

**マジックドリル**

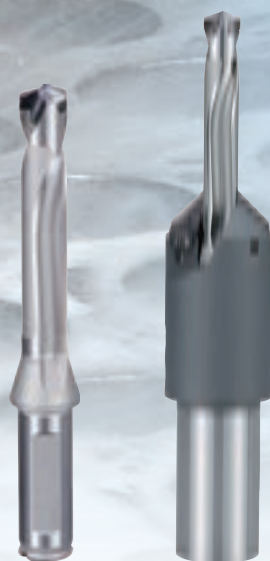
# DRC型

**MagicDrill DRC type****高性能モジュラードリル**

High efficiency drill module

**高能率**  
High efficiency**高送り**  
High feed rate**高信頼性**  
High reliability**高品位**  
High quality**加工径拡大**  
Cutting diameter expanded**SS-DRC型**  
(ストレートシャンク型)  
Straight Shank**加工径  $\phi 7.94 \sim \phi 25.50$** Machining diameter  $\phi 7.94 \sim \phi 25.50$ **加工深さ 3D・5D・8D**

Machining depth 3D, 5D, 8D

**SF-DRC型**  
(フランジ型)  
Flanged Shank**面取りアタッチメント**  
Chamfering attachment  
(SS-DRC型用)  
for SS-DRC**ADVANCING PRODUCTIVITY**

生産性向上に貢献する京セラ

# マジックドリルDRC型は4つの 高速、高送りを可能にし、生産性向

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

## 1. セルフクランピング構造

### Self-Clamping design

- 簡単・確実なセルフクランピング構造によりクランプ剛性と耐久性が飛躍的に向上。

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.

- マシン上で簡単刃先交換。

Easy replacement is possible on the machine.

直線切れ刃と安定性の高いコーナ  
Straight cutting edge and stable corner edge

チップ  
Insert

拘束安定  
Binding stability



## 3. マルチヘリカルアングル構造

### Multiple Helical Angle Flute design

- 本体の強度アップと切りくず排出をスムーズにしています。

Provides superior drill body stiffness and chip evacuation

## 4. ダイレクトクーリング構造

### Direct Cooling design

- チップのすくい面に直接クーラントが供給され、ドリル先端の冷却と切りくずの溶着防止、速やかな切りくず排出を実現します。

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.



# 独創的な特長により、 上、加工コスト低減を実現します。

cost by high speed and high feed rate machining.

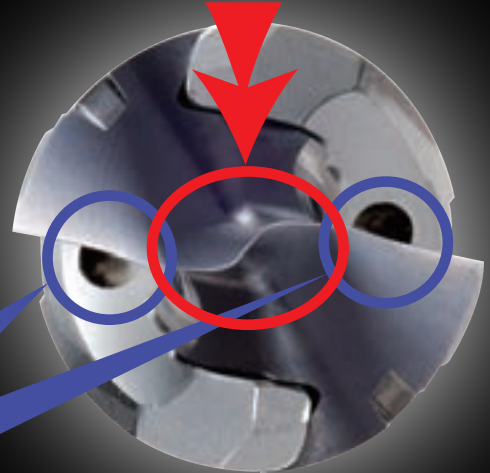
## 2.セルフセンタリング構造

### Self-Centering design

- セルフセンタリング構造のS字曲線刃先形状は、スムーズな食いつき、低い切削抵抗、良好な穴側面品位を実現します。

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.

セルフセンタリング構造  
Self-Centering design



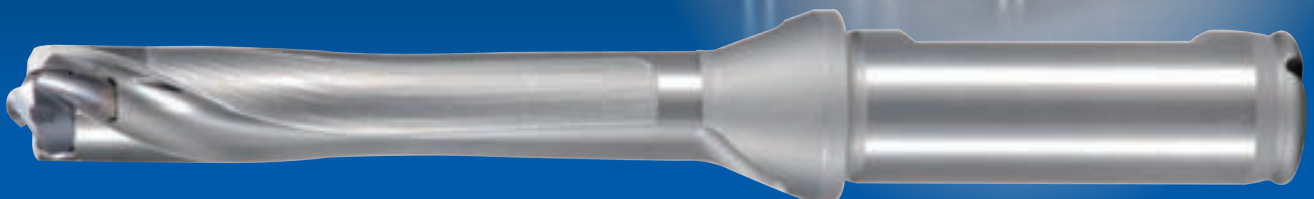
クーラント穴  
Coolant hole



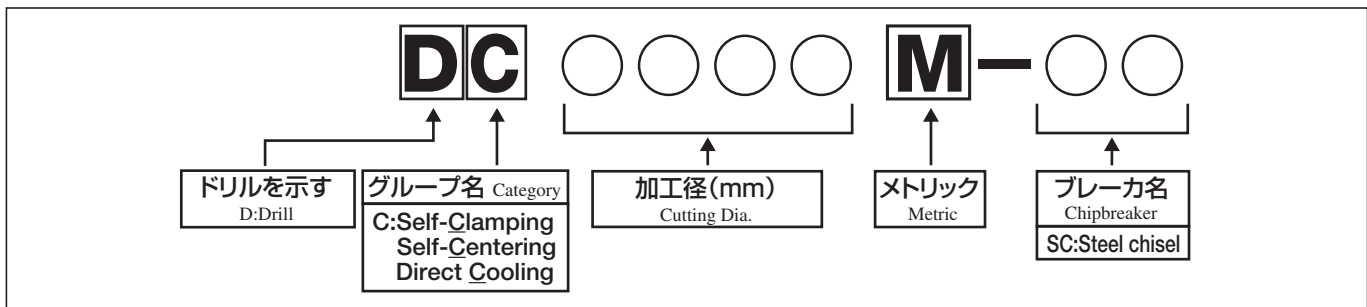
フラットカットが付いたフランジ  
付タイプ、面取りアタッチメントが  
ラインナップ追加。

旋盤、M/Cなど多様なマシンに  
対応が可能になりました。

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.



## ■型番の表示方法(チップ) Description Identification System (Inserts)

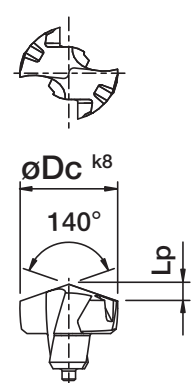


## ■ドリル用チップ Drilling Inserts

### ●チップ材種 PR0315 Insert grade PR0315

PR0315は強靱性超微粒子超硬にTiAlNコーティングされた、耐摩耗性・耐欠損性共に優れたチップ材種です。炭素鋼・合金鋼～鉄鋼等の幅広い被削材に適応し、安定加工を可能にします。

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.

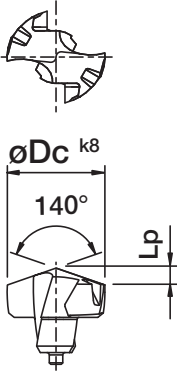
| 形状<br>Shape                                                                                                                                                            | 型番<br>Description | 寸法(mm)<br>Dimensions(mm) |      | PVDコーティング<br>PVD Coated | 適合ホルダ型番<br>Applicable holder description |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------|------|-------------------------|------------------------------------------|
|                                                                                                                                                                        |                   | φDc                      | Lp   | PR0315                  |                                          |
|   | DC 0794M-SC       | 7.94                     | 1.44 | ●                       | SS10-DRC080M-○<br>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-○<br>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-○<br>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-○<br>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-○<br>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-○<br>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-○<br>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-○<br>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-○<br>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公差寸法 k8 tolerance

| φDc            | k8(mm)      |
|----------------|-------------|
| 7.94<br>10.00  | +0.022<br>0 |
| 10.10<br>18.00 | +0.027<br>0 |
| 18.10<br>25.50 | +0.033<br>0 |

尚、k8はチップ自体の寸法公差です。加工穴径の寸法公差ではありません。k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the cutting diameter.

# ■ドリル用チップ Drilling Inserts

| 形状<br>Shape                                                                                                                                                            | 型番<br>Description | 寸法(mm)<br>Dimensions(mm) |      | PVDコーティング<br>PVD Coated | 適合ホルダ型番<br>Applicable holder description |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------|------|-------------------------|------------------------------------------|
|                                                                                                                                                                        |                   | φDc                      | Lp   | PR0315                  |                                          |
|   | DC 1250M-SC       | 12.50                    | 2.27 | ●                       | SS14-DRC125M-○<br>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-○<br>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-○<br>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-○<br>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-○<br>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-○<br>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 | ●                       |                                          |
|                                                                                                                                                                        | 1610M-SC          | 16.10                    | 2.93 | ●                       | SS18-DRC160M-○<br>SF20-DRC160M-○         |
|                                                                                                                                                                        | 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-○<br>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-○<br>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 | ●                       |                                          |

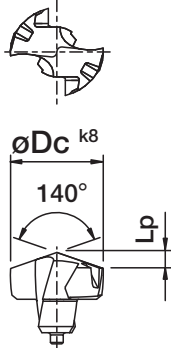
k8公差寸法 k8 tolerance

| φDc              | k8 (mm)     |
|------------------|-------------|
| 7.94<br>} 10.00  | +0.022<br>0 |
| 10.10<br>} 18.00 | +0.027<br>0 |
| 18.10<br>} 25.50 | +0.033<br>0 |

尚、k8はチップ自体の寸法公差です。  
加工穴径の寸法公差ではありません。  
k8 is the dimension tolerance of the insert.  
It is not the dimension tolerance of the cutting diameter.

チップの販売個数は1ケース1個入りです。Insert is sold in 1 piece per 1 box.

●:標準在庫 ●:Std stock

| 形状<br>Shape                                                                                                                                                          | 型番<br>Description | 寸法(mm)<br>Dimensions(mm) |      | PVDコーティング<br>PVD Coated | 適合ホルダ型番<br>Applicable holder description |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------|------|-------------------------|------------------------------------------|
|                                                                                                                                                                      |                   | φDc                      | Lp   | PR0315                  |                                          |
|   | DC 1900M-SC       | 19.00                    | 3.46 | ●                       | SS20-DRC190M-○<br>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-○<br>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 | ●                       |                                          |
|                                                                                                                                                                      | DC 2100M-SC       | 21.00                    | 3.82 | ●                       | SS25-DRC210M-○<br>SF25-DRC210M-○         |
|                                                                                                                                                                      | 2150M-SC          | 21.50                    | 3.91 | ●                       |                                          |
|                                                                                                                                                                      | 2200M-SC          | 22.00                    | 4.00 | ●                       | SS25-DRC220M-○<br>SF25-DRC220M-○         |
|                                                                                                                                                                      | 2250M-SC          | 22.50                    | 4.09 | ●                       |                                          |
|                                                                                                                                                                      | 2300M-SC          | 23.00                    | 4.18 | ●                       | SS25-DRC230M-○<br>SF25-DRC230M-○         |
|                                                                                                                                                                      | 2350M-SC          | 23.50                    | 4.27 | ●                       |                                          |
|                                                                                                                                                                      | 2400M-SC          | 24.00                    | 4.37 | ●                       | SS25-DRC240M-○<br>SF25-DRC240M-○         |
|                                                                                                                                                                      | 2450M-SC          | 24.50                    | 4.46 | ●                       |                                          |
|                                                                                                                                                                      | 2500M-SC          | 25.00                    | 4.55 | ●                       | SS32-DRC250M-○<br>SF25-DRC250M-○         |
|                                                                                                                                                                      | 2550M-SC          | 25.50                    | 4.64 | ●                       |                                          |

| φDc            | k8(mm)      |
|----------------|-------------|
| 7.94<br>10.00  | +0.022<br>0 |
| 10.10<br>18.00 | +0.027<br>0 |
| 18.10<br>25.50 | +0.033<br>0 |

尚、k8はチップ自体の寸法公差です。  
加工穴径の寸法公差ではありません。  
k8 is the dimension tolerance of the insert.  
It is not the dimension tolerance of the cutting diameter.

