

高效率深孔加工用硬质合金整体钻头  
High Efficiency Solid Carbide Drills for Deep Hole Drilling

超级多用途钻头

# XHGS型/PHT型

SUPER MULTIDRILL XHGS series / PHT series 第3版

深孔加工无死角

大幅扩充10D、25D、30D型(间隔0.1mm)

新增小径系列( $\phi 2.1 \sim 2.4\text{mm}$ ), 产品系列充足

No dead zone in deep hole drilling!!  
Large expansion of 10D, 25D and 30D type  
(diameter of every 0.1mm), and small  
diameter type( $\phi 2.1\text{-}2.4\text{mm}$ ).



$\phi 2.1\text{mm} - \phi 16.0\text{mm}$

10D 12D 15D 20D 25D 30D

可以  $v_f=1,000\text{mm/min}$  以上的高效率加工刀尖直径 20 倍的深孔

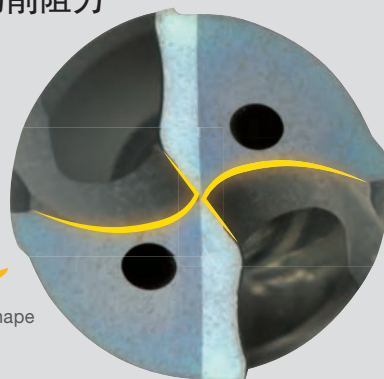
Drill to depths 20x drill diameter at high efficiency of  $v_f=1,000\text{mm/min}$ .



减小高效率加工时的切削阻力  
特殊的横刃修薄形状

**RX**  
THINNING  
RX横刃修薄

The application of a special thinning shape reduces cutting resistance during high efficiency drilling.



采用可实现深孔加工时稳定切屑处理的全新J型排屑槽

采用钻头专用的“DEX涂层”,  
实现各种被削材加工的长寿命  
支持MQL(微量油雾化)以及  
双液混合冷却液

New flute shape "J flute" with improved chip control stability when drilling deep holes.

The "DEX COATING" provides long tool life with a wide variety of work materials. Compatible with the MQL (Minimum Quantity Lubrication) system and dual-fluid mist (simultaneous spray of oil and water).



## ■ 概要 General Features

“超级多用途钻头XHGS型”可进一步提高深孔加工效率，是具有高强度和稳定排屑的新一代超深孔加工用钻头。

Super MultiDrill XHGS type, a next-generation drill special for deep hole drilling, features stable chip control and improved strength to further enhance efficiency of deep hole drilling.

## ■ 特长 Characteristics

### ● 深孔加工 Deep Hole Drilling

- 采用全新槽形(J型沟槽)在深孔加工时，切屑处理性能得到稳定的提高
- 可以在 $v_f=1000\text{mm/min}$ 以上高效率加工20倍径深孔(直径 $\phi 5$ 、材质S48C)
- 采用特殊横刃修薄形状(RX型)，减少高效加工时的切削阻力
- New groove shape (J flute) with improved chip control stability when drilling deep holes
- Drill to depths 20x drill diameter at high efficiency of  $v_f=1,000\text{mm/min}$  ( $\phi 5$  equivalent to S48C)
- The application of a special thinning shape (RX thinning) reduces cutting resistance during high efficiency drilling.

### ● 长寿命 Long Tool Life

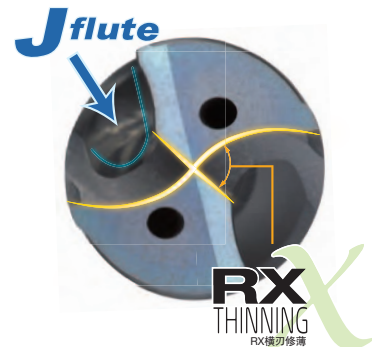
- 采用专用的“DEX涂层”，实现各种被削材加工时的长寿命
- 通过提高排屑性能可降低主轴负载变动，实现稳定长寿命
- Special DEX coating provides long tool life with a wide variety of work materials.
- Improved chip evacuation makes it possible to reduce spindle load fluctuation, ensuring stable, long tool life.

### ● 环保措施 Environmentally-friendly

- 支持MQL(Minimal Quantity Lubrication : 最少量润滑)
- 支持双液混合冷却
- Compatible with the MQL (Minimum Quantity Lubrication) system.
- Compatible with dual-fluid mist (simultaneous spray of oil and water).

## ■ 系列构成 Series

用途 Application	型号 Series	刃径范围(mm) Diameter Range	孔深(L/D) Hole Depth	内容 Remarks
深孔用 Deep Hole Drilling	MDW□□□□XHGS10	$\phi 2.1 \sim 16.0$	~ 10	库存有76种型号 76 items in stock
	MDW□□□□XHGS12	$\phi 2.5 \sim 16.0$	~ 12	库存有28种型号 28 items in stock
	MDW□□□□XHGS15	$\phi 2.1 \sim 16.0$	~ 15	库存有76种型号 76 items in stock
	MDW□□□□XHGS20	$\phi 2.1 \sim 14.0$	~ 20	库存有72种型号 72 items in stock
	MDW□□□□XHGS25	$\phi 2.1 \sim 12.0$	~ 25	库存有68种型号 68 items in stock
	MDW□□□□XHGS30	$\phi 2.1 \sim 10.0$	~ 30	库存有64种型号 64 items in stock
引导孔用 Guide Hole Drilling	MDW□□□□PHT	$\phi 2.1 \sim 16.0$	~ 2	库存有76种型号 76 items in stock



## ■ 使用实例 Application Examples

### ● 汽车零件(相当于S38C) Automotive Component (Equivalent to S38C)

使用工具:  $\phi 5.0 \times 115\text{mm}$ (PHT型)、 $\phi 5.0 \times 170\text{mm}$ (XHGS型)  
Tool PHT Type XHGS Type

设备: 卧式单轴NC  
Equipment Horizontal single-axis NC machine

供油: MQL供油(空气原压力 0.5Mpa 排放量 约4cc/h)  
Coolant Supply MQL Air pressure Volume approx.

切削条件:  $v_c=80\text{m/min}$   $f=0.28\text{mm/rev}$   $H=85\text{mm/孔}(3\text{孔/台})$   
Cutting Conditions Holes (3 Per Unit)

寿命: 500台(113m)  
Tool life 500 Units

### ● 汽车零件(相当于S43C) Automotive Component (Equivalent to S43C)

使用工具:  $\phi 6.0 \times 170\text{mm}$ (PHT型)、 $\phi 6.0 \times 230\text{mm}$ (XHGS型)  
Tool PHT Type XHGS Type

设备: 卧式单轴NC  
Equipment Horizontal single-axis NC machine

供油: MQL供油(空气原压力 0.5Mpa 排放量 约40cc/h)  
Coolant Supply MQL Air pressure Volume approx.

