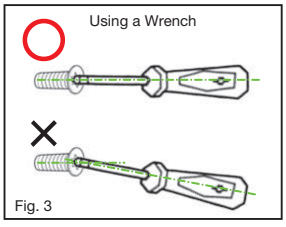


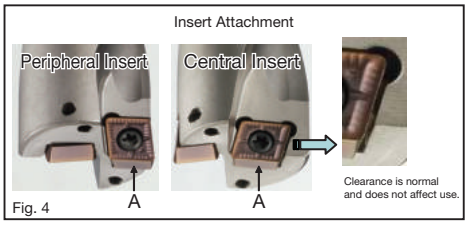
<CAUTIONS>
- Coolant volume is a factor that affects drilling performance, particularly with respect to chip evacuation and lubricity. This is particularly important for chip evacuation and lubricity.
- Coolant pressure should be set higher for small drills. (ø18.0 mm or smaller)
- Coolant volume is usually adjusted by changing the coolant pressure provided on most CNC machines.
- This table provides guideline values only. More coolant may be required depending on the machine, coolant and work material.

■ Precautions for Attaching and Removing Inserts

- Before mounting the insert, remove all traces of foreign matter on the insert seat using air or other means.
- When using the wrench, align it to the axis of the screw and press while turning. (See Fig. 3) If the wrench is not aligned with the screw, the insert will be insufficiently clamped and the tip of the wrench and/or the Torx hole of the screw may become deformed.
- Do not allow clearance between the insert seat and drill when mounting the insert (Fig. 4, Part A). Figure 4 shows a properly mounted insert.

* It is normal for the outer sides of the central insert to have clearance because it is clamped at its centre and pushed to the rear.





■ Troubleshooting

Problem	Symptom	Cause	Countermeasures
Too much variation in hole diameter	Drilled hole diameter is larger than desired	· Deflection of the holder due to high thrust force	· Decrease the feed rate to decrease the thrust force. · Make an adjustment on the X axis.
	Drilled hole diameter is smaller than desired	· The cutting edge backs off and does not enter the workpiece	· Increase the feed rate. · Make an adjustment on the X axis.
	Pronounced difference in hole diameter at entrance and bottom	· Packing of chips	· Increase the feed rate to improve chip evacuation. · Use an L type breaker for chip control.
Poor quality machined hole surface	Poor machined surface from entrance to bottom of hole	· High cutting force · Low rigidity of workpiece	· Decrease the feed rate. · Review tooling to improve rigidity.
	Poor machined surface at bottom of hole	· Machined surfaces damaged by chips	· Increase the feed rate to improve chip evacuation. · Use an L type breaker for chip control.
Insert is broken	Breakage on central insert (centre)	· Improper adjustment of centre height · Insert is not strong enough	· Check the centre height again. · If the drill is being used on a lathe, try flipping the drill 180°. · Use a strong edge chipbreaker (H type).
	Breakage on peripheral insert	· High cutting load in cutting edge	· Decrease the feed rate to decrease cutting load. · Use a strong edge chipbreaker (H type).