チップの販売個数は1ケース1個入りです。Insert is sold in 1 piece per 1 box.

●:標準在庫 ●:Std stock

## Q&A

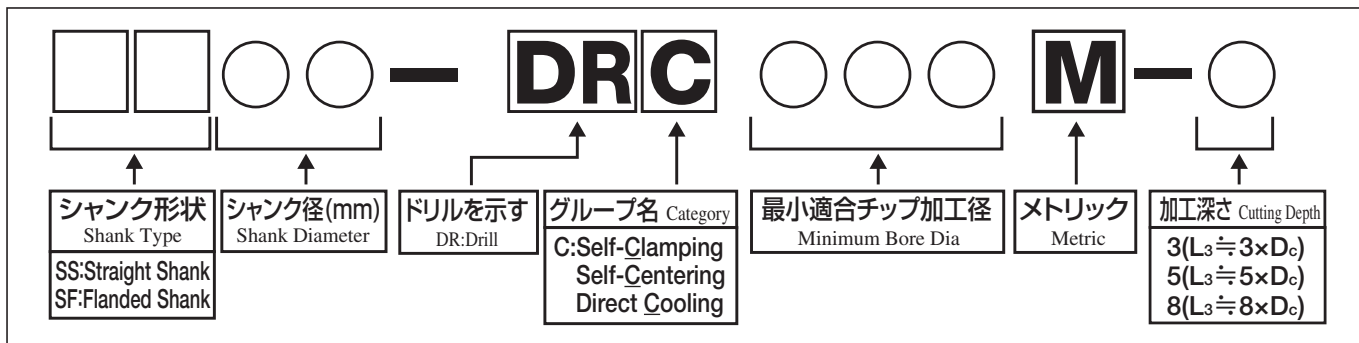
**Q-1** 再研磨は出来ますか？ Is re-grinding available?

**A-1** 推奨致しません。  
チップ先端のチゼル部再成研磨が難しい為です。  
We don't recommend it. Grinding of edge nose chisel is not possible.

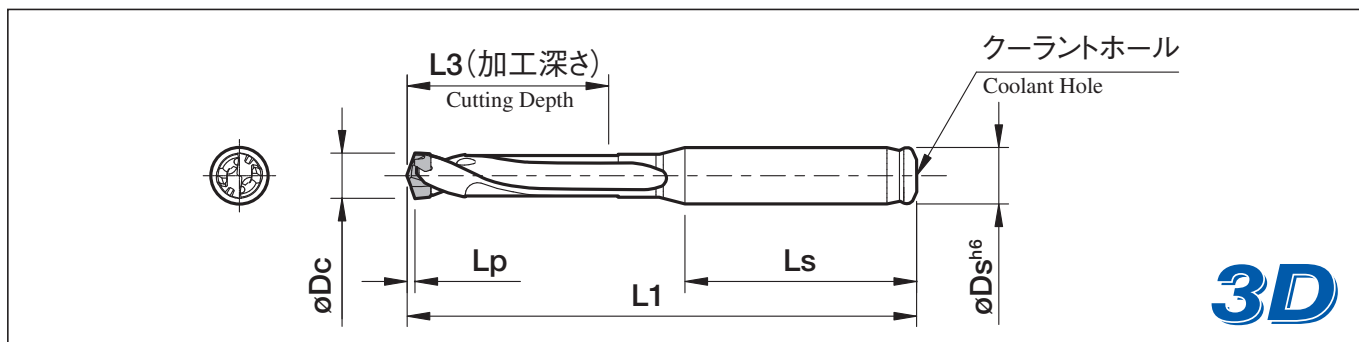
**Q-2** 加工穴はチップ加工径(φDc)に対し、どの程度大きくなりますか？  
How large would the cutting hole be to the insert diameter (φDc)?

**A-2** SCM435の加工で、チップ加工径(φDc)に対し+0.020~+0.040mm程度大きくなります。  
The machining hole with SCM 435, compare to the insert diameter, is about +0.020~+0.040mm.

## 型番の表示方法(ホルダ) Description Identification System (Toolholder Dimension)



## SS-DRC型(加工深さ Cutting Depth: $3 \times D$ )



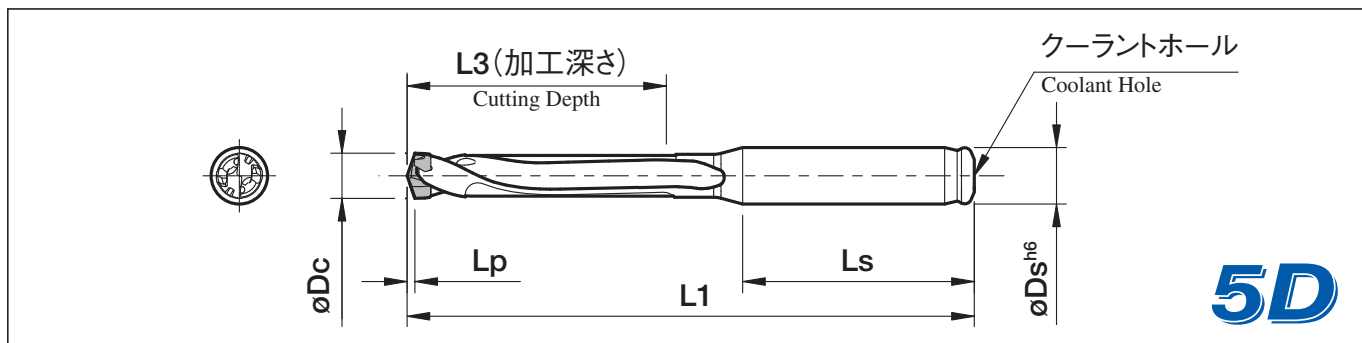
・Lp 寸法はチップ先端からコーナまでの距離を示す P3 ~ P5 参照 Lp indicates distance from drill point to corner edge See P3-P5

## ホルダ寸法 Toolholder Dimension

| 型番<br>Description | 在庫<br>stock | 寸法(mm)<br>Dimensions(mm)                  |       |             |     |      |    | 部品<br>Spare Parts                      | 適合チップ型番<br>Applicable Insert description | 適合面取り型番<br>Applicable chamfering Holder and Insert description |               |
|-------------------|-------------|-------------------------------------------|-------|-------------|-----|------|----|----------------------------------------|------------------------------------------|----------------------------------------------------------------|---------------|
|                   |             | 適合チップサイズ<br>øDc<br>Applicable Insert Dia. |       | øDs<br>(h6) | L1  | L3   | Ls | チップ交換レンチ<br>Wrench<br>P14参照<br>See P14 |                                          | ホルダ<br>Holder                                                  | チップ<br>Insert |
|                   |             | min.                                      | max.  |             |     |      |    |                                        |                                          |                                                                |               |
| SS10- DRC080M-3   | ●           | 7.94                                      | 8.49  | 10          | 79  | 25.5 | 40 | WDRC8<br>(WDRC17)                      | DC0794M-SC~DC0840M-SC                    | S20-CH10                                                       | CT08T2-45A    |
|                   | ●           | 8.50                                      | 8.99  |             | 81  | 27.0 |    |                                        | DC0850M-SC~DC0890M-SC                    |                                                                |               |
|                   | ●           | 9.00                                      | 9.49  |             | 83  | 28.5 |    |                                        | DC0900M-SC~DC0940M-SC                    |                                                                |               |
|                   | ●           | 9.50                                      | 9.99  |             | 85  | 30.0 |    |                                        | DC0950M-SC~DC0990M-SC                    |                                                                |               |
| SS12- DRC100M-3   | ●           | 10.00                                     | 10.49 | 12          | 92  | 31.5 | 45 | WDRC10<br>(WDRC17)                     | DC1000M-SC~DC1040M-SC                    | S32-CH12                                                       | CT12T3-45A    |
|                   | ●           | 10.50                                     | 10.99 |             | 94  | 33.0 |    |                                        | DC1050M-SC~DC1090M-SC                    |                                                                |               |
|                   | ●           | 11.00                                     | 11.49 |             | 96  | 34.5 |    |                                        | DC1100M-SC~DC1140M-SC                    |                                                                |               |
|                   | ●           | 11.50                                     | 11.99 |             | 98  | 36.0 |    |                                        | DC1150M-SC~DC1190M-SC                    |                                                                |               |
| SS14- DRC120M-3   | ●           | 12.00                                     | 12.49 | 14          | 101 | 37.5 | 48 | WDRC12<br>(WDRC17)                     | DC1200M-SC~DC1240M-SC                    | S32-CH14                                                       |               |
|                   | ●           | 12.50                                     | 12.99 |             | 103 | 39.0 |    |                                        | DC1250M-SC~DC1290M-SC                    |                                                                |               |
|                   | ●           | 13.00                                     | 13.49 |             | 105 | 40.5 |    |                                        | DC1300M-SC~DC1340M-SC                    |                                                                |               |
|                   | ●           | 13.50                                     | 13.99 |             | 107 | 42.0 |    |                                        | DC1350M-SC~DC1390M-SC                    |                                                                |               |
| SS16- DRC140M-3   | ●           | 14.00                                     | 14.49 | 16          | 112 | 43.5 | 48 | WDRC14<br>(WDRC17)                     | DC1400M-SC~DC1440M-SC                    | S32-CH16                                                       |               |
|                   | ●           | 14.50                                     | 14.99 |             | 114 | 45.0 |    |                                        | DC1450M-SC~DC1490M-SC                    |                                                                |               |
|                   | ●           | 15.00                                     | 15.99 |             | 118 | 48.0 |    |                                        | DC1500M-SC~DC1580M-SC                    |                                                                |               |
| SS18- DRC160M-3   | ●           | 16.00                                     | 16.99 | 18          | 122 | 51.0 | 50 | WDRC16<br>(WDRC17)                     | DC1600M-SC~DC1690M-SC                    | S32-CH18                                                       |               |
|                   | ●           | 17.00                                     | 17.99 |             | 127 | 54.0 |    |                                        | DC1700M-SC~DC1790M-SC                    |                                                                |               |
| SS20- DRC180M-3   | ●           | 18.00                                     | 18.99 | 20          | 133 | 57.0 | 50 | WDRC17                                 | DC1800M-SC~DC1890M-SC                    | -                                                              | -             |
|                   | ●           | 19.00                                     | 19.99 |             | 137 | 60.0 |    |                                        | DC1900M-SC~DC1990M-SC                    |                                                                |               |
| SS25- DRC200M-3   | ●           | 20.00                                     | 20.99 | 25          | 147 | 63.0 | 56 |                                        | DC2000M-SC~DC2099M-SC                    |                                                                |               |
|                   | ●           | 21.00                                     | 21.99 |             | 151 | 66.0 |    |                                        | DC2100M-SC~DC2150M-SC                    |                                                                |               |
|                   | ●           | 22.00                                     | 22.99 |             | 156 | 69.0 |    |                                        | DC2200M-SC~DC2250M-SC                    |                                                                |               |
|                   | ●           | 23.00                                     | 23.99 |             | 160 | 72.0 |    |                                        | DC2300M-SC~DC2350M-SC                    |                                                                |               |
|                   | ●           | 24.00                                     | 24.99 |             | 164 | 75.0 |    |                                        | DC2400M-SC~DC2450M-SC                    |                                                                |               |
| SS32- DRC250M-3   | ●           | 25.00                                     | 25.50 | 32          | 172 | 78.0 | 60 |                                        | DC2500M-SC~DC2550M-SC                    |                                                                |               |

