

刀片可换式钻头
Indexable Drills

SumiDrill **WDX**型

SumiDrill WDX Type 第13版

确保极其高的稳定性！



受力均衡设计实现高品位的孔加工！

Balanced design for high-quality drilling

3种独特的断屑槽形状解决切屑处理问题！

采用新材质，可对应一般钢到不锈钢、铸铁、非铁金属加工！

新涂层技术的运用，提升耐崩损性、耐磨损性，延长使用寿命！

四个刀尖可分别用于中心刃，外周刃提高经济性！

Three types of chipbreaker to solve chip control problems

New grade suitable for machining various kinds of metal, such as steel, stainless steel, cast iron and non-ferrous metal

New coating technology has improved fracture and wear resistance and achieved longer tool life
Economical as the four corners of the central and periferal inserts can be used for machining



规格 Sizes	2D: $\phi 13.0 \sim 68.0\text{mm}$	4D: $\phi 13.0 \sim 63.0\text{mm}$
	3D: $\phi 13.0 \sim 68.0\text{mm}$	5D: $\phi 13.0 \sim 55.0\text{mm}$

P M K N S H

刀片可换式钻头 SumiDrill

Indexable Insert Drills

WDX型

SumiDrill WDX Type



■特点

Sumidril型优异的切削均衡设计，从一般钢到不锈钢，无论哪种被削材，都可进行稳定的孔加工。

此外，采用三种独特的刀片断屑槽，提升切屑处理性能，降低切削阻力，在低刚性的状态下也可稳定的加工。

Characteristics

SumiDrill WDX Type provides so excellent cutting balance that it enables stable drilling on a wide range of work materials from general steel to stainless steel.

●系列构成 Series

(单位: mm)

加工孔深度 Drilling Depth	库存尺寸 Available in stock
2D用 2D	$\phi 13.0 \sim \phi 68.0$
3D用 3D	$\phi 13.0 \sim \phi 68.0$
4D用 4D	$\phi 13.0 \sim \phi 63.0$
5D用 5D	$\phi 13.0 \sim \phi 55.0$



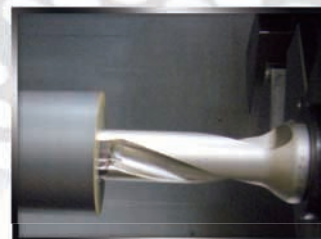
受力均衡设计实现高品质的孔加工!
Balanced design for high-quality drilling



采用新材质ACP300/ACK300/DL1500
New grades ACP300, ACK300 and DL1500



3种断屑槽，应用广泛!
3 types of chipbreakers to support numerous applications



也可对应车削加工
Suitable for use on a lathe



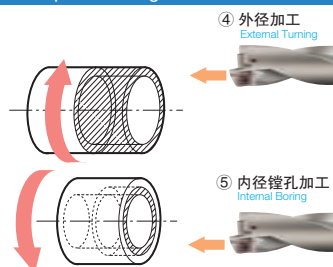
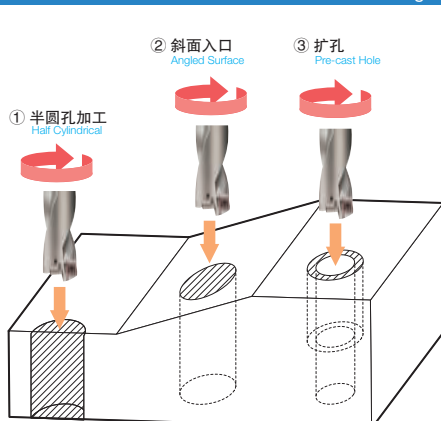
可进行多种加工的多功能工具

Versatile Tool to Perform a Variety of Machining Applications

刀体进行了特殊的表面硬化处理，延长使用寿命。因此，从普通的孔加工到扩孔、铰孔加工等多种加工都能长时间稳定使用。

Special surface hardening treatment has been applied to improve durability, allowing stable and long-term use for a variety of machining applications, such as hole widening and spot facing as well as ordinary drilling.

■ 可对应多种加工 Suitable for Machining Diverse Shapes and Angles



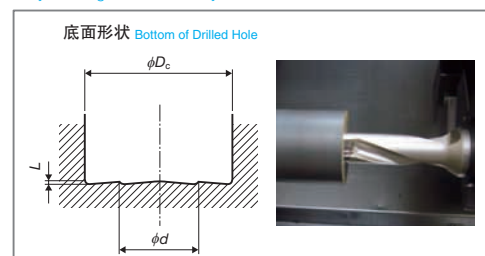
进行外径加工或内径镗孔加工时，请将切深量设定在钻头径的1/5以下(最大5mm以下)。

(例：钻头径为 $\phi 20\text{mm}$ 时，切深量为4mm以下)

For machining external or internal diameter, the setting of the cut depth shall be 1/5 or less of the drill diameter (Max. 5mm or less). (Ex: If the drill diameter is $\phi 20\text{mm}$, the cut depth shall be 4mm or less).

■ 近似平坦的地面形状 Almost-flat Bottom Profiles

近似平坦的底部形状，使后序精加工更方便!
Easy finishing because of very flat hole bottom



● 底面形状尺寸 Dimensions of hole bottom (单位: mm)

钻头径 ϕD_c Drill Diameter	ϕd	L(最大高低差) L (Max. Step)
$\phi 13.0 \sim \phi 18.0$	$\phi D_c / 2$	0.4
$\phi 18.5 \sim \phi 28.5$	$\phi D_c / 2$	0.6
$\phi 29.0 \sim \phi 36.0$	$\phi D_c / 2$	0.8
$\phi 37.0 \sim \phi 55.0$	$\phi D_c / 2$	1.2
$\phi 56.0 \sim \phi 68.0$	$\phi D_c / 2$	1.2

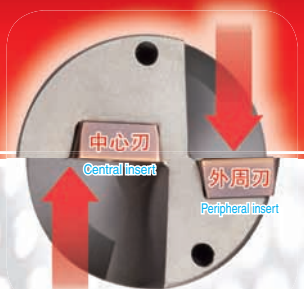
无与伦比的
Superbly

受力均衡的设计!

Balanced Design

▶▶ 中心刃的切削阻力≈外周刃的切削阻力 ◀◀

Cutting resistance of the central insert is approximately equal to that of the peripheral insert



■ 何谓受力均衡设计…… Balanced design means that:

通过中心刃和外周刃平衡分配切削阻力，
并且使相互的位置关系最佳化，从而实现稳定的孔加工。

Cutting resistance during machining is balanced between central and peripheral inserts, and the relative position of each insert is optimised to provide stable drilling.

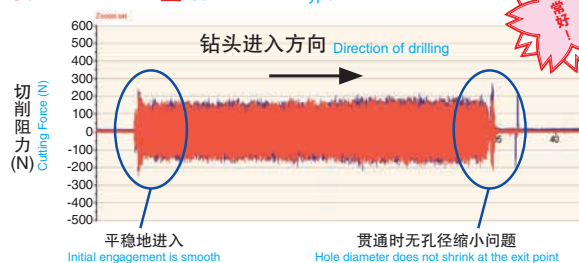
水平分力比较

Comparison of Horizontal Component Values

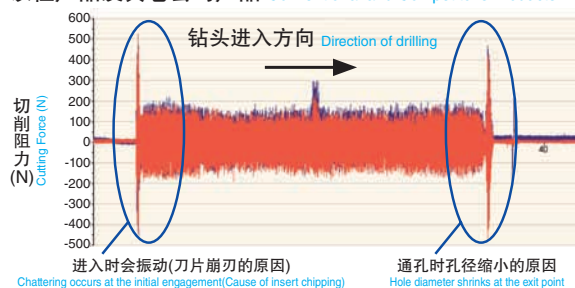
切入部与通孔出口也保持了受力的均衡，可稳定加工。

Cutting resistance is kept balanced at the initial engagement and at the exit point of the hole, so drilling performance is stable.

SumiDrill WDX型 SumiDrill WDX Type



以往产品及其它公司产品 Conventional and Competitor's Products



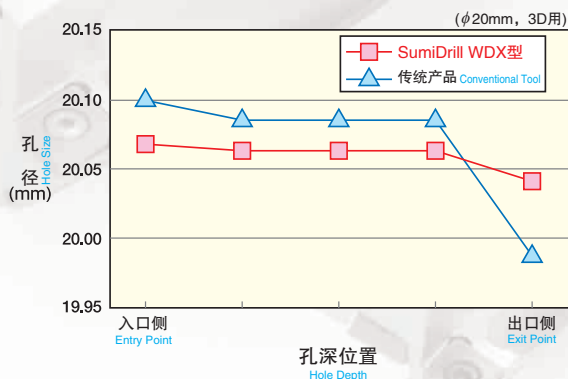
高品质的孔加工
High-quality Drilling

受力均衡设计实现了稳定、高精度的孔加工，同时实现良好的表面粗糙度。

Balanced design enables stable and precise drilling and creates good surface roughness

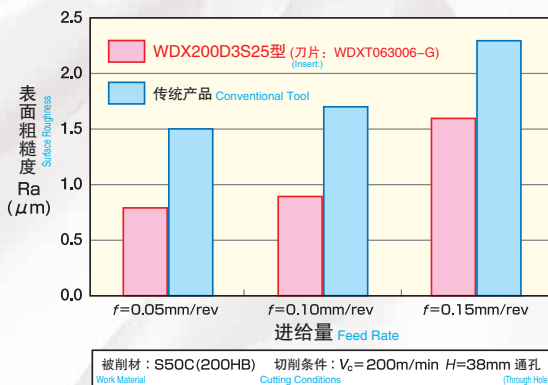
■ 加工孔径的精度比较 Accuracy Comparison of Drilled Holes

从孔的入口到出口，保持均匀的孔精度
Flatness is even from the entrance to exit point



■ 加工孔表面粗糙度比较 Comparison of Surface Roughness of Drilled Holes

通过抑制加工时的振动，
使得加工孔表面粗糙度比以往产品有了显著的提高
Compared to conventional drills, DL1500 can create better surface roughness on the drilled hole by controlling the vibration during machining.



SumiDrill WDX型



深孔加工钻头5D型面市!(规格: $\phi 13.0\text{mm} \sim \phi 55.0\text{mm}$) 5D Type for Deep Holes (Sizes: $\phi 13.0\text{ mm to } \phi 55.0\text{ mm}$)

■ 特长 Characteristics

SumiDrill WDX型5D用刀片可换式钻头, 采用专用排屑槽形状和加大的冷却液孔, 即使用于深孔加工也能发挥良好的排屑性能。

SumiDrill WDX Type for 5D has a special groove shape and large coolant hole, allowing excellent chip evacuation during deep hole drilling.

