Tooling News No.472

SUMITOMO

CARBIDE - CBN - DIAMOND

Global Support, Global Solutions.

Indexable Drills

SumiDrill WDX Series

Rev.18

Balanced Design for Stable, High-Quality Drilling

M Type Chipbreakers for Stainless Steel Machining Now Available (ACM300)

Expansion

Four chipbreaker types resolve chip issues

Five grades support machining from steel to stainless steel, cast iron, and non-ferrous metals

Proprietary coating technology improves wear and fracture resistance for long tool life

Four-cornered insert doubles as central and peripheral insert for economical use

Dia.				
	2D	ø13.0 to 68.0mm	4D	ø13.0 to 63.0mm
	3D	ø13.0 to 68.0mm	5D	ø13.0 to 55.0mm

P M K N S H

SUMITOMO ELECTRIC GROUP

■ General Features

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

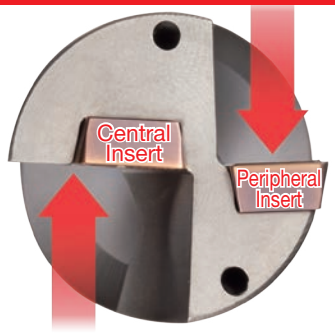
■ Product Range

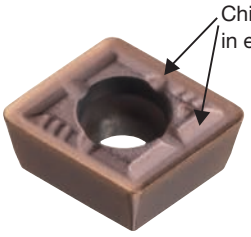
Drilling Depth	Dia. (mm)
2D ☞P8	ø13.0 to ø68.0
3D ☞P10	ø13.0 to ø68.0
4D ☞P12	ø13.0 to ø63.0
5D ☞P14	ø13.0 to ø55.0

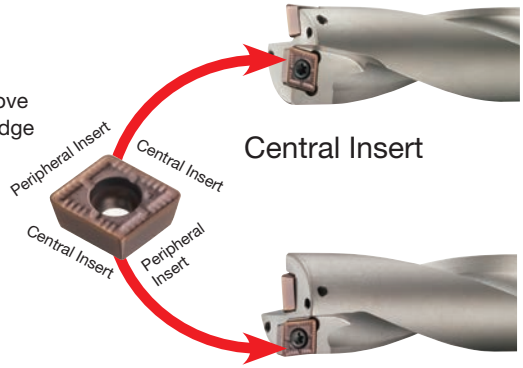
■ Features and Applications

- **Balanced 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 evacuation.
- **Versatile Tool for a Variety of Machining Applications**
  Select among four types of chipbreakers 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**
  This product has an extremely economical design where a single insert type can be used for the central insert or peripheral insert, with two corners for each position - a total of four corners.

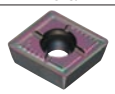
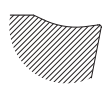
Design
Cutting force of central insert ≈ that of peripheral insert







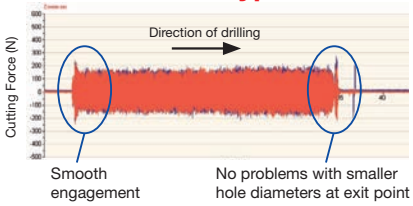
■ Chipbreaker Selection Guide

Type	L Type	G Type		H Type	M Type
Features	For Low Feed with Chip Evacuation	General-purpose	For Non-Ferrous Metal	Strong Edged	For Stainless Steel Machining
Appearance					
Cross Section					

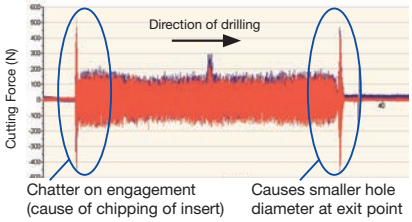
■ Cutting Performance

● Balanced Design (Comparison of Horizontal Component Values)
Balance is maintained at the through hole engagement and exit points, and drilling is stable.

WDX Type



Conventional and Competitor's Products



● Improved chip control

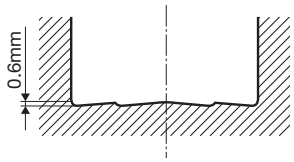
Tool : WDX 200D3S25 (ø20.0)
Work Material : SUS304
Cutting Conditions : v_c = 130m/min, f = 0.06mm/rev
H = 50mm, Wet

WDX Type

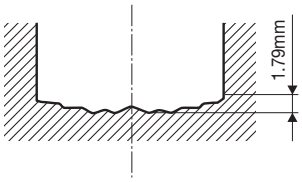
Conventional and Competitor's Products

● Finishing is easy because the hole bottom is almost flat.

Bottom of hole after drilling with WDX200D3S25



Bottom of hole after drilling with conventional tool (ø20)



M Type Chipbreaker for Stainless Steel Machining + ACM300 Grade

New

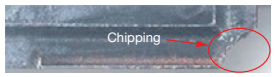
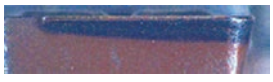
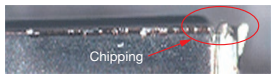
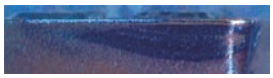
Newly developed M Type chipbreaker for stainless steel achieves stable hole quality through chip control.

Tool	WDX Type M Type + ACM300	WDX Type G Type + ACP300	Competitor's Product For Stainless Steel Machining
Hole Quality			
Chip			

Tool : WDX200D3S25
Insert : WDXT063006-M (ACM300)
Work Material : SUS316L
Cutting Conditions : v_c = 150m/min f = 0.08mm/rev
H = 60mm Wet

For High-speed Drilling of Steel and Cast Iron ACP100

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

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

Tool : WDX250D3S25
Insert : WDXT063006-G (ACP100)
Work Material : S50C
Cutting Conditions : v_c = 200m/min f = 0.12mm/rev
H = 50mm (Through Hole) Wet

Drills for Deep Hole Drilling L/D=5 (In stock from ø13.0 to ø55.0 mm)

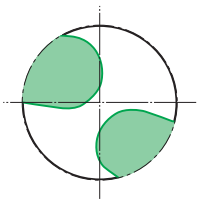
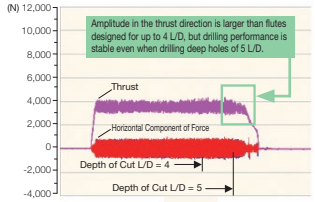
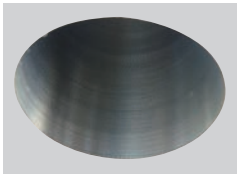
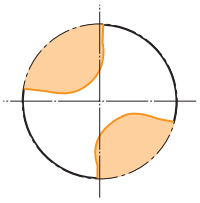
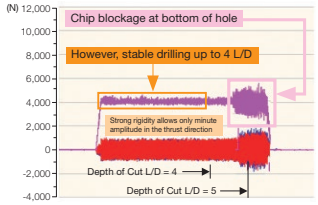
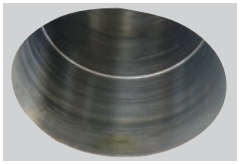
■ Features

The WDX Type for 5D drilling features a specially designed flute shape and large coolant hole for excellent chip evacuation even during deep hole drilling.

Large coolant hole

Coolant supply guide

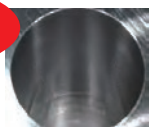
Special Flute Shape for L/D=5

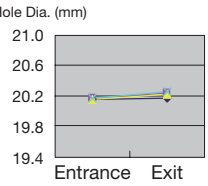
Tool Holder Features	Cross Section	Cutting Force	Machined Surface (Exit)
WDX 260D5S32 **Special Flute Shape for L/D=5** * Designed with emphasis on chip evacuation Expanded flute design improves chip evacuation for stable drilling performance even with holes up to 5 L/D.			Good machined surface down to end of hole 
Comparison Tool **Flute Shape for L/D=4** * Designed with emphasis on drill rigidity Flute design enables greater rigidity of the drill, achieving stable drilling of shallow holes up to 4 L/D.			Poor machined surface due to chip blockage at bottom of hole (near 5 L/D) 

Work Material: SUS304 Tool: WDX260D5S32 Insert: WDXT 073506-G
Cutting Conditions: v_c = 150m/min f = 0.05mm/rev H = 130mm (Through Hole) Wet

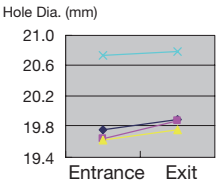
WDX Type

Good performance in terms of both machined surface and hole diameter





Competitor's Product A



Work Material: Machine Component (SCM415) Tool: WDX200D5S25 Insert: WDXT063006-G (ACP300)
Cutting Conditions: v_c = 185m/min f = 0.12mm/rev H = 87mm (Through Hole) Wet

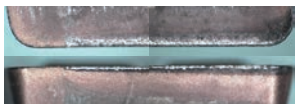
· Good machined surface · Consistent drilled diameter

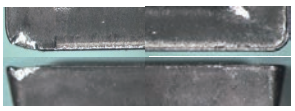
WDX Type

Normal wear

Competitor's Product B

Corner chipping, rake face wear



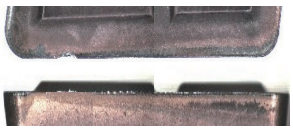


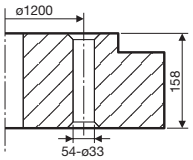
Work Material: Tractor Link (35MnBM)
Tool: WDX205D5S25 Insert: WDXT063006-G (ACP300)
Cutting Conditions: v_c = 100m/min f = 0.11mm/rev H = 60mm (Through Hole) Wet

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

WDX Type

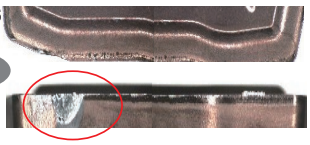
Normal wear





Competitor's Product C

Corner chipping



Work Material: Bearing for Wind Power Generator (42CrMo)
Tool: WDX330D5S40 Insert: WDXT094008-L (ACP300)
Cutting Conditions: v_c = 146m/min f = 0.10mm/rev H = 158mm (Through Hole) Wet

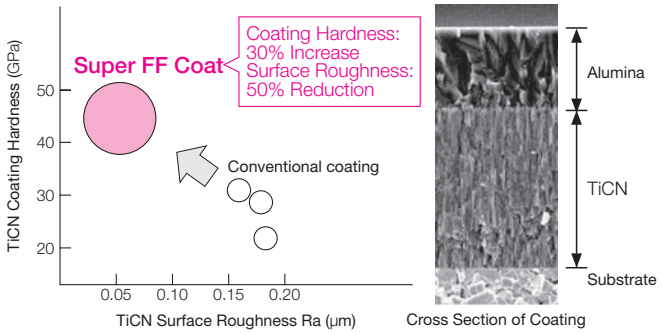
· Eliminates defects in workpieces caused by insert chipping!

CVD grade with superior wear resistance ACP100

■ Coating Features

C Super FF Coat (CVD: Chemical Vapor Deposition) ACP100

Characteristics of the Coating Layer

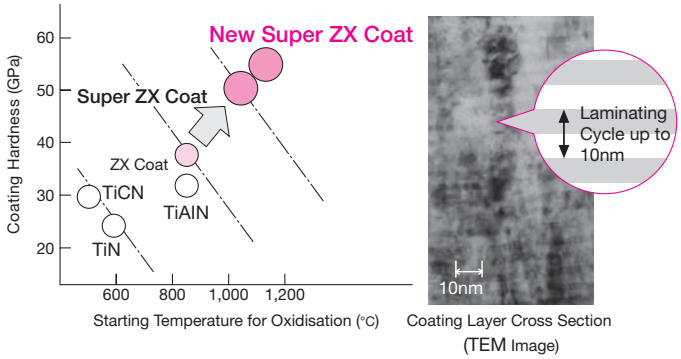


Provides excellent wear resistance and high reliability thanks to our coating stress control technology and the ultra-fine crystal grain coating layer of the Super FF Coat achieved through our proprietary CVD process technology

PVD grades with superior fracture resistance ACP300/ACM300/ACK300

P New Super ZX Coat (PVD: Physical Vapor Deposition) ACP300 ACM300 ACK300

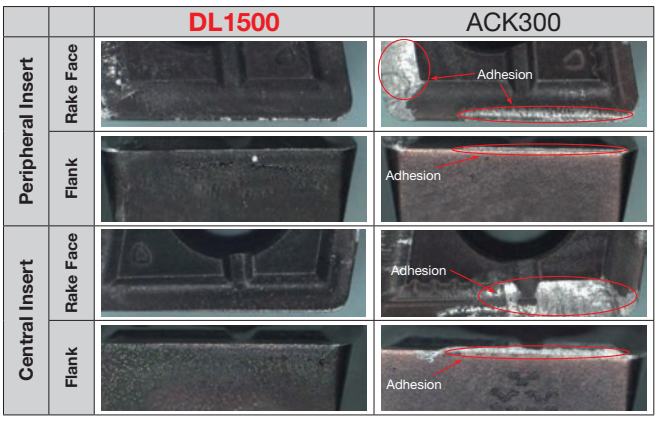
Characteristics of the Coating Layer



Employs our super multi-layered New Super ZX Coat, which utilises our proprietary thin-layer coating technology and advanced nanotechnology. The coating consists of thousands of alternating, nanometre-thin (1 nanometre = 1 billionth of a metre) layers.