●:標準在庫 ●:Std stock

# SS-DRC型(加工深さ Cutting Depth: 5×D)



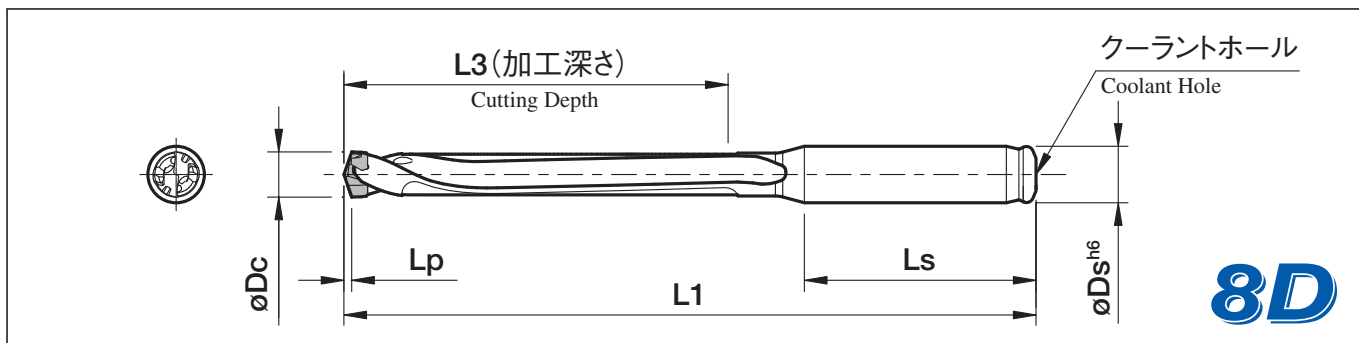
・ Lp 寸法はチップ先端からコーナまでの距離を示す ● P3 ~ P5 参照 Lp indicates distance from drill point to corner edge ● See P3-P5

## ホルダ寸法 Toolholder Dimension

| 型番<br>Description | 在庫<br>stock | 寸法(mm)<br>Dimensions(mm)                  |       |             |     |       |    | 部品<br>Spare Parts                        | 適合チップ型番<br>Applicable Insert description | 適合面取り型番<br>Applicable chamfering Holder and Insert description |               |  |
|-------------------|-------------|-------------------------------------------|-------|-------------|-----|-------|----|------------------------------------------|------------------------------------------|----------------------------------------------------------------|---------------|--|
|                   |             | 適合チップサイズ<br>øDc<br>Applicable Insert Dia. |       | øDs<br>(h6) | L1  | L3    | Ls | チップ交換レンチ<br>Wrench<br>🔩 P14参照<br>See P14 |                                          | ホルダ<br>Holder                                                  | チップ<br>Insert |  |
|                   |             | min.                                      | max.  |             |     |       |    |                                          |                                          |                                                                |               |  |
| SS10- DRC080M-5   | ●           | 7.94                                      | 8.49  | 10          | 97  | 42.5  | 40 | WDRC8<br>(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<br>(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  | 48 | WDRC12<br>(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<br>(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  | 50 |                                          | DC1600M-SC~DC1690M-SC                    | S32-CH18                                                       |               |  |
| DRC170M-5         | ●           | 17.00                                     | 17.99 |             | 165 | 90.0  |    |                                          | DC1700M-SC~DC1790M-SC                    |                                                                |               |  |
| SS20- DRC180M-5   | ●           | 18.00                                     | 18.99 | 20          | 173 | 95.0  | 50 |                                          | 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 | 56 | WDRC17                                   | DC2000M-SC~DC2099M-SC                    |                                                                |               |  |
| DRC210M-5         | ●           | 21.00                                     | 21.99 |             | 198 | 110.0 |    |                                          | DC2100M-SC~DC2150M-SC                    |                                                                |               |  |
| DRC220M-5         | ●           | 22.00                                     | 22.99 |             | 204 | 115.0 |    |                                          | DC2200M-SC~DC2250M-SC                    |                                                                |               |  |
| DRC230M-5         | ●           | 23.00                                     | 23.99 |             | 210 | 120.0 |    |                                          | DC2300M-SC~DC2350M-SC                    |                                                                |               |  |
| DRC240M-5         | ●           | 24.00                                     | 24.99 |             | 216 | 125.0 |    |                                          | DC2400M-SC~DC2450M-SC                    |                                                                |               |  |
| SS32- DRC250M-5   | ●           | 25.00                                     | 25.50 | 32          | 227 | 130.0 | 60 |                                          | DC2500M-SC~DC2550M-SC                    |                                                                |               |  |

●:標準在庫 ●:Std stock

# ■SS-DRC型(加工深さ Cutting Depth:8×D)



・Lp 寸法はチップ先端からコーナまでの距離を示す ● P3 ~ P5 参照 Lp indicates distance from drill point to corner edge ● See P3-P5

## ●ホルダ寸法 Toolholder Dimension

| 型番<br>Description | 在庫<br>stock | 寸法(mm)<br>Dimensions(mm)                  |       |             |       |     |                       | 部品<br>Spare Parts                      | 適合チップ型番<br>Applicable Insert description | 適合面取り型番<br>Applicable chamfering Holder and Insert description |               |
|-------------------|-------------|-------------------------------------------|-------|-------------|-------|-----|-----------------------|----------------------------------------|------------------------------------------|----------------------------------------------------------------|---------------|
|                   |             | 適合チップサイズ<br>øDc<br>Applicable Insert Dia. |       | øDs<br>(h6) | L1    | L3  | Ls                    | チップ交換レンチ<br>Wrench<br>P14参照<br>See P14 |                                          | ホルダ<br>Holder                                                  | チップ<br>Insert |
|                   |             | min.                                      | max.  |             |       |     |                       |                                        |                                          |                                                                |               |
| SS10- DRC080M-8   | ●           | 7.94                                      | 8.49  | 10          | 122.5 | 68  | 40                    | WDRC8<br>(WDRC17)                      | DC0794M-SC~DC0840M-SC                    | S20-CH10                                                       | CT08T2-45A    |
|                   | ●           | 8.50                                      | 8.99  |             | 127.0 | 72  |                       |                                        | DC0850M-SC~DC0890M-SC                    |                                                                |               |
|                   | ●           | 9.00                                      | 9.49  |             | 131.5 | 76  |                       |                                        | DC0900M-SC~DC0940M-SC                    |                                                                |               |
|                   | ●           | 9.50                                      | 9.99  |             | 137.0 | 80  |                       |                                        | DC0950M-SC~DC0990M-SC                    |                                                                |               |
| SS12- DRC100M-8   | ●           | 10.00                                     | 10.49 | 12          | 146.5 | 84  | 45                    | WDRC10<br>(WDRC17)                     | DC1000M-SC~DC1040M-SC                    | S32-CH12                                                       | CT12T3-45A    |
|                   | ●           | 10.50                                     | 10.99 |             | 151.0 | 88  |                       |                                        | DC1050M-SC~DC1090M-SC                    |                                                                |               |
|                   | ●           | 11.00                                     | 11.49 |             | 155.5 | 92  |                       |                                        | DC1100M-SC~DC1140M-SC                    |                                                                |               |
|                   | ●           | 11.50                                     | 11.99 |             | 160.0 | 96  |                       |                                        | DC1150M-SC~DC1190M-SC                    |                                                                |               |
| SS14- DRC120M-8   | ●           | 12.00                                     | 12.49 | 14          | 164.5 | 100 | 48                    | WDRC12<br>(WDRC17)                     | DC1200M-SC~DC1240M-SC                    | S32-CH14                                                       |               |
|                   | ●           | 12.50                                     | 12.99 |             | 169.0 | 104 |                       |                                        | DC1250M-SC~DC1290M-SC                    |                                                                |               |
|                   | ●           | 13.00                                     | 13.49 |             | 173.5 | 108 |                       |                                        | DC1300M-SC~DC1340M-SC                    |                                                                |               |
|                   | ●           | 13.50                                     | 13.99 |             | 179.0 | 112 |                       |                                        | DC1350M-SC~DC1390M-SC                    |                                                                |               |
| SS16- DRC140M-8   | ●           | 14.00                                     | 14.49 | 16          | 186.5 | 116 | 50                    | WDRC14<br>(WDRC17)                     | DC1400M-SC~DC1440M-SC                    | S32-CH16                                                       |               |
|                   | ●           | 14.50                                     | 14.99 |             | 191.0 | 120 |                       |                                        | DC1450M-SC~DC1490M-SC                    |                                                                |               |
|                   | ●           | 15.00                                     | 15.99 |             | 200.0 | 128 |                       |                                        | DC1500M-SC~DC1580M-SC                    |                                                                |               |
| SS18- DRC160M-8   | ●           | 16.00                                     | 16.99 | 18          | 209.0 | 136 |                       | 56                                     | WDRC17                                   | DC1600M-SC~DC1690M-SC                                          |               |
|                   | ●           | 17.00                                     | 17.99 |             | 219.0 | 144 | DC1700M-SC~DC1790M-SC |                                        |                                          |                                                                |               |
| SS20- DRC180M-8   | ●           | 18.00                                     | 18.99 | 20          | 230.0 | 152 | 60                    | WDRC17                                 | DC1800M-SC~DC1890M-SC                    |                                                                |               |
|                   | ●           | 19.00                                     | 19.99 |             | 239.0 | 160 |                       |                                        | DC1900M-SC~DC1990M-SC                    |                                                                |               |
| SS25- DRC200M-8   | ●           | 20.00                                     | 20.99 | 25          | 254.0 | 168 | 60                    | WDRC17                                 | DC2000M-SC~DC2099M-SC                    |                                                                |               |
|                   | ●           | 21.00                                     | 21.99 |             | 264.0 | 176 |                       |                                        | DC2100M-SC~DC2150M-SC                    |                                                                |               |
|                   | ●           | 22.00                                     | 22.99 |             | 273.0 | 184 |                       |                                        | DC2200M-SC~DC2250M-SC                    |                                                                |               |
|                   | ●           | 23.00                                     | 23.99 |             | 282.0 | 192 |                       |                                        | DC2300M-SC~DC2350M-SC                    |                                                                |               |
|                   | ●           | 24.00                                     | 24.99 |             | 291.0 | 200 |                       |                                        | DC2400M-SC~DC2450M-SC                    |                                                                |               |
| SS32- DRC250M-8   | ●           | 25.00                                     | 25.50 | 32          | 305.0 | 208 | 60                    | WDRC17                                 | DC2500M-SC~DC2550M-SC                    |                                                                |               |