加大的冷却液孔 Large coolant hole



L/D=5 专用排屑槽形状 Special groove shape for L/D=5



冷却液导向槽 Groove of coolant guide

■ 性能 Performance

钻头柄的特长 Characteristics	截面形状 Cross Section	切削阻力 Cutting Resistance	加工表面(出口) Machined Surface (Exit)
WDX260D5S32 L/D=5的专用排屑槽形状 Special groove shape of L/D=5 ※重视排屑设计 增大槽容量的设计提高了切屑排出的顺畅性, 即使加工L/D=5的深孔, 也可实现稳定加工。 ※Groove shape is focused on smooth chip evacuation. SumiDrill WDX Type has large grooves for metal chip evacuation. It also enables stable drilling of L/D=5 holes.			孔深处加工面亦良好。 Good machined surface from top to down of the hole
WDX260D4S32 L/D≤4的排屑槽形状 Groove shape of L/D≤4 ※重视钻头刀体刚性的设计 提高钻头主体刚性的槽设计, 在L/D=4以内的浅孔加工中, 可实现稳定加工。 ※Flute design is focused on greater rigidity of the drill. Therefore, it provides stable drilling for shallow holes of up to L/D=4.			孔的深处因切屑堵塞导致加工表面粗糙度降低(L/D=5附近) Poor machined surface due to chip blockage at bottom of hole (near L/D=5)

被削材 Work Material : SUS304 刀片 Insert : WDXT073506-G

切削条件 Cutting Conditions : $v_c=150\text{m/min}$ $f=0.05\text{mm/rev}$ $H=130\text{mm}$ (通孔 Through hole) Wet

其他公司产品 Competitor's Product

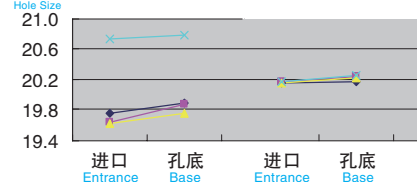


SumiDrill WDX型



加工表面和加工
孔径良好!
Excellent finish of machined
surface and hole

孔径[mm]
Hole Size

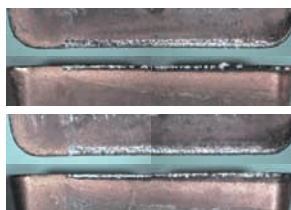


被削材 Work material : 机械零件 Machine component (SCM415)
 使用刀具 Tool : WDX200D5S25
 刀片 Insert : WDXT063006-G (ACP300)
 切削条件 Cutting conditions : $v_c=185\text{m/min}$ $f=0.12\text{mm/rev}$ $H=87\text{mm}$ 通孔 Through hole Wet

- 加工表面良好!! Good machined surface.
- 钻孔直径稳定!! Size of hole diameter is stable

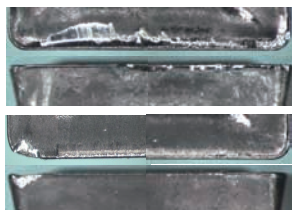
SumiDrill WDX型

正常磨损
Normal wear



其他公司产品 Competitor's Product

刀尖缺损,
前刀面磨损
Corner chipping,
rake face wear

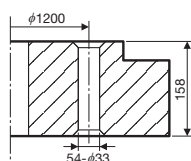
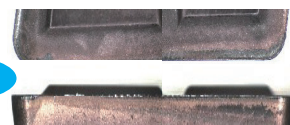


被削材 Work material : 连杆 Tractor links (35MnBM)
 使用刀具 Tool : WDX205D5D25
 刀片 Insert : WDXT063006-G (ACP300)
 切削条件 Cutting conditions : $v_c=100\text{m/min}$ $f=0.11\text{mm/rev}$ $H=60\text{mm}$ 通孔 Through Wet

- L/D=5的深孔也能实现稳定加工!!
- 刀片崩刃和磨损得到很好地抑制, 使用寿命稳定!!
- Stable drilling even at L/D=5.
- Insert chipping and wear have been reduced and tool life has been stabilized.

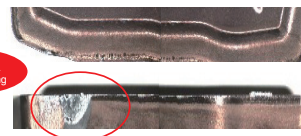
SumiDrill WDX型

正常磨损
Normal wear



其他公司产品
Competitor's Product

刀尖缺损
Corner chipping



被削材 Work material : 风力发电设备用轴承 Bearing for wind power generation (42CrMo)
 使用刀具 Tool : WDX330D5D40
 刀片 Insert : WDXT094008-L (ACP300)
 切削条件 Cutting conditions : $v_c=146\text{m/min}$ $f=0.10\text{mm/rev}$ $H=158\text{mm}$ 通孔 Through Wet

- 解决了因刀片缺损导致工件不合格的难题!!
- There are fewer defective workpieces caused by insert chipping.



采用耐崩损性、耐磨损性优异的新材质 ACP300 ACK300，实现了长寿命！

Excellent resistance against fracture & wear and longer tool life have been achieved by adopting materials, ACP300 and ACK300

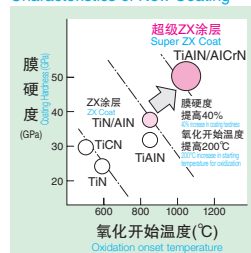
应用超级ZX涂层新技术的一般刚加工用ACP300和铸铁/钢件的高效加工用ACK300的采用，丰富了产品系列，实现长寿命化。

New coating technology, "Super ZX Coat", applied to "ACP 300" for machining of general steel and to "ACK 300" for high-speed machining of cast iron and steel, has achieved longer tool life

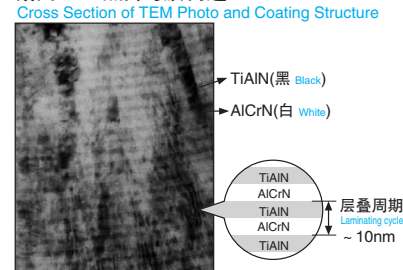
■ 超级ZX涂层的特长 Characteristics of Super ZX Coat

- 纳米级的TiAlN与AlCrN的超薄膜相互交叠约1,000层，形成超多层膜
- Ultra-thin (nanometer scale) layers of TiAlN and AlCrN are alternately stacked up to create super-multi layers of approximately 1,000 layers.
- 与以往材质相比，膜硬度提高40%，同时氧化开始温度也提升了200℃，提高了耐磨损性
- Compared to previous materials, coating hardness has increased by 40%, oxidation onset temperature has increased by 200℃ and wear resistance has also improved significantly.

新涂膜的特长 Characteristics of New Coating



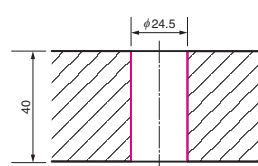
截面TEM照片与膜构造 Cross Section of TEM Photo and Coating Structure



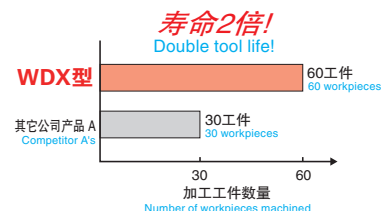
■ 使用实例 Application Examples

■ 30 个工件加工后的刀尖状态 Condition of Cutting Edge after Machining 30 Workpieces

	WDX 型	其它公司产品 A Comp. A
外周刃 Peripheral Insert	 正常磨损(可继续) Normal wear (Still usable)	 崩口 Chipping
中心刃 Central Insert	 正常磨损(可继续) Normal wear (Still usable)	 崩刃 磨损失大 Chipping High wear



被削材：机械部件(碳素钢)
Work material: Machine component (carbon steel)
使用刀具：WDX245D2S25(ACP300, G型)
Tool: WDX245D2S25(ACP300, G type)
切削条件： $v_c=185\text{m/min}$ ($n=2,400\text{min}^{-1}$)
Cutting Conditions:
 $f=0.1\text{mm/rev}$
 $H=32\text{mm Wet}$



非铁金属加工用的新材料极光涂层 DL1500 闪亮登场！

Auroma coating material for machining non-ferrous metal



非铁金属加工用的新材料DL1500与以往产品相比，耐粘屑性能大幅提高。

不仅铝合金，也最适于铜合金等的钻孔用途。

Compared to previous materials, DL1500 provides superior adhesion resistance. Therefore, it is ideal for drilling holes on copper alloy as well as aluminum alloy.

■ 使用实例 Application Examples

	DL1500	ACK300
外周刃 Peripheral Insert	前刀面 Rake Face 	前刀面 Rake Face 粘屑
	后刀面 Flank 	后刀面 Flank 粘屑
中心刃 Central Insert	前刀面 Rake Face 	前刀面 Rake Face 粘屑
	后刀面 Flank 	后刀面 Flank 粘屑

被削材：ADC52
Work Material: ADC52
使用刀具：WDX250D3S25(DL1500, G型)
Tool: WDX250D3S25(DL1500, G type)
切削条件： $v_c=150\text{m/min}$ ($n=1,911\text{min}^{-1}$)
Cutting Conditions:
 $f=0.1\text{mm/rev}$
 $H=50\text{mm}$ (通孔 Through hole) Wet

※粘屑：Adhesion

SumiDrill WDX型用刀片

SumiDrill WDX Type Inserts

WDXT系列

WDXT Series

(L型/G型/H型)
(L Type/G Type/H Type)



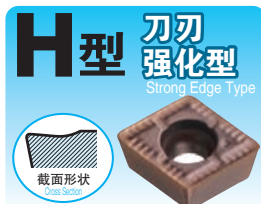
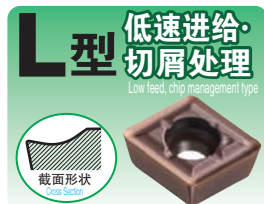
采用3种断屑槽，能对应多种被削材加工

Three types of chipbreakers to support a wide range of work materials and applications

在断屑槽中央部分形成的“切屑控制沟槽”，可有效控制切屑流出方向，按不同用途分开使用的3种断屑槽，在各种各样的被削材和加工条件下，明显减少了切屑产生的问题。

"Chip controlling groove" created in the center part of the breaker controls the direction of chip evacuation. Chip problems with different work materials under various conditions can be reduced drastically by using these three chip breakers selectively depending on the usage.

断屑槽种类 Chipbreaker Types



●前角 Rake Angle



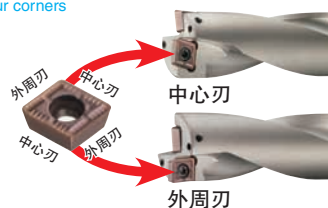
●断屑槽宽度 Chipbreaker Width



使用4个刀尖，降低成本 Economical by the use of four corners

通过使用中心刃、外周刃兼用的刀片，令2中心刃、2外周刃共4刃可用。

Inserts have four cutting edges in total: two central cutting edges and peripheral cutting edges.



※中心刃: Central cutting edge
外周刃: Peripheral cutting edge

切屑处理的改善

Improvement of chip management

钻头 : WDX200D3S25(φ20.0)

Drill

被削材 : SUS304

Work material

切削条件 : $V_c=130\text{m/min}$, $f=0.06\text{mm/rev}$

Cutting conditions $H=50\text{mm}$, Wet

SumiDrill WDX型



以往产品及其它公司产品 Conventional and Competitor's Products



刀片选择指南 —— 各种可供选择的WDX用刀片系列

Insert Selection — WDX Type Insert Series Offers Wide Selection

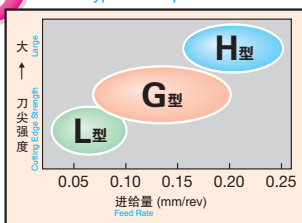
3 种材质

Three material grades

被削材	材质	ACP300	ACK300	DL1500
P 钢(普通加工用)	Steel (General Machining)	○		
P 钢(高速加工用)	Steel (High-Speed Machining)		○	
M 不锈钢	Stainless Steel	○		
K 铸铁	Cast Iron		○	
N 非铁金属	Non-Ferrous Metal			○

3 种断屑槽

Three types of chip breakers



7 种组合得以实现!

Seven possible combinations

ACP300	ACK300	DL1500
P M L型	P K L型	
P M G型	P K G型	N G型
P H型	K H型	

第2推荐 2nd Recommendation

P 钢

低速进给、切屑处理用
Low Feed, Chip Management Type

L型 ACP300

- 用于SS400, SCM415, SCM420等加工の場合
For machining SS400, SCM415, SCM420, etc.
- 切屑处理有问题时, 建议采取高速进给方式
In case of chip control problem, high speed with low feed rate is recommended.
- 因切屑烧结而发生振动时, 降低进给速度
In case of vibration due to burnt chips, reduce the feed rate.

P 钢

刀尖强化型
Strong Edge Type

H型 ACP300

- 通过斜面入口等进行断续(入口、通孔)加工时, 在断续部位降低进给速度($f0.05$ 左右)
For interrupted machining (at entrance/exit) of angled surfaces, reduce the feed rate (to approximately $f0.05$) at each interruption.
- 用于因高硬度材料(热处理)加工而导致刀尖强度不足の場合
Ideal to use when the cutting edge is weakened due to machining hardened material (heat treatment)

P 钢 **通用**
General Purpose

G型 ACK300

- 用于普通钢、合金钢加工时, 后刀面磨损程度严重的場合
For application where severe flank wear may be caused by machining general alloy or alloy steel

P 钢

低速进给、切屑处理用
Low Feed, Chip Management Type

L型 ACK300

- 用于进给条件较低の場合
For low feed rate conditions

P 钢

改善切屑处理
(低碳素钢等)
Improvement of chip control
(low-carbon steel, etc.)