Grade for Non-Ferrous Metal Machining AURORA Coat (DLC) DL1500

DL1500 grade for non-ferrous metal machining offers greatly improved adhesion resistance compared to conventional tools.
Ideal for drilling copper alloys as well as aluminum alloys.



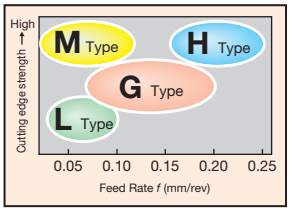
Work Material	: ADC52
Tool	: WDX250D3S25 (DL1500 + G Type)
Cutting Conditions	: v_c = 150m/min (n = 1,911min^{-1})
	f = 0.1mm/rev
	H = 50mm Through Wet

Insert Selection Guide Insert series for WDX series offers a wide selection

5 Grades

Work Material \ Grade	ACP100	ACP300	ACM300	ACK300	DL1500
P Steel (High-speed Drilling)	○				
P Steel (General Drilling)		○			
M Stainless Steel		○	○		
K Cast Iron (High-speed Drilling)	○				
K Cast Iron (General Drilling)				○	
N Non-Ferrous Metals					○

4 Types of Chipbreakers



11 Combinations are possible!

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

2nd Recommendation (P)

P Steel — For Low Feed with Chip Evacuation

L Type ACP300

- For drilling of SS400, SCM415, SCM420, 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 Steel — General-purpose

G Type ACP100

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

P Steel — For Low Feed with Chip Evacuation

L Type ACP100

- For low-feed conditions

P Steel — Strong Edged

H Type ACP300

- For drilling with interruptions (entry/through) due to slanted entry, reduce the feed rate in the interrupted area (around f = 0.05mm/rev)
- For insufficient cutting edge strength due to drilling of hardened steel (heat treated)

P Steel Improved chip control (low carbon steel, etc.)

P Steel Insufficient wear resistance

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

1st Recommendation (P M K N)

General-purpose

G Type

P Steel — For general steel and alloy steel drilling — **ACP300**

K Cast Iron — For cast iron drilling — **ACK300**

N Non-Ferrous Metal — For non-ferrous metal drilling — **DL1500**

M Stainless Steel — For stainless steel drilling — ACM300

Stainless Steel

M Type New

K Cast Iron Insufficient wear resistance (high-speed drilling)

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

M Stainless Steel Lack of chip evacuation (extension)

2nd Recommendation (M K)

K Cast Iron — General-purpose

G Type ACP100

- When heavy flank wear occurs in cast iron drilling
- To limit wear in high-speed, low to medium feed conditions

K Cast Iron — Strong Edged

H Type ACK300

- When interrupted drilling is performed due to slanted entry, etc. as with steel drilling
- For insufficient cutting edge strength due to high-feed drilling

M Stainless Steel — General-purpose

G Type 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.

M E M O

WDX series for 2D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.26% | Carbon Steel/ Alloy Steel from 0.25% | 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

Drilling tolerance: -0.05 to +0.15mm

*For h7 tolerance, refer to the General Catalogue.

Fig 1

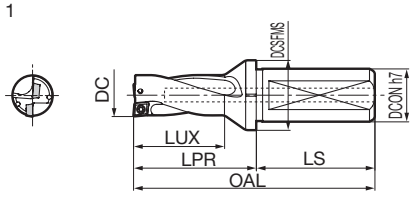


Fig 2

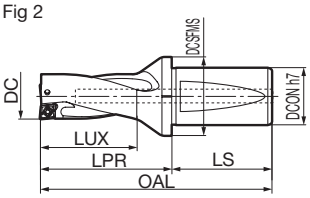
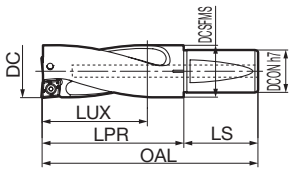


Fig 3



■ Diameter ø13.0 to 45.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Boss DCSFMS	Shank Dia. DCON	Radial Offset Amount (Max)	Applicable Insert	Fig
13.0	●	WDX 130D2S20	29	44	88				0.35		1
13.5	●	135D2S20	30	45	89				0.30		1
14.0	●	140D2S20	31	46	90	44	28.0	20	0.25	WDXT 042004	1
14.5	●	145D2S20	32	47	91				0.20		1
15.0	●	150D2S20	33	48	92				0.15		1
15.5	●	WDX 155D2S20	34	49	93				0.40		1
16.0	●	160D2S20	35	50	94	44	30.0	20			1
16.5	●	165D2S20	36	51	95				0.35	WDXT 052504	1
17.0	●	170D2S20	37	52	96				0.30		1
17.5	●	WDX 175D2S25	38	53	109	56	32.0	25	0.25		1
18.0	●	180D2S25	39	54	110				0.20		1
18.5	●	WDX 185D2S25	40	55	111				0.50		1
19.0	●	190D2S25	41	56	112				0.45		1
19.5	●	195D2S25	42	57	113				0.40		1
20.0	●	200D2S25	43	58	114				0.30		1
20.5	●	205D2S25	44	59	115	56	33.0	25		WDXT 063006	1
21.0	●	210D2S25	45	60	116				0.20		1
21.5	●	215D2S25	46	61	117				0.15		1
22.0	●	220D2S25	47	62	118				0.10		1
22.5	●	225D2S25	48	63	119				0.05		1
23.0	●	WDX 230D2S25	49	67	123				0.70		1
23.5	●	235D2S25	50	68	124						1
24.0	●	240D2S25	51	69	125	56	37.0	25	0.60		1
24.5	●	245D2S25	52	70	126				0.50		1
25.0	●	250D2S25	53	71	127						1
25.5	●	WDX 255D2S32	54	74	134				0.45	WDXT 073506	2
26.0	●	260D2S32	55	75	135				0.40		2
26.5	●	265D2S32	56	76	136				0.35		2
27.0	●	270D2S32	57	77	137	60	41.0	32	0.25		2
27.5	●	275D2S32	58	78	138				0.20		2
28.0	●	280D2S32	59	79	139				0.15		2
28.5	●	285D2S32	60	80	140				0.10		2
29.0	●	WDX 290D2S32	62	83	143		50.0		1.00		2
29.5	●	295D2S32	63	84	144				0.95		2
30.0*	●	300D2S32	64	88	148	60		32	0.90		2
31.0*	●	310D2S32	66	90	150		54.0		0.80		2
32.0*	●	320D2S32	68	92	152				0.70		2
30.0*	●	WDX 300D2S40	64	88	158				0.90	WDXT 094008	2
31.0*	●	310D2S40	66	90	160				0.80		2
32.0*	●	320D2S40	68	92	162				0.70		2
33.0	●	330D2S40	70	94	164	70	54.0	40	0.55		2
34.0	●	340D2S40	72	96	166				0.45		2
35.0	●	350D2S40	74	98	168				0.35		2
36.0	●	360D2S40	76	100	170				0.20		2
37.0	●	WDX 370D2S40	79	109	179				1.00		2
38.0	●	380D2S40	81	111	181						2
39.0	●	390D2S40	83	113	183				0.90		2
40.0	●	400D2S40	85	115	185				0.80		2
41.0	●	410D2S40	87	117	187	70	49.5	40	0.70	WDXT 125012	2
42.0	●	420D2S40	89	119	189				0.60		2
43.0	●	430D2S40	91	121	191				0.50		2
44.0	●	440D2S40	93	123	193						2
45.0	●	450D2S40	95	125	195				0.40		2

*Diameters ø30, ø31, ø32 are in stock with shank diameters of ø32 and ø40.

Radial Offset Amount P16

■ Diameter ø46.0 to 68.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Boss DCSFMS	Shank Dia. DCON	Radial Offset Amount (Max)	Applicable Insert	Fig
46.0	●	WDX 460D2S40	97	127	197				1.50		2
47.0	●	470D2S40	99	129	199				1.40		2
48.0	●	480D2S40	101	131	201		49.5		1.30		2
49.0	●	490D2S40	103	133	203				1.20		2
50.0	●	500D2S40	105	135	205	70		40	1.10	WDXT 156012	2
51.0	●	510D2S40	107	137	207				1.00		3
52.0	●	520D2S40	109	139	209		50.5		0.90		3
53.0	●	530D2S40	111	141	211				0.80		3
54.0	●	540D2S40	113	143	213		52.5		0.60		3
55.0	●	550D2S40	115	145	215		53.5		0.50		3
56.0	●	WDX 560D2S40	120	152	222		54.0		2.00		3
57.0	●	570D2S40	122	154	224		55.0		1.80		3
58.0	●	580D2S40	124	156	226		56.0		1.70		3
59.0	●	590D2S40	126	158	228		57.0		1.60		3
60.0	●	600D2S40	128	160	230		58.0		1.50		3
61.0	●	610D2S40	130	162	232		59.0		1.40		3
62.0	●	620D2S40	132	164	234	70	60.0	40	1.30	WDXT 186012	3
63.0	●	630D2S40	134	166	236		61.0		1.20		3
64.0	●	640D2S40	136	168	238		62.0		1.00		3
65.0	●	650D2S40	138	170	240		63.0		0.90		3
66.0	●	660D2S40	140	172	242		64.0		0.70		3
67.0	●	670D2S40	142	174	244		65.0		0.60		3
68.0	●	680D2S40	144	176	246		66.0		0.50		3

■ Parts

Applicable Holders	Flat Insert Screw		Wrench	Wrench
		N·m		
WDX130D2S20 to WDX150D2S20	BFTX01604N	0.3	TRX06	—
WDX155D2S20 to WDX180D2S25	BFTX0204N	0.5	TRX06	—
WDX185D2S25 to WDX225D2S25	BFTY02206	1.0	—	TRD07
WDX230D2S25 to WDX285D2S32	BFTX02506N	1.5	—	TRD08
WDX290D2S32 to WDX360D2S40	BFTX03584	3.5	—	TRD15
WDX370D2S40 to WDX450D2S40	BFTX0511N	5.0	—	TRD20
WDX460D2S40 to WDX680D2S40	BFTX0615N	5.0	—	TRD25

■ Identification Code

WDX 200 D2 S25

- WDX: Dia. DC (ø20.0)
- 200: Dia. DC (ø20.0)
- D2: Flute Length L/D (2D)
- S25: Shank Dia. DCON (ø25.0)

●mark: Standard stocked item

■ Insert

Dimensions (mm)

Grade Classification		Coated Carbide										
Process	High-speed/Light	P K				N						
	General-purpose		P	M								
	Roughing		P		K							

Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	Width W1	Thickness S	Corner Radius RE1	Corner Radius RE2	Applicable Holders
WDXT 042004-L	●	●		●		1	4.2	2.0	0.4	0.4	WDX130D2S20 to WDX150D2S20
042004-G	●	●		●	●	2					
042004-H	●	●		●		3					
042004-M			●			4				0.8	
WDXT 052504-L	●	●		●		1	5.0	2.5	0.4	0.4	WDX155D2S20 to WDX180D2S25
052504-G	●	●		●	●	2					
052504-H	●	●		●		3					
052504-M			●			4				1.0	
WDXT 063006-L	●	●		●		1	6.0	3.0	0.6	0.6	WDX185D2S25 to WDX225D2S25
063006-G	●	●		●	●	2					
063006-H	●	●		●		3					
063006-M			●			4				1.4	
WDXT 073506-L	●	●		●		1	7.5	3.5	0.6	0.6	WDX230D2S25 to WDX285D2S32
073506-G	●	●		●	●	2					
073506-H	●	●		●		3					
073506-M			●			4				1.6	
WDXT 094008-L	●	●		●		1	9.6	4.0	0.8	0.8	WDX290D2S32 to WDX360D2S40
094008-G	●	●		●	●	2					
094008-H	●	●		●		3					
094008-M			●			4				2.4	
WDXT 125012-L	●	●		●		1	12.4	5.0	1.2	1.2	WDX370D2S40 to WDX450D2S40
125012-G	●	●		●	●	2					
125012-H	●	●		●		3					
125012-M			●			4				3.2	
WDXT 156012-L	●	●		●		1	15.2	6.0	1.2	1.2	WDX460D2S40 to WDX550D2S40
156012-G	●	●		●	●	2					
156012-H	●	●		●		3					
WDXT 186012-L	●	●		●		1	18.0	6.0	1.2	1.2	WDX560D2S40 to WDX680D2S40
186012-G	●	●		●		2					
186012-H	●	●		●		3					

Fig 1 For low feed with chip evacuation

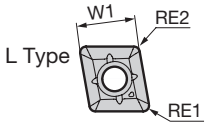


Fig 2 General-purpose

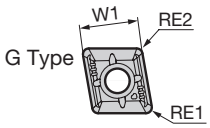


Fig 3 Strong Edged

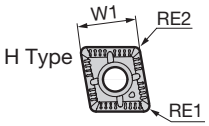
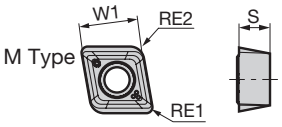


Fig 4 For stainless steel machining



■ Identification Code

WDXT 06 30 06 -G

- 06: Width across Flats (6.0)
- 30: Thickness x 10 (3.0)
- 06: Corner Radius x 10 (0.6)
- -G: Chipbreaker Type

■ Recommended Cutting Conditions (2D)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (cutting speed) (m/min)	*f* (feed rate) (mm/rev) (Min. - **Optimum** - Max.) ø13.0 to ø18.0	ø18.5 to ø29.0	ø29.5 to ø36.0	ø37.0 to ø55.0	ø56.0 to ø68.0
2D	P	Steel, Carbon Steel	SS400	125	G	ACP300	120-**180**-240	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.11	0.05-**0.08**-0.12	0.06-**0.09**-0.13
			S15C	125	L	ACP300	130-**170**-220	0.04-**0.08**-0.12	0.04-**0.08**-0.12	0.04-**0.08**-0.13	0.05-**0.10**-0.15	0.06-**0.11**-0.17
			S45C	190	G	ACP300	100-**150**-200	0.08-**0.13**-0.24	0.08-**0.13**-0.24	0.08-**0.14**-0.26	0.09-**0.16**-0.29	0.10-**0.17**-0.32
			S45C Hardened	250	G	ACP100	100-**170**-240	0.05-**0.09**-0.14	0.05-**0.09**-0.14	0.05-**0.09**-0.14	0.05-**0.10**-0.17	0.06-**0.11**-0.18
			S75C	270	G	ACP100	120-**180**-240	0.06-**0.10**-0.17	0.06-**0.10**-0.17	0.06-**0.10**-0.17	0.07-**0.12**-0.19	0.08-**0.13**-0.21
			S75C Hardened	300	G	ACP100	85-**150**-210	0.05-**0.09**-0.14	0.05-**0.09**-0.14	0.05-**0.09**-0.14	0.05-**0.10**-0.15	0.06-**0.11**-0.17
		Low-alloy Steel	SCM,SNCM	180	L	ACP300	100-**140**-180	0.05-**0.08**-0.14	0.05-**0.08**-0.14	0.05-**0.08**-0.16	0.06-**0.09**-0.17	0.07-**0.10**-0.19
			SCM, SNCM Hardened	275	G	ACP100	100-**170**-240	0.06-**0.10**-0.14	0.06-**0.10**-0.14	0.06-**0.10**-0.14	0.07-**0.11**-0.16	0.08-**0.11**-0.17
			SCM, SNCM Hardened	300	G	ACP100	90-**150**-210	0.06-**0.10**-0.14	0.06-**0.10**-0.14	0.06-**0.10**-0.14	0.07-**0.11**-0.16	0.08-**0.11**-0.17
			SCM, SNCM Hardened	350	G	ACP100	75-**120**-165	0.06-**0.10**-0.14	0.06-**0.10**-0.14	0.06-**0.10**-0.14	0.07-**0.11**-0.16	0.08-**0.11**-0.17
		High-alloy Steel	SKD,SKT,SKH	200	G	ACP100	120-**180**-240	0.08-**0.12**-0.17	0.08-**0.12**-0.17	0.08-**0.12**-0.18	0.09-**0.12**-0.21	0.10-**0.13**-0.22
			SKD, SKT, SKH (Sintered)	325	G	ACP100	100-**140**-180	0.06-**0.10**-0.15	0.06-**0.10**-0.15	0.06-**0.11**-0.15	0.07-**0.11**-0.16	0.08-**0.11**-0.17
	M	Stainless Steel	SUS403/Others (Martensitic/Ferritic)	200	M	ACM300	120-**150**-180	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.07-**0.10**-0.16	0.08-**0.12**-0.16
			SUS403/Others (Martensitic (hardened))	240	M	ACM300	90-**120**-150	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.07-**0.10**-0.16	0.08-**0.12**-0.16
			SUS304, SUS316 (Austenitic)	180	M	ACM300	120-**150**-180	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.07-**0.10**-0.16	0.08-**0.12**-0.16
	K	Cast Iron			H	ACK300	120-**160**-200	0.09-**0.20**-0.32	0.10-**0.22**-0.36	0.11-**0.24**-0.39	0.12-**0.26**-0.44	0.13-**0.29**-0.48
		Ductile Cast Iron			H	ACK300	90-**120**-150	0.09-**0.20**-0.32	0.10-**0.22**-0.36	0.11-**0.24**-0.39	0.12-**0.26**-0.44	0.13-**0.29**-0.48
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200	G	ACP300	25-**50**-70	0.06-**0.11**-0.18	0.06-**0.11**-0.18	0.06-**0.12**-0.19	0.07-**0.13**-0.22	0.08-**0.14**-0.24
	N	Aluminum Alloy			G	DL1500	200-**260**-320	0.06-**0.11**-0.17	0.06-**0.11**-0.17	0.06-**0.12**-0.18	0.07-**0.13**-0.20	0.08-**0.14**-0.22
		Copper Alloy			G	DL1500	180-**230**-280	0.06-**0.11**-0.17	0.06-**0.11**-0.17	0.06-**0.12**-0.18	0.07-**0.13**-0.20	0.08-**0.14**-0.22

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In that 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.

●mark: Standard stocked item ●mark: Standard stocked item (expanded item) Blank: Made-to-order item

WDX series for 3D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.26% | Carbon Steel/ Alloy Steel from 0.25% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

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

Drilling tolerance: 0 to +0.20mm

*For h7 tolerance, refer to the General Catalogue.

Fig 1

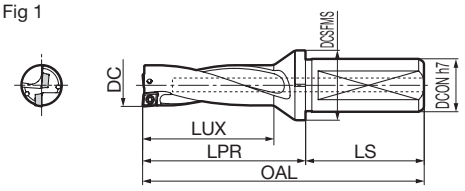


Fig 2

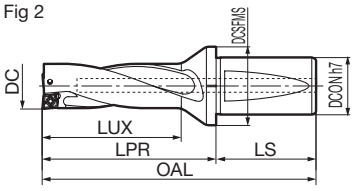
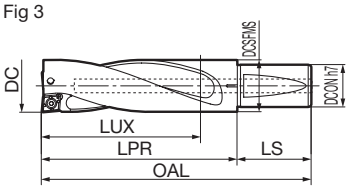


Fig 3



■ Diameter ø13.0 to 45.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Boss DCSFMS	Shank Dia. DCON	Radial Offset Amount (Max)	Applicable Insert	Fig
13.0	●	WDX 130D3S20	42.0	57.0	101.0				0.35		1
13.5	●	135D3S20	43.5	58.5	102.5				0.30		1
14.0	●	140D3S20	45.0	60.0	104.0	44	28.0	20	0.25	WDXT 042004	1
14.5	●	145D3S20	46.5	61.5	105.5				0.20		1
15.0	●	150D3S20	48.0	63.0	107.0				0.15		1
15.5	●	WDX 155D3S20	49.5	64.5	108.5				0.40		1
16.0	●	160D3S20	51.0	66.0	110.0	44	30.0	20			1
16.5	●	165D3S20	52.5	67.5	111.5				0.35	WDXT 052504	1
17.0	●	170D3S20	54.0	69.0	113.0				0.30		1
17.5	●	WDX 175D3S25	55.5	70.5	126.5	56	32.0	25	0.25		1
18.0	●	180D3S25	57.0	72.0	128.0				0.20		1
18.5	●	WDX 185D3S25	58.5	73.5	129.5				0.50		1
19.0	●	190D3S25	60.0	75.0	131.0				0.45		1
19.5	●	195D3S25	61.5	76.5	132.5				0.40		1
20.0	●	200D3S25	63.0	78.0	134.0						1
20.5	●	205D3S25	64.5	79.5	135.5	56	33.0	25	0.30	WDXT 063006	1
21.0	●	210D3S25	66.0	81.0	137.0				0.20		1
21.5	●	215D3S25	67.5	82.5	138.5				0.15		1
22.0	●	220D3S25	69.0	84.0	140.0				0.10		1
22.5	●	225D3S25	70.5	85.5	141.5				0.05		1
23.0	●	WDX 230D3S25	72.0	90.0	146.0						1
23.5	●	235D3S25	73.5	91.5	147.5				0.70		1
24.0	●	240D3S25	75.0	93.0	149.0	56	37.0	25	0.60		1
24.5	●	245D3S25	76.5	94.5	150.5						1
25.0	●	250D3S25	78.0	96.0	152.0				0.50		1
25.5	●	WDX 255D3S32	79.5	99.5	159.5				0.45	WDXT 073506	2
26.0	●	260D3S32	81.0	101.0	161.0				0.40		2
26.5	●	265D3S32	82.5	102.5	162.5				0.35		2
27.0	●	270D3S32	84.0	104.0	164.0	60	41.0	32	0.25		2
27.5	●	275D3S32	85.5	105.5	165.5				0.20		2
28.0	●	280D3S32	87.0	107.0	167.0				0.15		2
28.5	●	285D3S32	88.5	108.5	168.5				0.10		2
29.0	●	WDX 290D3S32	91.0	112.0	172.0		50.0		1.00		2
29.5	●	295D3S32	92.5	113.5	173.5				0.95		2
30.0*	●	300D3S32	94.0	118.0	178.0	60		32	0.90		2
31.0*	●	310D3S32	97.0	121.0	181.0		54.0		0.80		2
32.0*	●	320D3S32	100.0	124.0	184.0				0.70		2
30.0*	●	WDX 300D3S40	94.0	118.0	188.0				0.90	WDXT 094008	2
31.0*	●	310D3S40	97.0	121.0	191.0				0.80		2
32.0*	●	320D3S40	100.0	124.0	194.0				0.70		2
33.0	●	330D3S40	103.0	127.0	197.0	70	54.0	40	0.55		2
34.0	●	340D3S40	106.0	130.0	200.0				0.45		2
35.0	●	350D3S40	109.0	133.0	203.0				0.35		2
36.0	●	360D3S40	112.0	136.0	206.0				0.20		2
37.0	●	WDX 370D3S40	116.0	146.0	216.0						2
38.0	●	380D3S40	119.0	149.0	219.0				1.00		2
39.0	●	390D3S40	122.0	152.0	222.0				0.90		2
40.0	●	400D3S40	125.0	155.0	225.0				0.80		2
41.0	●	410D3S40	128.0	158.0	228.0	70	49.5	40	0.70	WDXT 125012	2
42.0	●	420D3S40	131.0	161.0	231.0				0.60		2
43.0	●	430D3S40	134.0	164.0	234.0						2
44.0	●	440D3S40	137.0	167.0	237.0				0.50		2
45.0	●	450D3S40	140.0	170.0	240.0				0.40		2

*Diameters ø30, ø31, ø32 are in stock with shank diameters of ø32 and ø40.