切削条件:  $v_c=80\text{m/min}$   $f=0.18\text{mm/rev}$   $H=110\text{mm/孔}(4\text{孔/台})$   
Cutting Conditions Holes (4 Per Unit)

寿命: 150台(113m)  
Tool life 150 Units

### ● 汽车零件(相当于FCD700) Automotive Component (Equivalent to FCD700)

使用工具:  $\phi 5.0 \times 105\text{mm}$ (PHT型)、 $\phi 5.0 \times 155\text{mm}$ (XHGS型)  
Tool PHT Type XHGS Type

设备: 卧式单轴NC  
Equipment Horizontal single-axis NC machine

供油: MQL供油(空气原压力 0.4Mpa 排放量 约4cc/h)  
Coolant Supply MQL Air pressure Volume approx.

切削条件:  $v_c=50\text{m/min}$   $f=0.18\text{mm/rev}$   $H=60\text{mm/孔}(5\text{孔/台})$   
Cutting Conditions Holes (5 Per Unit)

寿命: 400台(120m)  
Tool life 400 Units

### ● 机械零件(相当于S45C) Machine Component (Equivalent to S45C)

使用工具:  $\phi 6.0 \times 90\text{mm}$ (PHT型)、 $\phi 6.0 \times 145\text{mm}$ (XHGS型)  
Tool PHT Type XHGS Type

设备: 卧式单轴NC  
Equipment Horizontal single-axis NC machine

供油: MQL供油(空气原压力 0.5Mpa 排放量 约60cc/h)  
Coolant Supply MQL Air pressure Volume approx.

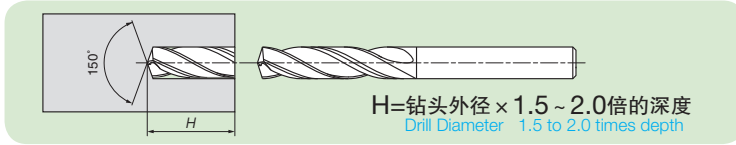
切削条件:  $v_c=80\text{m/min}$   $f=0.20\text{mm/rev}$   $H=62\text{mm/孔}(3\text{孔/台})$   
Cutting Conditions Holes (3 Per Unit)

寿命: 550台(104m)  
Tool life 550 Units

## ■ 建议加工方法 Recommended Drilling Method

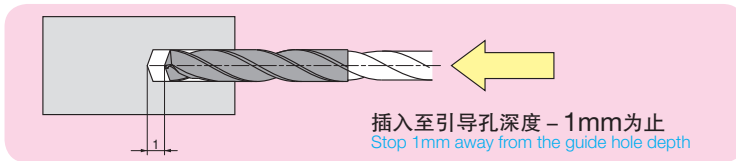
### ① 使用专用PHT型进行引导孔加工 Drill a guide hole using the dedicated PHT type

- 引导孔用PHT型钻头和深孔用XHGS型钻头必须使用相同的公称直径。  
(引导孔刃径比深孔钻头刃径大+0.02 ~ +0.05mm)
- Select the same nominal diameter for the dedicated guide hole drill PHT type as the deep hole drill XHGS type.  
(The guide drill diameter is designed +0.02 mm to +0.05 mm larger than the long drill diameter)



### ② 以低转速将深孔钻头XHGS型插入引导孔 Feed the deep hole drill XHGS type through the guide hole at low rotation speed

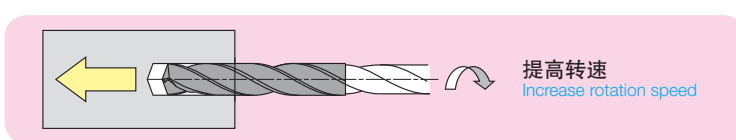
- 转速 : 500min<sup>-1</sup>  
Rotation Speed
- 进给速度 : 1,000 ~ 2,000mm/min  
Feed Rate



\* 以设定切削速度插入引导孔会因钻头外径径向跳动而造成钻头肩部损伤。

\* If the drill is inserted into the guide hole at the set cutting speed, peripheral run-out may cause shoulder damage to the drill.

### ③ 将转速提高至设定切削速度，然后进行切削进给 Increase rotation speed until the set cutting speed is reached, and start normal drilling operation

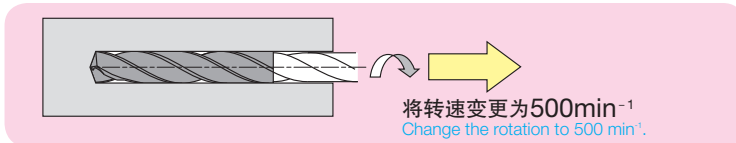


\* 部分NC机床会在达到设定转速前发出切削进给指示，因此建议在切削进给指示前输入暂停指示。

\* When using an NC machine, you may be instructed to begin normal drilling operation before the set rotation speed is reached, so it is recommended to enter a dwell instruction before normal drilling operation is instructed.

### ④ 加工完成后，降低转速，将钻头从被削材中退出 After drilling, rotation speed is reduced and the drill is retracted from the work material

- 转速 : 500min<sup>-1</sup> 进给速度 : 1,000 ~ 2,000mm/min  
Rotation Speed Feed Rate

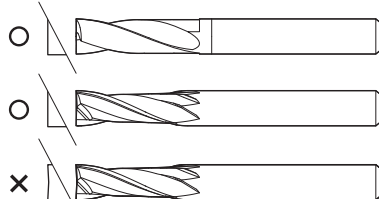


\* 如果在高转速下从被削材中退出钻头，钻头可能会因跳动而折损，非常危险。

\* Retracting a drill from the work material at a high rotation speed is dangerous as doing so may result in breakage due to run-out.

### ⑤ 其他注意事项 Other Notes

- 入口侧非平面(斜面、圆弧面等)时，需事先加工为平面。  
A flat base should be prepared when the entrance point is a non-horizontal surface (such as an inclined or cylindrical surface).



使用立铣刀或多用途平底钻MDF型进行铤孔加工  
Spot facing using an endmill or flat multidrill MDF type

但不可使用凹形立铣刀  
Concave endmills cannot be used

- 出口侧非平面时，为了抑制钻头崩损和出口侧毛刺，请在贯通前将进给速度降低至f = 0.05mm/rev进行加工。  
When the exit point is a non-horizontal surface, decrease the feed rate to f=0.05mm/rev just before drilling through to reduce drill breakage and burrs at the exit point.

