

THE NEW VALUE FRONTIER



**Change !!**  
**Drilling is changed!**

MagicDrill

**DRX**type

**Expanded Product  
Lineup!**  
**ø12~ø60**  
**2D,3D,4D,5D**

**Change I**

New technology :  
Twisted coolant holes

→ Improved chip evacuation performance

**Change II**

New concept :  
Three new chipbreakers

→ Covers a variety of workpiece materials

**Change III**

New Grade :  
Four new drilling grades

→ **PR1230, PR1225, PR1210, GW15**

Carbon Steel

Stainless Steel, Low Carbon Steel

Cast Iron

Non-ferrous Metals

**Change IV**

Balanced cutting system :  
Precision drilling

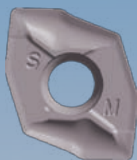
→ Better surface finish



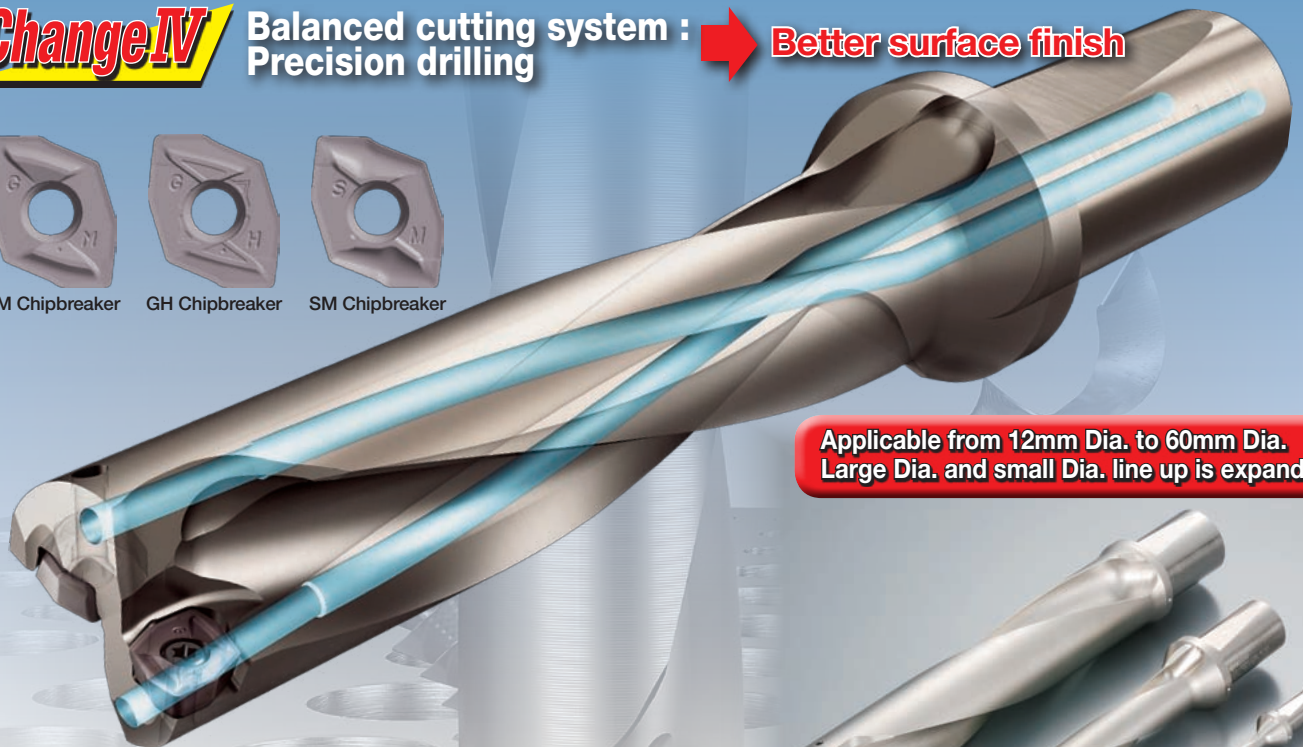
GM Chipbreaker



GH Chipbreaker



SM Chipbreaker



Applicable from 12mm Dia. to 60mm Dia.  
Large Dia. and small Dia. line up is expanded.