Radial Offset Amount P16

■ Diameter ø46.0 to 68.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Boss DCSFMS	Shank Dia. DCON	Radial Offset Amount (Max)	Applicable Insert	Fig
46.0	●	WDX 460D3S40	143.0	173.0	243.0				1.50		2
47.0	●	470D3S40	146.0	176.0	246.0				1.40		2
48.0	●	480D3S40	149.0	179.0	249.0				1.30		2
49.0	●	490D3S40	152.0	182.0	252.0		49.5		1.20		2
50.0	●	500D3S40	155.0	185.0	255.0	70		40	1.10	WDXT 156012	2
51.0	●	510D3S40	158.0	188.0	258.0				1.00		3
52.0	●	520D3S40	161.0	191.0	261.0		50.5		0.90		3
53.0	●	530D3S40	164.0	194.0	264.0				0.80		3
54.0	●	540D3S40	167.0	197.0	267.0				0.60		3
55.0	●	550D3S40	170.0	200.0	270.0				0.50		3
56.0	●	WDX 560D3S40	176.0	208.0	278.0				2.00		3
57.0	●	570D3S40	179.0	211.0	281.0				1.80		3
58.0	●	580D3S40	182.0	214.0	284.0				1.70		3
59.0	●	590D3S40	185.0	217.0	287.0				1.60		3
60.0	●	600D3S40	188.0	220.0	290.0				1.50		3
61.0	●	610D3S40	191.0	223.0	293.0				1.40		3
62.0	●	620D3S40	194.0	226.0	296.0	70	60.0	40	1.30	WDXT 186012	3
63.0	●	630D3S40	197.0	229.0	299.0		61.0		1.20		3
64.0	●	640D3S40	200.0	232.0	302.0		62.0		1.00		3
65.0	●	650D3S40	203.0	235.0	305.0		63.0		0.90		3
66.0	●	660D3S40	206.0	238.0	308.0		64.0		0.70		3
67.0	●	670D3S40	209.0	241.0	311.0		65.0		0.60		3
68.0	●	680D3S40	212.0	244.0	314.0		66.0		0.50		3

■ Parts

Applicable Holders	Flat Insert Screw		Wrench	Wrench
		N·m		
WDX130D3S20 to WDX150D3S20	BFTX01604N	0.3	TRX06	—
WDX155D3S20 to WDX180D3S25	BFTX0204N	0.5	TRX06	—
WDX185D3S25 to WDX225D3S25	BFTY02206	1.0	—	TRD07
WDX230D3S25 to WDX285D3S32	BFTX02506N	1.5	—	TRD08
WDX290D3S32 to WDX360D3S40	BFTX03584	3.5	—	TRD15
WDX370D3S40 to WDX450D3S40	BFTX0511N	5.0	—	TRD20
WDX460D3S40 to WDX680D3S40	BFTX0615N	5.0	—	TRD25

■ Identification Code

WDX 200 D3 S25

- WDX: Dia. DC (ø20.0)
- D3: Flute Length L/D (3D)
- S25: Shank Dia. DCON (ø25.0)

●mark: Standard stocked item

WDX series for 3D (Internal Coolant Supply) Expansion

■ Insert

Dimensions (mm)

Grade Classification		Coated Carbide										
Process	High-speed/Light	PK				N						
	General-purpose		P	M								
	Roughing		P		K							
Cat. No.		ACP100	ACP300	ACM300	ACK300	DL1500	Fig	Width W1	Thickness S	Corner Radius RE1	Corner Radius RE2	Applicable Holders
WDXT 042004-L		●	●		●		1	4.2	2.0	0.4	0.4	WDX130D3S20 to WDX150D3S20
042004-G		●	●		●	●	2					
042004-H		●	●		●		3					
042004-M				●			4				0.8	
WDXT 052504-L		●	●		●		1	5.0	2.5	0.4	0.4	WDX155D3S20 to WDX180D3S25
052504-G		●	●		●	●	2					
052504-H		●	●		●		3					
052504-M				●			4				1.0	
WDXT 063006-L		●	●		●		1	6.0	3.0	0.6	0.6	WDX185D3S25 to WDX225D3S25
063006-G		●	●		●	●	2					
063006-H		●	●		●		3					
063006-M				●			4				1.4	
WDXT 073506-L		●	●		●		1	7.5	3.5	0.6	0.6	WDX230D3S25 to WDX285D3S32
073506-G		●	●		●	●	2					
073506-H		●	●		●		3					
073506-M				●			4				1.6	
WDXT 094008-L		●	●		●		1	9.6	4.0	0.8	0.8	WDX290D3S32 to WDX360D3S40
094008-G		●	●		●	●	2					
094008-H		●	●		●		3					
094008-M				●			4				2.4	
WDXT 125012-L		●	●		●		1	12.4	5.0	1.2	1.2	WDX370D3S40 to WDX450D3S40
125012-G		●	●		●	●	2					
125012-H		●	●		●		3					
125012-M				●			4				3.2	
WDXT 156012-L		●	●		●		1	15.2	6.0	1.2	1.2	WDX460D3S40 to WDX550D3S40
156012-G		●	●		●	●	2					
156012-H		●	●		●		3					
WDXT 186012-L		●	●		●		1	18.0	6.0	1.2	1.2	WDX560D3S40 to WDX680D3S40
186012-G		●	●		●		2					
186012-H		●	●		●		3					

Fig 1 For low feed with chip evacuation

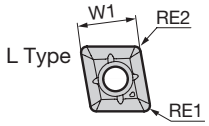


Fig 2 General-purpose

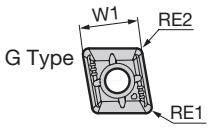


Fig 3 Strong Edged

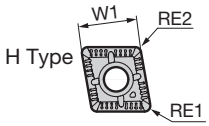
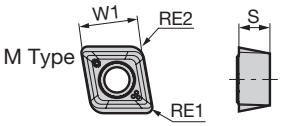


Fig 4 For stainless steel machining



■ Identification Code

WDXT 06 30 06 -G

- 06: Width across Flats (6.0)
- 30: Thickness x 10 (3.0)
- 06: Corner Radius x 10 (0.6)
- -G: Chipbreaker Type

■ Recommended Cutting Conditions (3D)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (cutting speed) (m/min)	*f* (feed rate) (mm/rev) (Min. - **Optimum** - Max.) ø13.0 to ø18.0	ø18.5 to ø29.0	ø29.5 to ø36.0	ø37.0 to ø55.0	ø56.0 to ø68.0
3D	P	Steel, Carbon Steel	SS400	125	G	ACP300	120-**180**-240	0.05-**0.07**-0.10	0.05-**0.07**-0.10	0.05-**0.08**-0.11	0.05-**0.08**-0.12	0.06-**0.09**-0.13
			S15C	125	L	ACP300	130-**170**-220	0.04-**0.07**-0.10	0.04-**0.07**-0.10	0.04-**0.08**-0.11	0.05-**0.09**-0.12	0.06-**0.10**-0.13
			S45C	190	G	ACP300	100-**150**-200	0.08-**0.12**-0.20	0.08-**0.12**-0.20	0.08-**0.13**-0.22	0.09-**0.14**-0.24	0.10-**0.16**-0.27
			S45C Hardened	250	G	ACP100	100-**170**-240	0.05-**0.08**-0.11	0.05-**0.08**-0.11	0.05-**0.08**-0.12	0.05-**0.09**-0.14	0.06-**0.10**-0.15
			S75C	270	G	ACP100	120-**180**-240	0.06-**0.09**-0.14	0.06-**0.09**-0.14	0.06-**0.10**-0.14	0.07-**0.11**-0.17	0.08-**0.12**-0.18
			S75C Hardened	300	G	ACP100	85-**150**-210	0.05-**0.08**-0.11	0.05-**0.08**-0.11	0.05-**0.08**-0.11	0.05-**0.09**-0.14	0.06-**0.10**-0.14
		Low-alloy Steel	SCM,SNCM	180	L	ACP300	100-**140**-180	0.05-**0.07**-0.12	0.05-**0.07**-0.12	0.05-**0.08**-0.13	0.06-**0.08**-0.15	0.07-**0.09**-0.16
			SCM, SNCM Hardened	275	G	ACP100	100-**170**-240	0.06-**0.08**-0.11	0.06-**0.08**-0.11	0.06-**0.08**-0.11	0.07-**0.10**-0.12	0.08-**0.10**-0.13
			SCM, SNCM Hardened	300	G	ACP100	90-**150**-210	0.06-**0.08**-0.11	0.06-**0.08**-0.11	0.06-**0.08**-0.11	0.07-**0.10**-0.12	0.08-**0.10**-0.13
			SCM, SNCM Hardened	350	G	ACP100	75-**120**-165	0.06-**0.08**-0.11	0.06-**0.08**-0.11	0.06-**0.08**-0.11	0.07-**0.10**-0.12	0.08-**0.10**-0.13
		High-alloy Steel	SKD,SKT,SKH	200	G	ACP100	120-**180**-240	0.08-**0.11**-0.14	0.08-**0.12**-0.15	0.08-**0.12**-0.16	0.09-**0.14**-0.18	0.10-**0.14**-0.19
			SKD, SKT, SKH (Sintered)	325	G	ACP100	100-**140**-180	0.06-**0.09**-0.11	0.06-**0.09**-0.11	0.06-**0.09**-0.11	0.07-**0.10**-0.12	0.08-**0.10**-0.13
	M	Stainless Steel	SUS403/Others (Martensitic/Ferritic)	200	M	ACM300	120-**150**-180	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.07-**0.10**-0.16	0.08-**0.12**-0.16
			SUS403/Others (Martensitic (hardened))	240	M	ACM300	90-**120**-150	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.07-**0.10**-0.16	0.08-**0.12**-0.16
			SUS304, SUS316 (Austenitic)	180	M	ACM300	120-**150**-180	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.06-**0.08**-0.15	0.07-**0.10**-0.16	0.08-**0.12**-0.16
	K	Cast Iron			H	ACK300	120-**160**-200	0.09-**0.18**-0.27	0.10-**0.20**-0.30	0.11-**0.22**-0.32	0.12-**0.24**-0.36	0.13-**0.26**-0.40
		Ductile Cast Iron			H	ACK300	90-**120**-150	0.09-**0.18**-0.27	0.10-**0.20**-0.30	0.11-**0.22**-0.32	0.12-**0.24**-0.36	0.13-**0.26**-0.40
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200	G	ACP300	25-**50**-70	0.06-**0.10**-0.15	0.06-**0.10**-0.15	0.06-**0.11**-0.16	0.07-**0.12**-0.18	0.08-**0.13**-0.20
	N	Aluminum Alloy			G	DL1500	200-**260**-320	0.06-**0.11**-0.17	0.06-**0.11**-0.17	0.06-**0.12**-0.18	0.07-**0.13**-0.20	0.08-**0.14**-0.22
		Copper Alloy			G	DL1500	180-**230**-280	0.06-**0.11**-0.17	0.06-**0.11**-0.17	0.06-**0.12**-0.18	0.07-**0.13**-0.20	0.08-**0.14**-0.22

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In that 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.

●mark: Standard stocked item ●mark: Standard stocked item (expanded item) Blank: Made-to-order item

WDX series for 4D (Internal Coolant Supply)

Carbon Steel/Alloy Steel up to 0.26% | Carbon Steel/Alloy Steel from 0.25% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

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

Drilling tolerance: 0 to +0.25mm

*For h7 tolerance, refer to the General Catalogue.