## ■ 关于切削油 Coolant

### ① 内冷时 Internal Coolant Supply

- 请使用相当于JIS A1类 1号(乳化液)的油剂。  
Use JIS A1 class 1 oil or equivalent (emulsion).
- 泵原压力 : 钢 : 1.5 ~ 2.0MPa(高压下冷却效果更强，但会在切屑、磨损方面产生影响)铸件、铝合金 : 4.0 ~ 6.0MPa(重视冷却性)  
Pump pressure Steel : 1.5 to 2.0MPa (Cooling effect increases at higher pressures, affecting chips/wear) Cast iron/aluminum alloy: 4.0 to 6.0MPa (emphasize cooling performance)

### ② 内部MQL时 Internal MQL

- 空气压力 : 0.5MPa以上  
Air pressure 0.5MP higher
- 排放量 : 建议对所使用的装置的最大排放量进行设定。  
Discharge volume \* 用于铝合金时，请咨询厂商。  
It is recommended to set the maximum discharge volume possible on the machine.  
\* Consult the manufacturer before using with aluminium alloy.

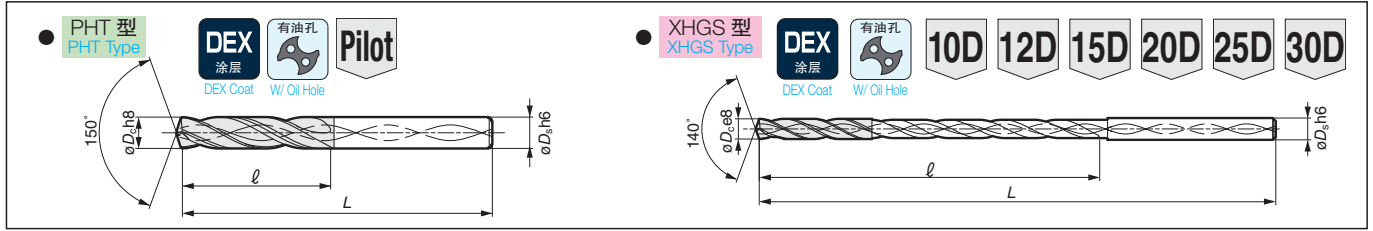
### ③ 内部双液喷雾时 Internal dual-liquid mist

- 空气压力 : 0.5MPa以上  
Air pressure 0.5MP higher
- 排放量 : 建议将所使用的装置设定为最佳状态后进行加工。  
Discharge volume It is recommended to use the optimum value of the machine when drilling.

碳素钢・合金钢 Carbon Steel, Alloy Steel	调质钢 Tempered Steel	高硬度合金钢 High Hardness Alloy Steel	不锈钢 Stainless Steel	钛合金 Ti Alloy	耐热钢 Heat Resistant Steel	铸铁 Cast Iron	球墨铸铁 Ductile Cast Iron	铝合金 Aluminum Alloy	铜合金 Copper Alloy	复合材料 CFRP Composite CFRP
○	○	○	○	○	○	○	○	○	○	○

## 内冷式 (XHGS型/PHT型)

Internal Coolant Supply XHGS / PHT Type



### ● 刃径 Diameter ø2.1 ~ ø2.8mm

刃径 Diameter øD <sub>c</sub> (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank øD <sub>s</sub> (mm)
				ℓ	L	
2.1	P	●	MDW 0210PHT	15	68	3.0
	10	●	0210XHGS10	38	86	
	15	●	0210XHGS15	50	98	
	20	●	0210XHGS20	63	111	
	25	●	0210XHGS25	75	123	
	30	●	0210XHGS30	88	136	
2.2	P	●	MDW 0220PHT	15	68	3.0
	10	●	0220XHGS10	38	86	
	15	●	0220XHGS15	50	98	
	20	●	0220XHGS20	63	111	
	25	●	0220XHGS25	75	123	
	30	●	0220XHGS30	88	136	
2.3	P	●	MDW 0230PHT	15	68	3.0
	10	●	0230XHGS10	38	86	
	15	●	0230XHGS15	50	98	
	20	●	0230XHGS20	63	111	
	25	●	0230XHGS25	75	123	
	30	●	0230XHGS30	88	136	
2.4	P	●	MDW 0240PHT	15	68	3.0
	10	●	0240XHGS10	38	86	
	15	●	0240XHGS15	50	98	
	20	●	0240XHGS20	63	111	
	25	●	0240XHGS25	75	123	
	30	●	0240XHGS30	88	136	
2.5	P	●	MDW 0250PHT	15	68	3.0
	10	●	0250XHGS10	38	86	
	12	●	0250XHGS12	43	91	
	15	●	0250XHGS15	50	98	
	20	●	0250XHGS20	63	111	
	25	●	0250XHGS25	75	123	
2.6	P	●	MDW 0260PHT	17.5	68	3.0
	10	●	0260XHGS10	45	93	
	12	●	0260XHGS12	51	99	
	15	●	0260XHGS15	60	108	
	20	●	0260XHGS20	75	123	
	25	●	0260XHGS25	90	138	
2.7	P	●	MDW 0270PHT	17.5	68	3.0
	10	●	0270XHGS10	45	93	
	12	●	0270XHGS12	51	99	
	15	●	0270XHGS15	60	108	
	20	●	0270XHGS20	75	123	
	25	●	0270XHGS25	90	138	
2.8	P	●	MDW 0280PHT	17.5	68	3.0
	10	●	0280XHGS10	45	93	
	12	●	0280XHGS12	51	99	
	15	●	0280XHGS15	60	108	
	20	●	0280XHGS20	75	123	
	25	●	0280XHGS25	90	138	