**Large Dia.**  
**ø39~ø60**

**Small Dia.**  
**ø12~ø13**

ADVANCING PRODUCTIVITY

# DRX provides you stable

## Change I

### ■ New technology : Twisted coolant holes

Twisted Hole Technology Design Provides



Superior Chip Evacuation

The flute space of the internal cutting edge side is 1.6 times larger than the DRZ style drill, providing increased chip evacuation

The coolant performance has 1.25 times more volume than the DRZ style drill



Inner edge

Double coolant hole

Change!!

Outer edge

Inner edge

Outer edge

Single coolant hole

Conventional tools

The special alloy provides improved tool holder rigidity and increased reliability

## Change II

### ■ New concept : Three new chipbreaker designs

#### • Covers a variety of workpiece materials



GM Chipbreaker  
Carbon Steel, Cast Iron  
universal type



GH Chipbreaker  
for hardened material, for  
interruption  
with strong edge type



SM Chipbreaker  
Stainless Steel, Low Carbon Steel,  
Non-ferrous Metals  
Sharp cutting, for deeper drilling

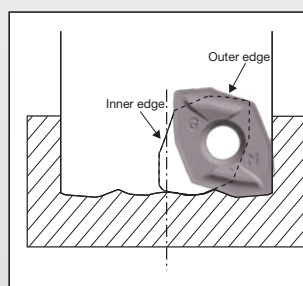
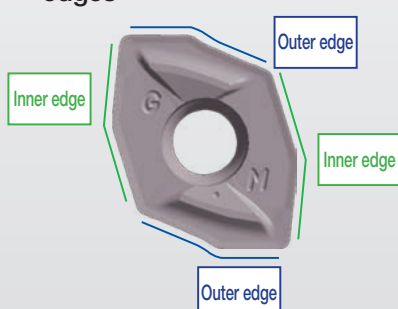
#### • Eliminates problems when machining in sticky materials such as stainless steel or low carbon steel



Long entangled chips (competitor A)

#### • Economical - four cutting edges per insert

2 inner pocket cutting edges and 2 outer pocket cutting edges



positioning of outer  
edge and inner edge

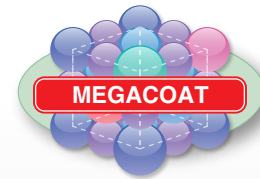
Change!!



Chips by SM chipbreaker (SUS304)

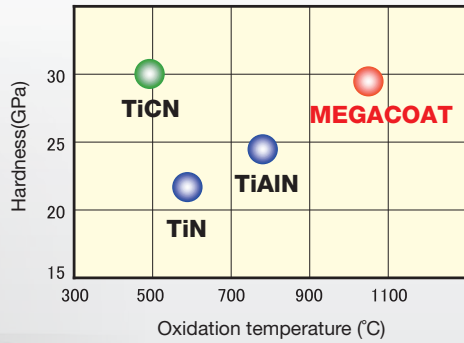
# and efficient drilling

## Change III



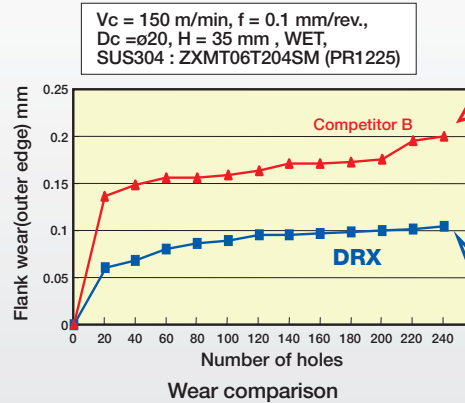
### ■ New Grade : Four new drilling grades

(PR1230:Carbon Steel, PR1225:Stainless Steel, Low Carbon Steel, PR1210:Cast Iron, GW15:Non-ferrous Metals)

