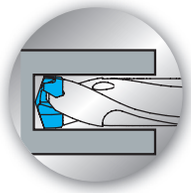
THE NEW VALUE FRONTIER

KYOCERA



魔术钻®
DRC型

MagicDrill DRC type

高效率 High efficiency

高进给 High feed rate

高可靠性 High reliability

高精度 High quality

高性能模块化钻头
High efficiency drill module

扩大加工直径 Cutting diameter expanded

SS-DRC型
(直柄型 Straight Shank)

SF-DRC型
(法兰型 Flanged Shank)

倒角装置 Chamfering attachment
(SF-DRC型适用 for SS-DRC)

加工直径 ø7.94 ~ ø25.50
Machining diameter ø7.94-ø25.50

加工深度 3D·5D·8D
Machining depth 3D,5D,8D

ADVANCING PRODUCTIVITY

致力于生产效率提高的京瓷

魔术钻®DRC型有4大特长，可以进行
凭借独创的优点，不仅提高了生产效

4 unique characteristics of DRC type MagicDrills improve productivity as well as reduce

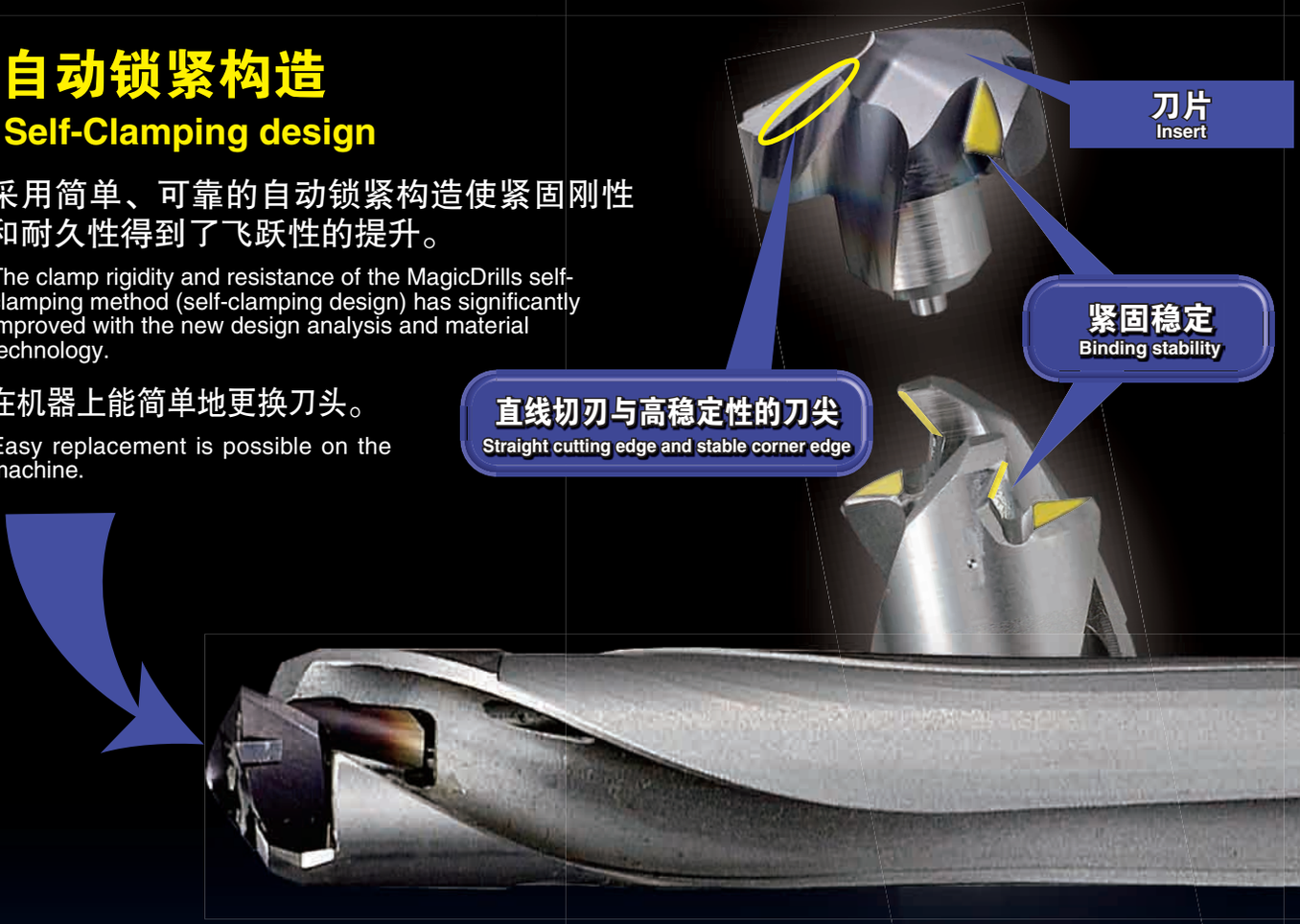
1.自动锁紧构造
Self-Clamping design

●采用简单、可靠的自动锁紧构造使紧固刚性和耐久性得到了飞跃性的提升。

The clamp rigidity and resistance of the MagicDrills self-clamping method (self-clamping design) has significantly improved with the new design analysis and material technology.

●在机器上能简单地更换刀头。

Easy replacement is possible on the machine.



3.多重螺旋构造
Multiple Helical Angle Flute design

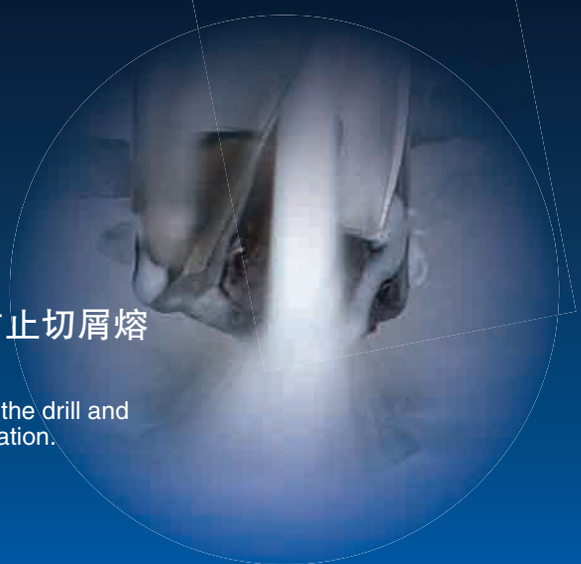
●刀体强度提高，排屑更加顺畅。

Provides surperior drill body stiffness and chip evacuation

4.直接冷却构造
Direct Cooling design

●冷却液被直接供给到切刃的前面，冷却钻头和和防止切屑熔接在刀尖上，实现快速排出切屑。

The coolant is fed directly into the inserts cutting face, cooling the top of the drill and preventing chip adhesion, which allows for quick and smooth chip evacuation.



高速、高进给作业，生产效率高。
率，而且还可以降低加工成本。
e machining cost by high speed and high feed rate machining.

2.自动定心构造
Self-Centering design

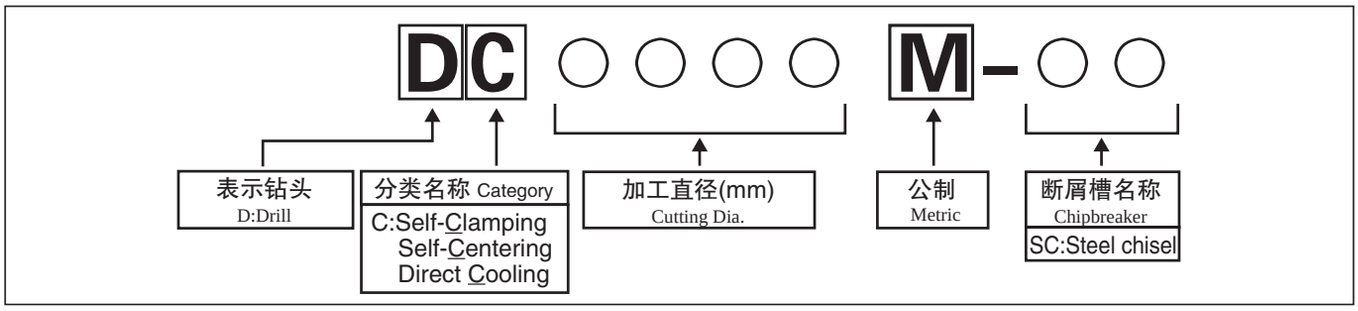
● 自动定心构造的S曲线刀尖形状使切入顺畅，切削阻力小，实现高质量孔壁面。

The S curve top shape geometry which is called "Self-Centering design" can perform smooth drilling, low cutting force and high quality surface of the hole.

产品系列阵容中增加了侧固型、倒角型。
可以适用于车床、M/C等多种设备。

A chamfering attachment have been added to the lineup. It is now possible to accommodate various types of machines, such as lathes and machining centers.

■ 型号的表示方法(刀头) Description Identification System (Inserts)



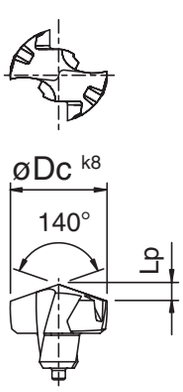
■ 钻头用刀头 Drilling Inserts

●刀头材质 PR 0315 Insert grade PR0315

PR0315是在强韧性超微粒子硬质合金上涂有TiAlN涂层，兼具优异的耐磨损性、抗崩刃性的刀头材质。

PR0315 is tough super micro grain carbide grade with TiAlN coating, with excellent wear resistance and fracture resistance.
It enables stable machining of carbon steel, alloy steel and cast iron.

形状 Shape	型号 Description	尺寸(mm) Dimensions(mm)		PVD涂层 PVD Coated	适合刀柄型号 Applicable holder description
		øDc	Lp	PR0315	
	DC 0794M-SC	7.94	1.44	●	SS10-DRC080M-○ SF12-DRC080M-○
	0800M-SC	8.00	1.46	●	
	0810M-SC	8.10	1.47	●	
	0820M-SC	8.20	1.49	●	
	0830M-SC	8.30	1.51	●	
	0840M-SC	8.40	1.53	●	
	DC 0850M-SC	8.50	1.55	●	SS10-DRC085M-○ SF12-DRC085M-○
	0860M-SC	8.60	1.56	●	
	0870M-SC	8.70	1.58	●	
	0880M-SC	8.80	1.60	●	
	0890M-SC	8.90	1.62	●	
	DC 0900M-SC	9.00	1.64	●	SS10-DRC090M-○ SF12-DRC090M-○
	0910M-SC	9.10	1.66	●	
	0920M-SC	9.20	1.67	●	
	0930M-SC	9.30	1.69	●	
	0940M-SC	9.40	1.71	●	
	DC 0950M-SC	9.50	1.73	●	SS10-DRC095M-○ SF12-DRC095M-○
	0960M-SC	9.60	1.75	●	
	0970M-SC	9.70	1.76	●	
	0980M-SC	9.80	1.78	●	
	0990M-SC	9.90	1.80	●	
	DC 1000M-SC	10.00	1.82	●	SS12-DRC100M-○ SF16-DRC100M-○
	1010M-SC	10.10	1.84	●	
	1020M-SC	10.20	1.86	●	
	1030M-SC	10.30	1.87	●	
	1040M-SC	10.40	1.89	●	
	DC 1050M-SC	10.50	1.91	●	SS12-DRC105M-○ SF16-DRC105M-○
	1060M-SC	10.60	1.93	●	
	1070M-SC	10.70	1.95	●	
	1080M-SC	10.80	1.96	●	
	1090M-SC	10.90	1.98	●	
	DC 1100M-SC	11.00	2.00	●	SS12-DRC110M-○ SF16-DRC110M-○
	1110M-SC	11.10	2.02	●	
	1120M-SC	11.20	2.04	●	
	1130M-SC	11.30	2.06	●	
	1140M-SC	11.40	2.07	●	
	DC 1150M-SC	11.50	2.09	●	SS12-DRC115M-○ SF16-DRC115M-○
	1160M-SC	11.60	2.11	●	
	1170M-SC	11.70	2.13	●	
	1180M-SC	11.80	2.15	●	
	1190M-SC	11.90	2.16	●	
	DC 1200M-SC	12.00	2.18	●	SS14-DRC120M-○ SF16-DRC120M-○
	1210M-SC	12.10	2.20	●	
	1220M-SC	12.20	2.22	●	
	1230M-SC	12.30	2.24	●	
	1240M-SC	12.40	2.26	●	



k8公差尺寸 k8 tolerance

øDc	k8(mm)
7.94 ≀ 10.00	+0.022 0
10.10 ≀ 18.00	+0.027 0
18.10 ≀ 25.50	+0.033 0

k8是刀头本体的尺寸公差。
非加工孔径的尺寸公差。

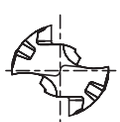
k8 is the dimension tolerance of the insert.
It is not the dimension tolerance of the cutting diameter.