●:標準在庫 ●:Std stock

●穴あけ・面取り同時加工 Drilling and chamfering in parallel

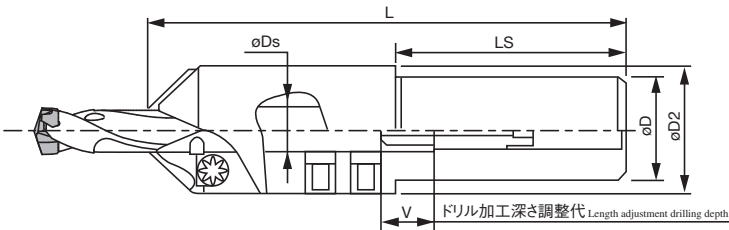
SS-DRC型は、面取りアタッチメント使用により穴あけ・面取り同時加工が可能になります。

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



面取りアタッチメントの詳細はP9～P10をご覧ください。  
Please refer to pages 9 and 10 for details on the chamfering attachment

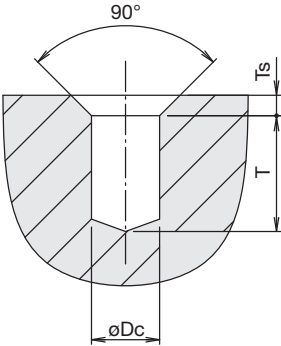
●ホルダ Toolholder



| 型番<br>Description | 在庫<br>stock | 適合シャंक径<br>$\phi D_s$<br>Applicable Drill Dia. | 寸法(mm)<br>Dimensions(mm) |            |     |    |    | 適合チップ<br>Applicable insert |
|-------------------|-------------|------------------------------------------------|--------------------------|------------|-----|----|----|----------------------------|
|                   |             |                                                | $\phi D$                 | $\phi D_2$ | 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 |                            |

注) 面取りアタッチメントはストレートシャंकSS-DRC型専用です。      Note) Chamfering attachment is dedicated for Straight Shank SS-DRC type.      ●:標準在庫 ●:Std stock  
フランジ付シャंकSF-DRC型には、ご使用出来ません。      It cannot be used for Flanged Shank SF-DRC type.

●ドリル加工深さ・面取り寸法 Drilling depth and chamfering length



| 加工径(mm)<br>Cutting Dia. |        | ドリル加工深さ(mm)<br>Drilling depth |      |          |      |          |      | 面取り寸法(mm)<br>Chamfering dimension |         | 適合面取りホルダ<br>Applicable toolholder |
|-------------------------|--------|-------------------------------|------|----------|------|----------|------|-----------------------------------|---------|-----------------------------------|
| φDc                     |        | T(3Dドリル)                      |      | T(5Dドリル) |      | T(8Dドリル) |      | Ts                                |         |                                   |
| min.                    | max.   | min.                          | max. | min.     | max. | min.     | max. | Ts 100                            | Ts max. |                                   |
| φ7.94                   | φ8.49  | 11                            | 19   | 21       | 37   | 47       | 63   | 2.5                               | 5.0     | S20-CH10                          |
| φ8.50                   | φ8.99  | 12                            | 21   | 24       | 40   | 51       | 67   |                                   |         |                                   |
| φ9.00                   | φ9.49  | 12                            | 23   | 27       | 43   | 56       | 72   |                                   |         |                                   |
| φ9.50                   | φ9.99  | 13                            | 25   | 31       | 47   | 61       | 77   |                                   |         |                                   |
| φ10.00                  | φ10.49 | 13                            | 26   | 28       | 49   | 60       | 81   | 3.5                               | 7.0     | S32-CH12                          |
| φ10.50                  | φ10.99 | 14                            | 28   | 31       | 52   | 64       | 85   |                                   |         |                                   |
| φ11.00                  | φ11.49 | 14                            | 30   | 34       | 55   | 69       | 90   |                                   |         |                                   |
| φ11.50                  | φ11.99 | 15                            | 32   | 37       | 58   | 73       | 94   |                                   |         |                                   |
| φ12.00                  | φ12.49 | 15                            | 30   | 41       | 56   | 79       | 94   | 4.0                               | 8.0     | S32-CH14                          |
| φ12.50                  | φ12.99 | 17                            | 32   | 44       | 59   | 83       | 96   |                                   |         |                                   |
| φ13.00                  | φ13.49 | 19                            | 34   | 47       | 62   | 88       | 103  |                                   |         |                                   |
| φ13.50                  | φ13.99 | 21                            | 36   | 51       | 66   | 93       | 108  |                                   |         |                                   |
| φ14.00                  | φ14.49 | 19                            | 37   | 50       | 68   | 94       | 112  | 4.0                               | 8.0     | S32-CH16                          |
| φ14.50                  | φ14.99 | 21                            | 39   | 53       | 71   | 98       | 116  |                                   |         |                                   |
| φ15.00                  | φ15.99 | 25                            | 43   | 59       | 77   | 107      | 125  |                                   |         |                                   |
| φ16.00                  | φ16.99 | 30                            | 44   | 66       | 80   | 117      | 131  |                                   |         |                                   |
| φ17.00                  | φ17.99 | 35                            | 49   | 73       | 87   | 127      | 141  | 4.0                               | 8.0     | S32-CH18                          |

Ts 100:送り最大の場合の最大面取り長さ      Ts 100:Max chamfering dimension at the full feed.  
Ts max.:送り50%ダウンした場合の最大面取り長さ      Ts max.:Max chamfering dimension at a 50% feed reduction.  
(それぞれ、ノンステップで加工可能な最大面取り長さ)      (Maximum chamfering length by non step machining)

## ●適合チップ Applicable insert

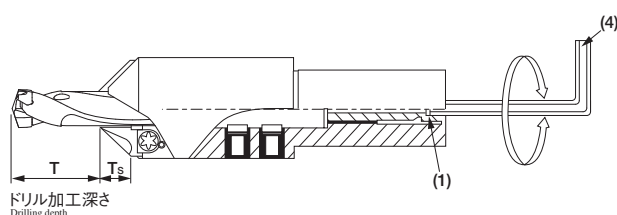
| 形状<br>Shape                                                                       | 型番<br>Description | 寸法(mm)<br>Dimensions(mm) |      | PVDコーティング<br>PVD Coated | 適合面取りホルダ<br>Applicable toolholder |
|-----------------------------------------------------------------------------------|-------------------|--------------------------|------|-------------------------|-----------------------------------|
|                                                                                   |                   | W1                       | T    | PR0315                  |                                   |
|  | CT08T2-45A        | 8                        | 2.83 | ●                       | S20-CH10                          |
|                                                                                   | CT12T3-45A        | 12                       | 3.98 | ●                       | S32-CH12<br>S32-CH18              |

チップの販売個数は1ケース10個入りです。Inserts are sold in 10 piece per 1 box.

●:標準在庫 ●:Std stock

## ●取付け方法 Method to use DRC chamfering attachment

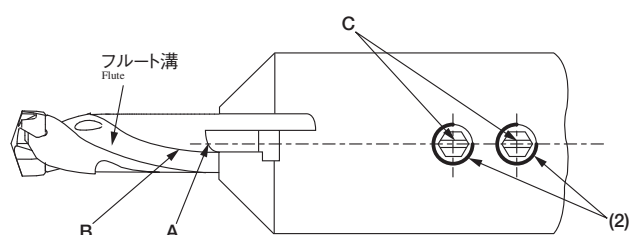
### 1.ドリル加工深さ調整 Drilling depth adjustment



- ドリルを面取りアタッチメント本体に挿入。
- その後、面取りチップAを仮止める。
- 調整ねじ(1)を六角レンチ(4)で回し、ドリル加工深さTを調整する。

- 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.

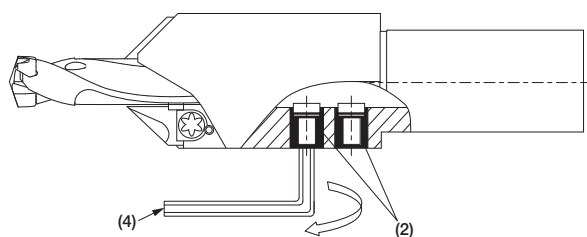
### 2.ドリルのセット位置確認 Drill location check



- 面取りチップAがドリルの二番取り面Bに重なる位置までドリルを手で回す。
- ドリル固定ねじ(2)に組み込まれている押さえ金具の溝Cが、上図のように中心線と一直線に並ぶようにセットされていることを確認する。

- 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.

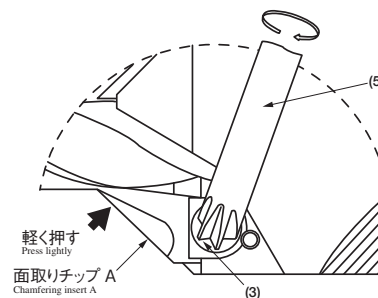
### 3.ドリルの固定 Fix the drill



- ドリル固定ねじ(2)を、六角レンチ(4)で締付ける。  
(トルクレンチをご使用の際は、下表の締付トルクをご参照ください。)

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

### 4.面取りチップの取付け Installation of the chamfering insert



- 面取りチップAをドリルに軽く押し付け、チップ取付けねじ(3)をレンチ(5)で固定する。

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

| 面取りアタッチメント<br>Chamfering attachment | 締付トルク<br>Torque [Nm] | 調整ねじ(1)<br>Adjusting screw | ドリル固定ねじ(2)<br>Drill fitting screw | チップ取付けねじ(3)<br>Insert mounting screw | 六角レンチ(4)<br>Hexagon wrench | レンチ(5)<br>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                                 | LW-4                       | DT-15            |
| S32-CH14                            | 20                   | AJ-10×46                   | FS-14                             |                                      | LW-5                       |                  |
| S32-CH16                            | 30                   |                            | FS-16                             |                                      |                            |                  |
| S32-CH18                            | 45                   |                            | FS-18                             |                                      |                            |                  |

■SF-DRC型(加工深さ Cutting Depth:3×D)



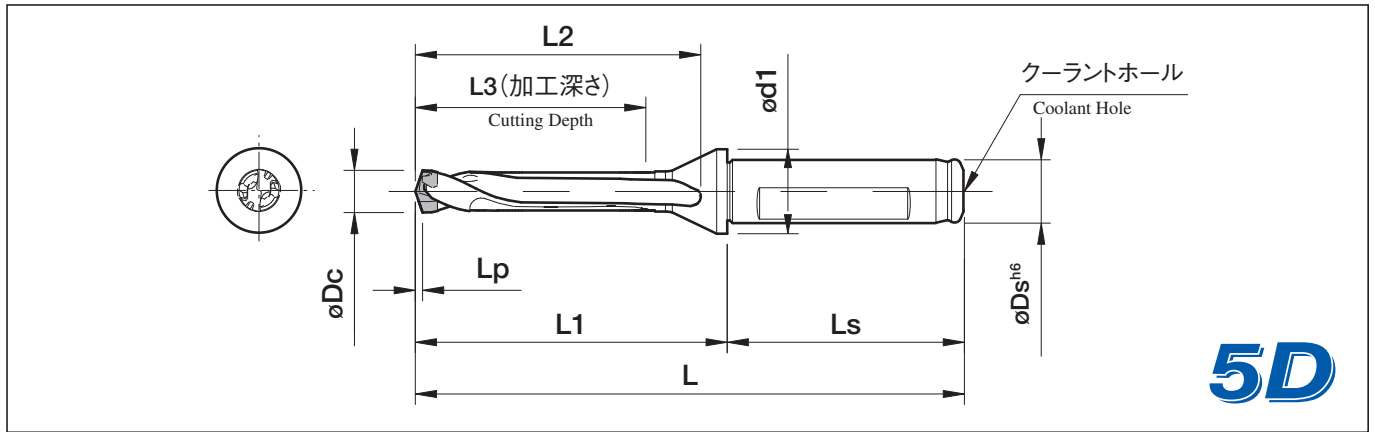
・ Lp 寸法はチップ先端からコーナまでの距離を示す ● P3 ~ P5 参照 Lp indicates distance from drill point to corner edge ● See P3-P5