P 钢

应对初期崩刃
(断续・高硬度等)
Reduction of initial chipping
(caused by interrupted machining, machining hard material, etc.)

P 钢

耐磨损性不足
Lack of wear resistance

第1推荐 1st Recommendation

断屑槽 Breaker

通用 General Purpose

G型

材质 Grade

P 钢 **M** 不锈钢

用于普通钢・合金钢/不锈钢加工の場合
For machining general steel, alloy steel or stainless steel

K 铸铁

用于铸铁加工の場合
For machining cast iron

N 非铁金属

用于非铁金属加工の場合
For machining non-ferrous metals

ACK300

DL1500

M 不锈钢

改善切屑处理
Improvement of chip control

K 铸铁

应对初期崩刃
(断续・高速进给)
Reduction of initial chipping
(interrupted/high feed rate machining, etc.)

第2推荐 2nd Recommendation

M 不锈钢

低速进给、切屑处理用
Low feed, chip management type

L型 ACP300

- 用于由于设备导致的切削、进给速度上不去以及切屑处理发生问题的場合
L Type ACP300 is ideal to solve chip evacuation problem caused by low cutting speed and low feed rate due to facility reasons.

K 铸铁

刀尖强化型
Strong Edge Type

H型 ACK300

- 与钢加工一样, 用于通过斜面入口等进行断续切削の場合
Similar to steel machining, H Type ACK300 is ideal for interrupted machining on angled surfaces.
- 用于因高速进给加工而导致刀尖强度不足の場合
With strong edges, it is ideal for machining workpieces at high feed rate.

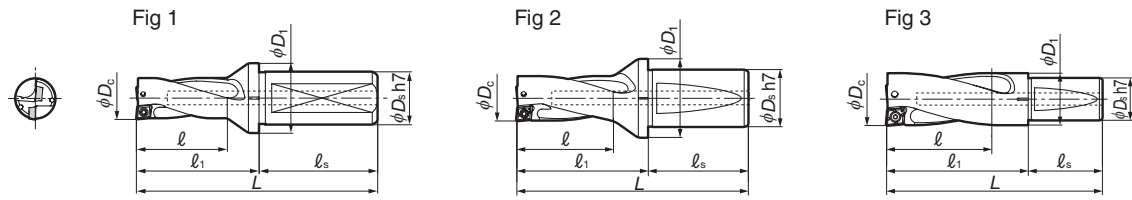
SumiDrill WDX型(2D用)

SumiDrill WDX Type



孔径公差标准 Range of machining tolerance: $-0.05 \sim +0.15$
最大加工深度 Maximum depth: $2 \times \phi D_c$

推荐切削条件 P.12
Recommended Cutting Conditions



刀杆刃径 $\phi 13.0 \sim \phi 45.0\text{mm}$

ϕD_c	ϕD_s	型 号 Part number	库存 Stock	L	ℓ	ℓ_1	ℓ_s	ϕD_1	半径方向 偏移量 (最大)(※)	适用刀片 Applicable insert	Fig
13.0		WDX 130D2S20	●	88	29	44			0.35		
13.5		135D2S20	●	89	30	45			0.30		
14.0		140D2S20	●	90	31	46			0.25		
14.5		145D2S20	●	91	32	47			0.20		
15.0		150D2S20	●	92	33	48			0.15		
15.5		WDX 155D2S20	●	93	34	49			0.40		
16.0		160D2S20	●	94	35	50			0.40		
16.5		165D2S20	●	95	36	51			0.35		
17.0		170D2S20	●	96	37	52			0.30		
17.5		WDX 175D2S25	●	109	38	53			0.25		
18.0		180D2S25	●	110	39	54			0.20		
18.5		WDX 185D2S25	●	111	40	55			0.50		
19.0		190D2S25	●	112	41	56			0.45		
19.5		195D2S25	●	113	42	57			0.40		
20.0		200D2S25	●	114	43	58			0.30		
20.5		205D2S25	●	115	44	59			0.30		
21.0		210D2S25	●	116	45	60			0.20		
21.5		215D2S25	●	117	46	61			0.15		
22.0		220D2S25	●	118	47	62			0.10		
22.5		225D2S25	●	119	48	63			0.05		
23.0		WDX 230D2S25	●	123	49	67			0.70		
23.5		235D2S25	●	124	50	68			0.70		
24.0		240D2S25	●	125	51	69			0.60		
24.5		245D2S25	●	126	52	70			0.50		
25.0		250D2S25	●	127	53	71			0.50		
25.5		WDX 255D2S32	●	134	54	74			0.45		
26.0		260D2S32	●	135	55	75			0.40		
26.5		265D2S32	●	136	56	76			0.35		
27.0		270D2S32	●	137	57	77			0.25		
27.5		275D2S32	●	138	58	78			0.20		
28.0		280D2S32	●	139	59	79			0.15		
28.5		285D2S32	●	140	60	80			0.10		
29.0		WDX 290D2S32	●	143	62	83			1.00		
29.5		295D2S32	●	144	63	84			0.95		
30.0		300D2S32	●	148	64	88			0.90		
31.0		310D2S32	●	150	66	90			0.80		
32.0		320D2S32	●	152	68	92			0.70		
30.0		WDX 300D2S40	●	158	64	88			0.90		
31.0		310D2S40	●	160	66	90			0.80		
32.0		320D2S40	●	162	68	92			0.70		
33.0		330D2S40	●	164	70	94			0.55		
34.0		340D2S40	●	166	72	96			0.45		
35.0		350D2S40	●	168	74	98			0.35		
36.0		360D2S40	●	170	76	100			0.20		
37.0		WDX 370D2S40	●	179	79	109			1.00		
38.0		380D2S40	●	181	81	111			1.00		
39.0		390D2S40	●	183	83	113			0.90		
40.0		400D2S40	●	185	85	115			0.80		
41.0		410D2S40	●	187	87	117			0.70		
42.0		420D2S40	●	189	89	119			0.60		
43.0		430D2S40	●	191	91	121			0.50		
44.0		440D2S40	●	193	93	123			0.50		
45.0		450D2S40	●	195	95	125			0.40		

刃径 $\phi 30$ 、 $\phi 31$ 、 $\phi 32$ 的钻头备有柄径 $\phi 32$ 和 $\phi 40$ 的库存产品。
Cutting diameter of $\phi 30$, $\phi 31$, $\phi 32$ are available with shank diameter of $\phi 32$ and $\phi 40$.
(※)半径方向偏移量(最大)
Maximum offset in the radial direction

附件 Spare Parts

平头螺钉 Screw	扳手 Spanner	扳手 Spanner	推荐紧固 扭矩 (N·m) Recommended Tightening Torque	适用刀杆 Applicable Holders
BFTX01604N	TRX06		0.3	WDX130D2S20 ~ WDX150D2S20
BFTX0204N	TRX06		0.5	WDX155D2S20 ~ WDX180D2S25
BFTX02206		TRD07	1.0	WDX185D2S25 ~ WDX225D2S25
BFTX02506N		TRD08	1.5	WDX230D2S25 ~ WDX285D2S32
BFTX03584		TRD15	3.5	WDX290D2S32 ~ WDX360D2S40
BFTX0511N		TRD20	5.0	WDX370D2S40 ~ WDX450D2S40
BFTX0615N		TRD25	5.0	WDX460D2S40 ~ WDX680D2S40

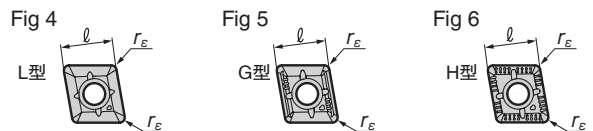
●印: 标准库存品 无印: 接单生产产品
●: Available in stock Unmarked: Available by order

刀杆刃径 $\phi 46.0 \sim \phi 68.0\text{mm}$

ϕD_c	ϕD_s	型 号 Part number	库存 Stock	L	ℓ	ℓ_1	ℓ_s	ϕD_1	半径方向 偏移量 (最大)(※)	适用刀片 Applicable insert	Fig
46.0		WDX 460D2S40	●	197	97	127			1.50		
47.0		470D2S40	●	199	99	129			1.40		
48.0		480D2S40	●	201	101	131			1.30		
49.0		490D2S40	●	203	103	133			1.20		
50.0		500D2S40	●	205	105	135			1.10		
51.0		510D2S40	●	207	107	137			1.00		
52.0		520D2S40	●	209	109	139			0.90		
53.0		530D2S40	●	211	111	141			0.80		
54.0		540D2S40	●	213	113	143			0.60		
55.0		550D2S40	●	215	115	145			0.50		
56.0		WDX 560D2S40	●	222	120	152			2.00		
57.0		570D2S40	●	224	122	154			1.80		
58.0		580D2S40	●	226	124	156			1.70		
59.0		590D2S40	●	228	126	158			1.60		
60.0		600D2S40	●	230	128	160			1.50		
61.0		610D2S40	●	232	130	162			1.40		
62.0		620D2S40	●	234	132	164			1.30		
63.0		630D2S40	●	236	134	166			1.20		
64.0		640D2S40	●	238	136	168			1.00		
65.0		650D2S40	●	240	138	170			0.90		
66.0		660D2S40	●	242	140	172			0.70		
67.0		670D2S40	●	244	142	174			0.60		
68.0		680D2S40	●	246	144	176			0.50		

(※)半径方向偏移量(最大)
Maximum offset in the radial direction

■ 刀片 Insert P 钢 Steel M 不锈钢 Stainless Steel K 铸铁 Cast Iron N 非铁金属 Non-Ferrous Metal S 难削材料 Exotic Alloy H 高硬度材料 Hardened Steel



材质分类 Grade		涂层 Coating		L 型：低速进给、切屑处理型 G 型：通用型 H 型：刀尖强化型 L Type：Low feed, chip control type G Type：General purpose type H Type：Strong edge type					
适用 加工 Application	高速、轻切削 High Speed/Light			N	Fig	尺寸 Dimensions (mm)	适用刀杆 Applicable Holders		
	通用切削 General Purpose	P							
	粗切削 Rough cutting	P	K						
型 号 Part number		ACP300	ACK300	DL1500		厚度 Thickness	r_e		
WDX130D2S20		●	●		4	4.2	2.0	0.4	WDX130D2S20 ~ WDX150D2S20
042004-G		●	●	●	5				
042004-H		●	●		6				
WDX155D2S20		●	●		4	5.0	2.5	0.4	WDX155D2S20 ~ WDX180D2S25
052504-L		●	●	●	5				
052504-H		●	●		6				
WDX185D2S25		●	●		4	6.0	3.0	0.6	WDX185D2S25 ~ WDX225D2S25
063006-L		●	●	●	5				
063006-H		●	●		6				
WDX230D2S25		●	●		4	7.5	3.5	0.6	WDX230D2S25 ~ WDX285D2S32
073506-L		●	●	●	5				
073506-H		●	●		6				
WDX290D2S32		●	●		4	9.6	4.0	0.8	WDX290D2S32 ~ WDX360D2S40
094008-L		●	●	●	5				
094008-H		●	●		6				
WDX370D2S40		●	●		4	12.4	5.0	1.2	WDX370D2S40 ~ WDX450D2S40
125012-L		●	●	●	5				
125012-H		●	●		6				
WDX460D2S40		●	●		4	15.2	6.0	1.2	WDX460D2S40 ~ WDX550D2S40
156012-L		●	●	●	5				
156012-H		●	●		6				
WDX560D2S40		●	●		4	18.0	6.0	1.2	WDX560D2S40 ~ WDX680D2S40
186012-L		●	●	●	5				
186012-H		●	●		6				

刀杆及刀片型号的称呼方法请参见第11页
See p.11 for the part number structure of holders and inserts.