P: 引导孔用 Guide Holes 材质 XHGS型 ACX70 / PHT型 ACX20  
Grade XHGS Type PHT Type

### ● 刃径 Diameter ø2.9 ~ ø3.6mm

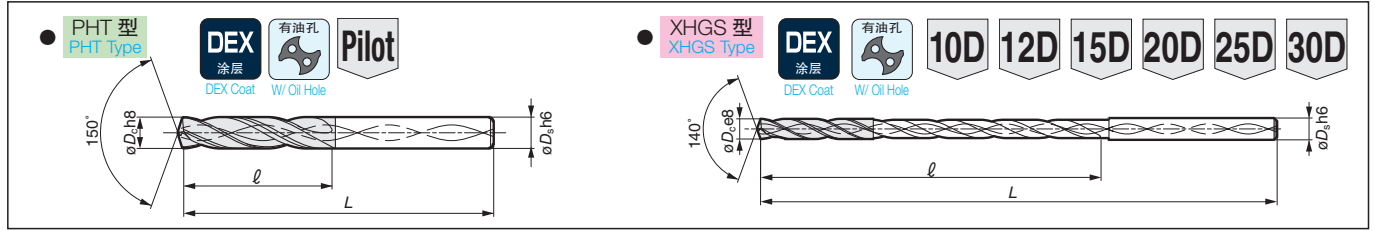
刃径 Diameter øD <sub>c</sub> (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank øD <sub>s</sub> (mm)
				ℓ	L	
2.9	P	●	MDW 0290PHT	17.5	68	3.0
	10	●	0290XHGS10	45	93	
	12	●	0290XHGS12	51	99	
	15	●	0290XHGS15	60	108	
	20	●	0290XHGS20	75	123	
	25	●	0290XHGS25	90	138	
3.0	P	●	MDW 0300PHT	17.5	68	3.0
	10	●	0300XHGS10	45	93	
	12	●	0300XHGS12	51	99	
	15	●	0300XHGS15	60	108	
	20	●	0300XHGS20	75	123	
	25	●	0300XHGS25	90	138	
3.1	P	●	MDW 0310PHT	20	72	4.0
	10	●	0310XHGS10	53	101	
	12	●	0310XHGS12	60	108	
	15	●	0310XHGS15	70	118	
	20	●	0310XHGS20	88	136	
	25	●	0310XHGS25	105	153	
3.2	P	●	MDW 0320PHT	20	72	4.0
	10	●	0320XHGS10	53	101	
	12	●	0320XHGS12	60	108	
	15	●	0320XHGS15	70	118	
	20	●	0320XHGS20	88	136	
	25	●	0320XHGS25	105	153	
3.3	P	●	MDW 0330PHT	20	72	4.0
	10	●	0330XHGS10	53	101	
	12	●	0330XHGS12	60	108	
	15	●	0330XHGS15	70	118	
	20	●	0330XHGS20	88	136	
	25	●	0330XHGS25	105	153	
3.4	P	●	MDW 0340PHT	20	72	4.0
	10	●	0340XHGS10	53	101	
	12	●	0340XHGS12	60	108	
	15	●	0340XHGS15	70	118	
	20	●	0340XHGS20	88	136	
	25	●	0340XHGS25	105	153	
3.5	P	●	MDW 0350PHT	20	72	4.0
	10	●	0350XHGS10	53	101	
	12	●	0350XHGS12	60	108	
	15	●	0350XHGS15	70	118	
	20	●	0350XHGS20	88	136	
	25	●	0350XHGS25	105	153	
3.6	P	●	MDW 0360PHT	22.5	72	4.0
	10	●	0360XHGS10	60	108	
	12	●	0360XHGS12	68	116	
	15	●	0360XHGS15	80	128	
	20	●	0360XHGS20	100	148	
	25	●	0360XHGS25	120	168	

P: 引导孔用 Guide Holes 材质 XHGS型 ACX70 / PHT型 ACX20  
Grade XHGS Type PHT Type

## 内冷式 Internal Coolant Supply

## (XHGS 型/PHT 型) XHGS / PHT Type

碳素钢 Carbon Steel	合金钢 Alloy Steel	调质钢 Tempered Steel	高合金钢 High Alloy Steel	不锈钢 Stainless Steel	钛合金 Ti Alloy	耐热钢 Heat Resistant Steel	铸铁 Cast Iron	球墨铸铁 Ductile Cast Iron	铝合金 Aluminum Alloy	铜合金 Copper Alloy	复合材料 CFRP Composite
○	○	○	○	○	○	○	○	○	○	○	○



### ● 刃径 Diameter $\phi 3.7 \sim \phi 4.4\text{mm}$

刃径 Diameter $\phi D_c$ (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank $\phi D_s$ (mm)
				$\ell$	L	
3.7	P	●	MDW 0370PHT	22.5	72	4.0
	10	●	0370XHGS10	60	108	
	12	●	0370XHGS12	68	116	
	15	●	0370XHGS15	80	128	
	20	●	0370XHGS20	100	148	
	25	●	0370XHGS25	120	168	
3.8	P	●	MDW 0380PHT	22.5	72	4.0
	10	●	0380XHGS10	60	108	
	12	●	0380XHGS12	68	116	
	15	●	0380XHGS15	80	128	
	20	●	0380XHGS20	100	148	
	25	●	0380XHGS25	120	168	
3.9	P	●	MDW 0390PHT	22.5	72	4.0
	10	●	0390XHGS10	60	108	
	12	●	0390XHGS12	68	116	
	15	●	0390XHGS15	80	128	
	20	●	0390XHGS20	100	148	
	25	●	0390XHGS25	120	168	
4.0	P	●	MDW 0400PHT	22.5	72	4.0
	10	●	0400XHGS10	60	108	
	12	●	0400XHGS12	68	116	
	15	●	0400XHGS15	80	128	
	20	●	0400XHGS20	100	148	
	25	●	0400XHGS25	120	168	
4.1	P	●	MDW 0410PHT	25	80	5.0
	10	●	0410XHGS10	68	118	
	12	●	0410XHGS12	77	127	
	15	●	0410XHGS15	90	140	
	20	●	0410XHGS20	113	163	
	25	●	0410XHGS25	135	185	
4.2	P	●	MDW 0420PHT	25	80	5.0
	10	●	0420XHGS10	68	118	
	12	●	0420XHGS12	77	127	
	15	●	0420XHGS15	90	140	
	20	●	0420XHGS20	113	163	
	25	●	0420XHGS25	135	185	
4.3	P	●	MDW 0430PHT	25	80	5.0
	10	●	0430XHGS10	68	118	
	12	●	0430XHGS12	77	127	
	15	●	0430XHGS15	90	140	
	20	●	0430XHGS20	113	163	
	25	●	0430XHGS25	135	185	
4.4	P	●	MDW 0440PHT	25	80	5.0
	10	●	0440XHGS10	68	118	
	12	●	0440XHGS12	77	127	
	15	●	0440XHGS15	90	140	
	20	●	0440XHGS20	113	163	
	25	●	0440XHGS25	135	185	