## ●ホルダ寸法 Toolholder Dimension

| 型番<br>Description | 在庫<br>stock | 寸法(mm)<br>Dimensions(mm)                  |       |             |     |     |     |    |    |     | 部品<br>Spare Parts                      | 適合チップ<br>Applicable insert |                       |
|-------------------|-------------|-------------------------------------------|-------|-------------|-----|-----|-----|----|----|-----|----------------------------------------|----------------------------|-----------------------|
|                   |             | 適合チップサイズ<br>φDc<br>Applicable Insert Dia. |       | φDs<br>(h6) | L   | L1  | L2  | L3 | Ls | φd1 | チップ交換レンチ<br>Wrench<br>P14参照<br>See P14 |                            |                       |
|                   |             | min.                                      | max.  |             |     |     |     |    |    |     |                                        |                            |                       |
| SF12- DRC080M-3   | ●           | 7.94                                      | 8.49  | 12          | 86  | 41  | 35  | 26 | 45 | 16  | WDRC8<br>(WDRC17)                      | DC0794M-SC~DC0840M-SC      |                       |
|                   | ●           | 8.50                                      | 8.99  |             | 88  | 43  | 37  | 27 |    |     |                                        | DC0850M-SC~DC0890M-SC      |                       |
|                   | ●           | 9.00                                      | 9.49  |             | 90  | 45  | 39  | 29 |    |     |                                        | DC0900M-SC~DC0940M-SC      |                       |
|                   | ●           | 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<br>(WDRC17)                     | DC1000M-SC~DC1040M-SC      |                       |
|                   | ●           | 10.50                                     | 10.99 |             | 99  | 51  | 45  | 33 |    |     |                                        | DC1050M-SC~DC1090M-SC      |                       |
|                   | ●           | 11.00                                     | 11.49 |             | 101 | 53  | 47  | 35 |    |     |                                        | DC1100M-SC~DC1140M-SC      |                       |
|                   | ●           | 11.50                                     | 11.99 |             | 103 | 55  | 49  | 36 |    |     |                                        | DC1150M-SC~DC1190M-SC      |                       |
|                   | ●           | 12.00                                     | 12.49 |             | 106 | 58  | 52  | 38 |    |     | WDRC12<br>(WDRC17)                     | DC1200M-SC~DC1240M-SC      |                       |
|                   | ●           | 12.50                                     | 12.99 |             | 108 | 60  | 54  | 39 |    |     |                                        | DC1250M-SC~DC1290M-SC      |                       |
|                   | ●           | 13.00                                     | 13.49 |             | 110 | 62  | 56  | 41 |    |     |                                        | DC1300M-SC~DC1340M-SC      |                       |
|                   | ●           | 13.50                                     | 13.99 |             | 112 | 64  | 58  | 42 |    |     |                                        | DC1350M-SC~DC1390M-SC      |                       |
|                   | ●           | 14.00                                     | 14.49 |             | 114 | 66  | 60  | 44 |    |     |                                        | WDRC14<br>(WDRC17)         | DC1400M-SC~DC1440M-SC |
|                   | ●           | 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  | WDRC14<br>(WDRC17)                     | DC1500M-SC~DC1580M-SC      |                       |
|                   | ●           | 16.00                                     | 16.99 |             | 126 | 76  | 70  | 51 |    |     |                                        | DC1600M-SC~DC1690M-SC      |                       |
|                   | ●           | 17.00                                     | 17.99 |             | 131 | 81  | 75  | 54 |    |     |                                        | DC1700M-SC~DC1790M-SC      |                       |
| SF25- DRC180M-3   | ●           | 18.00                                     | 18.99 | 25          | 141 | 85  | 79  | 57 | 56 | 32  | WDRC17                                 | DC1800M-SC~DC1890M-SC      |                       |
|                   | ●           | 19.00                                     | 19.99 |             | 145 | 89  | 83  | 60 |    |     |                                        | DC1900M-SC~DC1990M-SC      |                       |
|                   | ●           | 20.00                                     | 20.99 |             | 149 | 93  | 87  | 63 |    |     |                                        | DC2000M-SC~DC2099M-SC      |                       |
|                   | ●           | 21.00                                     | 21.99 |             | 153 | 97  | 91  | 66 |    |     |                                        | DC2100M-SC~DC2150M-SC      |                       |
|                   | ●           | 22.00                                     | 22.99 |             | 158 | 102 | 96  | 69 |    |     |                                        | DC2200M-SC~DC2250M-SC      |                       |
|                   | ●           | 23.00                                     | 23.99 |             | 162 | 106 | 100 | 72 |    |     |                                        | DC2300M-SC~DC2350M-SC      |                       |
|                   | ●           | 24.00                                     | 24.99 |             | 166 | 110 | 104 | 75 |    |     |                                        | DC2400M-SC~DC2450M-SC      |                       |
|                   | ●           | 25.00                                     | 25.50 |             | 170 | 114 | 108 | 78 |    |     |                                        | DC2500M-SC~DC2550M-SC      |                       |

●:標準在庫 ●:Std stock

# SF-DRC型(加工深さ Cutting Depth: 5×D)



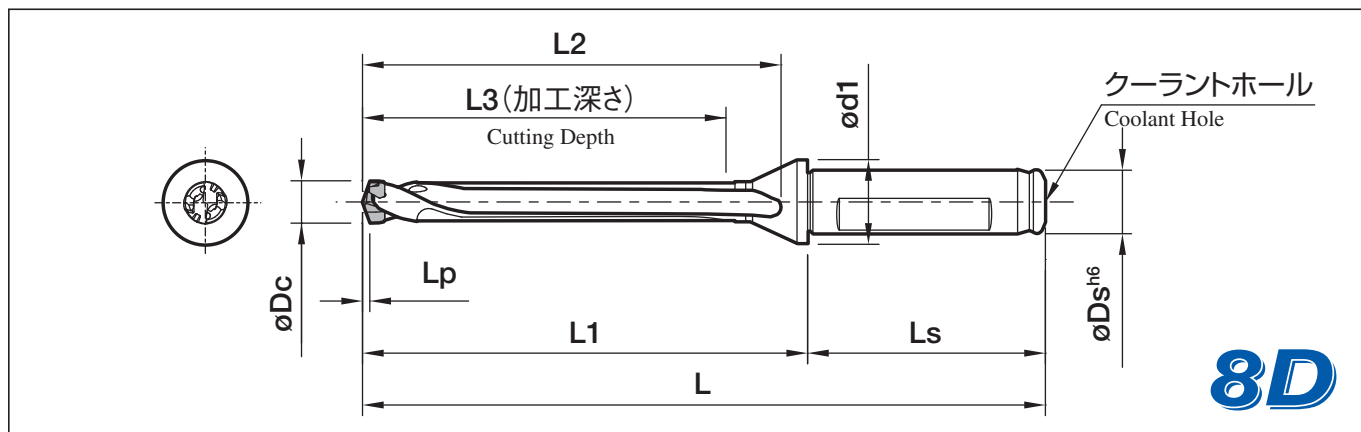
・ Lp 寸法はチップ先端からコーナまでの距離を示す ● P3 ~ P5 参照 Lp indicates distance from drill point to corner edge ● See P3-P5

## ●ホルダ寸法 Toolholder Dimension

| 型番<br>Description | 在庫<br>stock     | 寸法(mm)<br>Dimensions(mm)                  |       |             |       |     |     |     |                       | 部品<br>Spare Parts |                                        | 適合チップ<br>Applicable insert |    |    |    |        |                       |
|-------------------|-----------------|-------------------------------------------|-------|-------------|-------|-----|-----|-----|-----------------------|-------------------|----------------------------------------|----------------------------|----|----|----|--------|-----------------------|
|                   |                 | 適合チップサイズ<br>øDc<br>Applicable Insert Dia. |       | øDs<br>(h6) | L     | L1  | L2  | L3  | Ls                    | ød1               | チップ交換レンチ<br>Wrench<br>P14参照<br>See P14 |                            |    |    |    |        |                       |
|                   |                 | min.                                      | max.  |             |       |     |     |     |                       |                   |                                        |                            |    |    |    |        |                       |
| SF12- DRC080M-5   | ●               | 7.94                                      | 8.49  | 12          | 104   | 59  | 53  | 43  | 45                    | 16                | WDRC8<br>(WDRC17)                      | DC0794M-SC~DC0840M-SC      |    |    |    |        |                       |
|                   | ●               | 8.50                                      | 8.99  |             | 107   | 62  | 56  | 45  |                       |                   |                                        | DC0850M-SC~DC0890M-SC      |    |    |    |        |                       |
|                   | ●               | 9.00                                      | 9.49  |             | 110   | 65  | 59  | 48  |                       |                   |                                        | DC0900M-SC~DC0940M-SC      |    |    |    |        |                       |
|                   | ●               | 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<br>(WDRC17)                     | DC1000M-SC~DC1040M-SC      |    |    |    |        |                       |
|                   | ●               | 10.50                                     | 10.99 |             | 123   | 75  | 69  | 55  |                       |                   |                                        | DC1050M-SC~DC1090M-SC      |    |    |    |        |                       |
|                   | ●               | 11.00                                     | 11.49 |             | 126   | 78  | 72  | 58  |                       |                   |                                        | DC1100M-SC~DC1140M-SC      |    |    |    |        |                       |
|                   | ●               | 11.50                                     | 11.99 |             | 129   | 81  | 75  | 60  |                       |                   |                                        | DC1150M-SC~DC1190M-SC      |    |    |    |        |                       |
|                   | ●               | 12.00                                     | 12.49 |             | 132   | 84  | 78  | 63  |                       |                   | WDRC12<br>(WDRC17)                     | DC1200M-SC~DC1240M-SC      |    |    |    |        |                       |
|                   | ●               | 12.50                                     | 12.99 |             | 135   | 87  | 81  | 65  |                       |                   |                                        | DC1250M-SC~DC1290M-SC      |    |    |    |        |                       |
|                   | ●               | 13.00                                     | 13.49 |             | 138   | 90  | 84  | 68  |                       |                   |                                        | DC1300M-SC~DC1340M-SC      |    |    |    |        |                       |
|                   | ●               | 13.50                                     | 13.99 |             | 142   | 94  | 88  | 70  |                       |                   |                                        | DC1350M-SC~DC1390M-SC      |    |    |    |        |                       |
|                   | ●               | 14.00                                     | 14.49 |             | 145   | 97  | 91  | 73  |                       |                   | WDRC14<br>(WDRC17)                     | DC1400M-SC~DC1440M-SC      |    |    |    |        |                       |
|                   | ●               | 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 | WDRC17 | DC1500M-SC~DC1580M-SC |
|                   |                 | ●                                         | 16.00 |             | 16.99 |     | 162 | 112 |                       |                   |                                        | 106                        | 85 |    |    |        | DC1600M-SC~DC1690M-SC |
| ●                 |                 | 17.00                                     | 17.99 | 169         | 119   |     | 113 | 90  | DC1700M-SC~DC1790M-SC |                   |                                        |                            |    |    |    |        |                       |
| SF25- DRC180M-5   | ●               | 18.00                                     | 18.99 | 25          | 181   | 125 | 119 | 95  | 56                    | 32                | WDRC17                                 | DC1800M-SC~DC1890M-SC      |    |    |    |        |                       |
|                   | ●               | 19.00                                     | 19.99 |             | 187   | 131 | 125 | 100 |                       |                   |                                        | DC1900M-SC~DC1990M-SC      |    |    |    |        |                       |
|                   | ●               | 20.00                                     | 20.99 |             | 193   | 137 | 131 | 105 |                       |                   |                                        | DC2000M-SC~DC2099M-SC      |    |    |    |        |                       |
|                   | ●               | 21.00                                     | 21.99 |             | 200   | 144 | 138 | 110 |                       |                   |                                        | DC2100M-SC~DC2150M-SC      |    |    |    |        |                       |
|                   | ●               | 22.00                                     | 22.99 |             | 206   | 150 | 144 | 115 |                       |                   |                                        | DC2200M-SC~DC2250M-SC      |    |    |    |        |                       |
|                   | ●               | 23.00                                     | 23.99 |             | 212   | 156 | 150 | 120 |                       |                   |                                        | DC2300M-SC~DC2350M-SC      |    |    |    |        |                       |
|                   | ●               | 24.00                                     | 24.99 |             | 218   | 162 | 156 | 125 |                       |                   |                                        | DC2400M-SC~DC2450M-SC      |    |    |    |        |                       |
|                   | ●               | 25.00                                     | 25.50 |             | 225   | 169 | 163 | 130 |                       |                   |                                        | DC2500M-SC~DC2550M-SC      |    |    |    |        |                       |