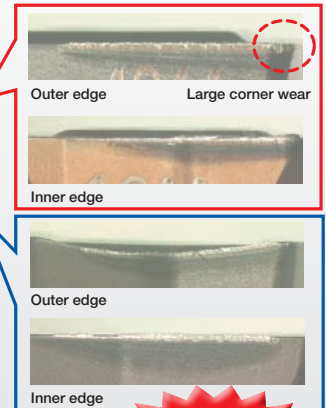


MEGACOAT's High oxidation resistance

**MEGACOAT Coating Technology provides longer and more stable tool life**



**Better wear resistance than competitor B**

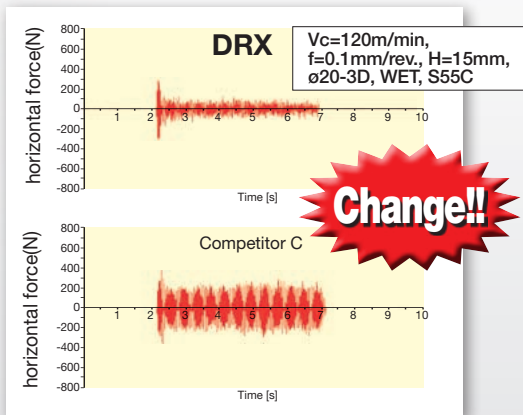


**Change!!**

## Change IV

### ■ Balanced Cutting System: Precision drilling

#### • Vibration comparison

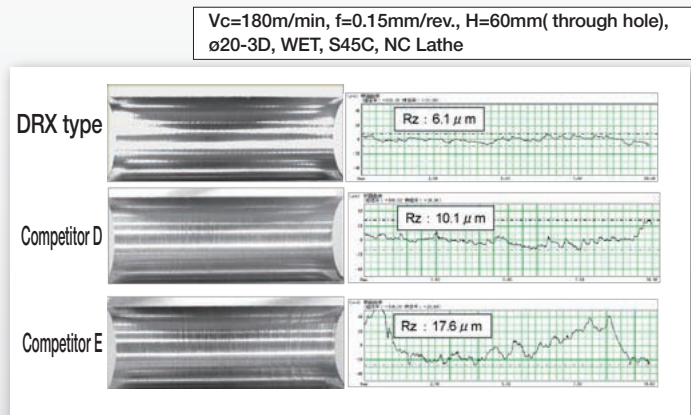


**Change!!**

Less vibration due to balanced cutting system

**Better surface finish**

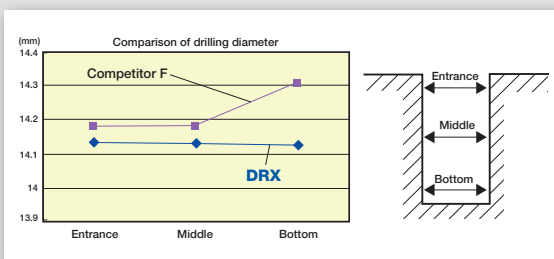
#### • Surface finish comparison



Better surface finish than Competitor D and E

**Extended tool life**

#### • Variation of drilling diameter

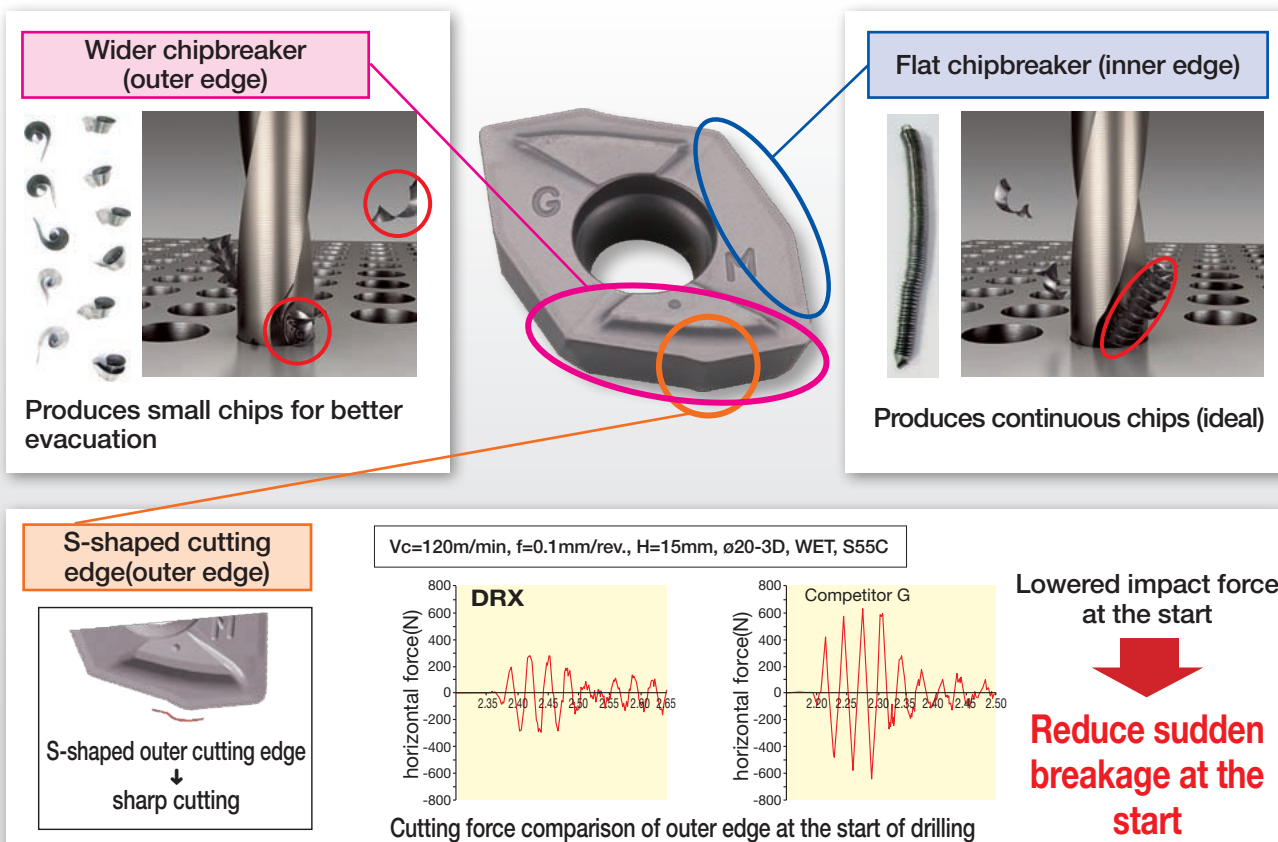


Well balanced system provides excellent chip evacuation  
Less variation of drilling diameter than Competitor F