### ● 刃径 Diameter $\phi 4.5 \sim \phi 5.2\text{mm}$

刃径 Diameter $\phi D_c$ (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank $\phi D_s$ (mm)
				$\ell$	L	
4.5	P	●	MDW 0450PHT	25	80	5.0
	10	●	0450XHGS10	68	118	
	12	●	0450XHGS12	77	127	
	15	●	0450XHGS15	90	140	
	20	●	0450XHGS20	113	163	
	25	●	0450XHGS25	135	185	
4.6	P	●	MDW 0460PHT	27.5	80	5.0
	10	●	0460XHGS10	75	125	
	12	●	0460XHGS12	85	135	
	15	●	0460XHGS15	100	150	
	20	●	0460XHGS20	125	175	
	25	●	0460XHGS25	150	200	
4.7	P	●	MDW 0470PHT	27.5	80	5.0
	10	●	0470XHGS10	75	125	
	12	●	0470XHGS12	85	135	
	15	●	0470XHGS15	100	150	
	20	●	0470XHGS20	125	175	
	25	●	0470XHGS25	150	200	
4.8	P	●	MDW 0480PHT	27.5	80	5.0
	10	●	0480XHGS10	75	125	
	12	●	0480XHGS12	85	135	
	15	●	0480XHGS15	100	150	
	20	●	0480XHGS20	125	175	
	25	●	0480XHGS25	150	200	
4.9	P	●	MDW 0490PHT	27.5	80	5.0
	10	●	0490XHGS10	75	125	
	12	●	0490XHGS12	85	135	
	15	●	0490XHGS15	100	150	
	20	●	0490XHGS20	125	175	
	25	●	0490XHGS25	150	200	
5.0	P	●	MDW 0500PHT	27.5	80	5.0
	10	●	0500XHGS10	75	125	
	12	●	0500XHGS12	85	135	
	15	●	0500XHGS15	100	150	
	20	●	0500XHGS20	125	175	
	25	●	0500XHGS25	150	200	
5.1	P	●	MDW 0510PHT	27.5	82	6.0
	10	●	0510XHGS10	83	135	
	12	●	0510XHGS12	94	146	
	15	●	0510XHGS15	110	162	
	20	●	0510XHGS20	140	192	
	25	●	0510XHGS25	165	217	
5.2	P	●	MDW 0520PHT	27.5	82	6.0
	10	●	0520XHGS10	83	135	
	12	●	0520XHGS12	94	146	
	15	●	0520XHGS15	110	162	
	20	●	0520XHGS20	140	192	
	25	●	0520XHGS25	165	217	

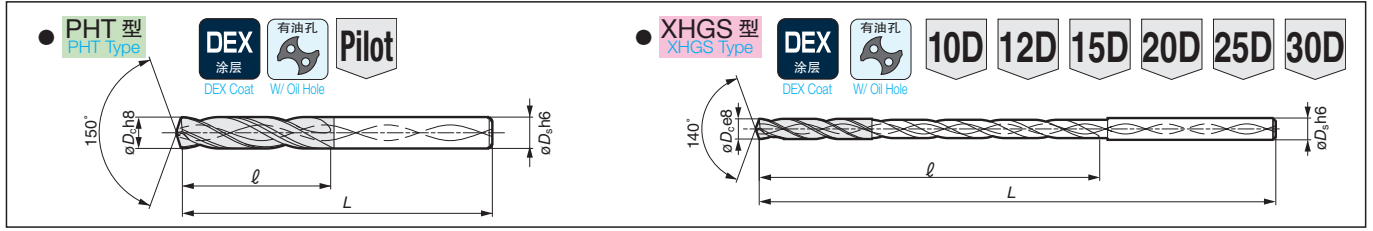
P: 引导孔用 Guide Holes 材质 XHGS型 ACX70 / PHT型 ACX20  
Grade XHGS Type PHT Type

P: 引导孔用 Guide Holes 材质 XHGS型 ACX70 / PHT型 ACX20  
Grade XHGS Type PHT Type

碳素钢·合金钢 Carbon Steel, Alloy Steel	调质钢 Tempered Steel	高硬度合金钢 High Hardness Alloy Steel	不锈钢 Stainless Steel	钛合金 Ti Alloy	耐热钢 Heat Resistant Steel	铸铁 Cast Iron	球墨铸铁 Ductile Cast Iron	铝合金 Aluminum Alloy	铜合金 Copper Alloy	复合材料 CFRP Composite CFRP
○	○	○	○	○	○	○	○	○	○	○

## 内冷式 (XHGS型/PHT型)

Internal Coolant Supply XHGS / PHT Type



### ● 刃径 Diameter ø5.3 ~ ø6.0mm

刃径 Diameter øD <sub>c</sub> (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank øD <sub>s</sub> (mm)
				ℓ	L	
5.3	P	●	MDW 0530PHT	27.5	82	6.0
	10	●	0530XHGS10	83	135	
	12	●	0530XHGS12	94	146	
	15	●	0530XHGS15	110	162	
	20	●	0530XHGS20	140	192	
	25	●	0530XHGS25	165	217	
5.4	P	●	MDW 0540PHT	27.5	82	6.0
	10	●	0540XHGS10	83	135	
	12	●	0540XHGS12	94	146	
	15	●	0540XHGS15	110	162	
	20	●	0540XHGS20	140	192	
	25	●	0540XHGS25	165	217	
5.5	P	●	MDW 0550PHT	27.5	82	6.0
	10	●	0550XHGS10	83	135	
	12	●	0550XHGS12	94	146	
	15	●	0550XHGS15	110	162	
	20	●	0550XHGS20	140	192	
	25	●	0550XHGS25	165	217	
5.6	P	●	MDW 0560PHT	30	82	6.0
	10	●	0560XHGS10	90	142	
	12	●	0560XHGS12	102	154	
	15	●	0560XHGS15	120	172	
	20	●	0560XHGS20	150	202	
	25	●	0560XHGS25	180	232	
5.7	P	●	MDW 0570PHT	30	82	6.0
	10	●	0570XHGS10	90	142	
	12	●	0570XHGS12	102	154	
	15	●	0570XHGS15	120	172	
	20	●	0570XHGS20	150	202	
	25	●	0570XHGS25	180	232	
5.8	P	●	MDW 0580PHT	30	82	6.0
	10	●	0580XHGS10	90	142	
	12	●	0580XHGS12	102	154	
	15	●	0580XHGS15	120	172	
	20	●	0580XHGS20	150	202	
	25	●	0580XHGS25	180	232	
5.9	P	●	MDW 0590PHT	30	82	6.0
	10	●	0590XHGS10	90	142	
	12	●	0590XHGS12	102	154	
	15	●	0590XHGS15	120	172	
	20	●	0590XHGS20	150	202	
	25	●	0590XHGS25	180	232	
6.0	P	●	MDW 0600PHT	30	82	6.0
	10	●	0600XHGS10	90	142	
	12	●	0600XHGS12	102	154	
	15	●	0600XHGS15	120	172	
	20	●	0600XHGS20	150	202	
	25	●	0600XHGS25	180	232	