●:標準在庫 ●:Std stock

# SF-DRC型(加工深さ Cutting Depth: 8×D)



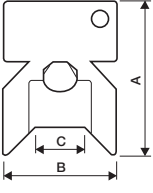
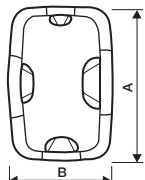
・ Lp 寸法はチップ先端からコーナまでの距離を示す ● P3 ~ P5 参照 Lp indicates distance from drill point to corner edge ● See P3-P5

## ●ホルダ寸法 Toolholder Dimension

| 型番<br>Description | 在庫<br>stock | 寸法(mm)<br>Dimensions(mm)                  |       |             |     |     |     |     |    |     | 部品<br>Spare Parts                      |                       | 適合チップ<br>Applicable insert |
|-------------------|-------------|-------------------------------------------|-------|-------------|-----|-----|-----|-----|----|-----|----------------------------------------|-----------------------|----------------------------|
|                   |             | 適合チップサイズ<br>øDc<br>Applicable Insert Dia. |       | øDs<br>(h6) | L   | L1  | L2  | L3  | Ls | ød1 | チップ交換レンチ<br>Wrench<br>P14参照<br>See P14 |                       |                            |
|                   |             | min.                                      | max.  |             |     |     |     |     |    |     |                                        |                       |                            |
| SF12- DRC080M-8   | ●           | 7.94                                      | 8.49  | 12          | 129 | 84  | 79  | 68  | 45 | 16  | WDRC8<br>(WDRC17)                      | DC0794M-SC~DC0840M-SC |                            |
|                   | ●           | 8.50                                      | 8.99  |             | 134 | 89  | 83  | 72  |    |     |                                        | DC0850M-SC~DC0890M-SC |                            |
|                   | ●           | 9.00                                      | 9.49  |             | 138 | 93  | 88  | 76  |    |     |                                        | DC0900M-SC~DC0940M-SC |                            |
|                   | ●           | 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<br>(WDRC17)                     | DC1000M-SC~DC1040M-SC |                            |
|                   | ●           | 10.50                                     | 10.99 |             | 156 | 108 | 102 | 88  |    |     |                                        | DC1050M-SC~DC1090M-SC |                            |
|                   | ●           | 11.00                                     | 11.49 |             | 160 | 112 | 107 | 92  |    |     |                                        | DC1100M-SC~DC1140M-SC |                            |
|                   | ●           | 11.50                                     | 11.99 |             | 165 | 117 | 111 | 96  |    |     |                                        | DC1150M-SC~DC1190M-SC |                            |
|                   | ●           | 12.00                                     | 12.49 |             | 169 | 121 | 116 | 100 |    |     | WDRC12<br>(WDRC17)                     | DC1200M-SC~DC1240M-SC |                            |
|                   | ●           | 12.50                                     | 12.99 |             | 174 | 126 | 120 | 104 |    |     |                                        | DC1250M-SC~DC1290M-SC |                            |
|                   | ●           | 13.00                                     | 13.49 |             | 178 | 130 | 124 | 108 |    |     |                                        | DC1300M-SC~DC1340M-SC |                            |
|                   | ●           | 13.50                                     | 13.99 |             | 184 | 136 | 130 | 112 |    |     |                                        | DC1350M-SC~DC1390M-SC |                            |
|                   | ●           | 14.00                                     | 14.49 |             | 188 | 140 | 134 | 116 |    |     | WDRC14<br>(WDRC17)                     | DC1400M-SC~DC1440M-SC |                            |
|                   | ●           | 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  | WDRC14<br>(WDRC17)                     | DC1500M-SC~DC1580M-SC |                            |
|                   | ●           | 16.00                                     | 16.99 |             | 213 | 163 | 157 | 136 |    |     |                                        | DC1600M-SC~DC1690M-SC |                            |
|                   | ●           | 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 |                            |
|                   | ●           | 19.00                                     | 19.99 |             | 247 | 191 | 185 | 160 |    |     |                                        | DC1900M-SC~DC1990M-SC |                            |
|                   | ●           | 20.00                                     | 20.99 |             | 256 | 200 | 194 | 168 |    |     |                                        | DC2000M-SC~DC2099M-SC |                            |
|                   | ●           | 21.00                                     | 21.99 |             | 266 | 210 | 204 | 176 |    |     |                                        | DC2100M-SC~DC2150M-SC |                            |
|                   | ●           | 22.00                                     | 22.99 |             | 275 | 219 | 213 | 184 |    |     |                                        | DC2200M-SC~DC2250M-SC |                            |
|                   | ●           | 23.00                                     | 23.99 |             | 284 | 228 | 222 | 192 |    |     |                                        | DC2300M-SC~DC2350M-SC |                            |
|                   | ●           | 24.00                                     | 24.99 |             | 293 | 237 | 231 | 200 |    |     |                                        | DC2400M-SC~DC2450M-SC |                            |
|                   | ●           | 25.00                                     | 25.50 |             | 303 | 247 | 241 | 208 |    |     |                                        | DC2500M-SC~DC2550M-SC |                            |

●:標準在庫 ●:Std stock

## ■ 部品(チップ交換レンチ) Wrench for changing insert

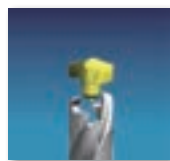
| 形 状<br>Shape                                                                                                                                                        | 型 番<br>Description | 寸法(mm)<br>Dimensions(mm) |    |       | 備 考<br>Remarks                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|----|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                     |                    | A                        | B  | C     |                                                                                                                                                                                                                                                                                                                                                                                   |
|   | WDRC8              | 43                       | 33 | φ10.2 |  <p>この部分に型番が記入されています<br/>Description is printed in this area.</p>                                                                                                                                                                                                                              |
|                                                                                                                                                                     | WDRC10             |                          |    | φ12.2 |                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                     | WDRC12             |                          |    | φ14.2 |                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                     | WDRC14             |                          |    | φ17.2 |                                                                                                                                                                                                                                                                                                                                                                                   |
|   | WDRC17             | 77                       | 52 | -     | <p>・WDRC17(マルチタイプレンチ)には4ヶ所のチップ差込口があります。ご使用チップがDC1700M-SC~DC2099M-SCの場合、『φ17.00~φ20.99』と印字されたチップ差込口をご使用ください。</p> <p>・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 "φ17.00~φ20.99".</p> <p>・WDRC17はWDRC8~14の代わりとしてご使用出来ます。WDRC17 can be used instead of WDRC8~14 wrench.</p> |

## ■ DRC型マジックドリルのチップ交換方法 Method to change DRC type magicdrill insert

### ● チップ取付方法 How to attach inserts



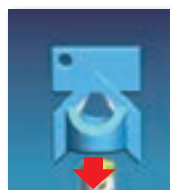
- ① アーバにドリル本体を固定してください。チップの交換は、工作機械にアーバを取付けるか、ツールプリセッタ等に固定して行ってください。
- ② エアを吹きつけてゴミなどを取り除いてください。



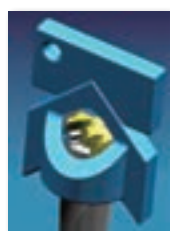
- ③ チップをホルダに差し込んでください。(手袋等の保護具をご使用ください。)



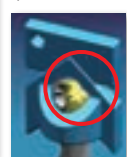
- ④ チップを軽く時計方向に回してください。(手袋等の保護具をご使用ください。)



- ⑤ レンチを差し込みます。



- ⑥ レンチがチップのレンチ用溝に噛み合っていることを確認してください。



(レンチが溝から外れていませんか?)  
(Is the wrench unfixed from the slot?)

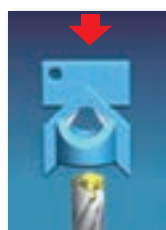


レンチ用溝  
Slot for wrench

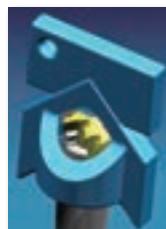


- ⑦ ゆっくりレンチを回してください。
- ⑧ 装着完了。

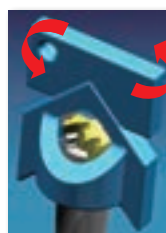
### ● チップ取外方法 How to detach inserts



- ① チップにエアを吹付けて、ゴミなどを取除いてください。
- ② レンチを差し込みます。



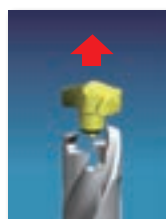
- ③ レンチをチップのレンチ用溝に噛み合わせてください。



- ④ レンチを反時計方向に回してください。



- ⑤ ロックが外れると、チップは指で回ります。(手袋等の保護具をご使用ください。)



- ⑥ チップを抜いてください。(手袋等の保護具をご使用ください。)