SumiDrill WDX型(3D用)

SumiDrill WDX Type



孔径公差标准 Range of machining tolerance: 0 ~ +0.20
最大加工深度 ℓ Maximum depth: $3 \times \phi D_c$

推荐切削条件 P.12
Recommended Cutting Conditions

Fig 1

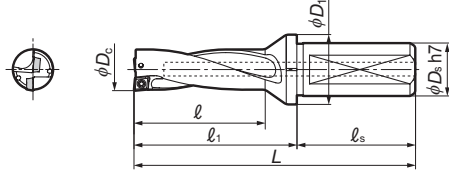


Fig 2

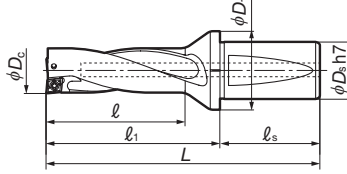
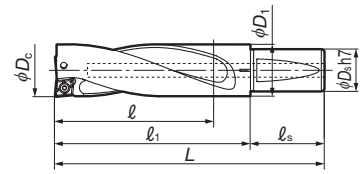


Fig 3



刀杆刃径 $\phi 13.0 \sim \phi 45.0\text{mm}$

Holder Diameter

(参照P.15)

(单位: mm)

ϕD_c	ϕD_s	型 号 Part number	库存 Stock	L	ℓ	ℓ_1	ℓ_s	ϕD_1	半径方向 偏移量 (最大)(※)	适用刀片 Applicable insert	Fig
13.0		WDX 130D3S20	●	101.0	42.0	57.0			0.35		
13.5		135D3S20	●	102.5	43.5	58.5			0.30		
14.0		140D3S20	●	104.0	45.0	60.0			0.25		
14.5		145D3S20	●	105.5	46.5	61.5			0.20		
15.0		150D3S20	●	107.0	48.0	63.0			0.15		
15.5		WDX 155D3S20	●	108.5	49.5	64.5			0.40		
16.0		160D3S20	●	110.0	51.0	66.0			0.40		
16.5		165D3S20	●	111.5	52.5	67.5			0.35		
17.0		170D3S20	●	113.0	54.0	69.0			0.30		
17.5		WDX 175D3S25	●	126.5	55.5	70.5			0.25		
18.0		180D3S25	●	128.0	57.0	72.0			0.20		
18.5		WDX 185D3S25	●	129.5	58.5	73.5			0.50		
19.0		190D3S25	●	131.0	60.0	75.0			0.45		
19.5		195D3S25	●	132.5	61.5	76.5			0.40		
20.0		200D3S25	●	134.0	63.0	78.0			0.30		
20.5		205D3S25	●	135.5	64.5	79.5			0.30		
21.0		210D3S25	●	137.0	66.0	81.0			0.20		
21.5		215D3S25	●	138.5	67.5	82.5			0.15		
22.0		220D3S25	●	140.0	69.0	84.0			0.10		
22.5		225D3S25	●	141.5	70.5	85.5			0.05		
23.0		WDX 230D3S25	●	146.0	72.0	90.0			0.70		
23.5		235D3S25	●	147.5	73.5	91.5			0.70		
24.0		240D3S25	●	149.0	75.0	93.0			0.60		
24.5		245D3S25	●	150.5	76.5	94.5			0.50		
25.0		250D3S25	●	152.0	78.0	96.0			0.50		
25.5		WDX 255D3S32	●	159.5	79.5	99.5			0.45		
26.0		260D3S32	●	161.0	81.0	101.0			0.40		
26.5		265D3S32	●	162.5	82.5	102.5			0.35		
27.0		270D3S32	●	164.0	84.0	104.0			0.25		
27.5		275D3S32	●	165.5	85.5	105.5			0.20		
28.0		280D3S32	●	167.0	87.0	107.0			0.15		
28.5		285D3S32	●	168.5	88.5	108.5			0.10		
29.0		WDX 290D3S32	●	172.0	91.0	112.0			1.00		
29.5		295D3S32	●	173.5	92.5	113.5			0.95		
30.0		300D3S32	●	178.0	94.0	118.0			0.90		
31.0		310D3S32	●	181.0	97.0	121.0			0.80		
32.0		320D3S32	●	184.0	100.0	124.0			0.70		
30.0		WDX 300D3S40	●	188.0	94.0	118.0			0.90		
31.0		310D3S40	●	191.0	97.0	121.0			0.80		
32.0		320D3S40	●	194.0	100.0	124.0			0.70		
33.0		330D3S40	●	197.0	103.0	127.0			0.55		
34.0		340D3S40	●	200.0	106.0	130.0			0.45		
35.0		350D3S40	●	203.0	109.0	133.0			0.35		
36.0		360D3S40	●	206.0	112.0	136.0			0.20		
37.0		WDX 370D3S40	●	216.0	116.0	146.0			1.00		
38.0		380D3S40	●	219.0	119.0	149.0			1.00		
39.0		390D3S40	●	222.0	122.0	152.0			0.90		
40.0		400D3S40	●	225.0	125.0	155.0			0.80		
41.0		410D3S40	●	228.0	128.0	158.0			0.70		
42.0		420D3S40	●	231.0	131.0	161.0			0.60		
43.0		430D3S40	●	234.0	134.0	164.0			0.50		
44.0		440D3S40	●	237.0	137.0	167.0			0.50		
45.0		450D3S40	●	240.0	140.0	170.0			0.40		

刃径 $\phi 30$ 、 $\phi 31$ 、 $\phi 32$ 的钻头备有柄径 $\phi 32$ 和 $\phi 40$ 的库存产品。
Cutting diameter of $\phi 30$, $\phi 31$, $\phi 32$ are available with shank diameter of $\phi 32$ and $\phi 40$.

(※) 半径方向偏移量(最大)
Maximum offset in the radial direction

刀杆刃径 $\phi 46.0 \sim \phi 68.0\text{mm}$

Holder Diameter

(参照P.15)

(单位: mm)

ϕD_c	ϕD_s	型 号 Part number	库存 Stock	L	ℓ	ℓ_1	ℓ_s	ϕD_1	半径方向 偏移量 (最大)(※)	适用刀片 Applicable insert	Fig
46.0		WDX 460D3S40	●	243.0	143.0	173.0			1.50		
47.0		470D3S40	●	246.0	146.0	176.0			1.40		
48.0		480D3S40	●	249.0	149.0	179.0			1.30		
49.0		490D3S40	●	252.0	152.0	182.0			1.20		
50.0		500D3S40	●	255.0	155.0	185.0			1.10		
51.0		510D3S40	●	258.0	158.0	188.0			1.00		
52.0		520D3S40	●	261.0	161.0	191.0			0.90		
53.0		530D3S40	●	264.0	164.0	194.0			0.80		
54.0		540D3S40	●	267.0	167.0	197.0			0.70		
55.0		550D3S40	●	270.0	170.0	200.0			0.60		
56.0		WDX 560D3S40	●	278.0	176.0	208.0			2.00		
57.0		570D3S40	●	281.0	179.0	211.0			1.80		
58.0		580D3S40	●	284.0	182.0	214.0			1.70		
59.0		590D3S40	●	287.0	185.0	217.0			1.60		
60.0		600D3S40	●	290.0	188.0	220.0			1.50		
61.0		610D3S40	●	293.0	191.0	223.0			1.40		
62.0		620D3S40	●	296.0	194.0	226.0			1.30		
63.0		630D3S40	●	299.0	197.0	229.0			1.20		
64.0		640D3S40	●	302.0	200.0	232.0			1.00		
65.0		650D3S40	●	305.0	203.0	235.0			0.90		
66.0		660D3S40	●	308.0	206.0	238.0			0.70		
67.0		670D3S40	●	311.0	209.0	241.0			0.60		
68.0		680D3S40	●	314.0	212.0	244.0			0.50		

(※) 半径方向偏移量(最大)
Maximum offset in the radial direction

刀片

Insert

P 钢

M 不锈钢

K 铸铁

N 非铁金属

S 难削材

H 高硬度材料

Fig 4

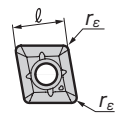


Fig 5

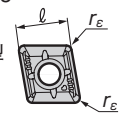
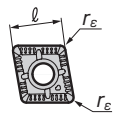


Fig 6



材质分类 Grade		涂层 Coating		L 型：低速进给、切屑处理型 G 型：通用型 H 型：刀尖强化型 L Type：Low feed, chip control type G Type：General purpose type H Type：Strong edge type					
适用加工 Application	高速、轻切削 High Speed/Light								
	通用切削 General Purpose								
	粗切削 Rough cutting								
型 号 Part number		ACP300	ACK300	DL1500	Fig	尺寸 Dimensions(mm)			适用刀杆 Applicable Holders
						ℓ	厚度 Thickness	r_e	
WDX T 042004-L		●	●		4	4.2	2.0	0.4	WDX130D3S20 ~ WDX150D3S20
042004-G		●	●	●	5				
042004-H		●	●		6				
WDX T 052504-L		●	●		4	5.0	2.5	0.4	WDX155D3S20 ~ WDX180D3S25
052504-G		●	●	●	5				
052504-H		●	●		6				
WDX T 063006-L		●	●		4	6.0	3.0	0.6	WDX185D3S25 ~ WDX225D3S25
063006-G		●	●	●	5				
063006-H		●	●		6				
WDX T 073506-L		●	●		4	7.5	3.5	0.6	WDX230D3S25 ~ WDX285D3S32
073506-G		●	●	●	5				
073506-H		●	●		6				
WDX T 094008-L		●	●		4	9.6	4.0	0.8	WDX290D3S32 ~ WDX360D3S40
094008-G		●	●	●	5				
094008-H		●	●		6				
WDX T 125012-L		●	●		4	12.4	5.0	1.2	WDX370D3S40 ~ WDX450D3S40
125012-G		●	●	●	5				
125012-H		●	●		6				
WDX T 156012-L		●	●		4	15.2	6.0	1.2	WDX460D3S40 ~ WDX550D3S40
156012-G		●	●	●	5				
156012-H		●	●		6				
WDX T 186012-L		●	●		4	18.0	6.0	1.2	WDX560D3S40 ~ WDX680D3S40
186012-G		●	●		5				
186012-H		●	●		6				

附件 Spare Parts

平头螺钉 Screw	扳手 Spanner	扳手 Spanner	推荐紧固 扭矩 (N·m) Recommended Tightening Torque	适用刀杆 Applicable Holders
BFTX01604N	TRX06		0.3	WDX130D3S20 ~ WDX150D3S20
BFTX0204N	TRX06		0.5	WDX155D3S20 ~ WDX180D3S25
BFTY02206		TRD07	1.0	WDX185D3S25 ~ WDX225D3S25
BFTX02506N		TRD08	1.5	WDX230D3S25 ~ WDX285D3S32
BFTX03584		TRD15	3.5	WDX290D3S32 ~ WDX360D3S40
BFTX0511N		TRD20	5.0	WDX370D3S40 ~ WDX450D3S40
BFTX0615N		TRD25	5.0	WDX460D3S40 ~ WDX680D3S40

● 印: 标准库存品 无印: 接单生产产品
● Available in stock Unmarked: Available by order

刀杆及刀片型号的称呼方法请参见第11页
See p.11 for the part number structure of holders and inserts.