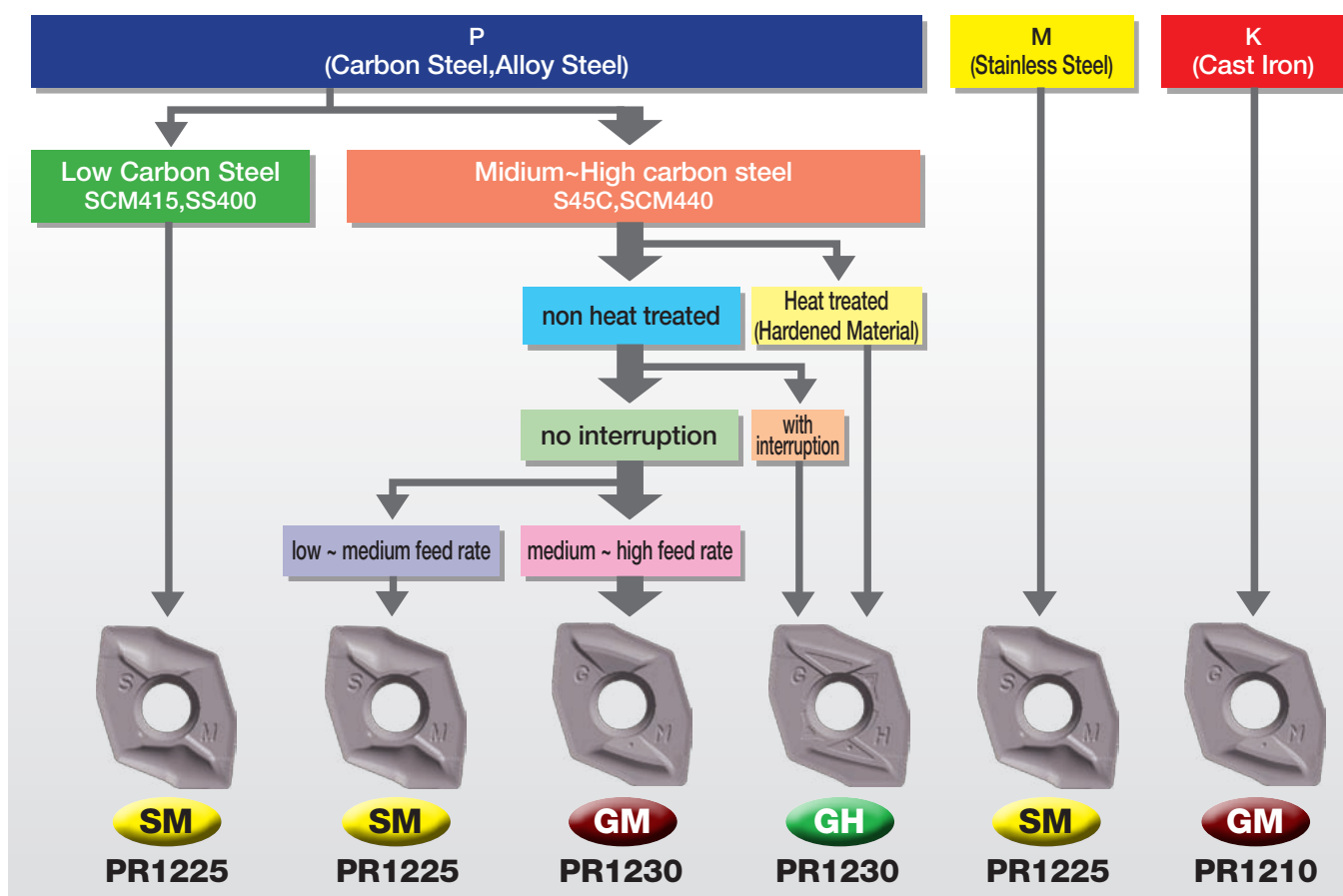
**Well balanced system provides excellent chip evacuation  
Less variation of drilling diameter than Competitor F**

# New chipbreaker designs cover

## ● New chipbreaker features



## ● Chipbreaker selection



# a variety of workplace materials

## ● 3 chipbreakers to covers various materials

### ◆ GM Chipbreaker ... general cutting



① Wider chipbreaker can cover variety of materials

for general cutting

② Achieved good balance of cutting edge strength and sharp cutting

**Optimized cutting edge strength, sharpness and chip control**

For Carbon Steel : **PR1230**

For Cast iron : **PR1210**

### ◆ GH Chipbreaker ... Enhanced edge type



1st. Recommendation for hard materials, interrupted operation

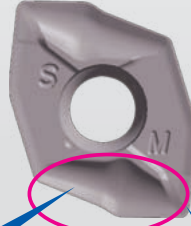
**Cutting edge strength oriented design**

① Wider chipbreaker control breakage by pressed chips

② Cutting edge strength oriented design

for hard materials, interrupted operation : **PR1230**

### ◆ SM Chipbreaker ... Sharp cutting, for deeper drilling



For deep drilling of difficult to control chips materials such as stainless steel and low carbon steel