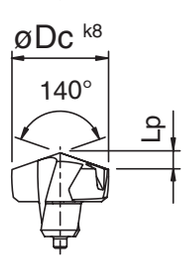
刀头为1盒1片装。Insert is sold in 1 piece per 1 box.

●：标准库存 ●:Std stock

■ 钻头用刀头 Drilling Inserts

形状 Shape	型号 Description		尺寸(mm) Dimensions(mm)		PVD涂层 PVD Coated	适合刀柄型号 Applicable holder description
			øDc	Lp	PR0315	
	DC	1250M-SC	12.50	2.27	●	SS14-DRC125M-○ SF16-DRC125M-○
		1260M-SC	12.60	2.29	●	
		1270M-SC	12.70	2.31	●	
		1280M-SC	12.80	2.33	●	
		1290M-SC	12.90	2.35	●	
	DC	1300M-SC	13.00	2.36	●	SS14-DRC130M-○ SF16-DRC130M-○
		1310M-SC	13.10	2.38	●	
		1320M-SC	13.20	2.40	●	
		1330M-SC	13.30	2.42	●	
		1340M-SC	13.40	2.44	●	
	DC	1350M-SC	13.50	2.46	●	SS14-DRC135M-○ SF16-DRC135M-○
		1360M-SC	13.60	2.47	●	
		1370M-SC	13.70	2.49	●	
		1380M-SC	13.80	2.51	●	
		1390M-SC	13.90	2.53	●	
	DC	1400M-SC	14.00	2.55	●	SS16-DRC140M-○ SF16-DRC140M-○
		1410M-SC	14.10	2.56	●	
		1420M-SC	14.20	2.58	●	
		1430M-SC	14.30	2.60	●	
		1440M-SC	14.40	2.62	●	
	DC	1450M-SC	14.50	2.64	●	SS16-DRC145M-○ SF16-DRC145M-○
		1460M-SC	14.60	2.66	●	
		1470M-SC	14.70	2.67	●	
		1480M-SC	14.80	2.69	●	
		1490M-SC	14.90	2.71	●	
	DC	1500M-SC	15.00	2.73	●	SS16-DRC150M-○ SF20-DRC150M-○
		1510M-SC	15.10	2.75	●	
		1520M-SC	15.20	2.76	●	
		1530M-SC	15.30	2.78	●	
		1540M-SC	15.40	2.80	●	
		1550M-SC	15.50	2.82	●	
		1560M-SC	15.60	2.84	●	
		1570M-SC	15.70	2.86	●	
		1580M-SC	15.80	2.87	●	
	DC	1600M-SC	16.00	2.91	●	SS18-DRC160M-○ SF20-DRC160M-○
		1610M-SC	16.10	2.93	●	
		1620M-SC	16.20	2.95	●	
		1630M-SC	16.30	2.96	●	
		1640M-SC	16.40	2.98	●	
		1650M-SC	16.50	3.00	●	
		1660M-SC	16.60	3.02	●	
		1670M-SC	16.70	3.04	●	
		1680M-SC	16.80	3.06	●	
		1690M-SC	16.90	3.07	●	
	DC	1700M-SC	17.00	3.09	●	SS18-DRC170M-○ SF20-DRC170M-○
		1710M-SC	17.10	3.11	●	
		1720M-SC	17.20	3.13	●	
		1730M-SC	17.30	3.15	●	
		1740M-SC	17.40	3.16	●	
		1750M-SC	17.50	3.18	●	
		1760M-SC	17.60	3.20	●	
		1770M-SC	17.70	3.22	●	
		1780M-SC	17.80	3.24	●	
		1790M-SC	17.90	3.26	●	
	DC	1800M-SC	18.00	3.27	●	SS20-DRC180M-○ SF25-DRC180M-○
		1810M-SC	18.10	3.29	●	
		1820M-SC	18.20	3.31	●	
		1830M-SC	18.30	3.33	●	
		1840M-SC	18.40	3.35	●	
		1850M-SC	18.50	3.36	●	
		1860M-SC	18.60	3.38	●	
		1870M-SC	18.70	3.40	●	
		1880M-SC	18.80	3.42	●	
		1890M-SC	18.90	3.44	●	





k8公差尺寸 k8 tolerance

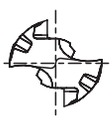
øDc	k8(mm)
7.94 ≀ 10.00	+0.022 0
10.10 ≀ 18.00	+0.027 0
18.10 ≀ 25.50	+0.033 0

k8是刀头本体的尺寸公差。
非加工孔径的尺寸公差。
k8 is the dimension tolerance of the insert.
It is not the dimension tolerance of the cutting diameter.

刀头为1盒1片装。 Insert is sold in 1 piece per 1 box.

●：标准库存 ●:Std stock

■ 钻头用刀头 Drilling Inserts

形状 Shape	型号 Description		尺寸(mm) Dimensions(mm)		PVD涂层 PVD Coated	适合刀柄型号 Applicable holder description
			øDc	Lp	PR0315	
		DC 1900M-SC	19.00	3.46	●	SS20-DRC190M-○ SF25-DRC190M-○
		1910M-SC	19.10	3.47	●	
		1920M-SC	19.20	3.49	●	
		1930M-SC	19.30	3.51	●	
		1940M-SC	19.40	3.53	●	
		1950M-SC	19.50	3.55	●	
		1960M-SC	19.60	3.56	●	
		1970M-SC	19.70	3.58	●	
		1980M-SC	19.80	3.60	●	
		1990M-SC	19.90	3.62	●	
		DC 2000M-SC	20.00	3.64	●	SS25-DRC200M-○ SF25-DRC200M-○
		2010M-SC	20.10	3.66	●	
		2020M-SC	20.20	3.67	●	
		2030M-SC	20.30	3.69	●	
		2040M-SC	20.40	3.71	●	
		2050M-SC	20.50	3.73	●	
		2060M-SC	20.60	3.75	●	
		2070M-SC	20.70	3.77	●	
		2080M-SC	20.80	3.78	●	
		2090M-SC	20.90	3.80	●	
		2099M-SC	20.99	3.82	●	
		New DC 2100M-SC	21.00	3.82	●	SS25-DRC210M-○ SF25-DRC210M-○
		New 2150M-SC	21.50	3.91	●	
		New 2200M-SC	22.00	4.00	●	SS25-DRC220M-○ SF25-DRC220M-○
		New 2250M-SC	22.50	4.09	●	
		New 2300M-SC	23.00	4.18	●	SS25-DRC230M-○ SF25-DRC230M-○
		New 2350M-SC	23.50	4.27	●	
		New 2400M-SC	24.00	4.37	●	SS25-DRC240M-○ SF25-DRC240M-○
		New 2450M-SC	24.50	4.46	●	
		New 2500M-SC	25.00	4.55	●	SS32-DRC250M-○ SF25-DRC250M-○
		New 2550M-SC	25.50	4.64	●	

k8公差尺寸 k8 tolerance

øDc	k8(mm)
7.94 ≀ 10.00	+0.022 0
10.10 ≀ 18.00	+0.027 0
18.10 ≀ 25.50	+0.033 0

k8是刀头本身的尺寸公差。
非加工孔径的尺寸公差。
k8 is the dimension tolerance of the insert.
It is not the dimension tolerance of the cutting diameter.

刀头为1盒1片装。Insert is sold in 1 piece per 1 box.

●：标准库存 ●:Std stock

Q&A

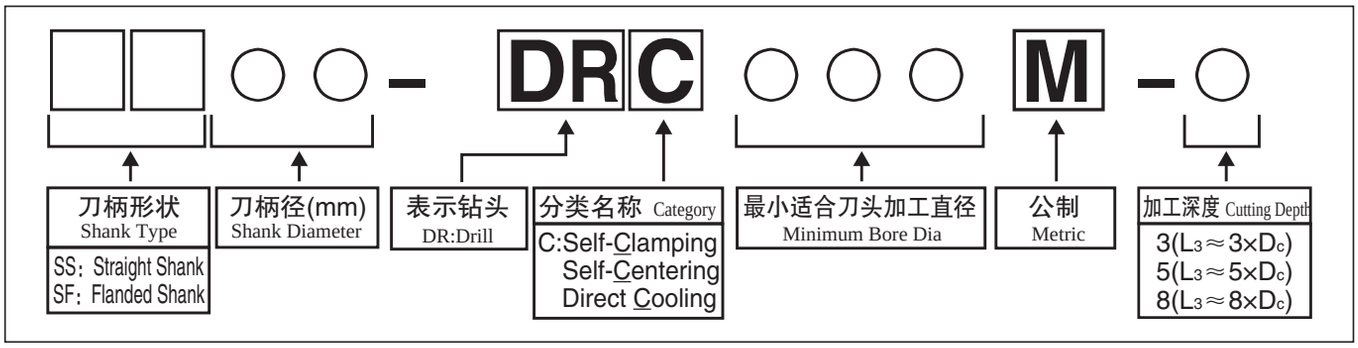
Q-1 是否具备再研磨性？ Is re-grinding available?

A-1 不推荐。
刀头尖端的部分通过研磨很难成形。
We don't recommend it. Grinding of edge nose chisel is not possible.

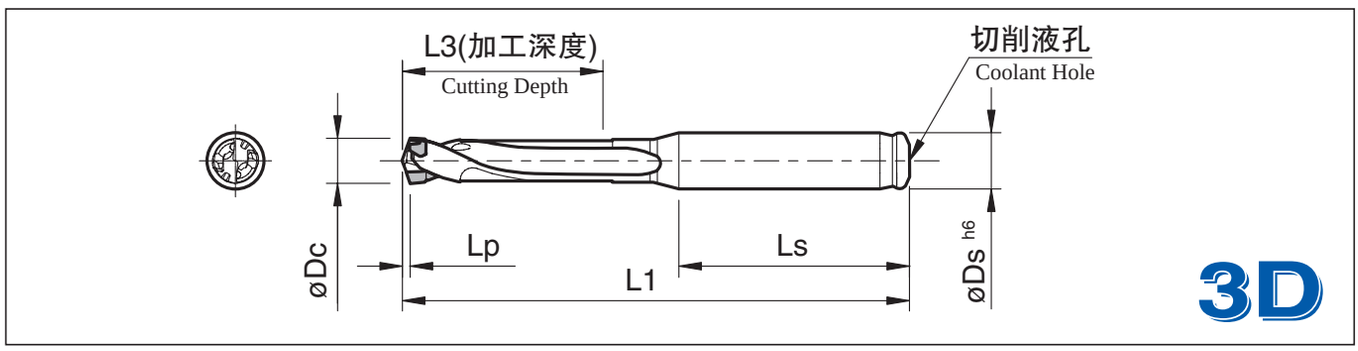
Q-2 加工孔与加工径相比可扩大多少?
How large would the cutting hole be to the insert diameter (øDc)?