### ● 刃径 Diameter ø6.1 ~ ø6.8mm

刃径 Diameter øD <sub>c</sub> (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank øD <sub>s</sub> (mm)
				ℓ	L	
6.1	P	●	MDW 0610PHT	32.5	88	7.0
	10	●	0610XHGS10	98	151	
	12	●	0610XHGS12	111	164	
	15	●	0610XHGS15	130	183	
	20	●	0610XHGS20	163	216	
	25	●	0610XHGS25	195	248	
6.2	P	●	MDW 0620PHT	32.5	88	7.0
	10	●	0620XHGS10	98	151	
	12	●	0620XHGS12	111	164	
	15	●	0620XHGS15	130	183	
	20	●	0620XHGS20	163	216	
	25	●	0620XHGS25	195	248	
6.3	P	●	MDW 0630PHT	32.5	88	7.0
	10	●	0630XHGS10	98	151	
	12	●	0630XHGS12	111	164	
	15	●	0630XHGS15	130	183	
	20	●	0630XHGS20	163	216	
	25	●	0630XHGS25	195	248	
6.4	P	●	MDW 0640PHT	32.5	88	7.0
	10	●	0640XHGS10	98	151	
	12	●	0640XHGS12	111	164	
	15	●	0640XHGS15	130	183	
	20	●	0640XHGS20	163	216	
	25	●	0640XHGS25	195	248	
6.5	P	●	MDW 0650PHT	32.5	88	7.0
	10	●	0650XHGS10	98	151	
	12	●	0650XHGS12	111	164	
	15	●	0650XHGS15	130	183	
	20	●	0650XHGS20	163	216	
	25	●	0650XHGS25	195	248	
6.6	P	●	MDW 0660PHT	35	88	7.0
	10	●	0660XHGS10	105	158	
	12	●	0660XHGS12	119	172	
	15	●	0660XHGS15	140	193	
	20	●	0660XHGS20	175	228	
	25	●	0660XHGS25	210	263	
6.7	P	●	MDW 0670PHT	35	88	7.0
	10	●	0670XHGS10	105	158	
	12	●	0670XHGS12	119	172	
	15	●	0670XHGS15	140	193	
	20	●	0670XHGS20	175	228	
	25	●	0670XHGS25	210	263	
6.8	P	●	MDW 0680PHT	35	88	7.0
	10	●	0680XHGS10	105	158	
	12	●	0680XHGS12	119	172	
	15	●	0680XHGS15	140	193	
	20	●	0680XHGS20	175	228	
	25	●	0680XHGS25	210	263	

P:引导孔用 材质 XHGS型 ACX70 / PHT型 ACX20  
Guide Holes Grade XHGS Type PHT Type

P:引导孔用 材质 XHGS型 ACX70 / PHT型 ACX20  
Guide Holes Grade XHGS Type PHT Type

●: 标准库存品 ●: 标准库存品(新增产品)  
●mark: Standard stock item, ●mark: Standard stocked item (expanded item)

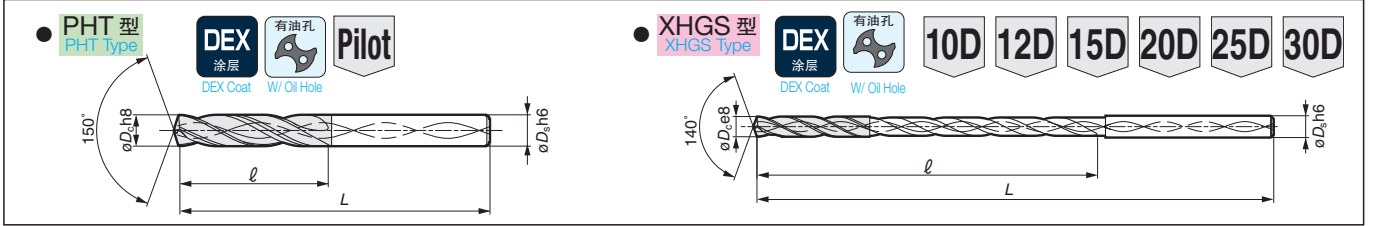
## 内冷式

Internal Coolant Supply

## (XHGS 型/PHT 型)

XHGS / PHT Type

碳素钢·合金钢 Carbon Steel Alloy Steel	调质钢 Tempered Steel	高硬度钢 Hardened Steel	不锈钢 Stainless Steel	钛合金 Ti Alloy	耐热钢 Heat-resistant Steel	铸铁 Cast Iron	球墨铸铁 Ductile Cast Iron	铝合金 Aluminum Alloy	铜合金 Copper Alloy	复合材料 CFRP Composite CFRP
○	○	○	○	○	○	○	○	○	○	○



### ● 刃径 Diameter $\phi 6.9 \sim \phi 7.6\text{mm}$

刃径 Diameter $\phi D_c$ (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank $\phi D_s$ (mm)
				$\ell$	L	
6.9	P	●	MDW 0690PHT	35	88	7.0
	10	●	0690XHGS10	105	158	
	12	●	0690XHGS12	119	172	
	15	●	0690XHGS15	140	193	
	20	●	0690XHGS20	175	228	
	25	●	0690XHGS25	210	263	
	30	●	0690XHGS30	245	298	
7.0	P	●	MDW 0700PHT	35	88	7.0
	10	●	0700XHGS10	105	158	
	12	●	0700XHGS12	119	172	
	15	●	0700XHGS15	140	193	
	20	●	0700XHGS20	175	228	
	25	●	0700XHGS25	210	263	
	30	●	0700XHGS30	245	298	
7.1	P	●	MDW 0710PHT	37.5	94	8.0
	10	●	0710XHGS10	113	167	
	12	●	0710XHGS12	128	182	
	15	●	0710XHGS15	150	204	
	20	●	0710XHGS20	188	242	
	25	●	0710XHGS25	225	279	
	30	●	0710XHGS30	263	317	
7.2	P	●	MDW 0720PHT	37.5	94	8.0
	10	●	0720XHGS10	113	167	
	12	●	0720XHGS12	128	182	
	15	●	0720XHGS15	150	204	
	20	●	0720XHGS20	188	242	
	25	●	0720XHGS25	225	279	
	30	●	0720XHGS30	263	317	
7.3	P	●	MDW 0730PHT	37.5	94	8.0
	10	●	0730XHGS10	113	167	
	12	●	0730XHGS12	128	182	
	15	●	0730XHGS15	150	204	
	20	●	0730XHGS20	188	242	
	25	●	0730XHGS25	225	279	
	30	●	0730XHGS30	263	317	
7.4	P	●	MDW 0740PHT	37.5	94	8.0
	10	●	0740XHGS10	113	167	
	12	●	0740XHGS12	128	182	
	15	●	0740XHGS15	150	204	
	20	●	0740XHGS20	188	242	
	25	●	0740XHGS25	225	279	
	30	●	0740XHGS30	263	317	
7.5	P	●	MDW 0750PHT	37.5	94	8.0
	10	●	0750XHGS10	113	167	
	12	●	0750XHGS12	128	182	
	15	●	0750XHGS15	150	204	
	20	●	0750XHGS20	188	242	
	25	●	0750XHGS25	225	279	
	30	●	0750XHGS30	263	317	
7.6	P	●	MDW 0760PHT	40	94	8.0
	10	●	0760XHGS10	120	174	
	12	●	0760XHGS12	136	190	
	15	●	0760XHGS15	160	214	
	20	●	0760XHGS20	200	254	
	25	●	0760XHGS25	240	294	
	30	●	0760XHGS30	280	334	