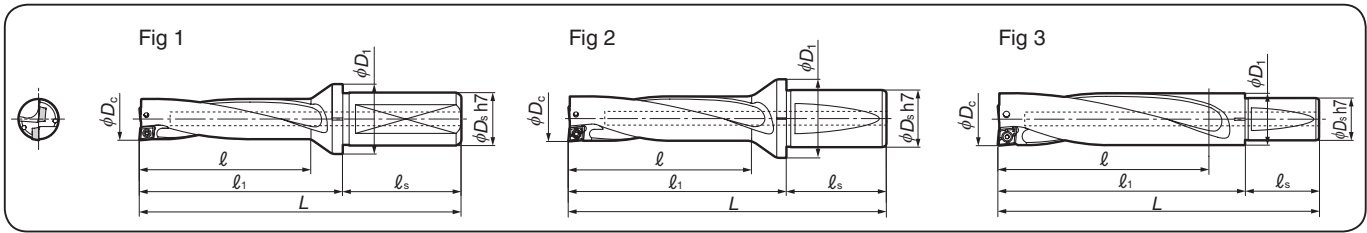
SumiDrill WDX型(4D用)

SumiDrill WDX Type



孔径公差标准 Range of machining tolerance: 0 ~ +0.25
最大加工深度 ℓ Maximum depth: $4 \times \phi D_c$

推荐切削条件 P.13
Recommended Cutting Conditions



刀杆刃径 $\phi 13.0 \sim \phi 45.0\text{mm}$

ϕD_c	ϕD_s	型 号 Part number	库存 Stock	L	ℓ	ℓ_1	ℓ_s	ϕD_1	半径方向 偏移量 (最大)(*)	适用刀片 Applicable insert	Fig
13.0		WDX 130D4S20	●	114	55	70			0.35		
13.5		135D4S20	●	116	57	72			0.30		
14.0		140D4S20	●	118	59	74			0.25		
14.5		145D4S20	●	120	61	76			0.20		
15.0		150D4S20	●	122	63	78			0.15		
15.5		WDX 155D4S20	●	124	65	80			0.40		
16.0		160D4S20	●	126	67	82			0.40		
16.5		165D4S20	●	128	69	84			0.35		
17.0		170D4S20	●	130	71	86			0.30		
17.5		WDX 175D4S25	●	144	73	88			0.25		
18.0		180D4S25	●	146	75	90			0.20		
18.5		WDX 185D4S25	●	148	77	92			0.50		
19.0		190D4S25	●	150	79	94			0.45		
19.5		195D4S25	●	152	81	96			0.40		
20.0		200D4S25	●	154	83	98			0.30		
20.5		205D4S25	●	156	85	100			0.30		
21.0		210D4S25	●	158	87	102			0.20		
21.5		215D4S25	●	160	89	104			0.15		
22.0		220D4S25	●	162	91	106			0.10		
22.5		225D4S25	●	164	93	108			0.05		
23.0		WDX 230D4S25	●	169	95	113			0.70		
23.5		235D4S25	●	171	97	115			0.70		
24.0		240D4S25	●	173	99	117			0.60		
24.5		245D4S25	●	175	101	119			0.50		
25.0		250D4S25	●	177	103	121			0.50		
25.5		WDX 255D4S32	●	185	105	125			0.45		
26.0		260D4S32	●	187	107	127			0.40		
26.5		265D4S32	●	189	109	129			0.35		
27.0		270D4S32	●	191	111	131			0.25		
27.5		275D4S32	●	193	113	133			0.20		
28.0		280D4S32	●	195	115	135			0.15		
28.5		285D4S32	●	197	117	137			0.10		
29.0		WDX 290D4S32	●	201	120	141			1.00		
29.5		295D4S32	●	203	122	143			0.95		
30.0		300D4S32	●	208	124	148			0.90		
31.0		310D4S32	●	212	128	152			0.80		
32.0		320D4S32	●	216	132	156			0.70		
30.0		WDX 300D4S40	●	218	124	148			0.90		
31.0		310D4S40	●	222	128	152			0.80		
32.0		320D4S40	●	226	132	156			0.70		
33.0		330D4S40	●	230	136	160			0.55		
34.0		340D4S40	●	234	140	164			0.45		
35.0		350D4S40	●	238	144	168			0.35		
36.0		360D4S40	●	242	148	172			0.20		
37.0		WDX 370D4S40	●	253	153	183			1.00		
38.0		380D4S40	●	257	157	187			1.00		
39.0		390D4S40	●	261	161	191			0.90		
40.0		400D4S40	●	265	165	195			0.80		
41.0		410D4S40	●	269	169	199			0.70		
42.0		420D4S40	●	273	173	203			0.60		
43.0		430D4S40	●	277	177	207			0.50		
44.0		440D4S40	●	281	181	211			0.50		
45.0		450D4S40	●	285	185	215			0.40		

刃径 $\phi 30$ 、 $\phi 31$ 、 $\phi 32$ 的钻头备有柄径 $\phi 32$ 和 $\phi 40$ 的库存产品。
Cutting diameter of $\phi 30$, $\phi 31$, $\phi 32$ are available with shank diameter of $\phi 32$ and $\phi 40$.

(*)半径方向偏移量(最大)
Maximum offset in the radial direction

附件 Spare Parts

平头螺钉 Screw	扳手 Spanner	扳手 Spanner	推荐紧固 扭矩 (N·m) Recommended Tightening Torque	适用刀杆 Applicable Holders
BFTX01604N	TRX06		0.3	WDX130D4S20 ~ WDX150D4S20
BFTX0204N	TRX06		0.5	WDX155D4S20 ~ WDX180D4S25
BFTX02206		TRD07	1.0	WDX185D4S25 ~ WDX225D4S25
BFTX02506N		TRD08	1.5	WDX230D4S25 ~ WDX285D4S32
BFTX03584		TRD15	3.5	WDX290D4S32 ~ WDX360D4S40
BFTX0511N		TRD20	5.0	WDX370D4S40 ~ WDX450D4S40
BFTX0615N		TRD25	5.0	WDX460D4S40 ~ WDX630D4S40

●印: 标准库存品 无印: 接单生产产品
●: Available in stock Unmarked: Available by order

刀杆刃径 $\phi 46.0 \sim \phi 63.0\text{mm}$

ϕD_c	ϕD_s	型 号 Part number	库存 Stock	L	ℓ	ℓ_1	ℓ_s	ϕD_1	半径方向 偏移量 (最大)(*)	适用刀片 Applicable insert	Fig
46.0		WDX 460D4S40	●	289	189	219			1.50		
47.0		470D4S40	●	293	193	223			1.40		
48.0		480D4S40	●	297	197	227			1.30		
49.0		490D4S40	●	301	201	231			1.20		
50.0		500D4S40	●	305	205	235			1.10		
51.0		510D4S40	●	309	209	239			1.00		
52.0		520D4S40	●	313	213	243			0.90		
53.0		530D4S40	●	317	217	247			0.80		
54.0		540D4S40	●	321	221	251			0.60		
55.0		550D4S40	●	325	225	255			0.50		
56.0		WDX 560D4S40	●	334	232	264			2.00		
57.0		570D4S40	●	338	236	268			1.80		
58.0		580D4S40	●	342	240	272			1.70		
59.0		590D4S40	●	346	244	276			1.60		
60.0		600D4S40	●	350	248	280			1.50		
61.0		610D4S40	●	354	252	284			1.40		
62.0		620D4S40	●	358	256	288			1.30		
63.0		630D4S40	●	362	260	292			1.20		

(*)半径方向偏移量(最大)
Maximum offset in the radial direction

■ 刀片 P 钢 M 不锈钢 K 铸铁 N 非铁金属 S 难削材 H 高硬度材料
Insert Steel Stainless Steel Cast Iron Non-Ferrous Metal Exotic Alloy Hardened Steel

Fig 4

L型

Fig 5

G型

Fig 6

H型

材质分类 Grade					涂层 Coating			L 型：低速进给、切屑处理型 G 型：通用型 H 型：刀尖强化型 L Type：Low feed, chip control type G Type：General purpose type H Type：Strong edge type				
适用加工 Application	高速、轻切削 High Speed/Light						N	Fig	尺寸Dimensions(mm)			适用刀杆 Applicable Holders
	通用切削 General Purpose				P	M			ℓ	厚度 Thickness	r _E	
	粗切削 Rough cutting				P	M	K					
型 号 Part number					ACP300	ACK300	DL1500					
WDXT 042004-L					●	●		4	4.2	2.0	0.4	WDX130D4S20 ~ WDX150D4S20
042004-G					●	●	●	5				
042004-H					●	●		6				
WDXT 052504-L					●	●		4	5.0	2.5	0.4	WDX155D4S20 ~ WDX180D4S25
052504-G					●	●	●	5				
052504-H					●	●		6				
WDXT 063006-L					●	●		4	6.0	3.0	0.6	WDX185D4S25 ~ WDX225D4S25
063006-G					●	●	●	5				
063006-H					●	●		6				
WDXT 073506-L					●	●		4	7.5	3.5	0.6	WDX230D4S25 ~ WDX285D4S32
073506-G					●	●	●	5				
073506-H					●	●		6				
WDXT 094008-L					●	●		4	9.6	4.0	0.8	WDX290D4S32 ~ WDX360D4S40
094008-G					●	●	●	5				
094008-H					●	●		6				
WDXT 125012-L					●	●		4	12.4	5.0	1.2	WDX370D4S40 ~ WDX450D4S40
125012-G					●	●	●	5				
125012-H					●	●		6				
WDXT 156012-L					●	●		4	15.2	6.0	1.2	WDX460D4S40 ~ WDX550D4S40
156012-G					●	●	●	5				
156012-H					●	●		6				
WDXT 186012-L					●	●		4	18.0	6.0	1.2	WDX560D4S40 ~ WDX630D4S40
186012-G					●	●		5				
186012-H					●	●		6				

刀杆及刀片型号的称呼方法请参见第11页
See p.11 for the part number structure of holders and inserts.

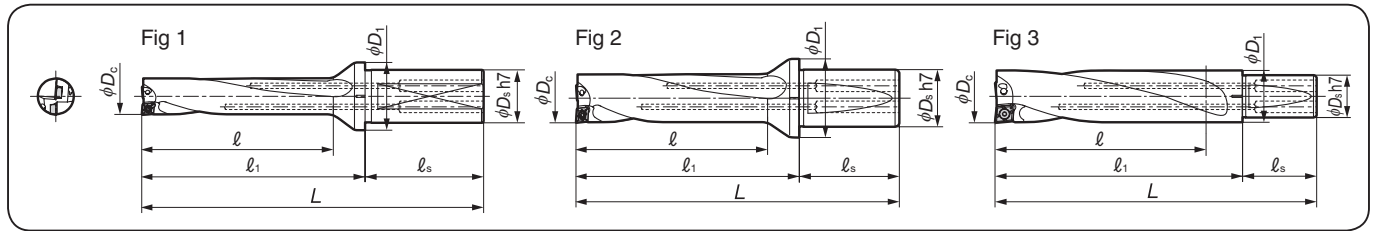
SumiDrill WDX型(5D用)