**Sharp cutting by large rake angle**

**Stable chip control by newly designed chipbreaker and U-shaped cutting edge**

② Sharp cutting by large rake angle

① U-shaped cutting edge  
Breaks chips by growing cracks from both ends

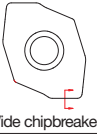
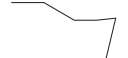
Chip breaking system of SM chipbreaker (Outer edge)

Outstanding chip control achieved by splitting chips from the outer edges

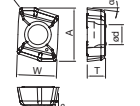
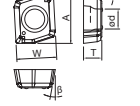
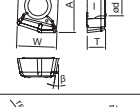
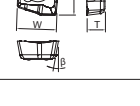
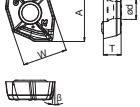
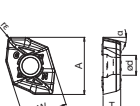
For stainless steel and low carbon steel : **PR1225**

For Non-ferrous Metals: **GW15**

## ■ Advantages of the Chipbreakers

| Chipbreaker        |                                                                                                         |                       | GM                                                                                      | GH                                                                                   | SM                                                                                    |
|--------------------|---------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Shape              |                                                                                                         |                       |      |  |  |
| Advantages         |                                                                                                         |                       | 1st recommendation for carbon steel and alloy steel<br>1st recommendation for cast iron | 1st recommendation for hardened materials<br>Cutting edge strength oriented design   | Suitable for sticky materials such as stainless steel and low carbon steel            |
|                    |                                                                                                         |                       | Good balance of sharp cutting and cutting edge strength                                 | Middle to high feed rates of steel, GM alternative                                   | Sharp cutting, prevents chattering<br>For low to medium feed rates of steel           |
| Outer edge         | <br>Wide chipbreaker | cross-section         |      |  |  |
|                    |                                                                                                         | Chips from Outer edge |      |  |  |
| Inner edge         | <br>Flat chipbreaker | cross-section         |      |  |  |
|                    |                                                                                                         | Chips from Inner edge |      |  |  |
| Workpiece Material |                                                                                                         |                       | S50C                                                                                    | S50C                                                                                 | SUS304                                                                                |