A-2 SCM435加工后，相对于刀头直径(øDc)，加工径将扩大约+0.020 ~ +0.040mm。
The machining hole with SCM 435, compare to the insert diameter, is about +0.020 ~ +0.040mm

■ 型号的表示方法(刀柄) Description Identification System (Toolholder Dimension)



■ SS-DRC型(加工深度 Cutting Depth： 3 × D)



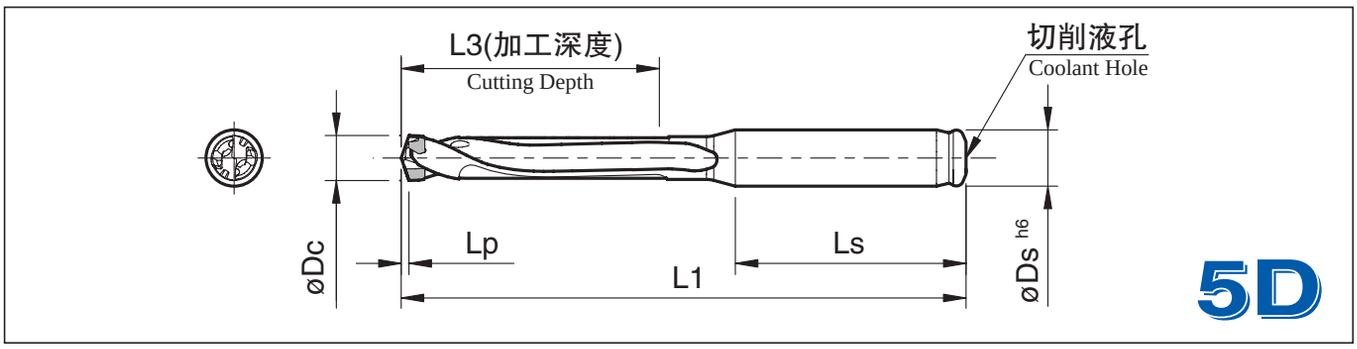
・Lp尺寸表示从刀头前端到刀尖之间的距离。➲参照第3～5页。 Lp indicates distance from drill point to corner edge ➲See P3-P5

●刀柄尺寸 Toolholder Dimension

型号 Description		库存 stock	尺寸(mm) Dimensions(mm) 适合刀头的规格 øDc Applicable Insert Dia. min.	max.	øDs (h6)	L1	L3	Ls	零件 Spare Parts 更换刀头用的扳手 Wrench ➲参见第14页 See P14	适合刀头型号 Applicable Insert description	适合倒角型号 Applicable chamfering Holder and Insert description 刀柄 Holder	刀头 Insert
SS10-	DRC080M-3	●	7.94	8.49	10	79	25.5	40	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC	S20-CH10	CT08T2-45A
	DRC085M-3	●	8.50	8.99		81	27.0			DC0850M-SC~DC0890M-SC		
	DRC090M-3	●	9.00	9.49		83	28.5			DC0900M-SC~DC0940M-SC		
	DRC095M-3	●	9.50	9.99		85	30.0			DC0950M-SC~DC0990M-SC		
SS12-	DRC100M-3	●	10.00	10.49	12	92	31.5	45	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC	S32-CH12	CT12T3-45A
	DRC105M-3	●	10.50	10.99		94	33.0			DC1050M-SC~DC1090M-SC		
	DRC110M-3	●	11.00	11.49		96	34.5			DC1100M-SC~DC1140M-SC		
	DRC115M-3	●	11.50	11.99		98	36.0			DC1150M-SC~DC1190M-SC		
SS14-	DRC120M-3	●	12.00	12.49	14	101	37.5		WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC	S32-CH14	
	DRC125M-3	●	12.50	12.99		103	39.0			DC1250M-SC~DC1290M-SC		
	DRC130M-3	●	13.00	13.49		105	40.5			DC1300M-SC~DC1340M-SC		
	DRC135M-3	●	13.50	13.99		107	42.0			DC1350M-SC~DC1390M-SC		
SS16-	DRC140M-3	●	14.00	14.49	16	112	43.5	48	WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC	S32-CH16	
	DRC145M-3	●	14.50	14.99		114	45.0			DC1450M-SC~DC1490M-SC		
	DRC150M-3	●	15.00	15.99		118	48.0			DC1500M-SC~DC1580M-SC		
SS18-	DRC160M-3	●	16.00	16.99	18	122	51.0			DC1600M-SC~DC1690M-SC	S32-CH18	
	DRC170M-3	●	17.00	17.99		127	54.0	49	WDRC17	DC1700M-SC~DC1790M-SC		
SS20-	DRC180M-3	●	18.00	18.99	20	133	57.0	51		DC1800M-SC~DC1890M-SC	-	-
	DRC190M-3	●	19.00	19.99		137	60.0			DC1900M-SC~DC1990M-SC		
SS25-	DRC200M-3	●	20.00	20.99	25	147	63.0	57		DC2000M-SC~DC2099M-SC		
New	DRC210M-3	●	21.00	21.99		151	66.0	56		DC2100M-SC~DC2150M-SC		
New	DRC220M-3	●	22.00	22.99		156	69.0			DC2200M-SC~DC2250M-SC		
New	DRC230M-3	●	23.00	23.99		160	72.0			DC2300M-SC~DC2350M-SC		
New	DRC240M-3	●	24.00	24.99		164	75.0			DC2400M-SC~DC2450M-SC		
New	SS32- DRC250M-3	●	25.00	25.50	32	172	78.0	60		DC2500M-SC~DC2550M-SC		

●：标准库存 ●:Std stock

■ SS-DRC型(加工深度 Cutting Depth： 5 × D)



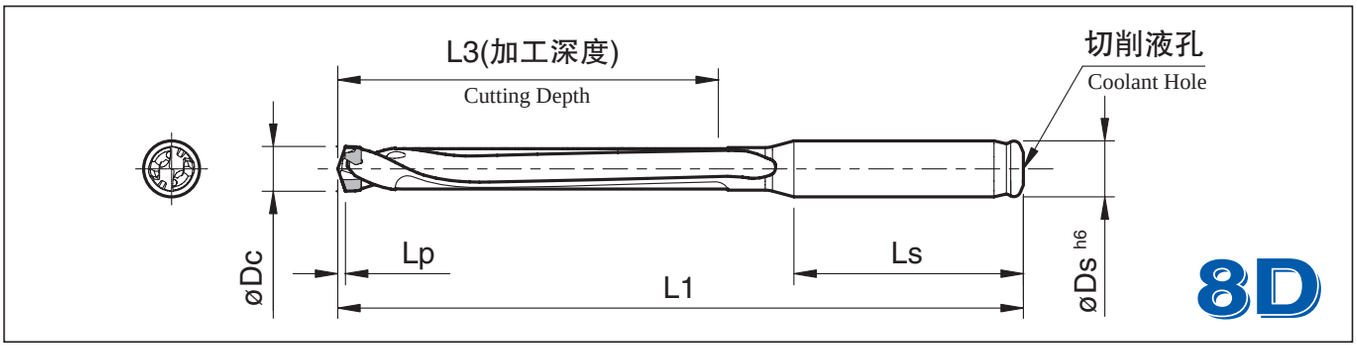
・Lp尺寸表示从刀头前端到刀尖之间的距离。➲ 参照第3～5页。 Lp indicates distance from drill point to corner edge ➲ See P3-P5

●刀柄尺寸 Toolholder Dimension

型号 Description		库存 stock	尺寸(mm) Dimensions(mm) 适合刀头的规格 øDc Applicable Insert Dia. min.	max.	øDs (h6)	L1	L3	Ls	零件 Spare Parts 更换刀头用的扳手 Wrench ➲参见第14页 See P14	适合刀头型号 Applicable Insert description	适合倒角型号 Applicable chamfering Holder and Insert description 刀柄 Holder	刀头 Insert
SS10-	DRC080M-5	●	7.94	8.49	10	97	42.5	40	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC	S20-CH10	CT08T2-45A
	DRC085M-5	●	8.50	8.99		100	45.0			DC0850M-SC~DC0890M-SC		
	DRC090M-5	●	9.00	9.49		103	47.5			DC0900M-SC~DC0940M-SC		
	DRC095M-5	●	9.50	9.99		107	50.0			DC0950M-SC~DC0990M-SC		
SS12-	DRC100M-5	●	10.00	10.49	12	115	52.5	45	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC	S32-CH12	CT12T3-45A
	DRC105M-5	●	10.50	10.99		118	55.0			DC1050M-SC~DC1090M-SC		
	DRC110M-5	●	11.00	11.49		121	57.5			DC1100M-SC~DC1140M-SC		
	DRC115M-5	●	11.50	11.99		124	60.0			DC1150M-SC~DC1190M-SC		
SS14-	DRC120M-5	●	12.00	12.49	14	127	62.5		WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC	S32-CH14	
	DRC125M-5	●	12.50	12.99		130	65.0			DC1250M-SC~DC1290M-SC		
	DRC130M-5	●	13.00	13.49		133	67.5			DC1300M-SC~DC1340M-SC		
	DRC135M-5	●	13.50	13.99		137	70.0			DC1350M-SC~DC1390M-SC		
SS16-	DRC140M-5	●	14.00	14.49	16	143	72.5	48	WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC	S32-CH16	
	DRC145M-5	●	14.50	14.99		146	75.0			DC1450M-SC~DC1490M-SC		
	DRC150M-5	●	15.00	15.99		152	80.0			DC1500M-SC~DC1580M-SC		
SS18-	DRC160M-5	●	16.00	16.99	18	158	85.0			DC1600M-SC~DC1690M-SC	S32-CH18	
	DRC170M-5	●	17.00	17.99		165	90.0	49	WDRC17	DC1700M-SC~DC1790M-SC		
SS20-	DRC180M-5	●	18.00	18.99	20	173	95.0	51		DC1800M-SC~DC1890M-SC	-	-
	DRC190M-5	●	19.00	19.99		179	100.0			DC1900M-SC~DC1990M-SC		
SS25-	DRC200M-5	●	20.00	20.99	25	191	105.0	57		DC2000M-SC~DC2099M-SC		
New	DRC210M-5	●	21.00	21.99		198	110.0	56		DC2100M-SC~DC2150M-SC		
New	DRC220M-5	●	22.00	22.99		204	115.0			DC2200M-SC~DC2250M-SC		
New	DRC230M-5	●	23.00	23.99		210	120.0			DC2300M-SC~DC2350M-SC		
New	DRC240M-5	●	24.00	24.99		216	125.0			DC2400M-SC~DC2450M-SC		
New	SS32- DRC250M-5	●	25.00	25.50	32	227	130.0	60		DC2500M-SC~DC2550M-SC		

●： 标准库存 ●:Std stock

■ SS-DRC型(加工深度 Cutting Depth： 8 × D)



・Lp尺寸表示从刀头前端到刀尖之间的距离。➲ 参照第3～5页。 Lp indicates distance from drill point to corner edge ➲ See P3-P5