SumiDrill WDX Type



孔径公差标准 Range of machining tolerance: 0 ~ +0.25
最大加工深度 Maximum depth: 5 × φD_c

推荐切削条件 Recommended Cutting Conditions P.13



刀杆刃径φ13.0 ~ φ45.0mm

φD _c	φD _s	型 号 Part number	库存 Stock	L	ℓ	ℓ ₁	ℓ _s	φD ₁	半径方向 偏移量 (最大)(※)	适用刀片 Applicable insert	Fig
13.0		WDX 130D5S20	●	127.0	68.0	83.0			0.35		
13.5		135D5S20	●	129.5	70.5	85.5			0.30		
14.0		140D5S20	●	132.0	73.0	88.0			0.25	WDX 042004	
14.5		145D5S20	●	134.5	75.5	90.5			0.20		
15.0		150D5S20	●	137.0	78.0	93.0			0.15		
15.5		WDX 155D5S20	●	139.5	80.5	95.5			0.40		
16.0		160D5S20	●	142.0	83.0	98.0			0.40	WDX 052504	
16.5		165D5S20	●	144.5	85.5	100.5			0.35		
17.0		170D5S20	●	147.0	88.0	103.0			0.30		
17.5		WDX 175D5S25	●	161.5	90.5	105.5			0.25		
18.0		180D5S25	●	164.0	93.0	108.0			0.20		
18.5		WDX 185D5S25	●	166.5	95.5	110.5			0.50		
19.0		190D5S25	●	169.0	98.0	113.0			0.45		
19.5		195D5S25	●	171.5	100.5	115.5			0.40		
20.0		200D5S25	●	174.0	103.0	118.0			0.30	WDX 063006	
20.5		205D5S25	●	176.5	105.5	120.5			0.30		
21.0		210D5S25	●	179.0	108.0	123.0			0.20		
21.5		215D5S25	●	181.5	110.5	125.5			0.15		
22.0		220D5S25	●	184.0	113.0	128.0			0.10		
22.5		225D5S25	●	186.5	115.5	130.5			0.05		
23.0		WDX 230D5S25	●	192.0	118.0	136.0			0.70		
23.5		235D5S25	●	194.5	120.5	138.5			0.70		
24.0		240D5S25	●	197.0	123.0	141.0			0.60	WDX 073506	
24.5		245D5S25	●	199.5	125.5	143.5			0.50		
25.0		250D5S25	●	202.0	128.0	146.0			0.50		
26.0		WDX 260D5S32	●	213.0	133.0	153.0			0.40		
27.0		270D5S32	●	218.0	138.0	158.0			0.25		
28.0		280D5S32	●	223.0	143.0	163.0			0.15		
29.0		WDX 290D5S32	●	230.0	149.0	170.0			1.00		
30.0		300D5S32	●	238.0	154.0	178.0			0.90		
31.0		310D5S32	●	243.0	159.0	183.0			0.80		
32.0		320D5S32	●	248.0	164.0	188.0			0.70		
30.0		WDX 300D5S40	●	248.0	154.0	178.0			0.90	WDX 094008	
31.0		310D5S40	●	253.0	159.0	183.0			0.80		
32.0		320D5S40	●	258.0	164.0	188.0			0.70		
33.0		330D5S40	●	263.0	169.0	193.0			0.55		
34.0		340D5S40	●	268.0	174.0	198.0			0.45		
35.0		350D5S40	●	273.0	179.0	203.0			0.35		
36.0		360D5S40	●	278.0	184.0	208.0			0.20		
37.0		WDX 370D5S40	●	290.0	190.0	220.0			1.00		
38.0		380D5S40	●	295.0	195.0	225.0			1.00		
39.0		390D5S40	●	300.0	200.0	230.0			0.90		
40.0		400D5S40	●	305.0	205.0	235.0			0.80		
41.0		410D5S40	●	310.0	210.0	240.0			0.70	WDX 125012	
42.0		420D5S40	●	315.0	215.0	245.0			0.60		
43.0		430D5S40	●	320.0	220.0	250.0			0.50		
44.0		440D5S40	●	325.0	225.0	255.0			0.50		
45.0		450D5S40	●	330.0	230.0	260.0			0.40		

刃径φ30、φ31、φ32的钻头备有柄径φ32和φ40的库存产品。
Cutting diameter of φ30, φ31, φ32 are available with shank diameter of φ32 and φ40.

附件 Spare Parts

平头螺钉 Screw	扳手 Spanner	扳手 Spanner	推荐紧固 扭矩 (N·m) Recommended Tightening Torque	适用刀杆 Applicable Holders
BFTX01604N	TRX06		0.3	WDX130D5S20 ~ WDX150D5S20
BFTX0204N	TRX06		0.5	WDX155D5S20 ~ WDX180D5S25
BFTY02206		TRD07	1.0	WDX185D5S25 ~ WDX225D5S25
BFTX02506N		TRD08	1.5	WDX230D5S25 ~ WDX285D5S32
BFTX03584		TRD15	3.5	WDX290D5S32 ~ WDX360D5S40
BFTX0511N		TRD20	5.0	WDX370D5S40 ~ WDX450D5S40
BFTX0615N		TRD25	5.0	WDX460D5S40 ~ WDX550D5S40

刀杆刃径φ46.0 ~ φ55.0mm

φD _c	φD _s	型 号 Part number	库存 Stock	L	ℓ	ℓ ₁	ℓ _s	φD ₁	半径方向 偏移量 (最大)(※)	适用刀片 Applicable insert	Fig
46.0		WDX 460D5S40	●	335.0	235.0	265.0			1.50		
47.0		470D5S40	●	340.0	240.0	270.0			1.40		
48.0		480D5S40	●	345.0	245.0	275.0			1.30		
49.0		490D5S40	●	350.0	250.0	280.0			1.20		
50.0		500D5S40	●	355.0	255.0	285.0			1.10	WDX 156012	
51.0		510D5S40	●	360.0	260.0	290.0			1.00		
52.0		520D5S40	●	365.0	265.0	295.0			0.90		
53.0		530D5S40	●	370.0	270.0	300.0			0.80		
54.0		540D5S40	●	375.0	275.0	305.0			0.60		
55.0		550D5S40	●	380.0	280.0	310.0			0.50		

(※)半径方向偏移量(最大)
Offset in radial direction (Maximum)

刀片 Insert P 钢 Steel M 不锈钢 Stainless Steel K 铸铁 Cast Iron N 非铁金属 Non-Ferrous Metal S 难削材 Exotic Alloy H 高硬度材料 Hardened Steel

Fig 4

L型

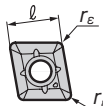


Fig 5

G型

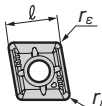
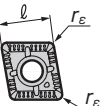


Fig 6

H型



材质分类 Grade		涂层 Coating		L型：低速进给、切屑处理型 G型：通用型 H型：刀尖强化型 L Type：Low feed, chip control type G Type：General purpose type H Type：Strong edge type
适用加工 Application	高速、轻切削 High Speed/Light			
	通用切削 General Purpose			
	粗切削 Rough cutting			

型 号 Part number	ACP300	ACK300	DL1500	Fig	尺寸Dimensions(mm)			适用刀杆 Applicable Holders
					ℓ	厚度 Thickness	r _e	
WDXT 042004-L	●	●	●	4	4.2	2.0	0.4	WDX130D5S20 ~ WDX150D5S20
042004-G	●	●	●	5				
042004-H	●	●	●	6				
WDXT 052504-L	●	●	●	4	5.0	2.5	0.4	WDX155D5S20 ~ WDX180D5S25
052504-G	●	●	●	5				
052504-H	●	●	●	6				
WDXT 063006-L	●	●	●	4	6.0	3.0	0.6	WDX185D5S25 ~ WDX225D5S25
063006-G	●	●	●	5				
063006-H	●	●	●	6				
WDXT 073506-L	●	●	●	4	7.5	3.5	0.6	WDX230D5S25 ~ WDX285D5S32
073506-G	●	●	●	5				
073506-H	●	●	●	6				
WDXT 094008-L	●	●	●	4	9.6	4.0	0.8	WDX290D5S32 ~ WDX360D5S40
094008-G	●	●	●	5				
094008-H	●	●	●	6				
WDXT 125012-L	●	●	●	4	12.4	5.0	1.2	WDX370D5S40 ~ WDX450D5S40
125012-G	●	●	●	5				
125012-H	●	●	●	6				
WDXT 156012-L	●	●	●	4	15.2	6.0	1.2	WDX460D5S40 ~ WDX550D5S40
156012-G	●	●	●	5				
156012-H	●	●	●	6				

SumiDrill WDX型 刀杆型号的称呼方法
Part number structure of SumiDrill WDX Type holder

WDX 200 D5 S25

刃径 Diameter φD_c (φ20.0) 钻头刃长 Drill Length L/D (5D) 柄径 Shank Diameter φD_s (φ25.0)

SumiDrill WDX型 刀片型号的称呼方法
Part number structure of SumiDrill WDX Type insert

WDX 06 30 06 -G

对边尺寸 Width Across Flats (6.0) 厚度 Thickness × 10 (3.0) 断屑槽种类 Breaker Type 刀尖R Corner Radius × 10 (0.6)

●印: 标准库存品 无印: 接单生产产品
●: Available in stock Unmarked: Available by order

■ 推荐切削条件(2D用)

Recommended Cutting Conditions (2D)

<下限值-基准值-上限值>

<Minimum value - Recommended value - Maximum value>

		被削材 Work Material	工件硬度 Hardness of workpiece HB	推荐 断屑槽 Recommended Chipbreaker	推荐刀片 材质 Recommended Insert Grade	V _c 切削速度 Cutting Speed (m/min)	f 进给量 Feed Rate (mm/rev)					
							φ13.0 ~ φ18.0	φ18.5 ~ φ29.0	φ29.5 ~ φ36.0	φ37.0 ~ φ55.0	φ56.0 ~ φ68.0	
2D	P	钢、碳素钢 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 淬火 Hardened	250	G	ACP300	80-120-160	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	
		S75C	270	G	ACP300	100-130-160	0.08-0.13-0.22	0.08-0.13-0.22	0.08-0.14-0.23	0.09-0.16-0.26	0.10-0.17-0.29	
		S75C 淬火 Hardened	300	G	ACP300	70-100-140	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	
		低合金钢 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 淬火 Hardened	275	G	ACP300	80-120-160	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	
	SCM, SNCM 淬火 Hardened	300	G	ACP300	75-110-140	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		
	SCM, SNCM 淬火 Hardened	350	G	ACP300	60-85-110	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		
M	高合金钢 High Alloy Steel	SKD, SKT, SKH	200	G	ACP300	100-130-160	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	
		SKD, SKT, SKH 淬火 Hardened	325	G	ACP300	80-100-120	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	
K	不锈钢 Stainless Steel	SUS403等(马氏体系/铁素体系) SUS403 and others (Martensite/Ferrite)	200	G	ACP300	100-140-180	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	
		SUS403等 马氏体系(淬火) SUS403 and others Martensitic (Hardened)	240	G	ACP300	90-120-150	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	
		SUS304, SUS316 奥氏体系 SUS304, SUS316 Austenitic	180	G	ACP300	100-140-180	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	
S	铸铁 Cast Iron	球墨铸铁 Ductile 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	
				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	
N	难削材(耐热合金、超合金、钛合金 etc.) Exotic Alloy (Heat Resistant Alloy, Super Alloy, Ti 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	
		铝合金 Aluminium 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	
	铜合金 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		

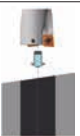
■ 推荐切削条件(3D用)

Recommended Cutting Conditions (3D)

<下限值-基准值-上限值>

<Minimum value - Recommended value - Maximum value>

		被削材 Work Material	工件硬度 Hardness of workpiece	推荐 断屑槽 Recommended Chipbreaker	推荐刀片 材质 Recommended Insert Grade	V _c 切削速度 Cutting Speed (m/min)	f 进给量 Feed Rate (mm/rev)					
			HB				φ13.0 ~ φ18.0	φ18.5 ~ φ29.0	φ29.5 ~ φ36.0	φ37.0 ~ φ55.0	φ56.0 ~ φ68.0	
3D	P	钢、碳素钢 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 淬火 Hardened	250	G	ACP300	80-120-160	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	
		S75C	270	G	ACP300	100-130-160	0.08-0.12-0.18	0.08-0.12-0.18	0.08-0.13-0.19	0.09-0.14-0.22	0.10-0.16-0.24	
		S75C 淬火 Hardened	300	G	ACP300	70-100-140	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17	0.08-0.13-0.19	
		低合金钢 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 淬火 Hardened	275	G	ACP300	80-120-160	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17	0.08-0.13-0.19	
	SCM, SNCM 淬火 Hardened	300	G	ACP300	75-110-140	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17	0.08-0.13-0.19		
	SCM, SNCM 淬火 Hardened	350	G	ACP300	60-85-110	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17	0.08-0.13-0.19		
高合金钢 High Alloy Steel	SKD, SKT, SKH	200	G	ACP300	100-130-160	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		
	SKD, SKT, SKH 淬火 Hardened	325	G	ACP300	80-100-120	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		
M	不锈钢 Stainless Steel	SUS403等(马氏体系/铁素体系) SUS403 and others (Martensite/Ferrite)	200	G	ACP300	100-140-180	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	
	SUS403等 马氏体系(淬火) SUS403 and others Martensitic (hardened)	240	G	ACP300	90-120-150	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		
	SUS304, SUS316 奥氏体系 SUS304, SUS316 Austenitic	180	G	ACP300	100-140-180	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		
K	铸铁 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	
	球墨铸铁 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	难削材(耐热合金、超合金、钛合金 etc.) Exotic Alloy (Heat Resistant Alloy, Super Alloy, Ti 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	铝合金 Aluminium 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	
	铜合金 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	