## ■ Insert Line Up

| Indication of clasification<br>●:1st. Recommendation<br>○:2nd. Recommendation<br>(Steel; non heat treated) |                                                                                     |                 |               | P    | Carbon Steel,Alloy Steel |      |     |          |     | ●        | ○      |        |      | Ref. page for applicable Holder               |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------|---------------|------|--------------------------|------|-----|----------|-----|----------|--------|--------|------|-----------------------------------------------|
|                                                                                                            |                                                                                     |                 |               |      | Tool Steel               |      |     |          |     | ●        |        |        |      |                                               |
|                                                                                                            |                                                                                     |                 |               | M    | Stainless Steel          |      |     |          |     | ○        | ●      |        |      |                                               |
|                                                                                                            |                                                                                     |                 |               | K    | Cast Iron                |      |     |          |     |          |        | ●      |      |                                               |
| N                                                                                                          | Non-ferrous Material                                                                |                 |               |      |                          |      |     |          |     | ●        |        |        |      |                                               |
| Shape                                                                                                      |                                                                                     | Description     | Dimension(mm) |      |                          |      |     | Angle(°) |     | MEGACOAT |        |        |      | Carbide                                       |
|                                                                                                            |                                                                                     |                 | A             | T    | ød                       | W    | rε  | α        | β   | PR1230   | PR1225 | PR1210 | GW15 |                                               |
| <br>For External Edge     |    | ZXMT 030203GM-E | 6.5           | 2.30 | 2.4                      | 4.8  | 0.3 | 7°       | 10° | ●        |        | ●      |      | P 7<br>P 9<br>P11<br>P13                      |
| <br>For Internal Edge     |    | ZXMT 030203GM-I | 5.9           | 2.30 | 2.4                      | 4.8  | 0.3 | 7°       | 10° | ●        | ●      | ●      | ●    |                                               |
| <br>For External Edge     |    | ZXMT 030203GH-E | 6.5           | 2.30 | 2.4                      | 4.8  | 0.3 | 7°       | 10° | ●        |        |        |      |                                               |
| <br>For External Edge     |    | ZXMT 030203SM-E | 6.5           | 2.30 | 2.4                      | 4.8  | 0.3 | 7°       | 10° |          | ●      |        | ●    |                                               |
|                         |  | ZXMT 040203GM   | 6.2           | 2.60 | 2.4                      | 5.1  | 0.3 | 13°      | 10° | ●        |        | ●      |      | P 7<br>P 8<br>P 9<br>P10<br>P11<br>P12<br>P13 |
|                                                                                                            |                                                                                     | 05T203GM        | 7.3           | 2.74 | 2.5                      | 5.5  | 0.3 |          |     | ●        |        | ●      |      |                                               |
|                                                                                                            |                                                                                     | 06T204GM        | 8.6           | 2.89 | 2.8                      | 6.4  | 0.4 |          |     | ●        |        | ●      |      |                                               |
|                                                                                                            |                                                                                     | 070305GM        | 10.2          | 3.24 | 3.0                      | 8.0  | 0.5 |          |     | ●        |        | ●      |      |                                               |
|                                                                                                            |                                                                                     | 09T306GM        | 12.2          | 4.03 | 3.6                      | 9.6  | 0.6 |          |     | ●        |        | ●      |      |                                               |
|                                                                                                            |                                                                                     | 11T306GM        | 14.5          | 4.06 | 4.6                      | 11.6 | 0.6 |          |     | ●        |        | ●      |      |                                               |
|                                                                                                            |                                                                                     | 140408GM        | 18.0          | 4.88 | 5.7                      | 14.4 | 0.8 |          |     | ●        |        | ●      |      |                                               |