### ● 刃径 Diameter $\phi 7.7 \sim \phi 10.0\text{mm}$

刃径 Diameter $\phi D_c$ (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank $\phi D_s$ (mm)
				$\ell$	L	
7.7	P	●	MDW 0770PHT	40	94	8.0
	10	●	0770XHGS10	120	174	
	12	●	0770XHGS12	136	190	
	15	●	0770XHGS15	160	214	
	20	●	0770XHGS20	200	254	
	25	●	0770XHGS25	240	294	
	30	●	0770XHGS30	280	334	
7.8	P	●	MDW 0780PHT	40	94	8.0
	10	●	0780XHGS10	120	174	
	12	●	0780XHGS12	136	190	
	15	●	0780XHGS15	160	214	
	20	●	0780XHGS20	200	254	
	25	●	0780XHGS25	240	294	
	30	●	0780XHGS30	280	334	
7.9	P	●	MDW 0790PHT	40	94	8.0
	10	●	0790XHGS10	120	174	
	12	●	0790XHGS12	136	190	
	15	●	0790XHGS15	160	214	
	20	●	0790XHGS20	200	254	
	25	●	0790XHGS25	240	294	
	30	●	0790XHGS30	280	334	
8.0	P	●	MDW 0800PHT	40	94	8.0
	10	●	0800XHGS10	120	174	
	12	●	0800XHGS12	136	190	
	15	●	0800XHGS15	160	214	
	20	●	0800XHGS20	200	254	
	25	●	0800XHGS25	240	294	
	30	●	0800XHGS30	280	334	
8.5	P	●	MDW 0850PHT	42.5	100	9.0
	10	●	0850XHGS10	128	183	
	12	●	0850XHGS12	145	200	
	15	●	0850XHGS15	170	225	
	20	●	0850XHGS20	213	268	
	25	●	0850XHGS25	255	310	
	30	●	0850XHGS30	298	353	
9.0	P	●	MDW 0900PHT	45	100	9.0
	10	●	0900XHGS10	135	190	
	12	●	0900XHGS12	153	208	
	15	●	0900XHGS15	180	235	
	20	●	0900XHGS20	225	280	
	25	●	0900XHGS25	270	325	
	30	●	0900XHGS30	315	370	
9.5	P	●	MDW 0950PHT	47.5	106	10.0
	10	●	0950XHGS10	143	199	
	12	●	0950XHGS12	162	218	
	15	●	0950XHGS15	190	246	
	20	●	0950XHGS20	238	294	
	25	●	0950XHGS25	285	342	
	30	●	0950XHGS30	333	389	
10.0	P	●	MDW 1000PHT	50	106	10.0
	10	●	1000XHGS10	150	206	
	12	●	1000XHGS12	170	226	
	15	●	1000XHGS15	200	256	
	20	●	1000XHGS20	250	306	
	25	●	1000XHGS25	300	356	
	30	●	1000XHGS30	350	406	

P: 引导孔用 Guide Holes 材质 XHGS型 ACX70 / PHT型 ACX20  
Grade XHGS Type PHT Type

P: 引导孔用 Guide Holes 材质 XHGS型 ACX70 / PHT型 ACX20  
Grade XHGS Type PHT Type

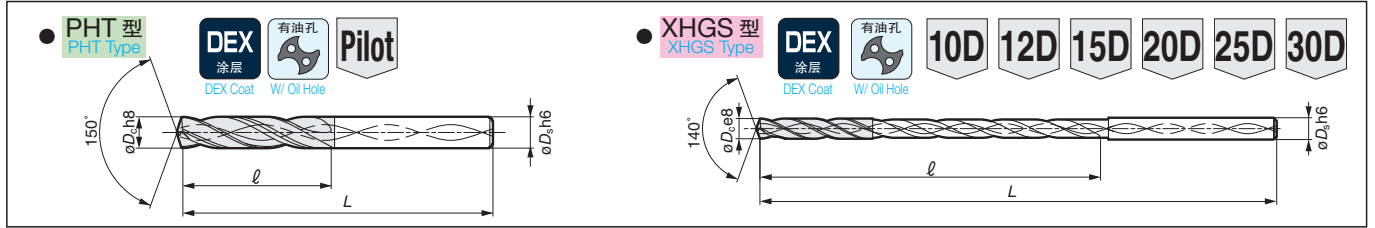
## 内冷式

Internal Coolant Supply

## (XHGS 型/PHT 型)

XHGS / PHT Type

碳素钢+合金钢 Carbon Steel, Alloy Steel	调质钢 Tempered Steel	高强度/淬火 High Hardened / Quenched	不锈钢 Stainless Steel	钛合金 Ti Alloy	耐热钢 Heat-treated Steel	铸铁 Cast Iron	球墨铸铁 Ductile Cast Iron	铝合金 Aluminum Alloy	铜合金 Copper Alloy	复合材料 CFRP/Composite
-0.28%	0.28%	45HRC-55HRC	45HRC-							