加工用途 Application	斜面入口 Angled Surface	半圆孔加工 Half Cylindrical	扩孔 Pre-cast Hole	交叉孔加工 Intersecting Holes	镗削 Boring	外径加工 External Turning	叠板加工 Laminated Plates	退刀镗孔 Back Boring
								
进给量(f) mm/rev Feed Rate (f)	0.05	0.05	0.08	0.05	0.1	0.1	不可 Not applicable	不可 Not applicable

■ 推荐切削条件(4D用)

Recommended Cutting Conditions (4D)

<下限值-基准值-上限值>

<Minimum value - Recommended value - Maximum value>

	被削材 Work Material	工件硬度 Hardness of workpiece HB	推荐 断屑槽 Recommended Chipbreaker	推荐刀片 材质 Recommended Insert Grade	V _c 切削速度 Cutting Speed (m/min)	f 进给量 Feed Rate (mm/rev)				
						φ13.0 ~ φ18.0	φ18.5 ~ φ29.0	φ29.5 ~ φ36.0	φ37.0 ~ φ55.0	φ56.0 ~ φ68.0
4D	P 钢、碳素钢 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
		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
		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
		S45C 淬火 Hardened	250	G	ACP300	80-120-160	0.06-0.10-0.13	0.06-0.10-0.13	0.06-0.10-0.14	0.07-0.11-0.15
		S75C	270	G	ACP300	100-130-160	0.08-0.11-0.15	0.08-0.11-0.15	0.08-0.12-0.17	0.09-0.14-0.19
		S75C 淬火 Hardened	300	G	ACP300	70-100-140	0.06-0.10-0.12	0.06-0.10-0.12	0.06-0.10-0.13	0.07-0.11-0.14
	P 低合金钢 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
		SCM,SNCM 淬火 Hardened	275	G	ACP300	80-120-160	0.06-0.10-0.12	0.06-0.10-0.12	0.06-0.10-0.13	0.07-0.11-0.14
		SCM,SNCM 淬火 Hardened	300	G	ACP300	75-110-140	0.06-0.10-0.12	0.06-0.10-0.12	0.06-0.10-0.13	0.07-0.11-0.14
		SCM,SNCM 淬火 Hardened	350	G	ACP300	60-85-110	0.06-0.10-0.12	0.06-0.10-0.12	0.06-0.10-0.13	0.07-0.11-0.14
	P 高合金钢 High Alloy Steel	SKD,SKT,SKH	200	G	ACP300	100-130-160	0.08-0.11-0.17	0.08-0.11-0.17	0.08-0.12-0.18	0.09-0.14-0.21
		SKD,SKT,SKH 淬火 Hardened	325	G	ACP300	80-100-120	0.06-0.10-0.13	0.06-0.10-0.13	0.06-0.10-0.14	0.07-0.11-0.15
	M 不锈钢 Stainless Steel	SUS403等(马氏体系/铁素体系) SUS403 and others (Martensite/Ferrite)	200	G	ACP300	100-140-180	0.06-0.10-0.13	0.06-0.10-0.13	0.06-0.10-0.14	0.07-0.11-0.15
		SUS403等 马氏体系(淬火) SUS403 and others Martensitic (Hardened)	240	G	ACP300	90-120-150	0.06-0.10-0.13	0.06-0.10-0.13	0.06-0.10-0.14	0.07-0.11-0.15
		SUS304,SUS316 奥氏体系 SUS304, SUS316 Austenitic	180	G	ACP300	100-140-180	0.06-0.10-0.13	0.06-0.10-0.13	0.06-0.10-0.14	0.07-0.11-0.15
	K 铸铁 Cast Iron	球墨铸铁 Ductile 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
		球墨铸铁 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
	S 难削材(耐热合金、超合金、钛合金 etc.) Exotic Alloy (Heat Resistant Alloy, Super Alloy, Ti 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
	N 铝合金 Aluminium 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
		铜合金 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

■ 推荐切削条件(5D用)

Recommended Cutting Conditions (5D)

<下限值-基准值-上限值>

<Minimum value - Recommended value - Maximum value>

	被削材 Work Material	工件硬度 Hardness of workpiece HB	推荐 断屑槽 Recommended Chipbreaker	推荐刀片 材质 Recommended Insert Grade	V _c 切削速度 Cutting Speed (m/min)	f 进给量 Feed Rate (mm/rev)				
						φ13.0 ~ φ18.0	φ18.5 ~ φ29.0	φ29.5 ~ φ36.0	φ37.0 ~ φ55.0	φ56.0 ~ φ68.0
5D	P 钢、碳素钢 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 淬火 Hardened	250	G	ACP300	80-120-160	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
		S75C	270	G	ACP300	100-130-160	0.07-0.10-0.14	0.07-0.10-0.14	0.08-0.11-0.15	0.09-0.12-0.17
		S75C 淬火 Hardened	300	G	ACP300	70-100-140	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.13
	P 低合金钢 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 淬火 Hardened	275	G	ACP300	80-120-160	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.13
		SCM,SNCM 淬火 Hardened	300	G	ACP300	75-110-140	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.13
		SCM,SNCM 淬火 Hardened	350	G	ACP300	60-85-110	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.13
	P 高合金钢 High Alloy Steel	SKD,SKT,SKH	200	G	ACP300	100-130-160	0.07-0.10-0.15	0.07-0.10-0.15	0.08-0.11-0.17	0.09-0.12-0.19
		SKD,SKT,SKH 淬火 Hardened	325	G	ACP300	80-100-120	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
	M 不锈钢 Stainless Steel	SUS403等(马氏体系/铁素体系) SUS403 and others (Martensite/Ferrite)	200	G	ACP300	100-140-180	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
		SUS403等 马氏体系(淬火) SUS403 and others Martensitic (Hardened)	240	G	ACP300	90-120-150	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
		SUS304,SUS316 奥氏体系 SUS304, SUS316 Austenitic	180	G	ACP300	100-140-180	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
	K 铸铁 Cast Iron	球墨铸铁 Ductile 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
		球墨铸铁 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 难削材(耐热合金、超合金、钛合金 etc.) Exotic Alloy (Heat Resistant Alloy, Super Alloy, Ti 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 铝合金 Aluminium 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
		铜合金 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

加工用途 Application	斜面入口 Angled Surface	半圆孔加工 Half Cylindrical	扩孔 Pre-cast Hole	交叉孔加工 Intersecting Holes	镗削 Boring	外径加工 External Turning	叠板加工 Laminated Plates	退刀镗孔 Back Boring
进给量(f) mm/rev Feed Rate (f)	0.05	0.05	0.08	0.05	0.1	0.1	不可 Not applicable	不可 Not applicable

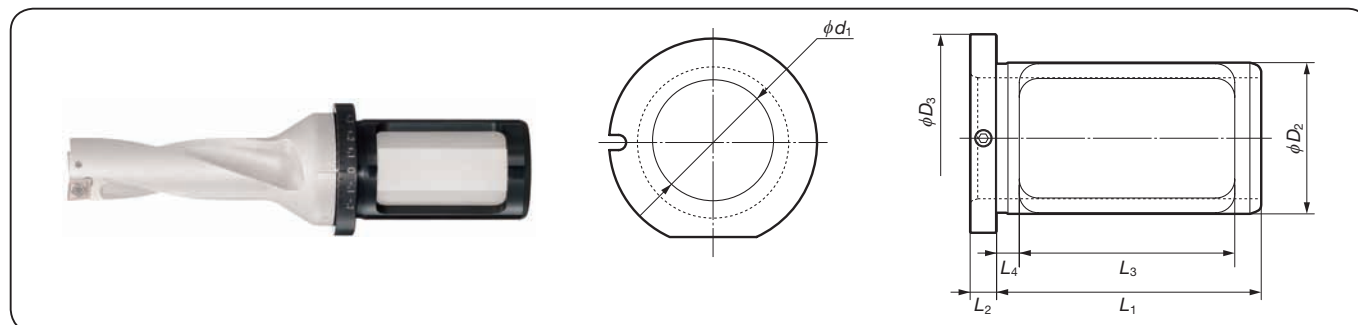
SumiDrill WDX型专用 偏心套WAS型

SumiDrill specialized for WDX Type

偏心套 WAS 型 Decentered sleeve WAS Type

使用SumiDrill WDX型专用偏心套“WAS型”，可对钻孔直径进行约 $\pm 0.3\text{mm}$ 的调节。

Using SumiDrill specialized for WDX Type, decentered sleeve "WAS Type", the size of machining hole can be adjusted $\pm 0.3\text{mm}$.



■ 使用注意事项 Important Notes

注1. 刻度为大致基准，调节后请测量实际钻孔直径，根据实测值再次调整。

注2. 不能用于弹簧筒夹式钻夹头。请使用侧向夹紧式钻夹头。

注3. 请在高刚性场合使用。

不建议5D等的深孔加工和低刚性加工。

Note 1: The dial is for reference purposes. Always measure the actual drilling diameter and adjust accordingly.

Note 2: Not usable with collet chuck type holders. Use a side-locking holder.

Note 3: Use this product on high rigidity drilling processes.

This product is not recommended for deep hole drilling such as 5D and machining of material with low rigidity.

■ 刀体 Body (WAS型 WAS Type)

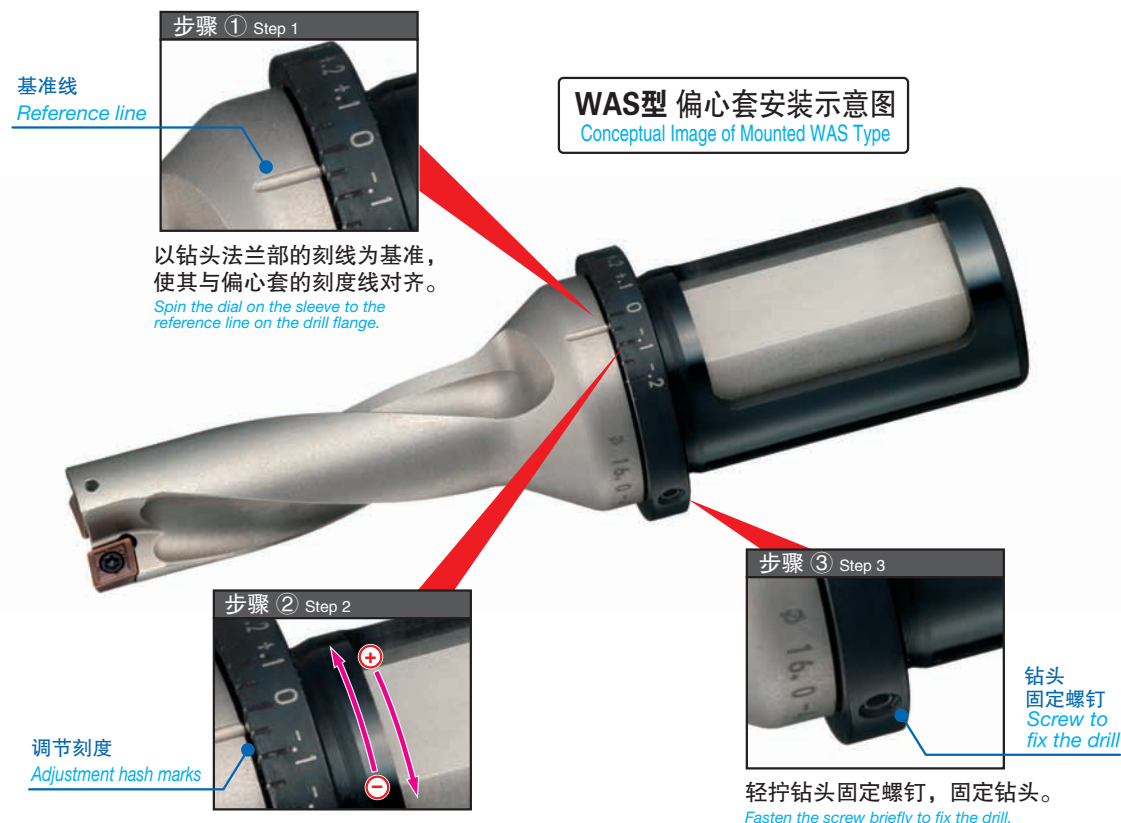
(单位: mm)

型 号 Cat. No.	库存 Stock	ϕd_1	ϕD_2	ϕD_3	L_1	L_2	L_3	L_4	孔径调节范围 Adjustable range of machining diameter
WAS 2025-48	●	20	25	33	43	5	32	5	+0.3 ~ -0.2
2532-60	●	25	32	42	60	7	46	6	+0.3 ~ -0.3
3240-70	●	32	40	55	70	7	57	6	+0.3 ~ -0.3
4050-85	●	40	50	60	80	7	64	6	+0.3 ~ -0.3

※ 孔径调节范围表示钻孔直径可调范围。

Adjustable range of machining diameter indicates adjustable range of diameter.