|                                                                                                            |                                                                                     | 170608GM        | 22.1          | 6.58 | 6.8                      | 17.7 | 0.8 |          |     | ●        |        | ●      |      |                                               |
|                         |  | ZXMT 040203GH   | 6.2           | 2.60 | 2.4                      | 5.1  | 0.3 | 13°      | 10° | ●        |        |        |      |                                               |
|                                                                                                            |                                                                                     | 05T203GH        | 7.3           | 2.74 | 2.5                      | 5.5  | 0.3 |          |     | ●        |        |        |      |                                               |
|                                                                                                            |                                                                                     | 06T204GH        | 8.6           | 2.89 | 2.8                      | 6.4  | 0.4 |          |     | ●        |        |        |      |                                               |
|                                                                                                            |                                                                                     | 070305GH        | 10.2          | 3.24 | 3.0                      | 8.0  | 0.5 |          |     | ●        |        |        |      |                                               |
|                                                                                                            |                                                                                     | 09T306GH        | 12.2          | 4.03 | 3.6                      | 9.6  | 0.6 |          |     | ●        |        |        |      |                                               |
|                                                                                                            |                                                                                     | 11T306GH        | 14.5          | 4.06 | 4.6                      | 11.6 | 0.6 |          |     | ●        |        |        |      |                                               |
|                                                                                                            |                                                                                     | 140408GH        | 18.0          | 4.88 | 5.7                      | 14.4 | 0.8 |          |     | ●        |        |        |      |                                               |
|                                                                                                            |                                                                                     | 170608GH        | 22.1          | 6.58 | 6.8                      | 17.7 | 0.8 |          |     | ●        |        |        |      |                                               |
|                         |  | ZXMT 040203SM   | 6.2           | 2.60 | 2.4                      | 5.1  | 0.3 | 13°      | 10° |          | ●      |        | ●    |                                               |
|                                                                                                            |                                                                                     | 05T203SM        | 7.3           | 2.74 | 2.5                      | 5.5  | 0.3 |          |     |          | ●      |        | ●    |                                               |
|                                                                                                            |                                                                                     | 06T204SM        | 8.6           | 2.89 | 2.8                      | 6.4  | 0.4 |          |     |          | ●      |        | ●    |                                               |
|                                                                                                            |                                                                                     | 070305SM        | 10.2          | 3.24 | 3.0                      | 8.0  | 0.5 |          |     |          | ●      |        | ●    |                                               |
|                                                                                                            |                                                                                     | 09T306SM        | 12.2          | 4.03 | 3.6                      | 9.6  | 0.6 |          |     |          | ●      |        | ●    |                                               |
|                                                                                                            |                                                                                     | 11T306SM        | 14.5          | 4.06 | 4.6                      | 11.6 | 0.6 |          |     |          | ●      |        | ●    |                                               |
|                                                                                                            |                                                                                     | 140408SM        | 18.0          | 4.88 | 5.7                      | 14.4 | 0.8 |          |     |          | ●      |        | ●    |                                               |
|                                                                                                            |                                                                                     | 170608SM        | 22.1          | 6.58 | 6.8                      | 17.7 | 0.8 |          |     |          | ●      |        | ●    |                                               |