●刀柄尺寸 Toolholder Dimension

型号 Description		库存 stock	尺寸(mm) Dimensions(mm) 适合刀头的规格 øDc Applicable Insert Dia. min.	max.	øDs (h6)	L1	L3	Ls	零件 Spare Parts 更换刀头用的扳手 Wrench ➲参见第14页 See P14	适合刀头型号 Applicable Insert description	适合倒角型号 Applicable chamfering Holder and Insert description 刀柄 Holder	刀头 Insert
SS10-	DRC080M-8	●	7.94	8.49	10	122.5	68	40	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC	S20-CH10	CT08T2-45A
	DRC085M-8	●	8.50	8.99		127.0	72			DC0850M-SC~DC0890M-SC		
	DRC090M-8	●	9.00	9.49		131.5	76			DC0900M-SC~DC0940M-SC		
	DRC095M-8	●	9.50	9.99		137.0	80			DC0950M-SC~DC0990M-SC		
SS12-	DRC100M-8	●	10.00	10.49	12	146.5	84	45	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC	S32-CH12	CT12T3-45A
	DRC105M-8	●	10.50	10.99		151.0	88			DC1050M-SC~DC1090M-SC		
	DRC110M-8	●	11.00	11.49		155.5	92			DC1100M-SC~DC1140M-SC		
	DRC115M-8	●	11.50	11.99		160.0	96			DC1150M-SC~DC1190M-SC		
SS14-	DRC120M-8	●	12.00	12.49	14	164.5	100		WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC	S32-CH14	
	DRC125M-8	●	12.50	12.99		169.0	104			DC1250M-SC~DC1290M-SC		
	DRC130M-8	●	13.00	13.49		173.5	108			DC1300M-SC~DC1340M-SC		
	DRC135M-8	●	13.50	13.99		179.0	112			DC1350M-SC~DC1390M-SC		
SS16-	DRC140M-8	●	14.00	14.49	16	186.5	116	48	WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC	S32-CH16	
	DRC145M-8	●	14.50	14.99		191.0	120			DC1450M-SC~DC1490M-SC		
	DRC150M-8	●	15.00	15.99		200.0	128			DC1500M-SC~DC1580M-SC		
SS18-	DRC160M-8	●	16.00	16.99	18	209.0	136			DC1600M-SC~DC1690M-SC	S32-CH18	
	DRC170M-8	●	17.00	17.99		219.0	144	49	WDRC17	DC1700M-SC~DC1790M-SC		
SS20-	DRC180M-8	●	18.00	18.99	20	230.0	152	51		DC1800M-SC~DC1890M-SC	-	-
	DRC190M-8	●	19.00	19.99		239.0	160			DC1900M-SC~DC1990M-SC		
SS25-	DRC200M-8	●	20.00	20.99	25	254.0	168	57		DC2000M-SC~DC2099M-SC		
New	DRC210M-8	●	21.00	21.99		264	176.0	56		DC2100M-SC~DC2150M-SC		
New	DRC220M-8	●	22.00	22.99		273	184.0			DC2200M-SC~DC2250M-SC		
New	DRC230M-8	●	23.00	23.99		282	192.0			DC2300M-SC~DC2350M-SC		
New	DRC240M-8	●	24.00	24.99		291	200.0			DC2400M-SC~DC2450M-SC		
New SS32-	DRC250M-8	●	25.00	25.50	32	305	208.0	60		DC2500M-SC~DC2550M-SC		

●：标准库存 ●:Std stock

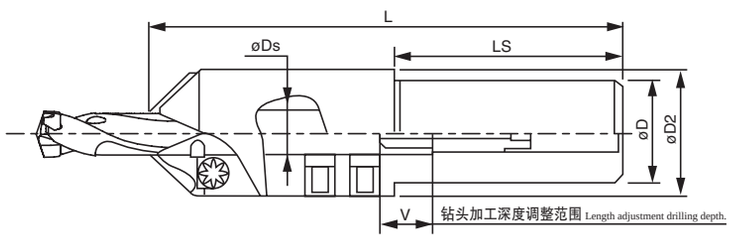
●同时进行钻孔和倒角加工 Drilling and chamfering in parallel

SS-DRC型可以使用倒角装置同时进行钻孔和倒角加工。

By using the chamfering attachment, the SS-DRC type can now perform drilling and chamfering in parallel.

关于倒角装置的详细说明请参照第9 ~ 10页。
Please refer to pages 9 and 10 for details on the chamfering attachment

●刀柄 Toolholder



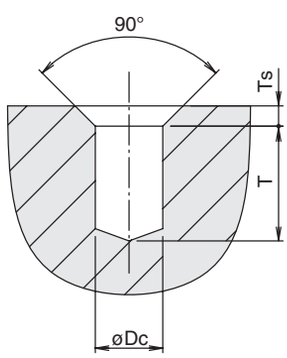
型号 Description	库存 stock	适合刀柄直径 øDs Applicable Drill Dia.	尺寸(mm) Dimensions(mm)					适合刀头 Applicable insert
			øD	øD2	L	LS	V	
S20-CH10	●	10	20	29	122	52	17	CT08T2-45A
S32-CH12	●	12	32	38	133	62	21	CT12T3-45A
S32-CH14	●	14		40	137		16	
S32-CH16	●	16		42	141		19	
S32-CH18	●	18		47	144		15	

备注)倒角装置仅适用于直柄型SS-DRC。
不可用于带法兰的SF-DRC型刀柄。

Note) Chamfering attachment is dedicated for Straight Shank SS-DRC type.
It cannot be used for Flanged Shank SF-DRC type.

●：标准库存 ●:Std stock

●钻头加工深度・倒角尺寸 Drilling depth and chamfering length



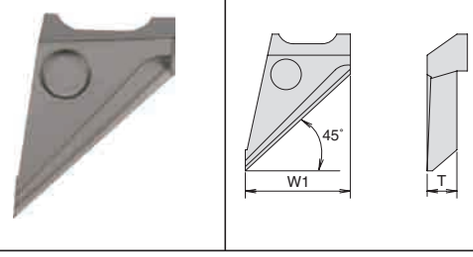
加工直径(mm) Cutting Dia.		钻头加工深度(mm) Drilling depth						倒角尺寸(mm) Chamfering dimension		适合倒角刀柄 Applicable toolholder
øDc		T(3D钻头)		T(5D钻头)		T(8D钻头)		Ts		
min	max	min	max	min	max	min	max	Ts 100	Ts max	
ø7.94	ø8.49	11	19	21	37	47	63	2.5	5.0	S20-CH10
ø8.50	ø8.99	12	21	24	40	51	67			
ø9.00	ø9.49	12	23	27	43	56	72			
ø9.50	ø9.99	13	25	31	47	61	77			
ø10.00	ø10.49	13	26	28	49	60	81	3.5	7.0	S32-CH12
ø10.50	ø10.99	14	28	31	52	64	85			
ø11.00	ø11.49	14	30	34	55	69	90			
ø11.50	ø11.99	15	32	37	58	73	94			
ø12.00	ø12.49	15	30	41	56	79	94	4.0	8.0	S32-CH14
ø12.50	ø12.99	17	32	44	59	83	96			
ø13.00	ø13.49	19	34	47	62	88	103			
ø13.50	ø13.99	21	36	51	66	93	108			
ø14.00	ø14.49	19	37	50	68	94	112	4.0	8.0	S32-CH16
ø14.50	ø14.99	21	39	53	71	98	116			
ø15.00	ø15.99	25	43	59	77	107	125			
ø16.00	ø16.99	30	44	66	80	117	131	4.0	8.0	S32-CH18
ø17.00	ø17.99	35	49	73	87	127	141			

Ts 100：最大进给情况下的最大倒角长度 Ts 100:Max chamfering dimension at the full feed.

Ts max：进给降低了50%情况下的最大倒角长度。 Ts max:Max chamfering dimension at a 50% feed reduction.

(以上标准都是可以实现无停顿加工的最大倒角长度) (Maximum chamfering length by non step machining)

●适用刀片 Applicable insert

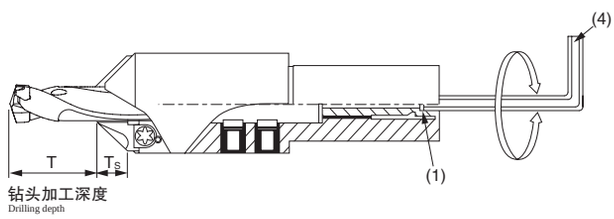
形状 Shape	型号 Description	尺寸(mm) Dimensions(mm) W1	尺寸(mm) Dimensions(mm) T	PVD涂层 PVD Coated PR0315	适合倒角刀柄 Applicable toolholder
	CT08T2-45A	8	2.83	●	S20-CH10
	CT12T3-45A	12	3.98	●	S32-CH12 ≀ S32-CH18

刀片为1盒10片装。 Inserts are sold in 10 piece per 1 box.

●：标准库存 ●:Std stock

●安装方法 Method to use DRC chamfering attachment

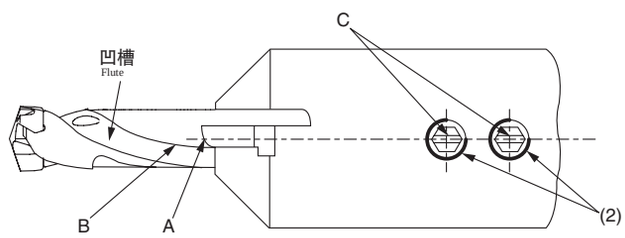
1.调整钻头加工深度 Drilling depth adjustment



•将钻头插入倒角装置主体。
•然后对倒角刀头A进行临时固定。
•用六角扳手(4)旋转调整螺钉(1)，调整钻头加工深度T。

• Insert drill into chamfering attachment.
• Next, temporarily attach the chamfering insert A.
• Turn the adjusting screw (1) with the hexagon wrench (4) to set the drilling depth T.

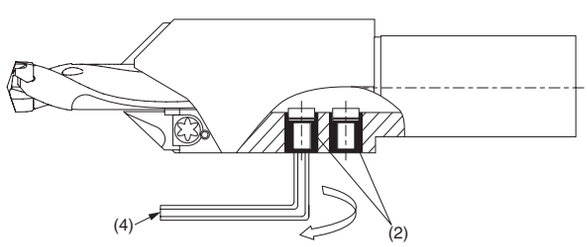
2.确认钻头的设置位置 Drill location check



•用手将钻头转动到倒角刀头A与钻头的第二接触面B重合的位置。
•如上图所示，保证钻头固定螺钉(2)的固定件的凹槽C与中心线成一条直线。

• Rotate the drill so that the lower end of the chamfering insert A is aligned with the body clearance B of the drill.
• Set it so that slot C in the drill fitting screw (2) is lined up as shown in the figure above.

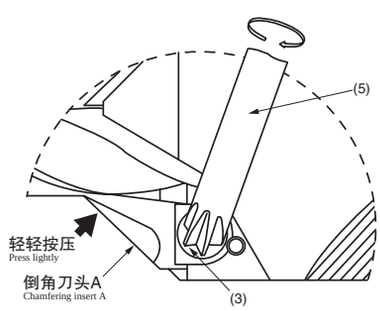
3.钻头的固定 Fix the drill



•用六角扳手(4)紧固钻头固定螺钉(2)。
(使用扭力扳手时请参照下表的紧固转矩。)

• Tighten the drill fitting screw (2) with the hexagon wrench (4).
(In case of using torque wrench, then please refer below table.)

4.倒角刀头的安装 Installation of the chamfering insert

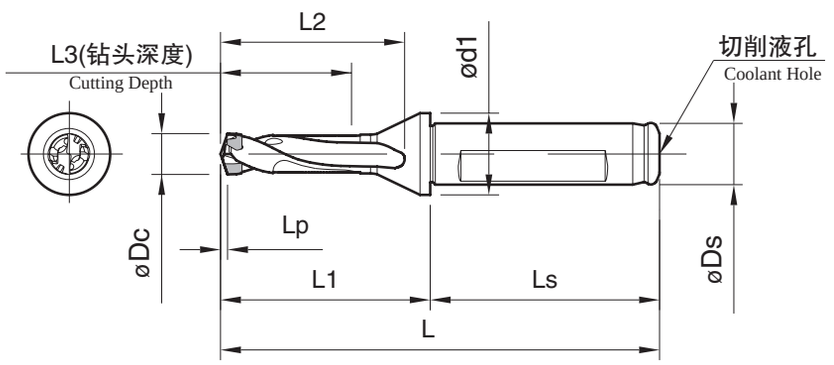


•轻轻地将倒角刀头A按压在钻头上面，用扳手(5)对刀头安装螺钉(3)进行固定。

• Press the chamfering insert A lightly into the drill and tighten the insert mounting screw (3) with wrench (5).