■ 使用方法(孔径调节) How to adjust machining diameter



■ 车削加工要领 Lathe Machining Guidelines

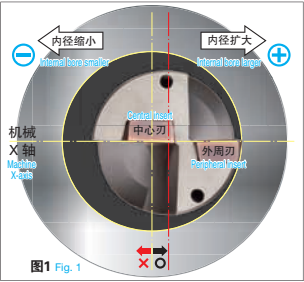


图1 Fig. 1



图2 Fig. 2

■ 安装钻头 Drill installation

- 请使外周刃与机械的X轴保持平行。(图1)
- 在使刀杆端面与钻头的法兰端面紧贴的状态下紧固螺栓。
- Set the drill so that the peripheral insert is parallel to X axis of the machine (Fig. 1).
- Fasten the bolt while the holder edge and the flange edge of the drill are closely attached.

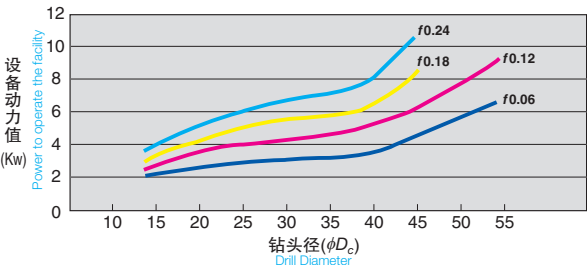
■ 孔径调节 Adjustment of machining diameter

- 可通过移动机械的X轴进行调整。
- 请朝着X轴的正侧(内径扩大方向)调整。如果朝着X轴的负侧(内径缩小方向)调整,则刀杆可能会与加工孔干涉(碰擦),此时不推荐使用。(图1)
- 最大调整(偏移)量因钻头而异,请参照P.8 ~ 11刀杆尺寸表“半径方向偏移量(最大)”。
- Machining diameter can be adjusted by moving X axis of the machine.
- It is always recommended that X axis is moved to positive (direction to expand the inner diameter). Negative direction (direction to shrink the inner diameter) is not recommended because the holder may interfere with (scrape) the machined hole (Refer to Fig. 1).
- The maximum adjustment (offset) varies depending on the drill diameter. Refer to the chart "Maximum offset distance in the radius direction" on p. 8-11.

■ 其它注意事项 Other important notes

- 将钻头安装到车床上时,钻头的中心刃芯高比主轴中心大约低0.15 ~ 0.2mm。
- 如果主轴中心的偏移量较大,且中心刃的芯高超出主轴中心,则会导致中心刃缺损,请予以注意。
- 进行外径加工或内径镗孔加工时,请将切深量设定在钻头径的1/5以下(最大5mm以下)。(例:钻头径为 $\phi 20$ 时,切深量为4mm以下)
- 在车床上钻削通孔时,可能导致钻通时生成的圆盘状切屑(图2)四处飞散。
- 在没有防护罩的普通车床上加工时请安装防护罩,以防止危险。
- When the drill is mounted on a lathe, the core height of the central insert is designed to be 0.15~0.2mm lower than the center of the main axis.
- It is reminded that if the main axis is largely misaligned and the central insert is higher than the center of the main axis, the central insert may be damaged.
- In case of external machining or inner boring machining, the cut depth shall be set to 1/5 or less than the drill diameter (Maximum 5mm or less). (Example: When the drill diameter is $\phi 20$, the cut depth is 4mm or less).
- When cutting off the material with a lathe, discoid chips (Fig. 2) created during machining may scatter. If the machine is not equipped with a cover, please install a cover protection to prevent danger.

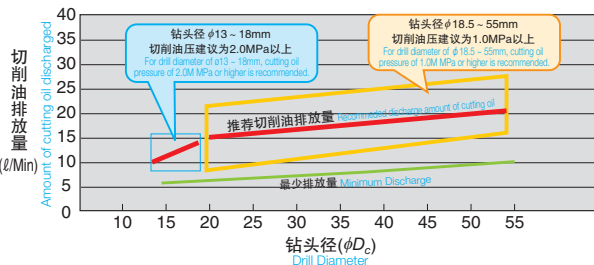
■ 设备动力值的标准 Typical Power Ratings



<注意事项 Note>

- 设备动力值会因被削材、切削速度等而变化,因此请作为参考值。
- Facility power value shown in the graph above is reference only as it changes depending on the work material and the cutting speed.
- 切削条件(参考值) Cutting conditions (reference values)
- 被削材 Work material: S50C(230HB)
- 切削速度 Cutting speed: $v_c=150\text{m/min}$

■ 切削油排放量的标准 Typical Coolant Volume



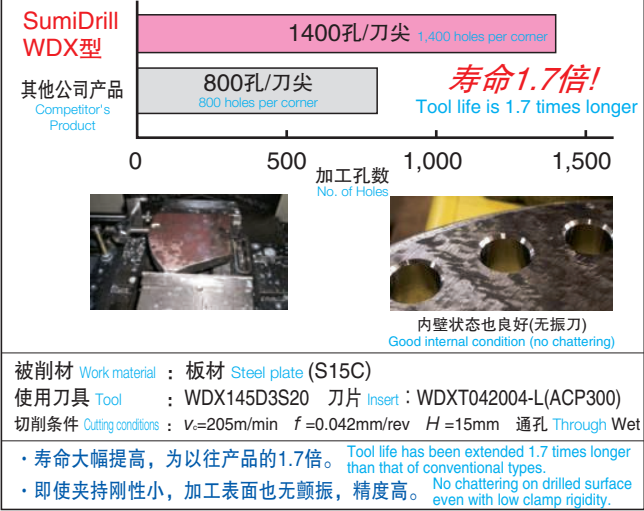
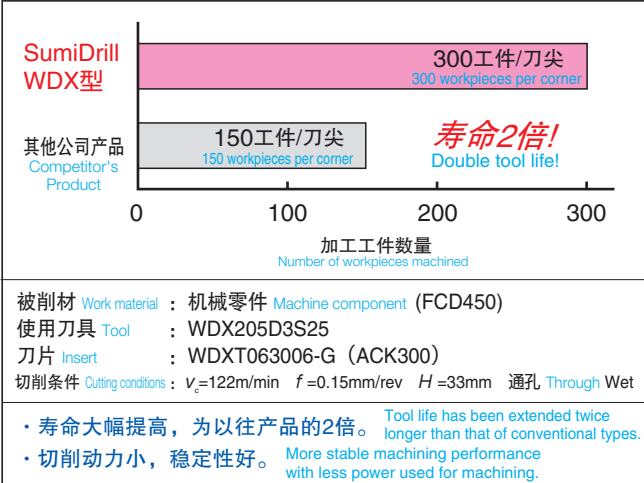
<注意事项 Note>

- 切削油排放量是决定钻头性能的重要因素之一。尤其是对于切屑排放性能、润滑性能而言至关重要。
- Discharge amount of cutting oil is an important factor to determine the drill performance, especially for chip evaluation and lubrication performance.
- 越是小径钻头,越是建议将切削油压设定得高一些。
- ($\phi 18.0\text{mm}$ 以下)
- It is recommended that cutting oil pressure is set higher for drills of smaller diameter ($\phi 18.0\text{mm}$ or less)
- 可在普通的CNC数控机床中调整切削油压、切削油排放量。
- The amount of oil discharge on most CNC machines can be adjusted by adjusting the cutting oil pressure.
- 上表仅供参考,有时需要根据机械、切削油、工件的不同提高排放量。
- The graphs shown above are reference only. The amount of oil discharge needs to be increased depending on the machine, type of cutting oil and work material.



■使用实例

Application Examples



SumiDrill WDX型 非标设计咨询表单

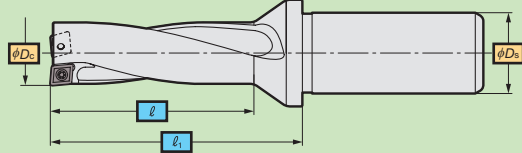
SumiDrill WDX Type Inquiry sheet for special design

请选择您希望的非标形状，然后将尺寸填入下表。
Select the special shape you require and fill in the dimensions in the boxes below.
填完后，请与附近的本公司营业所或销售代理店联系。
如果对于其它形状、尺寸等有要求，也尽管咨询。
After completing the form, contact your nearest Sumitomo Electric Hardmetal dealer or distributor.
Ask your dealer or distributor if you require shapes or dimensions that are not listed here.

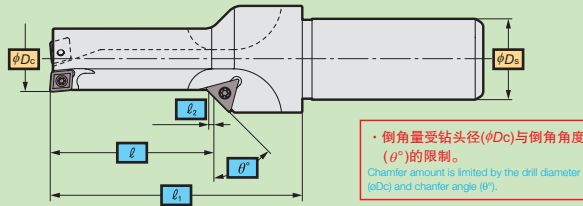
贵公司名/联系地址 Company/Contact Information

■ 钻头形状 Drill Shape

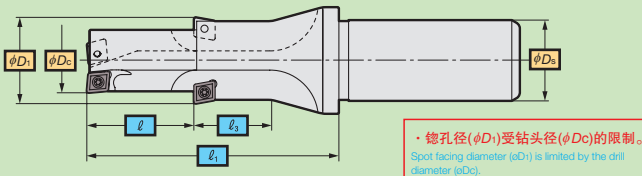
SumiDrill WDX型 SumiDrill WDX Type



带倒角刃 SumiDrill WDX型 SumiDrill WDX Type With Countersink Insert



带铤孔刃 SumiDrill WDX型 SumiDrill WDX Type With Spot Facing Inserts



■ 刀柄形状 Cutter Body

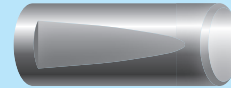
圆柱型 Cylyndrical



平面加工型 Side Lock Flat



哨形凹槽型 Whistle Notch



■ 适用刀片 Compatible Inserts

钻孔加工/铤孔加工用(WDXT□□□□□□-□) Drilling Spot Facing



倒角加工用(TP□□□□□□□□-□□) Countersinking



ϕD_c 【刃 径 Diameter】	$\phi 13 \sim \phi 55\text{mm}$	mm
ϕD_s (※) 【柄径 Shank Diameter】	$\phi 20 \sim \phi 40\text{mm}$	mm
ϕD_1 【铤孔径 Spot Face Diameter】	$\phi D_c + 2 \sim 20\text{mm}$	mm
ℓ 【钻头深度 Drill Depth】	$\phi D_c \times 4$ 以下	mm
ℓ_1 (※) 【颈长 Length Below Neck】	200mm 以下	mm

ℓ_2 【倒角宽度 Countersink Width】	3mm 以下	mm
$\ell + \ell_3$ 【钻孔深度+铤孔深度 Drill Depth + Spot Face Depth】	$\phi D_c \times 4$ 以下	mm
θ° (※) 【倒角角度 Countersink Angle】	15 ~ 60°	°
(※) 尺寸受到限制，请注意。 Dimensional restrictions apply.		
其它建议 Other Requests		

◆ 安全使用注意事项 ◆



- 加工时会出现高温切屑飞散、排出切屑过长等情况，请使用安全罩壳及防护眼镜等防护具，并务必注意防火、防火。
- 使用时请务必小心锋利刀尖。
- 使用非水溶性切削油的场合，为防止火灾意外，请配置自动灭火装置。
- 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.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.
- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

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传真：0532-5578-7865

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传真：0592-5602-195

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