Fig 1

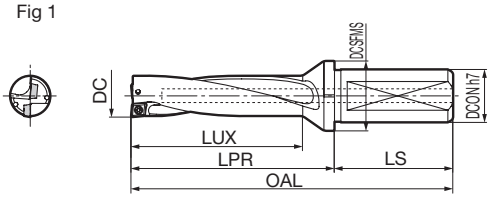


Fig 2

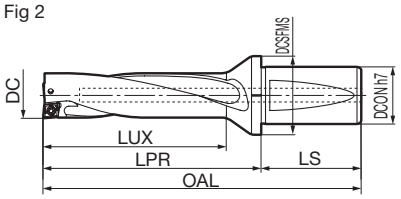
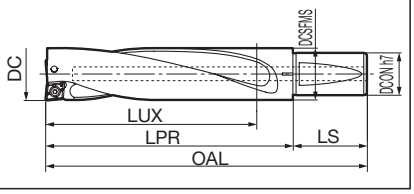


Fig 3



■ Diameter ø13.0 to 45.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Boss DCSFMS	Shank Dia. DCON	Radial Offset Amount (Max)	Applicable Insert	Fig
13.0	●	WDX 130D4S20	55	70	114				0.35		1
13.5	●	135D4S20	57	72	116				0.30		1
14.0	●	140D4S20	59	74	118	44	28.0	20	0.25	WDXT 042004	1
14.5	●	145D4S20	61	76	120				0.20		1
15.0	●	150D4S20	63	78	122				0.15		1
15.5	●	WDX 155D4S20	65	80	124				0.40		1
16.0	●	160D4S20	67	82	126	44	30.0	20			1
16.5	●	165D4S20	69	84	128				0.35	WDXT 052504	1
17.0	●	170D4S20	71	86	130				0.30		1
17.5	●	WDX 175D4S25	73	88	144	56	32.0	25	0.25		1
18.0	●	180D4S25	75	90	146				0.20		1
18.5	●	WDX 185D4S25	77	92	148				0.50		1
19.0	●	190D4S25	79	94	150				0.45		1
19.5	●	195D4S25	81	96	152				0.40		1
20.0	●	200D4S25	83	98	154						1
20.5	●	205D4S25	85	100	156	56	33.0	25	0.30	WDXT 063006	1
21.0	●	210D4S25	87	102	158				0.20		1
21.5	●	215D4S25	89	104	160				0.15		1
22.0	●	220D4S25	91	106	162				0.10		1
22.5	●	225D4S25	93	108	164				0.05		1
23.0	●	WDX 230D4S25	95	113	169						1
23.5	●	235D4S25	97	115	171				0.70		1
24.0	●	240D4S25	99	117	173	56	37.0	25	0.60		1
24.5	●	245D4S25	101	119	175						1
25.0	●	250D4S25	103	121	177				0.50		1
25.5	●	WDX 255D4S32	105	125	185				0.45	WDXT 073506	2
26.0	●	260D4S32	107	127	187				0.40		2
26.5	●	265D4S32	109	129	189				0.35		2
27.0	●	270D4S32	111	131	191	60	41.0	32	0.25		2
27.5	●	275D4S32	113	133	193				0.20		2
28.0	●	280D4S32	115	135	195				0.15		2
28.5	●	285D4S32	117	137	197				0.10		2
29.0	●	WDX 290D4S32	120	141	201		50.0		1.00		2
29.5	●	295D4S32	122	143	203				0.95		2
30.0*	●	300D4S32	124	148	208	60		32	0.90		2
31.0*	●	310D4S32	128	152	212		54.0		0.80		2
32.0*	●	320D4S32	132	156	216				0.70		2
30.0*	●	WDX 300D4S40	124	148	218				0.90	WDXT 094008	2
31.0*	●	310D4S40	128	152	222				0.80		2
32.0*	●	320D4S40	132	156	226				0.70		2
33.0	●	330D4S40	136	160	230	70	54.0	40	0.55		2
34.0	●	340D4S40	140	164	234				0.45		2
35.0	●	350D4S40	144	168	238				0.35		2
36.0	●	360D4S40	148	172	242				0.20		2
37.0	●	WDX 370D4S40	153	183	253						2
38.0	●	380D4S40	157	187	257				1.00		2
39.0	●	390D4S40	161	191	261				0.90		2
40.0	●	400D4S40	165	195	265				0.80		2
41.0	●	410D4S40	169	199	269	70	49.5	40	0.70	WDXT 125012	2
42.0	●	420D4S40	173	203	273				0.60		2
43.0	●	430D4S40	177	207	277						2
44.0	●	440D4S40	181	211	281				0.50		2
45.0	●	450D4S40	185	215	285				0.40		2

*Diameters ø30, ø31, ø32 are in stock with shank diameters of ø32 and ø40.

Radial Offset Amount P16

■ Diameter ø46.0 to 63.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Boss DCSFMS	Shank Dia. DCON	Radial Offset Amount (Max)	Applicable Insert	Fig
46.0	●	WDX 460D4S40	189	219	289				1.50		2
47.0	●	470D4S40	193	223	293				1.40		2
48.0	●	480D4S40	197	227	297				1.30		2
49.0	●	490D4S40	201	231	301		49.5		1.20		2
50.0	●	500D4S40	205	235	305	70		40	1.10	WDXT 156012	2
51.0	●	510D4S40	209	239	309				1.00		3
52.0	●	520D4S40	213	243	313		50.5		0.90		3
53.0	●	530D4S40	217	247	317				0.80		3
54.0	●	540D4S40	221	251	321		51.5		0.60		3
55.0	●	550D4S40	225	255	325		52.5		0.50		3
56.0	●	WDX 560D4S40	232	264	334		53.5		2.00		3
57.0	●	570D4S40	236	268	338		54.0		1.80		3
58.0	●	580D4S40	240	272	342		55.0		1.70		3
59.0	●	590D4S40	244	276	346	70	56.0	40	1.60	WDXT 186012	3
60.0	●	600D4S40	248	280	350		57.0		1.50		3
61.0	●	610D4S40	252	284	354		58.0		1.40		3
62.0	●	620D4S40	256	288	358		59.0		1.30		3
63.0	●	630D4S40	260	292	362		60.0		1.20		3
							61.0				

■ Parts

Applicable Holders	Flat Insert Screw	N·m	Wrench	Wrench
WDX130D4S20 to WDX150D4S20	BFTX01604N	0.3	TRX06	—
WDX155D4S20 to WDX180D4S25	BFTX0204N	0.5	TRX06	—
WDX185D4S25 to WDX225D4S25	BFTY02206	1.0	—	TRD07
WDX230D4S25 to WDX285D4S32	BFTX02506N	1.5	—	TRD08
WDX290D4S32 to WDX360D4S40	BFTX03584	3.5	—	TRD15
WDX370D4S40 to WDX450D4S40	BFTX0511N	5.0	—	TRD20
WDX460D4S40 to WDX630D4S40	BFTX0615N	5.0	—	TRD25

■ Identification Code

WDX 200 D4 S25

- WDX: Dia. DC (ø20.0)
- D4: Flute Length L/D (4D)
- S25: Shank Dia. DCON (ø25.0)

●mark: Standard stocked item

WDX series for 4D (Internal Coolant Supply) Expansion

■ Insert

Dimensions (mm)

Grade Classification		Coated Carbide										
Process	High-speed/Light	PK				N						
	General-purpose		P	M								
	Roughing		P		K							
Cat. No.		ACP100	ACP300	ACM300	ACK300	DL1500	Fig	Width W1	Thickness S	Corner Radius RE1	Corner Radius RE2	Applicable Holders
WDXT 042004-L		●	●		●		1	4.2	2.0	0.4	0.4	WDX130D4S20 to WDX150D4S20
042004-G		●	●		●	●	2					
042004-H		●	●		●		3					
042004-M				●			4				0.8	
WDXT 052504-L		●	●		●		1	5.0	2.5	0.4	0.4	WDX155D4S20 to WDX180D4S25
052504-G		●	●		●	●	2					
052504-H		●	●		●		3					
052504-M				●			4				1.0	
WDXT 063006-L		●	●		●		1	6.0	3.0	0.6	0.6	WDX185D4S25 to WDX225D4S25
063006-G		●	●		●	●	2					
063006-H		●	●		●		3					
063006-M				●			4				1.4	
WDXT 073506-L		●	●		●		1	7.5	3.5	0.6	0.6	WDX230D4S25 to WDX285D4S32
073506-G		●	●		●	●	2					
073506-H		●	●		●		3					
073506-M				●			4				1.6	
WDXT 094008-L		●	●		●		1	9.6	4.0	0.8	0.8	WDX290D4S32 to WDX360D4S40
094008-G		●	●		●	●	2					
094008-H		●	●		●		3					
094008-M				●			4				2.4	
WDXT 125012-L		●	●		●		1	12.4	5.0	1.2	1.2	WDX370D4S40 to WDX450D4S40
125012-G		●	●		●	●	2					
125012-H		●	●		●		3					
125012-M				●			4				3.2	
WDXT 156012-L		●	●		●		1	15.2	6.0	1.2	1.2	WDX460D4S40 to WDX550D4S40
156012-G		●	●		●	●	2					
156012-H		●	●		●		3					
WDXT 186012-L		●	●		●		1	18.0	6.0	1.2	1.2	WDX560D4S40 to WDX630D4S40
186012-G		●	●		●		2					
186012-H		●	●		●		3					

Fig 1 For low feed with chip evacuation

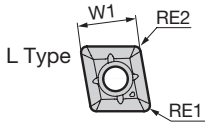


Fig 2 General-purpose

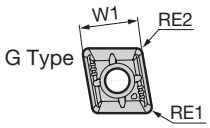


Fig 3 Strong Edged

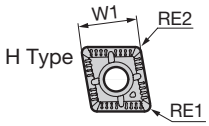
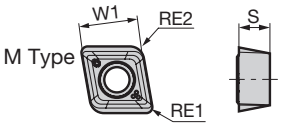


Fig 4 For stainless steel machining



■ Identification Code

WDXT 06 30 06 -G

- 06: Width across Flats (6.0)
- 30: Thickness x 10 (3.0)
- 06: Corner Radius x 10 (0.6)
- -G: Chipbreaker Type

■ Recommended Cutting Conditions (4D)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (cutting speed) (m/min)	*f* (feed rate) (mm/rev) (Min. - **Optimum** - Max.) ø13.0 to ø18.0	ø18.5 to ø29.0	ø29.5 to ø36.0	ø37.0 to ø55.0	ø56.0 to ø63.0
4D	P	Steel, Carbon Steel	SS400	125	G	ACP300	120-**180**-240	0.05-**0.07**-0.10	0.05-**0.07**-0.10	0.05-**0.07**-0.10	0.05-**0.08**-0.10	0.06-**0.09**-0.11
			S15C	125	L	ACP300	130-**170**-220	0.04-**0.07**-0.09	0.04-**0.07**-0.09	0.04-**0.07**-0.09	0.05-**0.08**-0.10	0.06-**0.09**-0.11
			S45C	190	G	ACP300	100-**150**-200	0.08-**0.11**-0.17	0.08-**0.11**-0.17	0.08-**0.12**-0.18	0.09-**0.14**-0.21	0.10-**0.15**-0.23
			S45C Hardened	250	G	ACP100	100-**170**-240	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.11	0.05-**0.08**-0.11	0.06-**0.09**-0.13
			S75C	270	G	ACP100	120-**180**-240	0.06-**0.08**-0.11	0.06-**0.08**-0.11	0.06-**0.09**-0.13	0.07-**0.11**-0.14	0.08-**0.11**-0.15
			S75C Hardened	300	G	ACP100	85-**150**-210	0.05-**0.07**-0.09	0.05-**0.07**-0.09	0.05-**0.08**-0.10	0.05-**0.08**-0.11	0.06-**0.09**-0.12
		Low-alloy Steel	SCM,SNCM	180	L	ACP300	100-**140**-180	0.05-**0.07**-0.10	0.05-**0.07**-0.10	0.05-**0.07**-0.11	0.06-**0.08**-0.12	0.07-**0.09**-0.14
			SCM, SNCM Hardened	275	G	ACP100	100-**170**-240	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.11	0.06-**0.08**-0.11
			SCM, SNCM Hardened	300	G	ACP100	90-**150**-210	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.11	0.06-**0.08**-0.11
			SCM, SNCM Hardened	350	G	ACP100	75-**120**-165	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.11	0.06-**0.08**-0.11
		High-alloy Steel	SKD,SKT,SKH	200	G	ACP100	120-**180**-240	0.06-**0.10**-0.13	0.07-**0.11**-0.14	0.07-**0.11**-0.15	0.08-**0.12**-0.16	0.09-**0.13**-0.17
			SKD, SKT, SKH (Sintered)	325	G	ACP100	100-**140**-180	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.10	0.05-**0.08**-0.11	0.06-**0.08**-0.11
	M	Stainless Steel	SUS403/Others (Martensitic/Ferritic)	200	M	ACM300	120-**150**-180	0.06-**0.08**-0.13	0.06-**0.08**-0.13	0.06-**0.08**-0.14	0.07-**0.09**-0.14	0.08-**0.11**-0.14
			SUS403/Others (Martensitic (hardened))	240	M	ACM300	90-**120**-150	0.06-**0.08**-0.13	0.06-**0.08**-0.13	0.06-**0.08**-0.14	0.07-**0.09**-0.14	0.08-**0.11**-0.14
			SUS304, SUS316 (Austenitic)	180	M	ACM300	120-**150**-180	0.06-**0.08**-0.13	0.06-**0.08**-0.13	0.06-**0.08**-0.14	0.07-**0.09**-0.14	0.08-**0.11**-0.14
	K	Cast Iron			H	ACK300	120-**160**-200	0.09-**0.17**-0.23	0.10-**0.19**-0.26	0.11-**0.21**-0.28	0.12-**0.23**-0.31	0.13-**0.25**-0.34
		Ductile Cast Iron			H	ACK300	90-**120**-150	0.09-**0.17**-0.23	0.10-**0.19**-0.26	0.11-**0.21**-0.28	0.12-**0.23**-0.31	0.13-**0.25**-0.34
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200	G	ACP300	25-**50**-70	0.06-**0.10**-0.13	0.06-**0.10**-0.13	0.06-**0.10**-0.14	0.07-**0.11**-0.15	0.08-**0.12**-0.17
	N	Aluminum Alloy			G	DL1500	200-**260**-320	0.05-**0.10**-0.15	0.05-**0.10**-0.15	0.06-**0.11**-0.16	0.06-**0.12**-0.18	0.07-**0.13**-0.20
		Copper Alloy			G	DL1500	180-**230**-280	0.05-**0.10**-0.15	0.05-**0.10**-0.15	0.06-**0.11**-0.16	0.06-**0.12**-0.18	0.07-**0.13**-0.20