倒角装置 Chamfering attachment	紧固转矩 Torque [Nm]	调整螺钉(1) Adjusting screw	钻头固定螺钉(2) Drill fitting screw	刀头安装螺钉(3) Insert mounting screw	六角扳手(4) Hexagon wrench	扳手(5) wrench
S20-CH10	10	AJ-6×38	FS-10	MT-3	LW-3	DT-9
S32-CH12	15	AJ-8×44-9.5	FS-12	MT-4		DT-15
S32-CH14	20	AJ-10×46	FS-14		LW-4	
S32-CH16	30		FS-16			
S32-CH18	45		FS-18		LW-5	

■ SF-DRC型(加工深度 Cutting Depth： 3 × D)



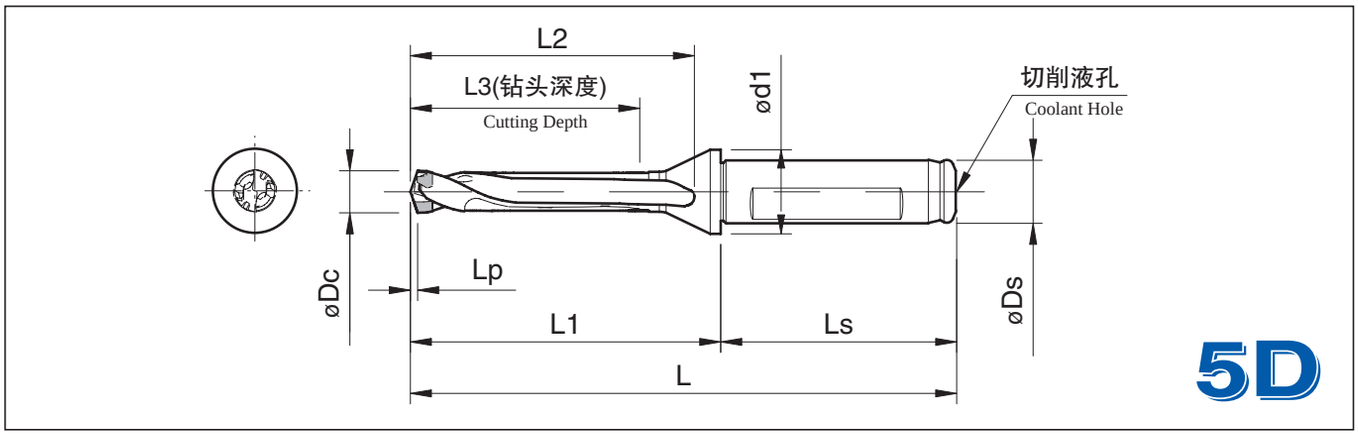
・Lp尺寸表示从刀头前端到刀尖之间的距离。➲ 参照第3～5页。 Lp indicates distance from drill point to corner edge ➲ See P3-P5

●刀柄尺寸 Toolholder Dimension

型号 Description		库存 stock	尺寸(mm) Dimensions(mm)									零件 Spare Parts	适合刀头 Applicable insert
			适合刀头尺寸 øDc Applicable Insert Dia.		øDs (h6)	L	L1	L2	L3	Ls	ød1	更换刀头用的扳手 Wrench ➲参见第14页 See P14	
			min.	max.									
SF12-	DRC080M-3	●	7.94	8.49	12	86	41	35	26	45	16	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC
	DRC085M-3	●	8.50	8.99		88	43	37	27				DC0850M-SC~DC0890M-SC
	DRC090M-3	●	9.00	9.49		90	45	39	29				DC0900M-SC~DC0940M-SC
	DRC095M-3	●	9.50	9.99		92	47	41	30				DC0950M-SC~DC0990M-SC
SF16-	DRC100M-3	●	10.00	10.49	16	97	49	43	32	48	20	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC
	DRC105M-3	●	10.50	10.99		99	51	45	33				DC1050M-SC~DC1090M-SC
	DRC110M-3	●	11.00	11.49		101	53	47	35				DC1100M-SC~DC1140M-SC
	DRC115M-3	●	11.50	11.99		103	55	49	36				DC1150M-SC~DC1190M-SC
	DRC120M-3	●	12.00	12.49		106	58	52	38			WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC
	DRC125M-3	●	12.50	12.99		108	60	54	39				DC1250M-SC~DC1290M-SC
	DRC130M-3	●	13.00	13.49		110	62	56	41				DC1300M-SC~DC1340M-SC
	DRC135M-3	●	13.50	13.99		112	64	58	42				DC1350M-SC~DC1390M-SC
	DRC140M-3	●	14.00	14.49		114	66	60	44			WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC
	DRC145M-3	●	14.50	14.99		116	68	62	45				DC1450M-SC~DC1490M-SC
SF20-	DRC150M-3	●	15.00	15.99	20	122	72	66	48	50	25		DC1500M-SC~DC1580M-SC
	DRC160M-3	●	16.00	16.99		126	76	70	51				DC1600M-SC~DC1690M-SC
	DRC170M-3	●	17.00	17.99		131	81	75	54			WDRC17	DC1700M-SC~DC1790M-SC
SF25-	DRC180M-3	●	18.00	18.99	25	141	85	79	57	56	32		DC1800M-SC~DC1890M-SC
	DRC190M-3	●	19.00	19.99		145	89	83	60				DC1900M-SC~DC1990M-SC
	DRC200M-3	●	20.00	20.99		149	93	87	63				DC2000M-SC~DC2099M-SC
New	DRC210M-3	●	21.00	21.99		153	97	91	66				DC2100M-SC~DC2150M-SC
New	DRC220M-3	●	22.00	22.99		158	102	96	69				DC2200M-SC~DC2250M-SC
New	DRC230M-3	●	23.00	23.99		162	106	100	72				DC2300M-SC~DC2350M-SC
New	DRC240M-3	●	24.00	24.99		166	110	104	75				DC2400M-SC~DC2450M-SC
New	DRC250M-3	●	25.00	25.50		170	114	108	78				DC2500M-SC~DC2550M-SC

●：标准库存 ●:Std stock

■ SF-DRC型(加工深度 Cutting Depth： 5 × D)



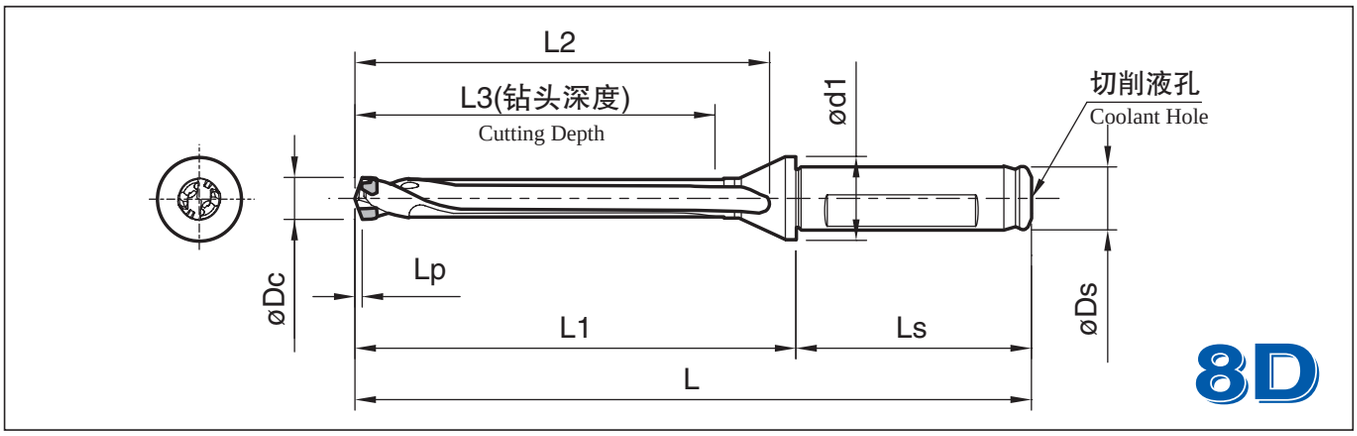
・Lp尺寸表示从刀头前端到刀尖之间的距离。➲ 参照第3～5页。 Lp indicates distance from drill point to corner edge ➲ See P3-P5

● 刀柄尺寸 Toolholder Dimension

型号 Description		库存 stock	尺寸(mm) Dimensions(mm)								零件 Spare Parts	适合刀头 Applicable insert
			适合刀头尺寸 øDc Applicable Insert Dia.		øDs (h6)	L	L1	L2	L3	Ls	ød1	更换刀头用的扳手 Wrench ➲ 参见第14页 See P14	
			min.	max.									
SF12-	DRC080M-5	●	7.94	8.49	12	104	59	53	43	45	16	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC
	DRC085M-5	●	8.50	8.99		107	62	56	45				DC0850M-SC~DC0890M-SC
	DRC090M-5	●	9.00	9.49		110	65	59	48				DC0900M-SC~DC0940M-SC
	DRC095M-5	●	9.50	9.99		114	69	63	50				DC0950M-SC~DC0990M-SC
SF16-	DRC100M-5	●	10.00	10.49	16	120	72	66	53	48	20	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC
	DRC105M-5	●	10.50	10.99		123	75	69	55				DC1050M-SC~DC1090M-SC
	DRC110M-5	●	11.00	11.49		126	78	72	58				DC1100M-SC~DC1140M-SC
	DRC115M-5	●	11.50	11.99		129	81	75	60				DC1150M-SC~DC1190M-SC
	DRC120M-5	●	12.00	12.49		132	84	78	63			WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC
	DRC125M-5	●	12.50	12.99		135	87	81	65				DC1250M-SC~DC1290M-SC
	DRC130M-5	●	13.00	13.49		138	90	84	68				DC1300M-SC~DC1340M-SC
	DRC135M-5	●	13.50	13.99		142	94	88	70				DC1350M-SC~DC1390M-SC
	DRC140M-5	●	14.00	14.49		145	97	91	73			WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC
	DRC145M-5	●	14.50	14.99		148	100	94	75				DC1450M-SC~DC1490M-SC
SF20-	DRC150M-5	●	15.00	15.99	20	156	106	100	80	50	25		DC1500M-SC~DC1580M-SC
	DRC160M-5	●	16.00	16.99		162	112	106	85				DC1600M-SC~DC1690M-SC
	DRC170M-5	●	17.00	17.99		169	119	113	90			WDRC17	DC1700M-SC~DC1790M-SC
SF25-	DRC180M-5	●	18.00	18.99	25	181	125	119	95	56	32		DC1800M-SC~DC1890M-SC
	DRC190M-5	●	19.00	19.99		187	131	125	100				DC1900M-SC~DC1990M-SC
	DRC200M-5	●	20.00	20.99		193	137	131	105				DC2000M-SC~DC2099M-SC
New	DRC210M-5	●	21.00	21.99		200	144	138	110				DC2100M-SC~DC2150M-SC
New	DRC220M-5	●	22.00	22.99		206	150	144	115				DC2200M-SC~DC2250M-SC
New	DRC230M-5	●	23.00	23.99		212	156	150	120				DC2300M-SC~DC2350M-SC
New	DRC240M-5	●	24.00	24.99		218	162	156	125				DC2400M-SC~DC2450M-SC
New	DRC250M-5	●	25.00	25.50		225	169	163	130				DC2500M-SC~DC2550M-SC

●：标准库存 ●:Std stock

■ SF-DRC型(加工深度 Cutting Depth： 8 × D)



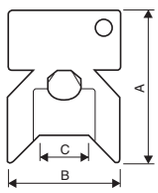
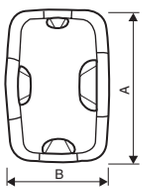
・Lp尺寸表示从刀头前端到刀尖之间的距离。➲参照第3～5页。 Lp indicates distance from drill point to corner edge ➲ See P3-P5