### ● 刃径 Diameter ø10.5 ~ ø15.5mm

刃径 Diameter øD <sub>c</sub> (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank øD <sub>s</sub> (mm)
				ℓ	L	
10.5	P	●	MDW 1050PHT	52.5	116	11.0
	10	●	1050XHGS10	158	219	
	12	●	1050XHGS12	179	240	
	15	●	1050XHGS15	210	271	
	20	●	1050XHGS20	263	324	
	25	●	1050XHGS25	315	376	
11.0	P	●	MDW 1100PHT	55	116	11.0
	10	●	1100XHGS10	165	226	
	12	●	1100XHGS12	187	248	
	15	●	1100XHGS15	220	281	
	20	●	1100XHGS20	275	336	
	25	●	1100XHGS25	330	391	
11.5	P	●	MDW 1150PHT	57.5	122	12.0
	10	●	1150XHGS10	173	235	
	12	●	1150XHGS12	196	258	
	15	●	1150XHGS15	230	292	
	20	●	1150XHGS20	288	350	
	25	●	1150XHGS25	345	407	
12.0	P	●	MDW 1200PHT	60	122	12.0
	10	●	1200XHGS10	180	242	
	12	●	1200XHGS12	204	266	
	15	●	1200XHGS15	240	302	
	20	●	1200XHGS20	300	362	
	25	●	1200XHGS25	360	422	
12.5	P	●	MDW 1250PHT	62.5	128	13.0
	10	●	1250XHGS10	188	251	
	12	●	1250XHGS12	213	276	
	15	●	1250XHGS15	250	313	
	20	●	1250XHGS20	313	376	
13.0	P	●	MDW 1300PHT	65	128	13.0
	10	●	1300XHGS10	195	258	
	12	●	1300XHGS12	221	284	
	15	●	1300XHGS15	260	323	
	20	●	1300XHGS20	325	388	
13.5	P	●	MDW 1350PHT	67.5	134	14.0
	10	●	1350XHGS10	203	267	
	12	●	1350XHGS12	230	294	
	15	●	1350XHGS15	270	334	
	20	●	1350XHGS20	338	402	
14.0	P	●	MDW 1400PHT	70	134	14.0
	10	●	1400XHGS10	210	274	
	12	●	1400XHGS12	238	302	
	15	●	1400XHGS15	280	344	
	20	●	1400XHGS20	350	414	
14.5	P	●	MDW 1450PHT	72.5	140	15.0
	10	●	1450XHGS10	218	283	
	12	●	1450XHGS12	247	312	
	15	●	1450XHGS15	290	355	
15.0	P	●	MDW 1500PHT	75	140	15.0
	10	●	1500XHGS10	225	290	
	12	●	1500XHGS12	255	320	
	15	●	1500XHGS15	300	365	
15.5	P	●	MDW 1550PHT	77.5	146	16.0
	10	●	1550XHGS10	233	299	
	12	●	1550XHGS12	264	330	
	15	●	1550XHGS15	310	376	

### ● 刃径 Diameter ø16.0mm

刃径 Diameter øD <sub>c</sub> (mm)	孔深 Hole Depth (L/D)	库存 Stock	型号 Cat. No.	尺寸(mm) Dimensions		柄径 Shank øD <sub>s</sub> (mm)
				ℓ	L	
16.0	P	●	MDW 1600PHT	80	146	16.0
	10	●	1600XHGS10	240	306	
	12	●	1600XHGS12	272	338	
	15	●	1600XHGS15	320	386	

P:引导孔用  
Guide Holes

材质 XHGS型  
Grade XHGS Type

ACX70 / PHT型 ACX20  
PHT Type

P:引导孔用 材质 XHGS型 ACX70 / PHT型 ACX20  
Guide Holes Grade XHGS Type PHT Type

●: 标准库存品 ●: 标准库存品(新增产品)  
●mark: Standard stock item, ●mark: Standard Stocked Item (expanded item)



**内冷式**  
Internal Coolant Supply

**(XHGS 型/PHT 型)**  
XHGS / PHT Type

碳素钢+合金钢 Carbon Steel, Alloy Steel -0.28%	调质钢 Tempered Steel 0.29%	高硬度钢 Hardened Steel ~43HRC	不锈钢 Stainless Steel 48HRC	钛合金 Ti Alloy	耐热钢 Heat-treated Steel	铸铁 Cast Iron	球墨铸铁 Ductile Cast Iron	铝合金 Aluminum Alloy	铜合金 Copper Alloy	复合材料 CFRP/Carbon Fiber
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● **PHT 型**  
PHT Type

● **XHGS 型**  
XHGS Type

■ 支持接单生产 如需本公司制造左述尺寸和库存一览以外的刃径和长度的产品，请另行咨询。  
**Made to Order Items** Inquire about production of drills in tool diameters and lengths not listed to the left or not in stock.

■ 推荐切削条件 **Recommended Cutting Conditions** ( $v_c$ : 切削速度 m/min  $f$ : 进给 mm/rev)  
 Cutting Speed Feed Rate

钻头刃径 Drill Diameter $\phi D_c$ (mm)	切削条件 Cutting Conditions	软钢 Soft Steel (~200HB)	普通钢 General Steel (~250HB)	合金钢 Alloy Steel (~300HB)	高硬度材 Hardened Steel (~40HRC)	灰口铸铁 球墨铸铁 Gray Cast Iron Ductile Cast Iron
~ $\phi 3.0$	$v_c$	50 - <b>60</b> - 80	60 - <b>80</b> - 100	40 - <b>55</b> - 70	30 - <b>40</b> - 50	40 - <b>55</b> - 70
	$f$	0.12 - <b>0.15</b> - 0.20	0.12 - <b>0.15</b> - 0.20	0.10 - <b>0.13</b> - 0.16	0.06 - <b>0.08</b> - 0.12	0.15 - <b>0.18</b> - 0.23
~ $\phi 5.0$	$v_c$	50 - <b>60</b> - 80	60 - <b>80</b> - 100	50 - <b>60</b> - 70	30 - <b>45</b> - 55	50 - <b>60</b> - 70
	$f$	0.15 - <b>0.20</b> - 0.25	0.15 - <b>0.23</b> - 0.30	0.12 - <b>0.15</b> - 0.20	0.08 - <b>0.10</b> - 0.14	0.17 - <b>0.25</b> - 0.35
~ $\phi 10.0$	$v_c$	50 - <b>70</b> - 90	60 - <b>80</b> - 110	50 - <b>65</b> - 80	30 - <b>50</b> - 60	50 - <b>65</b> - 80
	$f$	0.20 - <b>0.25</b> - 0.30	0.20 - <b>0.25</b> - 0.32	0.15 - <b>0.20</b> - 0.25	0.10 - <b>0.15</b> - 0.20	0.25 - <b>0.28</b> - 0.35
~ $\phi 16.0$	$v_c$	60 - <b>80</b> - 100	60 - <b>90</b> - 120	50 - <b>65</b> - 80	40 - <b>55</b> - 70	50 - <b>65</b> - 80
	$f$	0.25 - <b>0.30</b> - 0.35	0.25 - <b>0.30</b> - 0.35	0.15 - <b>0.23</b> - 0.27	0.12 - <b>0.15</b> - 0.23	0.25 - <b>0.30</b> - 0.35

注: MQL供油时请在低速侧使用, 内冷和双液喷雾时请在高速侧使用  
 Note: Use lower speed when using MQL coolant, and higher speed when using internal coolant or dual-liquid mist.

下限值—推荐值—上限值  
 Min. Optimum Max.



进行 $\phi 0.8\sim 2.0\text{mm}$ 的小径深孔加工时, 请使用微型深孔钻MLDH型。(Igetalloy News No.498)

Use Micro Long Drill MLDH type when drilling small holes from  $\phi 0.8$  to  $\phi 2.0\text{mm}$ . (IGETALLOY news No. 498)

◆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、防灾。
- 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.
- Please handle with care as this product has sharp edges.
- 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.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.



## 住友电工硬质合金贸易(上海)有限公司

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