## ■推奨切削条件 Recommended Cutting Condition

| 被削材<br>Workpiece Material    |                                | 硬度<br>Hardness<br>(HB) | 切削条件<br>Cutting Condition          |                                               | 加工径 φDc (mm)<br>Cutting Dia.(mm) |               |               |               |               |               |               |               | 備考<br>Remarks              |
|------------------------------|--------------------------------|------------------------|------------------------------------|-----------------------------------------------|----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------------------|
|                              |                                |                        | 切削速度<br>Cutting Speed<br>Vc(m/min) | 回転数(min <sup>-1</sup> )<br>Spindle Revolution | φ8                               | φ10           | φ12           | φ14           | φ16           | φ18           | φ20           | φ25           |                            |
|                              |                                |                        |                                    | 送り(mm/rev)<br>Feed Rate                       |                                  |               |               |               |               |               |               |               |                            |
| 低炭素鋼<br>Low Carbon Steel     | SS400<br>S10C~S25C             | 125                    | 120 - 180                          | 回転数(min <sup>-1</sup> )                       | 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 | 備<br>考<br><br>With Coolant |
|                              |                                |                        |                                    | 送り(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   |                            |
| 炭素鋼<br>Carbon Steel          | S30C~S58C<br>(焼鈍 Annealed)     | 190                    | 100 - 150                          | 回転数(min <sup>-1</sup> )                       | 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 |                            |
|                              |                                |                        |                                    | 送り(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<br>(調質 Heat treated) | 250                    | 80 - 120                           | 回転数(min <sup>-1</sup> )                       | 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 |                            |
|                              |                                |                        |                                    | 送り(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                            | 回転数(min <sup>-1</sup> )                       | 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     |                            |
|                              |                                |                        |                                    | 送り(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   |                            |
| 合金鋼<br>Alloy Steel           | SCM,SCr等<br>(焼鈍 Annealed)      | 180                    | 70 - 95                            | 回転数(min <sup>-1</sup> )                       | 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   |                            |
|                              |                                |                        |                                    | 送り(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<br>(調質 Heat treated)  | 275                    | 70 - 95                            | 回転数(min <sup>-1</sup> )                       | 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   |                            |
|                              |                                |                        |                                    | 送り(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   |                            |
|                              | SCM,SCr等<br>(調質 Heat treated)  | 300                    | 60 - 90                            | 回転数(min <sup>-1</sup> )                       | 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   |                            |
|                              |                                |                        |                                    | 送り(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                            | 回転数(min <sup>-1</sup> )                       | 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     |                            |
|                              |                                |                        |                                    | 送り(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   |                            |
| ステンレス鋼<br>Stainless Steel    | SUS304<br>SUS316               | 220                    | 60 - 80                            | 回転数(min <sup>-1</sup> )                       | 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   |                            |
|                              |                                |                        |                                    | 送り(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                            | 回転数(min <sup>-1</sup> )                       | 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     |                            |
|                              |                                |                        |                                    | 送り(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   |                            |
| ねずみ鋳鉄<br>Gray Cast Iron      | FC150~FC200                    | 180                    | 120 - 170                          | 回転数(min <sup>-1</sup> )                       | 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 |                            |
|                              |                                |                        |                                    | 送り(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                           | 回転数(min <sup>-1</sup> )                       | 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 |                            |
|                              |                                |                        |                                    | 送り(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   |                            |
| ダクタイル鋳鉄<br>Nodular Cast Iron | FCD400~FCD500                  | 160                    | 60 - 90                            | 回転数(min <sup>-1</sup> )                       | 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   |                            |
|                              |                                |                        |                                    | 送り(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                            | 回転数(min <sup>-1</sup> )                       | 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     |                            |
|                              |                                |                        |                                    | 送り(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   |                            |

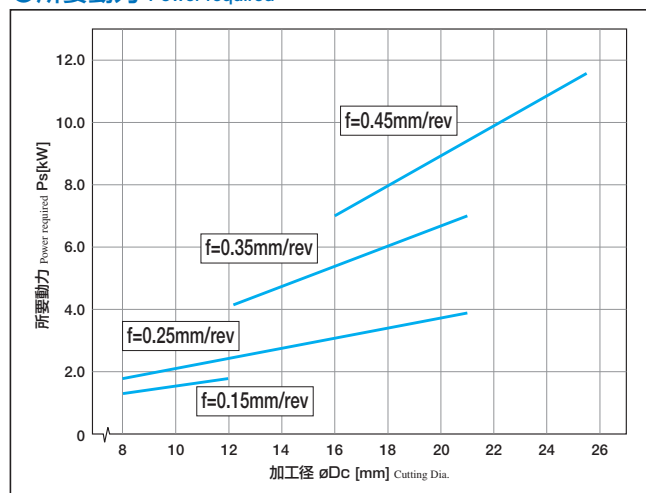
・ドリル全長が長くなる (3D → 5D → 8D タイプ) に従い、送りは推奨送り値の低目に設定してください。

As drill length is longer (3D → 5D → 8D type), please set feed rate lower than recommended rate.

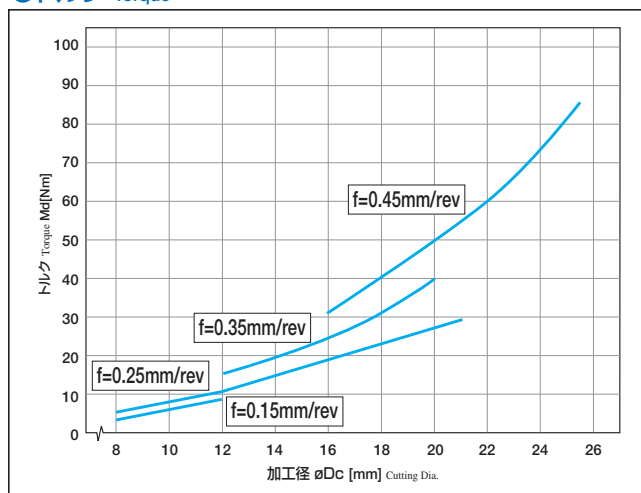
## ■特性グラフ The graph for features

<切削条件> : 被削材 調質鋼 Heat treated steel (硬度 Hardness 240HB) Vc=80m/min, Wet

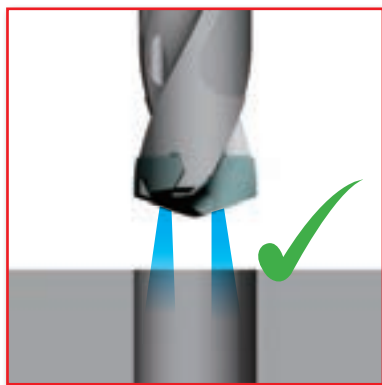
### ●所要動力 Power required



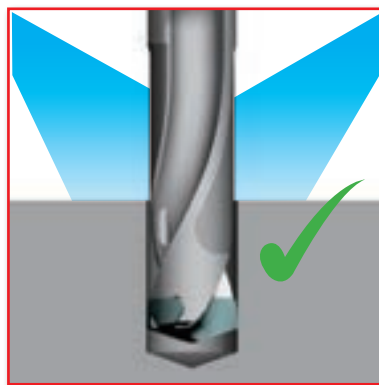
### ●トルク Torque



## ■切削液のご使用について Coolant



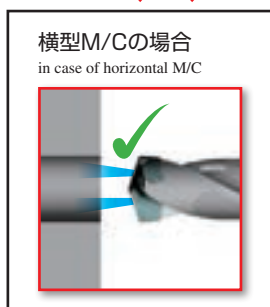
1) 内部給油を推奨します。  
1) Internal coolant is recommended.



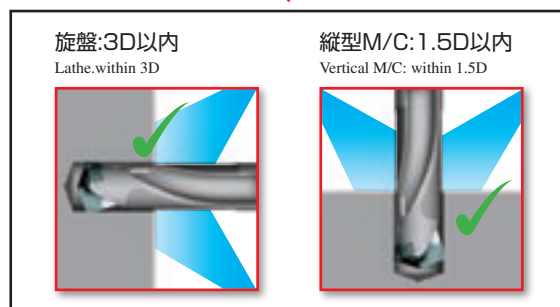
2) 外部給油の場合  
2) In case of external coolant



3) 乾式切削は推奨致しません。  
3) Dry cutting is not recommended.



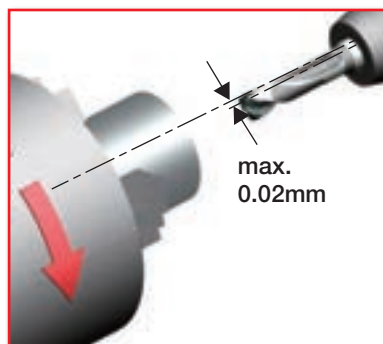
横型マシニングセンタ(横型M/C)では工具が回転する為、外部から切削液が入りにくくなりますので、内部給油でご使用ください。  
Please use internal coolant when horizontal machining center is used and this is because of rotation of tools inside and not enough coolant from outside.



## ■ご使用上の注意点 Usage Precautions

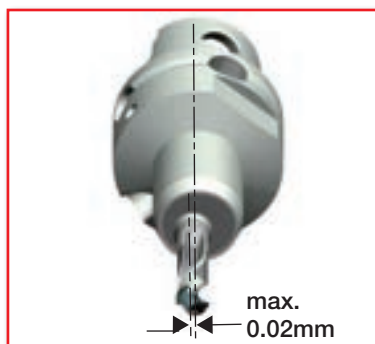
### ●偏芯(芯ズレ)について Core Deviation

- 1) 旋削の場合  
1) For Stationary



ボーリングスリーブ(ねじ止め)及びコレットチャック共にご使用出来ますが、ワークとドリルの偏芯量は、0.02mm以内にセットしてください。  
This is usable for boring sleeve (screw clamp) and collet-chuck, please be sure to set deviation amount under 0.02mm between workpiece and drill.

- 2) ミーリングの場合  
2) For Rotating



ドリル取付面の変形したアーバは使用しないでください。工作機械とドリルの芯ズレは、0.02mm以内にしてください。  
Do not use any arbor which attachment surface is deformed. Center of arbor deviation have to be within 0.02mm

## ■マシニングセンタへの取付け時の注意点 Cautionary reminder when installing parts to Machining Centers

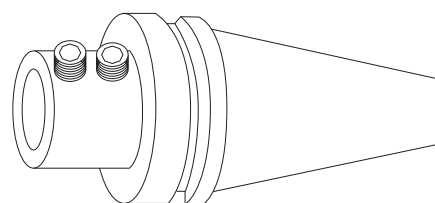
DRC型マジックドリルの取付けは、To install DRC type magicdrill.

第1推奨 1st Recommendation … ハイドロチャック、パワーチャック、コレットチャック Please use Hydro-chuck, Power-chuck or Collet-chuck

第2推奨 2nd Recommendation … サイドロック方式アーバ Side-lock arbor



等にDRC型マジックドリルを取付けてください。  
Please attach the DRC type magicdrill to one of these chucks.



サイドロック方式アーバの例  
Example of side-lock arbor

第1推奨  
1st Recommendation

第2推奨  
2nd Recommendation

## S50C

・フランジ Flange  
 ・Vc=97m/min  
 (n=2,490min<sup>-1</sup>)  
 ・H=32mm  
 ・f=0.3mm/rev  
 (Vf=747mm/min)  
 ・湿式 (内部給油)  
 Wet (Internal Coolant)  
 ・DC1250M-SC  
 (PR0315)

SS14-DRC120M-3 3,000穴/チップ  
 3,000holes/insert

他社ドリル A Competitor A 1,800穴/ドリル  
 1,800holes/drill

・他社ドリルAに比べ、マジックドリルDRC型は、バリが減少し、10%以上の所要動力減少になった。工具寿命も大きく向上した。  
 ・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.

(ユーザー様の評価による) Evaluation by the user

## SCM440

・ハウジング Housing  
 ・Vc=83m/min  
 (n=2,400min<sup>-1</sup>)  
 ・H=32mm  
 ・f=0.24mm/rev  
 (Vf=576mm/min)  
 ・湿式 (内部給油)  
 Wet (Internal Coolant)  
 ・DC1100M-SC  
 (PR0315)

SS12-DRC110M-3 2,400穴/チップ  
 more than 2,400holes/insert

他社PVD 超硬ソリッドドリル B Competitor B 2,000穴/ドリル  
 2,000holes/drill

・他社ソリッドドリルBに比べマジックドリルDRC型は、容易なインサート交換による段取り時間の大幅な削減ができた。  
 ・再研磨の為に予備工具費が削減でき、工具寿命も向上した。  
 ・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.