●刀柄尺寸 Toolholder Dimension

型号 Description		库存 stock	尺寸(mm) Dimensions(mm)									零件 Spare Parts	适合刀头 Applicable insert
			适合刀头尺寸 øDc Applicable Insert Dia.		øDs (h6)	L	L1	L2	L3	Ls	ød1	更换刀头用的扳手 Wrench ➲参见第14页 See P14	
			min.	max.									
SF12-	DRC080M-8	●	7.94	8.49	12	129	84	79	68	45	16	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC
	DRC085M-8	●	8.50	8.99		134	89	83	72				DC0850M-SC~DC0890M-SC
	DRC090M-8	●	9.00	9.49		138	93	88	76				DC0900M-SC~DC0940M-SC
	DRC095M-8	●	9.50	9.99		144	99	93	80				DC0950M-SC~DC0990M-SC
SF16-	DRC100M-8	●	10.00	10.49	16	151	103	97	84	48	20	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC
	DRC105M-8	●	10.50	10.99		156	108	102	88				DC1050M-SC~DC1090M-SC
	DRC110M-8	●	11.00	11.49		160	112	107	92				DC1100M-SC~DC1140M-SC
	DRC115M-8	●	11.50	11.99		165	117	111	96				DC1150M-SC~DC1190M-SC
	DRC120M-8	●	12.00	12.49		169	121	116	100			WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC
	DRC125M-8	●	12.50	12.99		174	126	120	104				DC1250M-SC~DC1290M-SC
	DRC130M-8	●	13.00	13.49		178	130	124	108				DC1300M-SC~DC1340M-SC
	DRC135M-8	●	13.50	13.99		184	136	130	112				DC1350M-SC~DC1390M-SC
	DRC140M-8	●	14.00	14.49		188	140	134	116			WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC
	DRC145M-8	●	14.50	14.99		193	145	139	120				DC1450M-SC~DC1490M-SC
SF20-	DRC150M-8	●	15.00	15.99	20	204	154	148	128	50	25		DC1500M-SC~DC1580M-SC
	DRC160M-8	●	16.00	16.99		213	163	157	136				DC1600M-SC~DC1690M-SC
	DRC170M-8	●	17.00	17.99		223	173	167	144				DC1700M-SC~DC1790M-SC
SF25-	DRC180M-8	●	18.00	18.99	25	238	182	176	152	56	32	WDRC17	DC1800M-SC~DC1890M-SC
	DRC190M-8	●	19.00	19.99		247	191	185	160				DC1900M-SC~DC1990M-SC
	DRC200M-8	●	20.00	20.99		256	200	194	168				DC2000M-SC~DC2099M-SC
New	DRC210M-8	●	21.00	21.99		266	210	204	176				DC2100M-SC~DC2150M-SC
New	DRC220M-8	●	22.00	22.99		275	219	213	184				DC2200M-SC~DC2250M-SC
New	DRC230M-8	●	23.00	23.99		284	228	222	192				DC2300M-SC~DC2350M-SC
New	DRC240M-8	●	24.00	24.99		293	237	231	200				DC2400M-SC~DC2450M-SC
New	DRC250M-8	●	25.00	25.50		303	247	241	208				DC2500M-SC~DC2550M-SC

●：标准库存 ●:Std stock

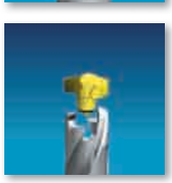
■ 零件(更换刀头用的扳手) Wrench for changing insert

形 状 Shape		型 号 Description	尺寸(mm) Dimensions(mm) A	B	C	备 注 Remarks
		WDRC8	43	33	ø10.2	
		WDRC10			ø12.2	
		WDRC12			ø14.2	
		WDRC14			ø17.2	
		WDRC17	77	52	-	・WDRC17(多用扳手)有4处刀头插口。如果使用的刀头是DC1700M-SC ~ DC2099M-SC，请使用印有“ø17.00 ~ ø20.99字样的刀头插口。 ・WDRC17(Multiple type wrench) has four insert entry points. If using an insert ranging from DC1700M-SC to DC2099M-SC, use the entry point printed as "ø17.00 ~ ø20.99". ・WDRC17可以作为WDRC8 ~ 14的替代品使用。 WDRC17 can be used instead of WDRC8~14 wrench.

■ DRC型魔术钻的刀头更换方法 Method to change DRC type magicdrill insert

●刀头安装方法 How to attach inserts

① 请将钻头主体固定在刀柄上面。通过将刀柄安装到机床上、或固定到刀具仪等上面的方法进行刀头更换。
② 吹去上面的灰尘等杂物。
1) Fix drill holder on arbor. For insert exchange, fix arbor on the machine or set on toolpresetter.
2) Remove dust using air blow.

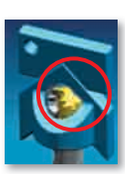


③ 将刀头插入刀柄。
(请使用手套等劳保用品。)
3) Put into insert to holder.
(Use gloves to protect your hand from any danger.)

④ 轻轻地沿顺时针方向转动刀头。
(请使用手套等劳保用品。)
4) Turn lightly in a clockwise direction.
(Use gloves to protect your hand from any danger.)

⑤ 插入扳手。
5) Set the wrench properly.

⑥ 保证扳手卡合在刀头的扳手用槽里面。
6) Make sure the wrench fits with insert's slot for the wrench.

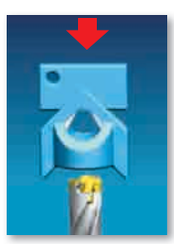


(扳手是否卡合在槽里?)
(Is the wrench unfixed from the slot?)

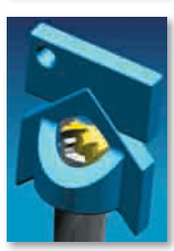
扳手用槽
Slot for wrench

⑦ 慢慢转动扳手。
⑧ 安装完毕。
7) Turn the wrench clockwise direction slowly.
8) Completed.

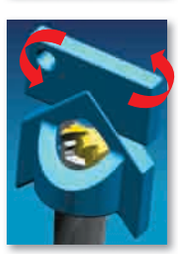
●刀头拆卸方法 How to detach inserts



① 吹去刀头上面的灰尘等杂物
② 插入扳手。
1) Remove dust from insert using air blast.
2) Set the wrench properly



③ 使扳手与刀头的扳手用槽卡合。
3) Fit the wrench to insert slot for wrench.



④ 往逆时针方向转动扳手。
4) Turn the wrench counter clockwise direction.

⑤ 锁打开后，用手指转动刀头。
(请使用手套等劳保用品。)
5) Once lock is released, insert can be turned by fingers.
(Use gloves to protect your hand from any danger.)

⑥ 拔下刀头。
(请使用手套等劳保用品。)
6) Remove insert.
(Use gloves to protect your hand from any danger.)

■ 推荐切削条件 Recommended Cutting Condition

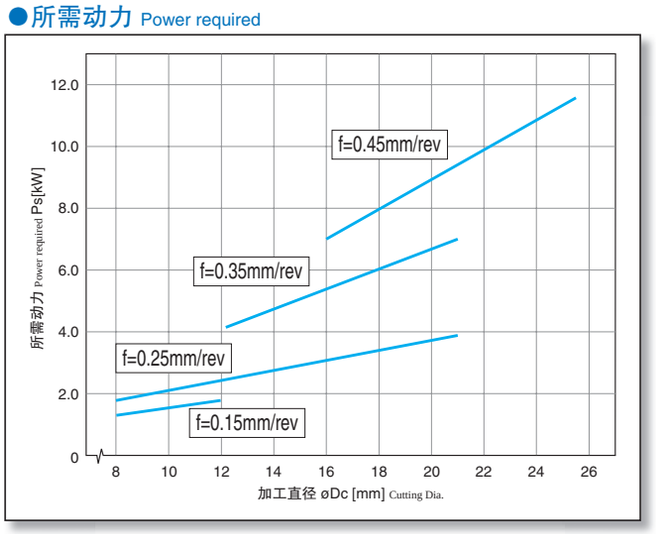
被切削材料 Workpiece Material		硬度 Hardness (HB)	切削条件 Cutting Condition		加工直径 øDc (mm) Cutting Dia.(mm)								备注 Remarks
			切削速度 Cutting Speed Vc(m/min)	转速(min⁻¹) Spindle Revolution / 进给(mm/rev) Feed Rate	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø25	
低碳钢 Low Carbon Steel	SS400 S10C ~ S25C	125	120 - 180	转速(min⁻¹)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	1,530 - 2,290	带冷 With Coolant
				进给(mm/rev)	0.11 - 0.20	0.13 - 0.24	0.14 - 0.28	0.17 - 0.32	0.19 - 0.35	0.23 - 0.38	0.25 - 0.41	0.30 - 0.50	
碳素钢 Carbon Steel	S30C ~ S58C (退火 Annealed)	190	100 - 150	转速(min⁻¹)	3,980 - 5,970	3,180 - 4,780	2,650 - 3,980	2,270 - 3,410	1,990 - 2,990	1,770 - 2,650	1,590 - 2,390	1,270 - 1,910	
				进给(mm/rev)	0.13 - 0.24	0.15 - 0.29	0.17 - 0.33	0.19 - 0.36	0.22 - 0.41	0.25 - 0.46	0.28 - 0.48	0.32 - 0.60	
	S30C ~ S58C (调质 Heat treated)	250	80 - 120	转速(min⁻¹)	3,180 - 4,780	2,550 - 3,820	2,120 - 3,180	1,820 - 2,730	1,590 - 2,390	1,420 - 2,120	1,270 - 1,910	1,020 - 1,530	
				进给(mm/rev)	0.13 - 0.21	0.15 - 0.25	0.18 - 0.31	0.21 - 0.39	0.23 - 0.45	0.25 - 0.53	0.28 - 0.61	0.38 - 0.64	
		300	50 - 75	转速(min⁻¹)	1,990 - 2,990	1,590 - 2,390	1,330 - 1,990	1,140 - 1,710	1,000 - 1,490	880 - 1,330	800 - 1,190	640 - 960	
				进给(mm/rev)	0.11 - 0.19	0.12 - 0.23	0.16 - 0.28	0.21 - 0.32	0.23 - 0.35	0.25 - 0.41	0.28 - 0.41	0.32 - 0.45	
合金钢 Alloy Steel	SCM,SCr等 (退火 Annealed)	180	70 - 95	转速(min⁻¹)	2,790 - 3,780	2,230 - 3,030	1,860 - 2,520	1,590 - 2,160	1,390 - 1,890	1,240 - 1,680	1,110 - 1,510	890 - 1,210	
				进给(mm/rev)	0.15 - 0.28	0.16 - 0.35	0.21 - 0.37	0.23 - 0.46	0.25 - 0.46	0.25 - 0.51	0.30 - 0.51	0.35 - 0.60	
	SCM,SCr等 (调质 Heat treated)	275	70 - 95	转速(min⁻¹)	2,790 - 3,780	2,230 - 3,030	1,860 - 2,520	1,590 - 2,160	1,390 - 1,890	1,240 - 1,680	1,110 - 1,510	890 - 1,210	
				进给(mm/rev)	0.11 - 0.21	0.14 - 0.25	0.19 - 0.30	0.21 - 0.33	0.23 - 0.37	0.28 - 0.43	0.28 - 0.46	0.32 - 0.58	
		300	60 - 90	转速(min⁻¹)	2,390 - 3,580	1,910 - 2,870	1,590 - 2,390	1,360 - 2,050	1,190 - 1,790	1,060 - 1,590	960 - 1,430	760 - 1,150	
				进给(mm/rev)	0.11 - 0.19	0.12 - 0.23	0.16 - 0.26	0.18 - 0.31	0.21 - 0.33	0.23 - 0.36	0.25 - 0.38	0.30 - 0.50	
		350	50 - 75	转速(min⁻¹)	1,990 - 2,990	1,590 - 2,390	1,330 - 1,990	1,140 - 1,710	1,000 - 1,490	880 - 1,330	800 - 1,190	640 - 960	
				进给(mm/rev)	0.11 - 0.20	0.12 - 0.23	0.16 - 0.25	0.17 - 0.29	0.18 - 0.32	0.20 - 0.36	0.23 - 0.38	0.28 - 0.50	
不锈钢 Stainless Steel	SUS304 SUS316	220	60 - 80	转速(min⁻¹)	2,390 - 3,180	1,910 - 2,550	1,590 - 2,120	1,360 - 1,820	1,190 - 1,590	1,060 - 1,420	960 - 1,270	760 - 1,020	
				进给(mm/rev)	0.11 - 0.19	0.12 - 0.23	0.16 - 0.26	0.18 - 0.31	0.21 - 0.33	0.23 - 0.36	0.25 - 0.38	0.28 - 0.42	
	SUS630	300	50 - 70	转速(min⁻¹)	1,990 - 2,790	1,590 - 2,230	1,330 - 1,860	1,140 - 1,590	1,000 - 1,390	880 - 1,240	800 - 1,110	640 - 890	
				进给(mm/rev)	0.11 - 0.20	0.12 - 0.23	0.16 - 0.25	0.17 - 0.29	0.18 - 0.32	0.20 - 0.36	0.23 - 0.38	0.25 - 0.40	
灰口铸铁 Gray Cast Iron	FC150 ~ FC200	180	120 - 170	转速(min⁻¹)	4,780 - 6,770	3,820 - 5,410	3,180 - 4,510	2,730 - 3,870	2,390 - 3,380	2,120 - 3,010	1,910 - 2,710	1,530 - 2,170	
				进给(mm/rev)	0.17 - 0.32	0.20 - 0.37	0.23 - 0.43	0.27 - 0.48	0.30 - 0.55	0.33 - 0.61	0.33 - 0.61	0.40 - 0.74	
	FC250 ~ FC350	260	90 - 120	转速(min⁻¹)	3,580 - 4,780	2,870 - 3,820	2,390 - 3,180	2,050 - 2,730	1,790 - 2,390	1,590 - 2,120	1,430 - 1,910	1,150 - 1,530	
				进给(mm/rev)	0.14 - 0.25	0.16 - 0.31	0.19 - 0.35	0.23 - 0.42	0.26 - 0.47	0.28 - 0.53	0.30 - 0.58	0.36 - 0.70	
球墨铸铁 Nodular Cast Iron	FCD400 ~ FCD500	160	60 - 90	转速(min⁻¹)	2,390 - 3,580	1,910 - 2,870	1,590 - 2,390	1,360 - 2,050	1,190 - 1,790	1,060 - 1,590	960 - 1,430	760 - 1,150	
				进给(mm/rev)	0.14 - 0.25	0.16 - 0.30	0.19 - 0.35	0.22 - 0.40	0.24 - 0.45	0.28 - 0.51	0.28 - 0.56	0.34 - 0.67	
	FCD600 ~ FCD800	250	40 - 65	转速(min⁻¹)	1,590 - 2,590	1,270 - 2,070	1,060 - 1,730	910 - 1,480	800 - 1,290	710 - 1,150	640 - 1,040	510 - 830	
				进给(mm/rev)	0.10 - 0.19	0.12 - 0.22	0.14 - 0.25	0.16 - 0.31	0.19 - 0.35	0.23 - 0.51	0.25 - 0.53	0.30 - 0.60	