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In that 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.

●mark: Standard stocked item ●mark: Standard stocked item (expanded item) Blank: Made-to-order item

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

Drilling tolerance: 0 to +0.25mm

*For h7 tolerance, refer to the General Catalogue.

Fig 1

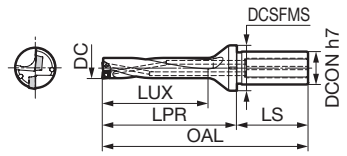


Fig 2

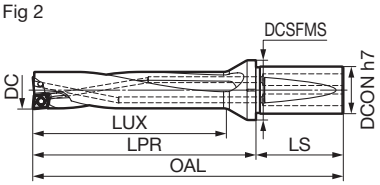
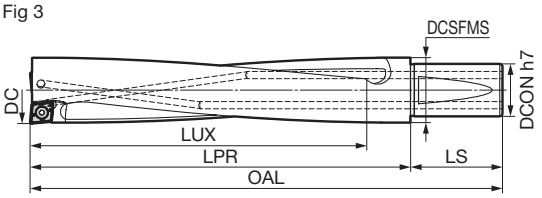


Fig 3



■ Diameter ø13.0 to 45.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Boss DCSFMS	Shank Dia. DCON	Radial Offset Amount (Max)	Applicable Insert	Fig
13.0	●	WDX 130D5S20	68.0	83.0	127.0	44	28.0	20.0	0.35	WDXT 042004	1
13.5	●	135D5S20	70.5	85.5	129.5				0.30		1
14.0	●	140D5S20	73.0	88.0	132.0				0.25		1
14.5	●	145D5S20	75.5	90.5	134.5				0.20		1
15.0	●	150D5S20	78.0	93.0	137.0				0.15		1
15.5	●	WDX 155D5S20	80.5	95.5	139.5	44	30.0	20.0	0.40	WDXT 052504	1
16.0	●	160D5S20	83.0	98.0	142.0						1
16.5	●	165D5S20	85.5	100.5	144.5				0.35		1
17.0	●	170D5S20	88.0	103.0	147.0				0.30		1
17.5	●	WDX 175D5S25	90.5	105.5	161.5	56	32.0	25.0	0.25		1
18.0	●	180D5S25	93.0	108.0	164.0				0.20		1
18.5	●	WDX 185D5S25	95.5	110.5	166.5	56	33.0	25.0	0.50	WDXT 063006	1
19.0	●	190D5S25	98.0	113.0	169.0				0.45		1
19.5	●	195D5S25	100.5	115.5	171.5				0.40		1
20.0	●	200D5S25	103.0	118.0	174.0				0.30		1
20.5	●	205D5S25	105.5	120.5	176.5						1
21.0	●	210D5S25	108.0	123.0	179.0				0.20		1
21.5	●	215D5S25	110.5	125.5	181.5				0.15		1
22.0	●	220D5S25	113.0	128.0	184.0				0.10		1
22.5	●	225D5S25	115.5	130.5	186.5				0.05		1
23.0	●	WDX 230D5S25	118.0	136.0	192.0	56	37.0	25.0	0.70	WDXT 073506	1
23.5	●	235D5S25	120.5	138.5	194.5						1
24.0	●	240D5S25	123.0	141.0	197.0				0.60		1
24.5	●	245D5S25	125.5	143.5	199.5				0.50		1
25.0	●	250D5S25	128.0	146.0	202.0						1
26.0	●	WDX 260D5S32	133.0	153.0	213.0	60	41.0	32.0	0.40		2
27.0	●	270D5S32	138.0	158.0	218.0				0.25		2
28.0	●	280D5S32	143.0	163.0	223.0				0.15		2
29.0	●	WDX 290D5S32	149.0	170.0	230.0	60	50.0	32.0	1.00		2
30.0*	●	300D5S32	154.0	178.0	238.0		54.0		0.90		2
31.0*	●	310D5S32	159.0	183.0	243.0				0.80		2
32.0*	●	320D5S32	164.0	188.0	248.0				0.70		2
30.0*	●	WDX 300D5S40	154.0	178.0	248.0	70	54.0	40.0	0.90	WDXT 094008	2
31.0*	●	310D5S40	159.0	183.0	253.0				0.80		2
32.0*	●	320D5S40	164.0	188.0	258.0				0.70		2
33.0	●	330D5S40	169.0	193.0	263.0				0.55		2
34.0	●	340D5S40	174.0	198.0	268.0				0.45		2
35.0	●	350D5S40	179.0	203.0	273.0				0.35		2
36.0	●	360D5S40	184.0	208.0	278.0				0.20		2
37.0	●	WDX 370D5S40	190.0	220.0	290.0	70	49.5	40.0	1.00	WDXT 125012	2
38.0	●	380D5S40	195.0	225.0	295.0						2
39.0	●	390D5S40	200.0	230.0	300.0				0.90		2
40.0	●	400D5S40	205.0	235.0	305.0				0.80		2
41.0	●	410D5S40	210.0	240.0	310.0				0.70		2
42.0	●	420D5S40	215.0	245.0	315.0				0.60		2
43.0	●	430D5S40	220.0	250.0	320.0				0.50		2
44.0	●	440D5S40	225.0	255.0	325.0						2
45.0	●	450D5S40	230.0	260.0	330.0				0.40		2

*Diameters ø30, ø31, ø32 are in stock with shank diameters of ø32 and ø40.

Radial Offset Amount ☞P16

■ Diameter ø46.0 to 55.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Boss DCSFMS	Shank Dia. DCON	Radial Offset Amount (Max)	Applicable Insert	Fig
46.0	●	WDX 460D5S40	235.0	265.0	335.0	70	49.5	40.0	1.50	WDXT 156012	2
47.0	●	470D5S40	240.0	270.0	340.0				1.40		2
48.0	●	480D5S40	245.0	275.0	345.0				1.30		2
49.0	●	490D5S40	250.0	280.0	350.0				1.20		2
50.0	●	500D5S40	255.0	285.0	355.0				1.10		2
51.0	●	510D5S40	260.0	290.0	360.0				1.00		3
52.0	●	520D5S40	265.0	295.0	365.0		50.5		0.90		3
53.0	●	530D5S40	270.0	300.0	370.0		51.5		0.80		3
54.0	●	540D5S40	275.0	305.0	375.0		52.5		0.60		3
55.0	●	550D5S40	280.0	310.0	380.0		53.5		0.50		3

■ Parts

Applicable Holders	Flat Insert Screw	N·m	Wrench	Wrench
WDX130D5S20 to WDX150D5S20	BFTX01604N	0.3	TRX06	—
WDX155D5S20 to WDX180D5S25	BFTX0204N	0.5	TRX06	—
WDX185D5S25 to WDX225D5S25	BFTY02206	1.0	—	TRD07
WDX230D5S25 to WDX280D5S32	BFTX02506N	1.5	—	TRD08
WDX290D5S32 to WDX360D5S40	BFTX03584	3.5	—	TRD15
WDX370D5S40 to WDX450D5S40	BFTX0511N	5.0	—	TRD20
WDX460D5S40 to WDX550D5S40	BFTX0615N	5.0	—	TRD25

■ Identification Code

WDX 200 D5 S25

- WDX
- 200 — Dia. DC (ø20.0)
- D5 — Flute Length L/D (5D)
- S25 — Shank Dia. DCON (ø25.0)

●mark: Standard stocked item

WDX series for 5D (Internal Coolant Supply) Expansion

■ Insert

Dimensions (mm)

Grade Classification		Coated Carbide										
Process	High-speed/Light	PK				N						
	General-purpose		P	M								
	Roughing		P		K							

Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	Width W1	Thickness S	Corner Radius RE1	Corner Radius RE2	Applicable Holders
WDXT 042004-L	●	●		●		1	4.2	2.0	0.4	0.4	WDX130D5S20 to WDX150D5S20
042004-G	●	●		●	●	2					
042004-H	●	●		●		3					
042004-M			●			4				0.8	
WDXT 052504-L	●	●		●		1	5.0	2.5	0.4	0.4	WDX155D5S20 to WDX180D5S25
052504-G	●	●		●	●	2					
052504-H	●	●		●		3					
052504-M			●			4				1.0	
WDXT 063006-L	●	●		●		1	6.0	3.0	0.6	0.6	WDX185D5S25 to WDX225D5S25
063006-G	●	●		●	●	2					
063006-H	●	●		●		3					
063006-M			●			4				1.4	
WDXT 073506-L	●	●		●		1	7.5	3.5	0.6	0.6	WDX230D5S25 to WDX280D5S32
073506-G	●	●		●	●	2					
073506-H	●	●		●		3					
073506-M			●			4				1.6	
WDXT 094008-L	●	●		●		1	9.6	4.0	0.8	0.8	WDX290D5S32 to WDX360D5S40
094008-G	●	●		●	●	2					
094008-H	●	●		●		3					
094008-M			●			4				2.4	
WDXT 125012-L	●	●		●		1	12.4	5.0	1.2	1.2	WDX370D5S40 to WDX450D5S40
125012-G	●	●		●	●	2					
125012-H	●	●		●		3					
125012-M			●			4				3.2	
WDXT 156012-L	●	●		●		1	15.2	6.0	1.2	1.2	WDX460D5S40 to WDX550D5S40
156012-G	●	●		●	●	2					
156012-H	●	●		●		3					

Fig 1 For low feed with chip evacuation

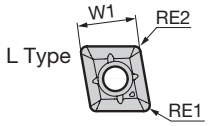


Fig 2 General-purpose

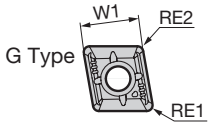


Fig 3 Strong Edged

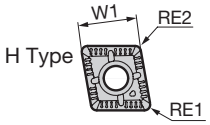
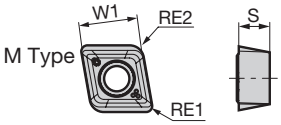


Fig 4 For stainless steel machining



■ Identification Code

WDXT 06 30 06 -G

- 06: Width across Flats (6.0)
- 30: Thickness x 10 (3.0)
- 06: Corner Radius x 10 (0.6)
- -G: Chipbreaker Type