(ユーザー様の評価による) Evaluation by the user

## Q&A

### Q-3 DRC (8Dタイプ)の深穴加工で、入り口側と奥側(出口側)の加工径にたわみと思われる寸法変動が発生しています。何か抑制する方法はありませんか？

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 ドリルのたわみ(食い付きを良くする)を抑制する方法として、以下のような対策が有ります。

in order to restraint drill deflection (for better bite), there are some method as below.

#### 対策1 Counter measure 1

##### ● 送りをアップする increase feed rate

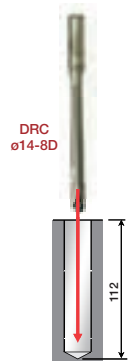
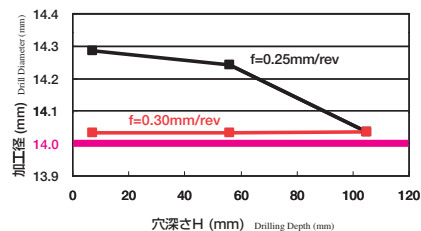
送りをアップすることで、加工径が安定する場合があります。  
 (送りアップの目安は、現行送り+0.03~0.05mm/rev)

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 にアップ  
 f=0.25mm/rev → 0.30mm/rev  
 WET (内部給油) WET (internal coolant)  
 SS16-DRC140M-8  
 DC1400M-SC (PR0315)



### もしマシン剛性やクランプ剛性が弱い等の理由で、現状以上に送りが上げられない場合

in case of being not able to increase feed rate, If machine rigidity or clamping rigidity is weak,

#### 対策2 Counter measure 2

センタ穴を開けて、加工径を安定させる方法 Method to stabilize by centering hole to check over the issue

##### 1) 市販の頂角が140°近辺のタイプのセンタドリルか、DRC型ドリルを利用してセンタ穴を開ける。

1) Use top able 140° center drill or DRC type drill for hole making

(センタドリルに追加加工が出来る場合は、頂角を140°より大きくしてください。)

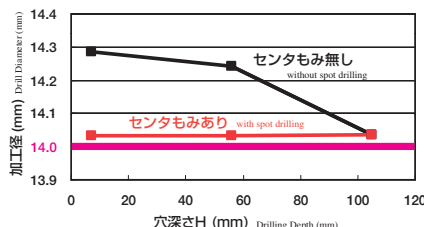
(If additional process is possible for center drill, please be sure to maintain top able larger than 140°)

##### 2) その後、DRC型ドリル(8Dタイプ)で加工する。

2) thereafter drill by DRC type (8D type)

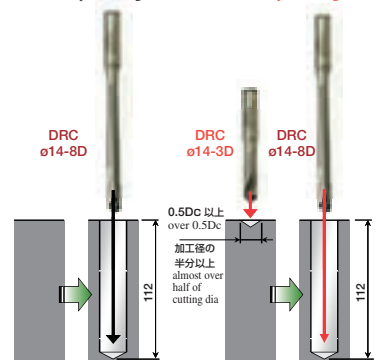
##### <切削条件> Cutting Conditions

S55C Vc=80m/min  
 f=0.25mm/rev H=112mm  
 WET (内部給油) WET (internal coolant)  
 SS16-DRC140M-3  
 SS16-DRC140M-8  
 DC1400M-SC (PR0315)



<センタも無し>  
 without spot drilling

<センタもあり>  
 with spot drilling

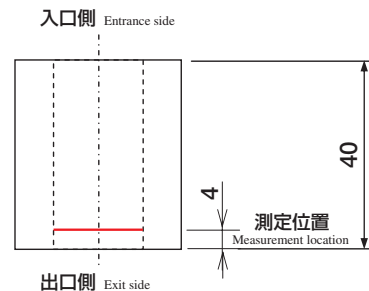
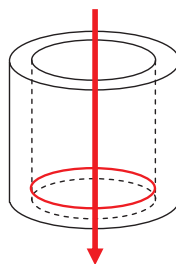


## 加工精度比較 Comparison of cutting precision

### 切削条件と測定位置 Cutting condition and measurement location

<切削条件> Cutting Conditions

|                           |                                  |
|---------------------------|----------------------------------|
| 被削材 Workpiece Material    | S45C                             |
| Vc (m/min)                | 100                              |
| f (mm/rev)                | 0.2mm/rev, 0.3mm/rev             |
| 穴深さ H (mm) Drilling Depth | 貫通穴(40mm) Penetrated hole (40mm) |
| 切削液 Coolant               | WET(内部給油) WET (internal coolant) |
| 使用工具 Used tool            | φ14 x 3Dタイプ 14Diamm x 3D type    |
| マシン Machine               | M/C                              |

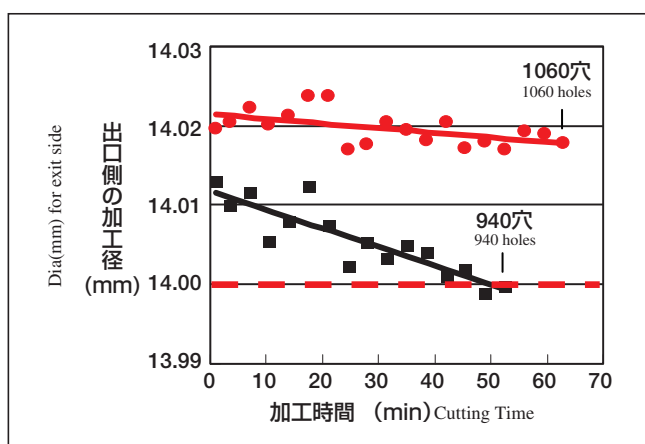


### 加工径(f=0.3mm/revの場合) Cutting Dia (f=0.3mm/rev)

#### 1) 刃先交換式ドリルとの比較

1) Comparison of indexable insert drill

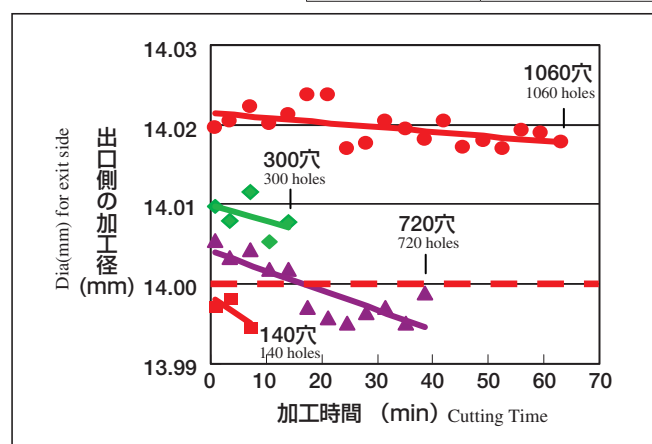
| 刃先交換式ドリル<br>Indexable insert drill |           |
|------------------------------------|-----------|
| ●                                  | Kyocera   |
| ■                                  | F社 Comp.F |



#### 2) 超硬ソリッドドリルとの比較

2) Comparison of carbide solid drill

| 刃先交換式ドリル<br>Indexable insert drill | 超硬ソリッドドリル<br>Carbide Solid Drill |
|------------------------------------|----------------------------------|
| ● Kyocera                          | ◆ C社 Comp.C                      |
|                                    | ▲ B社 Comp.B                      |
|                                    | ■ N社 Comp.N                      |



### 真円度 Roundness

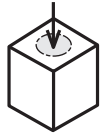
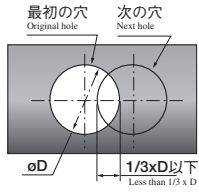
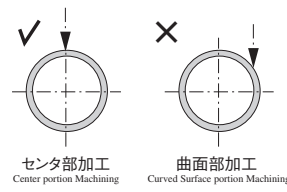
#### 1) 真円度 (f=0.2mm/rev の場合) 1) Roundness (f=0.2mm/rev)

| 刃先交換式ドリル Indexable insert drill |                         | 超硬ソリッドドリル Carbide Solid Drill |                        |                        |
|---------------------------------|-------------------------|-------------------------------|------------------------|------------------------|
| Kyocera                         | F社 Comp.F               | B社 Comp.B                     | C社 Comp.C              | N社 Comp.N              |
|                                 |                         |                               |                        |                        |
| 真円度 (Roundness) :5.5μm          | 真円度 (Roundness) :22.5μm | 真円度 (Roundness) :6.4μm        | 真円度 (Roundness) :9.8μm | 真円度 (Roundness) :5.2μm |

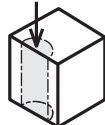
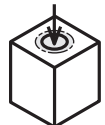
#### 2) 真円度 (f=0.3mm/rev の場合) 2) Roundness (f=0.3mm/rev)

| 刃先交換式ドリル Indexable insert drill |                         | 超硬ソリッドドリル Carbide Solid Drill |                         |                         |
|---------------------------------|-------------------------|-------------------------------|-------------------------|-------------------------|
| Kyocera                         | F社 Comp.F               | B社 Comp.B                     | C社 Comp.C               | N社 Comp.N               |
|                                 |                         |                               |                         |                         |
| 真円度 (Roundness) :10.7μm         | 真円度 (Roundness) :15.2μm | 真円度 (Roundness) :12.0μm       | 真円度 (Roundness) :11.8μm | 真円度 (Roundness) :12.3μm |

## ■適合ワーク形状 Applicable workpiece

| 加工内容<br>Application      | ワーク形状<br>Workpiece Shape                                                            | 加工時の注意点<br>Caution for machining                                                                                                        |
|--------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 平面穴<br>Flat Face         |    | 1. SS400などの軟鋼加工では切くず処理が良好なので、ステップ加工は不要です。<br>2. SUS304加工時、穴深さ2.5D以上ではステップ加工を行ってください。<br>3. スムースに切くず排出を行う為に、内部給油を推奨致します。                 |
| 重ね板<br>Stacked Plates    |    | 1. 重ね板が加工中にズレない様に固定してください。                                                                                                              |
| 半穴連続<br>Hole Expansion   |    | 1. オーバーラップ量が1/3×D以下であれば、加工可能です。<br>                    |
| くぼみ面穴<br>Concave Surface |    | 1. くぼみ面穴加工は断続加工のため、送りを連続穴加工時の半分以下にしてください。                                                                                               |
| パイプ外周穴<br>Pipe Material  |  | 1. パイプのセンタライン上の穴加工は可能です。<br>2. 曲面部分の加工には推奨致しません。<br> |

## ■推奨しないワーク形状 Not recommended workpieces

| 加工内容<br>Application    | ワーク形状<br>Workpiece Shape                                                            | 加工内容<br>Application     | ワーク形状<br>Workpiece Shape                                                            | 加工内容<br>Application | ワーク形状<br>Workpiece Shape                                                              |
|------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------------|
| 斜面穴<br>Slanted Surface |  | 半割面<br>Half Cylindrical |  | 下穴付き<br>Cored Hole  |  |

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京セラ 工具

検索

<http://www.kyocera.co.jp/prdct/tool/index.html>

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