・随着钻头总长的增加(3D → 5D → 8D)，请将进给值设置为推荐范围的较低值。
As drill length is longer (3D→5D→8D type), please set feed rate lower than recommended rate.

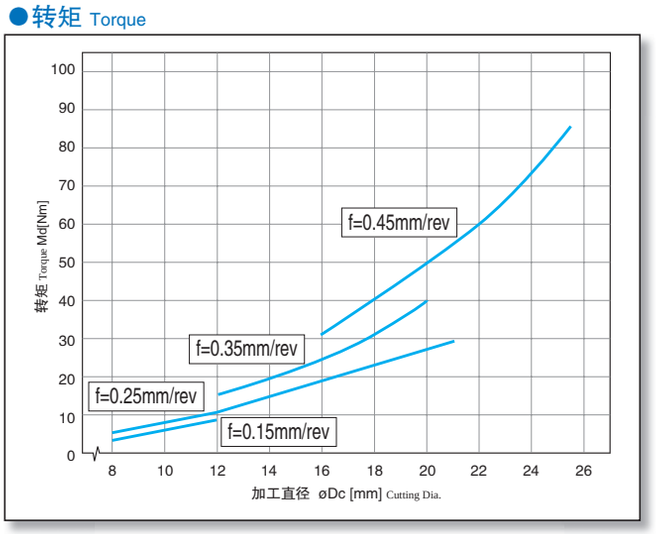
■ 特性曲线 The graph for features

< 切削条件 > : 被切削材料　调质钢 Heat treated steel(硬度 Hardness 240HB)　V c = 80m/min,　Wet

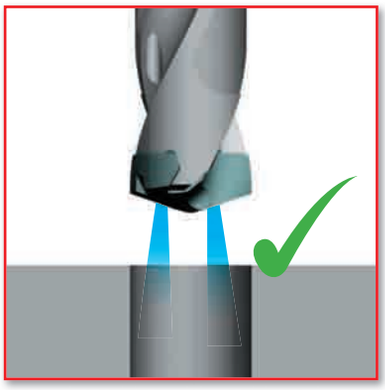
●所需动力 Power required



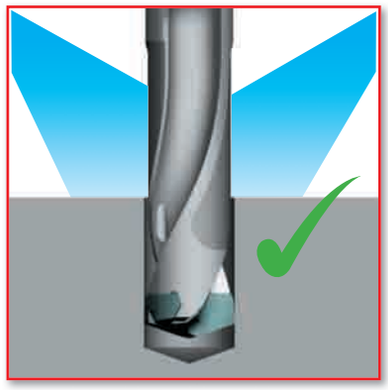
●转矩 Torque



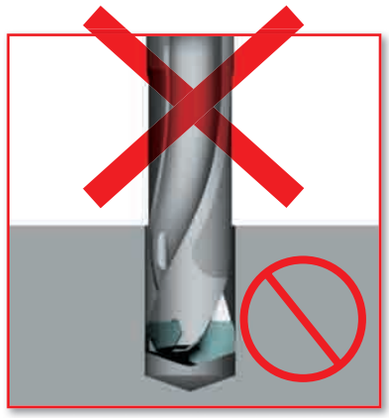
■ 切削液使用说明 Coolant



1) 推荐内部供油。
1) Internal coolant is recommended.

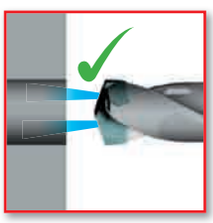


2) 外部供油的情况下
2) In case of external coolant

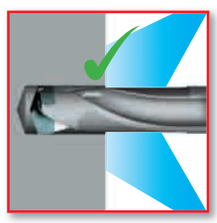


3) 不推荐干式切削。
3) Dry cutting is not recommended.

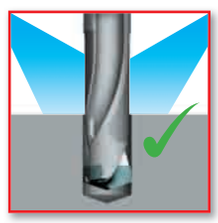
横型M/C的场合
in case of horizontal M/C



车床：3D以内
Lathe.within 3D



纵型M/C:1.5D以内
Vertical M/C: within 1.5D

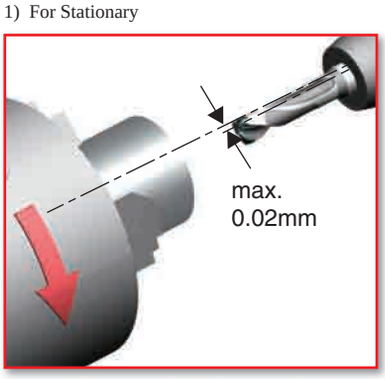


由于横放式数控机床(横型M/C)中的工具会出现旋转，使得切削液很难从外部加入，请使用内部冷却。
Please use internal coolant when horizontal machining center is used and this is because of rotation of tools inside and not enough coolant from outside.

■ 使用方面的注意事项 Usage Precautions

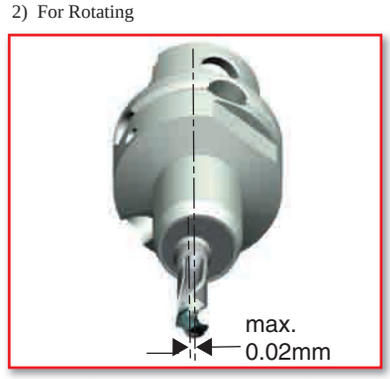
●偏心 Core Deviation

1) 车削的情况下
1) For Stationary



可以同时使用镗孔套筒(坚固螺钉)和套爪卡盘，工件与钻头的偏心量请设置为0.02ｍｍ以内。
This is usable for boaring sleeve (screw clamp) and collet-chuck, please be sure to set deviation amount under 0.02mm between workpiece and drill.

2) 铣削的情况下
2) For Rotating



请勿使用钻头装夹面已经变形的刀柄。设备与钻头的偏心请控制在0.02ｍｍ的范围内。
Do not use any arbor which attachment surface is deformed. Center of arbor deviation have to be within 0.02mm

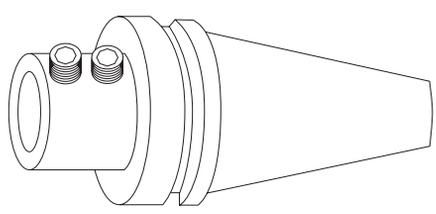
■ 安装到数控机床时的注意事项 Cautionary reminder when installing parts to Machining Centers

DRC型魔术钻的安装 To install DRC type magicdrill.
第1推荐 1st Recommendation ⋯ 液压夹头，强力夹头，弹簧夹头 Please use Hydro-chuck, Power-chuck or Collet-chuck
第2推荐 2nd Recommendation ⋯ 侧锁定柄轴 Side-lock arbor

液压夹头 Hydro-chuck
强力夹头 Power-chuck
弹簧夹头 Collet-chuck

请在(液压夹头，强力夹头，弹簧夹头)上安装魔术钻。
Please attach the DRC type magicdrill to one of these chucks.

第1推荐
1st Recommendation



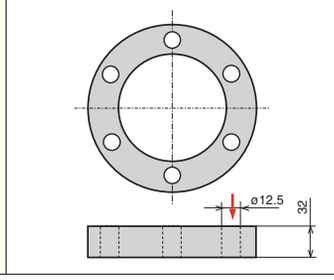
侧固定刀柄的案例
Example of side-lock arbor

第2推荐
2nd Recommendation

■ 加工实例 Case Studies

S50C

・法兰 Flange
・Vc=97m/min
(n=2,490min^{-1})
・H=32mm
・f=0.3mm/rev
(Vf=747mm/min)
・湿式(内冷)
Wet(Internal Coolant)
・DC1250M-SC
(PR0315)



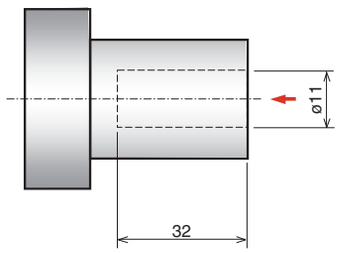
SS14-DRC120M-3	3,000孔/刀头 3,000holes/insert
其他公司的钻头 A Competitor A	1,800孔/钻头 1,800holes/drill

・与其他公司的钻头A相比，使用DRC型魔术钻加工的工件毛刺减少，而且所需动力也减少了10%以上，工具的使用寿命也大为提高。
・Compared to competitor's drill A, MagicDrill DRC type has reduced burr and reduced more than 10% of the power required . Tool life has also improved greatly.

(客户评价) Evaluation by the user

SCM440

・壳体 Housing
・Vc=83m/min
(n=2,400min^{-1})
・H=32mm
・f=0.24mm/rev
(Vf=576mm/min)
・湿式(内冷)
Wet(Internal Coolant)
・DC1100M-SC
(PR0315)



SS12-DRC110M-3	2,400孔/刀头 more than 2,400holes/insert
其他公司的PVD超硬整体钻头 B Competitor B	2,000孔/钻头 2,000holes/drill

・与其他公司的整体钻头B相比，DRC型魔术钻的刀头更换更容易，可以大幅缩短准备时间。
・可以减少用于二次研磨的备用刀具成本，延长工具的使用寿命。
・Compared to competitor's solid drill B, MagicDrill DRC type has greatly reduced preparation time with its easy insert replacement feature. Also, the costs of spare tools for re-grinding has been reduced, and tool life has improved.

(客户评价) Evaluation by the user

Q&A

Q-3 用DRC(8D型)深孔加工时，开孔处和孔内部(出口侧)的尺寸因加工径变形而产生变化。有什么办法可以抑制该情况么?
For deep hole machining of DRC (8D type), there seems dimension variation something like deflection at entrance and its inside of drill dia .Is there any restraint method?

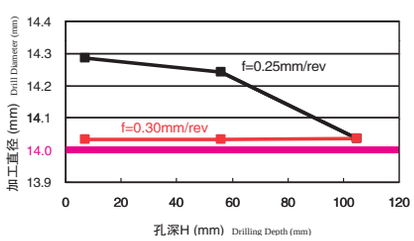
A-3 有下列方法可以抑制钻头弯曲变形(吃刀良好)
in order to restraint drill deflection (for better bite), there are some method as below.