■ Recommended Cutting Conditions (5D)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_C (cutting speed) (m/min)	*f* (feed rate) (mm/rev) (Min. - **Optimum** - Max.) ø13.0 to ø18.0	ø18.5 to ø29.0	ø29.5 to ø36.0	ø37.0 to ø55.0
5D	P	Steel, Carbon Steel	SS400	125	G	ACP300	120-**180**-240	0.05-**0.06**-0.09	0.05-**0.06**-0.09	0.05-**0.06**-0.09	0.05-**0.07**-0.09
			S15C	125	L	ACP300	130-**170**-220	0.04-**0.06**-0.08	0.04-**0.06**-0.08	0.04-**0.06**-0.08	0.05-**0.07**-0.09
			S45C	190	G	ACP300	100-**150**-200	0.07-**0.10**-0.15	0.07-**0.10**-0.15	0.08-**0.11**-0.17	0.09-**0.12**-0.19
			S45C Hardened	250	G	ACP100	100-**170**-240	0.04-**0.07**-0.08	0.04-**0.07**-0.08	0.05-**0.07**-0.09	0.05-**0.08**-0.11
			S75C	270	G	ACP100	120-**180**-240	0.05-**0.08**-0.11	0.05-**0.08**-0.11	0.06-**0.08**-0.11	0.07-**0.09**-0.13
			S75C Hardened	300	G	ACP100	85-**150**-210	0.04-**0.07**-0.08	0.04-**0.07**-0.08	0.05-**0.07**-0.09	0.05-**0.08**-0.10
		Low-alloy Steel	SCM,SNCM	180	L	ACP300	100-**140**-180	0.05-**0.06**-0.09	0.05-**0.06**-0.09	0.05-**0.06**-0.10	0.05-**0.07**-0.11
			SCM, SNCM Hardened	275	G	ACP100	100-**170**-240	0.04-**0.06**-0.09	0.04-**0.06**-0.09	0.04-**0.06**-0.09	0.05-**0.07**-0.10
			SCM, SNCM Hardened	300	G	ACP100	90-**150**-210	0.04-**0.06**-0.09	0.04-**0.06**-0.09	0.04-**0.06**-0.09	0.05-**0.07**-0.10
			SCM, SNCM Hardened	350	G	ACP100	75-**120**-165	0.04-**0.06**-0.09	0.04-**0.06**-0.09	0.04-**0.06**-0.09	0.05-**0.07**-0.10
		High-alloy Steel	SKD,SKT,SKH	200	G	ACP100	120-**180**-240	0.05-**0.08**-0.12	0.06-**0.09**-0.12	0.06-**0.09**-0.13	0.07-**0.10**-0.14
			SKD, SKT, SKH (Sintered)	325	G	ACP100	100-**140**-180	0.04-**0.06**-0.09	0.04-**0.06**-0.09	0.04-**0.06**-0.09	0.04-**0.06**-0.09
	M	Stainless Steel	SUS403/Others (Martensitic/Ferritic)	200	M	ACM300	120-**150**-180	0.05-**0.08**-0.11	0.05-**0.08**-0.12	0.05-**0.08**-0.12	0.06-**0.09**-0.12
			SUS403/Others (Martensitic (hardened))	240	M	ACM300	90-**120**-150	0.05-**0.08**-0.11	0.05-**0.08**-0.12	0.05-**0.08**-0.12	0.06-**0.09**-0.12
			SUS304, SUS316 (Austenitic)	180	M	ACM300	120-**150**-180	0.05-**0.08**-0.11	0.05-**0.08**-0.12	0.05-**0.08**-0.12	0.06-**0.09**-0.12
	K	Cast Iron			H	ACK300	120-**160**-200	0.08-**0.15**-0.21	0.09-**0.17**-0.23	0.09-**0.18**-0.25	0.11-**0.20**-0.28
		Ductile Cast Iron			H	ACK300	90-**120**-150	0.08-**0.15**-0.21	0.09-**0.17**-0.23	0.09-**0.18**-0.25	0.11-**0.20**-0.28
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200	G	ACP300	25-**50**-70	0.05-**0.09**-0.11	0.05-**0.09**-0.11	0.06-**0.09**-0.12	0.06-**0.10**-0.14
	N	Aluminum Alloy			G	DL1500	200-**260**-320	0.05-**0.10**-0.15	0.05-**0.10**-0.15	0.06-**0.11**-0.16	0.06-**0.12**-0.18
		Copper Alloy			G	DL1500	180-**230**-280	0.05-**0.10**-0.15	0.05-**0.10**-0.15	0.06-**0.11**-0.16	0.06-**0.12**-0.18

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In that 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.

●mark: Standard stocked item ●mark: Standard stocked item (expanded item) Blank: Made-to-order item

■ Lathe Drilling Guidelines

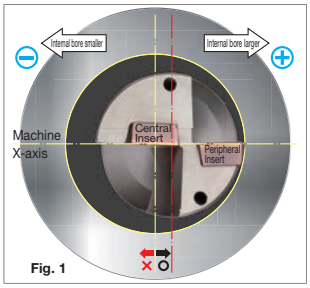


Fig. 1


Fig. 2

■ 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 before tightening the bolt.

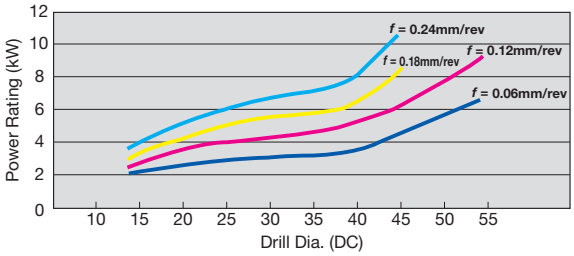
■ Adjusting Work Diameter (Offset)

- 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 diameter.
  Refer to Radial Offset (Max) in the body dimension tables on pages P8 to P14.

■ Other Notes

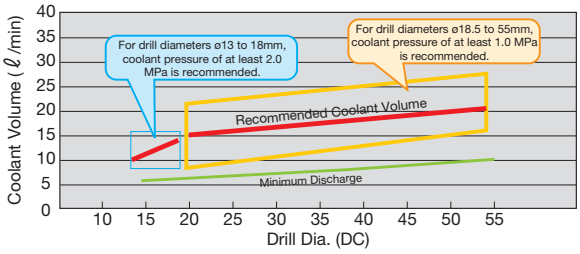
- When the drill is mounted on a lathe, the centre of the central insert is designed to be 0.15 to 0.2mm below the centre of the spindle.
- If the spindle deviates so far off centre that the centre of the central insert lies above the spindle centre, the central insert will break.
- Set the depth of cut for external turning or internal boring work to 1/5 or less of the drill diameter (max. 5mm or less). (Example: Set depth of cut to 4mm or less for diameter of ø20mm)
- 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=150m/min

■ 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. (ø18.0mm or smaller)
- Coolant volume is usually adjusted by changing the coolant pressure provided on most CNC machine tools.
- 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 surface 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.

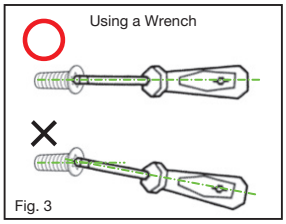


Fig. 3

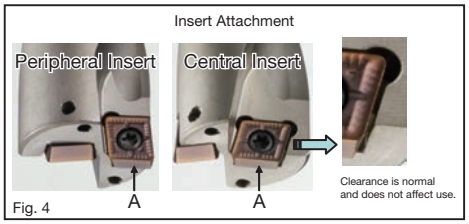


Fig. 4

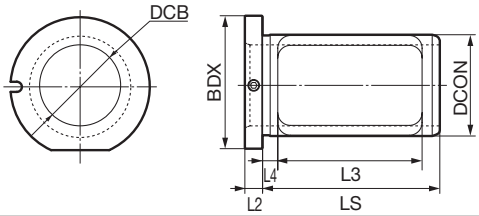
■ Troubleshooting

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.
	Significant difference in hole diameter at entrance and bottom	· Chip clogging	· Increase the feed rate to improve chip evacuation. · Use an L type chipbreaker 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 chipbreaker 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 edged chipbreaker (H type).
	Breakage on peripheral insert	· High cutting load in cutting edge	· Decrease the feed rate to decrease cutting load. · Use a strong edged chipbreaker (H type).

Eccentric Sleeve for WDX series

Indexable

Fig 1



■ Body (WAS Type)

Parts

Dimensions (mm)

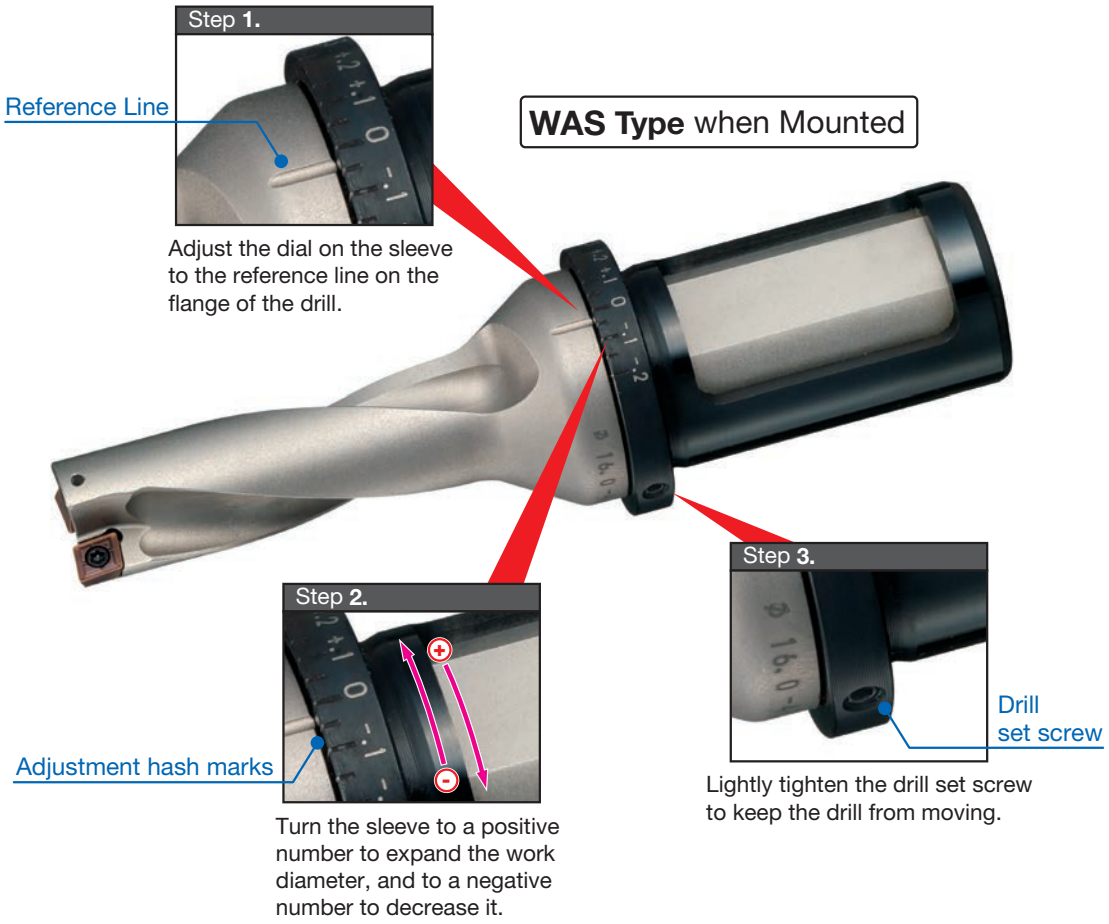
Cat. No.	Stock	Hole Dia. DCB	Shank Dia. DCON	Diameter BDX	Shank LS	Length L2	Length L3	Length L4	Diameter Adjustable Range	Fig	Screw 	Wrench 
WAS 2025-48	●	20	25	33	43	5	32	5	+0.3 to -0.2	1	BT0306	LH015
2532-60	●	25	32	42	60	7	46	6	+0.3 to -0.3	1	BT0406	LH020
3240-70	●	32	40	55	70	7	57	6	+0.3 to -0.3	1	BT0408	LH020
4050-85	●	40	50	60	70	7	54	6	+0.5 to -0.5	1	BT0408	LH020

Diameter Adjustment Range indicates the range in which the diameter can be adjusted.
The dedicated Eccentric Sleeve WAS Type for the SumiDrill WDX Type provides ±0.3mm of adjustment when drilling holes.