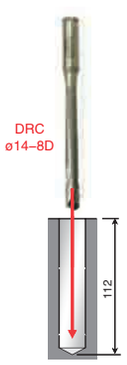
对策1 Counter measure 1

● 提高进给 increase feed rate

通过提高进给来稳定加工口径。
(进给的标准为当前进给+0.03 ~ 0.05m m/rev)
by increase feed rate, cutting dia should be stabilized.
(Guide of increasing feed rate is current feed rate+0.03 ~ 0.05mm/rev)

＜切削条件＞ Cutting Conditions
S55C Vc=80m/min H=112mm
f=0.25mm/rev → 0.30mm/rev
f=0.25mm/rev → 0.30mm/rev
WET(内冷) WET (internal coolant)
SS16-DRC140M-8
DC1400M-SC(PR0315)





如果基于机器刚性或紧固刚性不够之类的原因导致无法提高进给
in case of being not able to increase feed rate, If machine rigidity or clamping rigidity is weak,

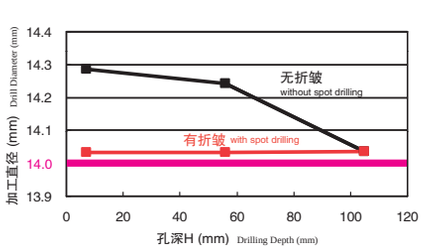
对策2 Counter measure2

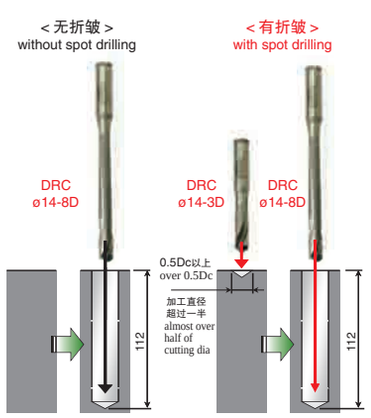
先钻中心孔，加工孔径稳定的方法 Method to stabilize by centering hole to check over the issue

1)使用市场中在售的顶角140度中心钻头或DRC型钻头在中心开孔。
1) Use top able 140°center drill or DRC type drill for hole making
(对中心钻进一步加工的时候，请将顶角放大到140° 以上。)
(If additional process is possible for center drill, please be sure to maintain top able larger than 140°)

2)之后用DRC型钻头(8D型)加工。
2) thereafter drill by DRC type (8D type)

＜切削条件＞ Cutting Conditions
S55C Vc=80m/min
f=0.25mm/rev H=112mm
WET(内冷) WET (internal coolant)
SS16-DRC140M-3
SS16-DRC140M-8
DC1400M-SC(PR0315)



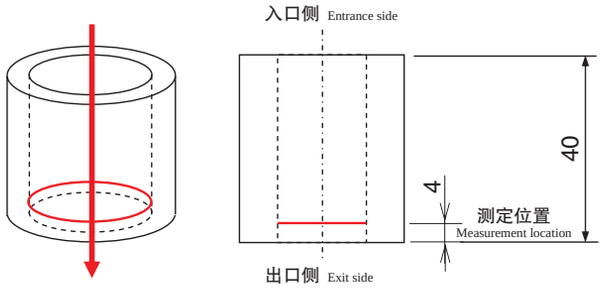


■ 加工紧密度比较 Comparison of cutting precious

●切削条件和测定位置 Cutting condition and measurement location

< 切削条件 > Cutting Conditions

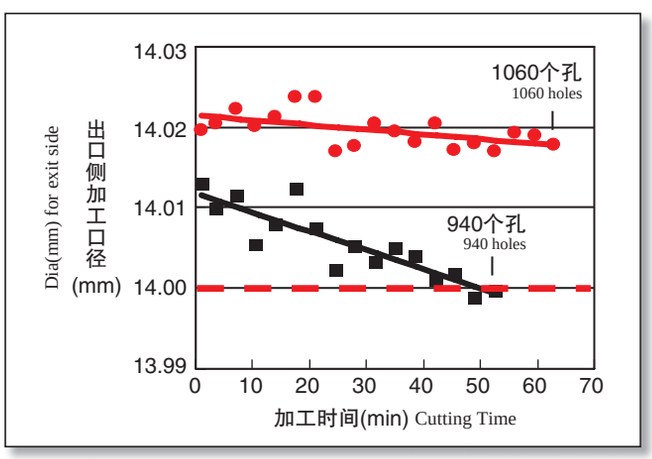
被切削材料 Workpiece Material	S45C
Vc (m/min)	100
f (mm/rev)	0.2mm/rev, 0.3mm/rev
孔深 H (mm) Drilling Depth	贯通孔(40mm) Penetrated hole (40mm)
切削液 Coolant	WET(内部供油) WET (internal coolant)
使用工具 Used tool	Ø14 × 3D型 14Diamm x 3D type
机械 Machine	M/C



●加工径(f=0.3mm/rev) Cutting Dia (f=0.3mm/rev)

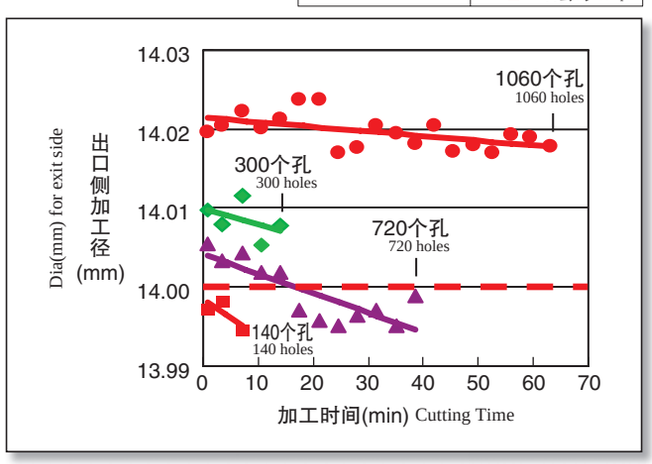
1) 与刀头可换式钻头比较
1) Comparison of indexable insert drill

刀头可换式钻头 Indexable insert drill	
Kyocera	
F公司 Comp.F	



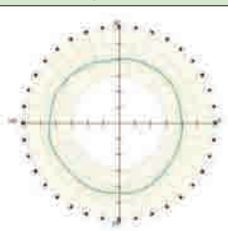
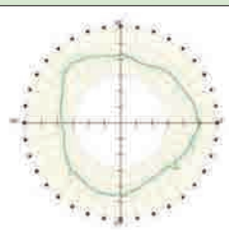
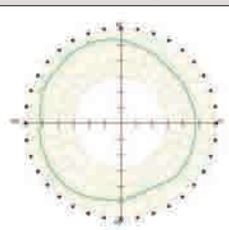
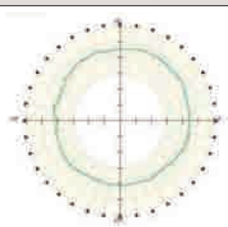
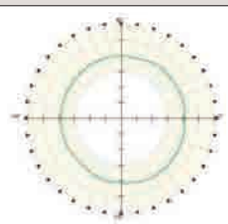
2) 同超硬整体钻头的比较
2) Comparison of carbide solid drill

刀头可换式钻头 Indexable insert drill	超硬整体钻头 Carbide Solid Drill
Kyocera	C公司 Comp.C
	B公司 Comp.B
	N公司 Comp.N

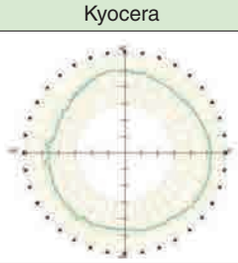
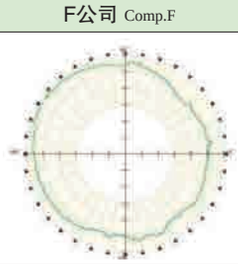
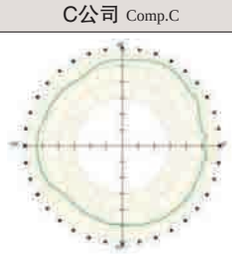
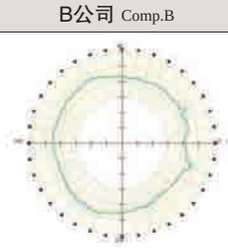
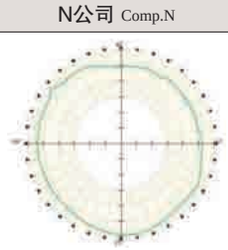


●真圆度 Roundness

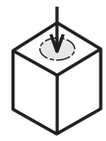
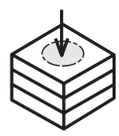
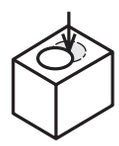
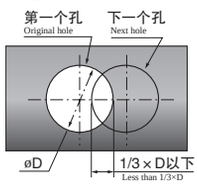
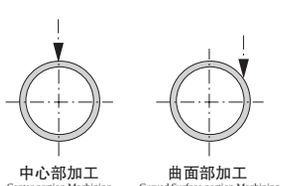
1)真圆度(f=0.2mm/rev) 1) Roundness (f=0.2mm/rev)

刀头可换式钻头 Indexable insert drill		超硬整体钻头 Carbide Solid Drill		
Kyocera	F公司 Comp.F	C公司 Comp.C	B公司 Comp.B	N公司 Comp.N
				
真圆度 (Roundness)： 5.5μm	真圆度 (Roundness)： 22.5μm	真圆度 (Roundness)： 9.8μm	真圆度 (Roundness)： 6.4μm	真圆度 (Roundness)： 5.2μm

2) 真圆度 (f=0.3mm/rev) 2) Roundness (f=0.3mm/rev)

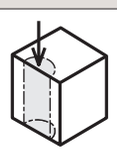
刀头可换式钻头 Indexable insert drill		超硬整体钻头 Carbide Solid Drill		
Kyocera	F公司 Comp.F	C公司 Comp.C	B公司 Comp.B	N公司 Comp.N
				
真圆度 (Roundness)： 10.7μm	真圆度 (Roundness)： 15.2μm	真圆度 (Roundness)： 11.8μm	真圆度 (Roundness)： 12.0μm	真圆度 (Roundness)： 12.3μm

■ 适合工件形状 Applicable workpiece

加工内容 Application	工件形状 Workpiece Shape	加工时的注意事项 Caution for machining	
平面孔 Flat Face		1. 使用SS400等软钢工件进行加工时，由于切屑处理良好，所以不必进行分步加工。 2. 进行SUS304加工时，如果孔深度在2.5D以上，则需要进行分步加工。 3. 为了顺利排出切屑，我们推荐内冷方式。	1.Due to good chip control, step machining is not necessary for soft steel like SS400. 2.When machining SUS304, for hole depths of more than 2.5D, utilize the step machining process. 3.In order to have smooth chip removal, we recommend internal coolant.
重叠板 Stacked Plates		1. 进行固定时请注意，要确保重叠板在加工过程中不发生偏移。	1.Fix stacked plates not to slippage during machining.
连续的半孔 Hole Expansion		1. 如果重叠量小于1/3×D，则可以进行加工。 	1.If the overlap amount is less than 1/3 x D, machining is possible.
凹孔 Concave Surface		1. 由于凹孔加工属于断续加工，因此请将进给设为连续孔加工时的一半以下。	1.Concave surface holes are machined intermittently, so please set the feed rate at half or less of continuous hole machining.
管材外孔 Pipe Material		1. 可以在管材的中线上钻孔。 2. 不推荐进行曲面部分的加工。 	1.Hole machining above the centerline of the pipe is possible. 2.Do not machine on curved surface areas.

■ 不推荐的工件形状 Not recommended workpieces

加工内容 Application	工件形状 Workpiece Shape
斜孔 Slanted Surface	

加工内容 Application	工件形状 Workpiece Shape
半圆孔 Half Cylindrical	

加工内容 Application	工件形状 Workpiece Shape
有底孔的 Cored Hole	

切削工具相关咨询
400-650-6400-5
●受理时间 8:45–11:45・12:45–17:30
●周六、日以及法定节假日期间不受理业务。

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