■ Precautions for Use

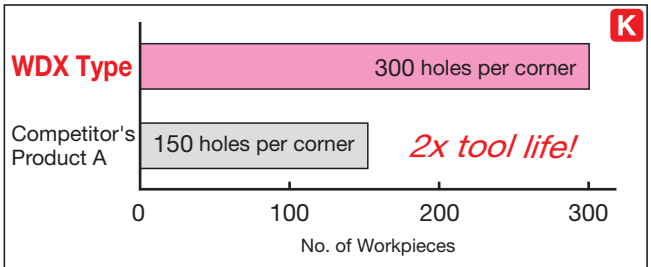
1. The dial is for reference purposes. Always measure the actual work diameter and adjust accordingly.
2. Not usable with collet chuck type holders.
   Use a side-locking type holder.
3. Use this product under high-rigidity conditions.
   This product is not recommended for deep hole drilling such as 5D and low-rigidity conditions.

■ Directions (Adjusting the Work Diameter)



■ Application Examples

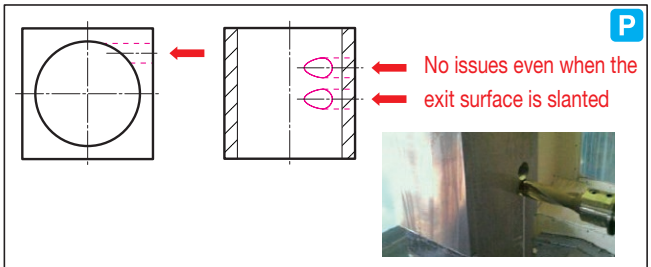
K



Work Material : Machine Component (FCD450)
Tool : WDX205D3S25
Insert : WDXT063006-G (ACK300)
Cutting Conditions : v_c = 122m/min f = 0.15mm/rev H = 33mm Through Wet

· Significant increase in tool life: twice that of conventional tools.
· Stable drilling with minimal cutting force.

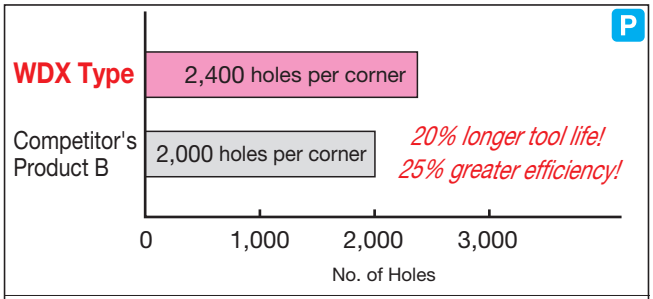
P



Work Material : Plate (S15C)
Tool : WDX430D3S40 Insert: WDXT125012-H (ACP300)
Cutting Conditions : v_c =136m/min f = 0.15mm/rev H = 60+50mm (semicircle area) Through Wet

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

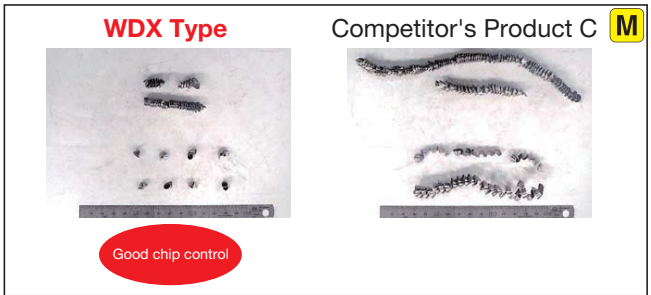
P



Work Material : Machine Component (SCM440)
Tool : WDX200D3S25 Insert: WDXT063006-G (ACP300)
Cutting Conditions : v_c = 157m/min f = 0.19mm/rev H = 19mm Through Wet
(Competitor's Product : v_c = 157m/min f = 0.15mm/rev H = 19mm Through Wet)

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

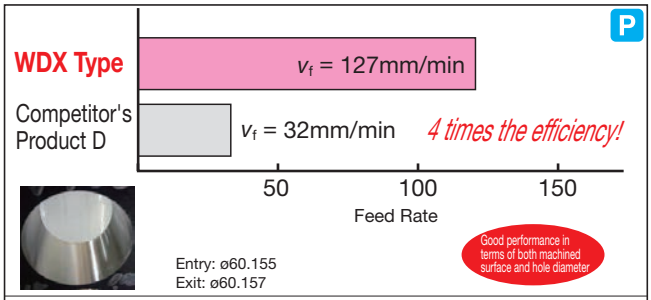
M



Work Material : Piping Component (SUS304)
Tool : WDX210D3S25 Insert: WDXT063006-M (ACM300)
Cutting Conditions : v_c = 105mm/min f = 0.08mm/rev H = 34mm Wet

· Enables improved chip evacuation and stable drilling.

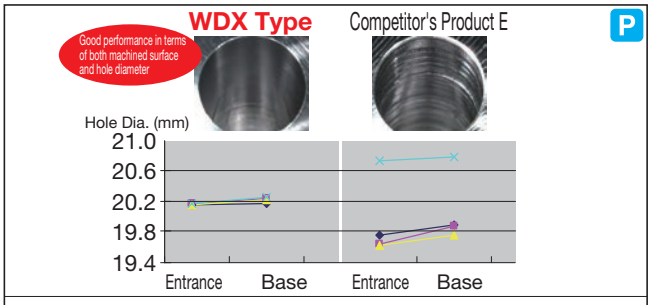
P



Work Material : Plate (S48C)
Tool : WDX600D3S40
Insert : WDXT186012-G (ACP300)
Cutting Conditions : v_c = 150m/min f = 0.16mm/rev H = 60mm Through Wet
(Conventional Tool : v_c = 30m/min f = 0.20mm/rev H = 60mm Through Wet)

· Achieves steady drilling even at large diameters
· Achieves 4 times the efficiency of conventional tools

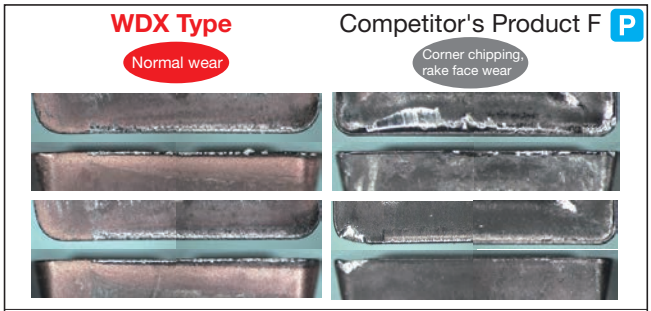
P



Work Material : Machine Component (SCM415)
Tool : WDX200D5S25
Insert : WDXT063006-G (ACP300)
Cutting Conditions : v_c = 185m/min f = 0.12mm/rev H = 87mm Through Wet

· Good machined surface
· Consistent drilled diameter

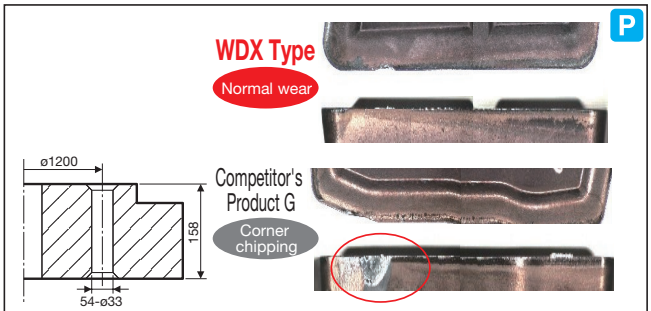
P



Work Material : Tractor Link (35MnBM)
Tool : WDX205D5S25
Insert : WDXT063006-G (ACP300)
Cutting Conditions : v_c = 100m/min f = 0.11mm/rev H = 60mm through Wet

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

P



Work Material : Bearing for Wind Power Generator (equivalent to SCM440)
Tool : WDX330D5S40
Insert : WDXT094008-L (ACP300)
Cutting Conditions : v_c = 146m/min f = 0.10mm/rev H = 158mm Through Wet

· Eliminates defects in workpieces caused by insert chipping

M E M O

SumiDrill WDX series Made-To-Order Request Sheet

Select a cutter design and enter the dimensions in the table below.

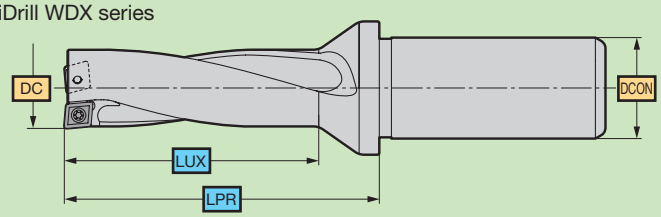
After completion, send the sheet to our nearest sales office or distributor.

Feel free to contact us for other shapes or dimensions or with other requests.

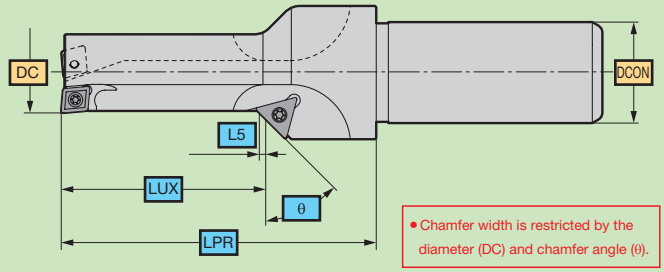
Company Name/Contact

■ Drill Shape

SumiDrill WDX series

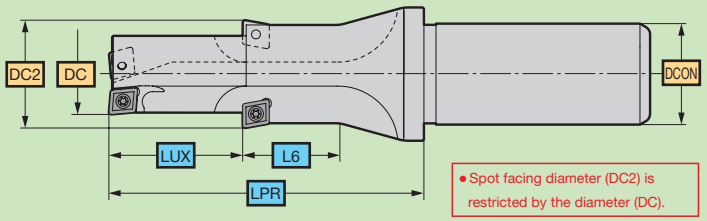


SumiDrill WDX series with Chamfer Edge



• Chamfer width is restricted by the diameter (DC) and chamfer angle (θ).

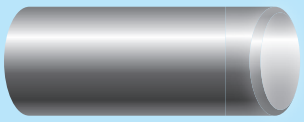
SumiDrill WDX series with Spot Facing Edge



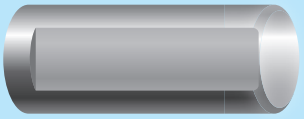
• Spot facing diameter (DC2) is restricted by the diameter (DC).

■ Shank Shape

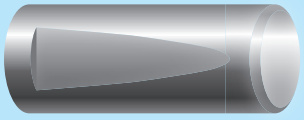
Cylindrical



Side Lock Flat

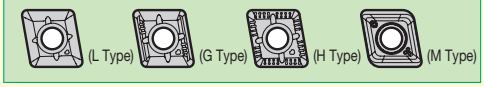


Whistle Notch



■ Compatible Inserts

For Drilling / Spot Facing (WDXT Type)



For Chamfering (TP □□ Type)

DC [Diameter] ø13 to ø55mm	mm	L5 [Chamfer Width] 3mm or less	mm
DCON (*) [Shank Diameter] ø20 to ø40mm	mm	LUX + L6 [Neck Length + Spot Facing Depth] DC × 4 or less	mm
DC2 [Spot Facing Diameter DC + 2 to DC + 20mm]	mm	θ (*) [Chamfer Angle] 15 to 60°	°
LUX [Neck Length] DC × 4 or less	mm		
LPR (*) [Overhang Length] 200mm or less	mm		

(*) Note that dimensions are restricted.

Other Requests

<SAFETY NOTES>

- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.
- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.
- When using non-water soluble cutting oil, precautions Against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

Sumitomo Electric Industries, Ltd.

Hardmetal Division

Global Marketing Department: 1-1-1, Koyakita, Itami, Hyogo 664-0016, Japan

https://www.sumitool.com/global

R17 (2021.2) XXIII 0808 TP/AK