## ■ Suitable Chipbreaker (ZXMT)

| Work Material                               | Insert Size    | ZXMT |    |    |    |    |    |    |    |    |    |    |    |
|---------------------------------------------|----------------|------|----|----|----|----|----|----|----|----|----|----|----|
|                                             | Chipbreaker    | GM   |    |    |    | GH |    |    |    | SM |    |    |    |
|                                             | Drilling Depth | 2D   | 3D | 4D | 5D | 2D | 3D | 4D | 5D | 2D | 3D | 4D | 5D |
| Low Carbon Steel (SS400,S15C,SCM415,SCr415) |                | ☆    | ☆  | ☆  | ☆  |    |    |    |    | ★  | ★  | ★  | ★  |
| Carbon Steel(S45C)                          |                | ★    | ★  | ★  | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  | ★  |
| Alloy Steel (SCM435,SCr435)                 |                | ★    | ★  | ★  | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  | ★  |
| Tool Steel (SKD11)                          |                | ☆    | ☆  | ☆  | ☆  | ★  | ★  | ★  | ★  |    |    |    |    |
| Stainless Steel (SUS304,SUS430,SUS440F)     |                |      |    |    |    |    |    |    |    | ★  | ★  | ★  | ★  |

| Work Material                | Insert Size    | ZXMT |    |    |    |    |    |    |    |    |    |    |    |
|------------------------------|----------------|------|----|----|----|----|----|----|----|----|----|----|----|
|                              | Chipbreaker    | GM   |    |    |    | GH |    |    |    | SM |    |    |    |
|                              | Drilling Depth | 2D   | 3D | 4D | 5D | 2D | 3D | 4D | 5D | 2D | 3D | 4D | 5D |
| Cast Iron (FC250,FCD400)     |                | ★    | ★  | ★  | ★  |    |    |    |    |    |    |    |    |
| Aluminum Alloy (A2017,A5052) |                |      |    |    |    |    |    |    |    | ★  | ★  | ★  | ★  |
| Brass                        |                |      |    |    |    |    |    |    |    | ★  | ★  | ★  | ★  |
| Titanium Alloy               |                |      |    |    |    |    |    |    |    | ★  | ★  | ★  | ★  |

★:1st. Recommendation ☆:2nd. Recommendation

●:Standard Stock

## ■ How to select ZXMT03 type

### ZXMT03 Insert Usage

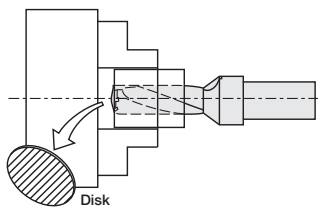
- 1) For the outer, please select -E insert, and choose from three different chipbreakers from each application.
- 2) For inner edge, please select -I insert (only one type).

| Outer Edge                                                                                                                           | Inner Edge                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|  <p>ZXMT030203○○-E</p> <p>GM-E    GH-E    SM-E</p> |  <p>ZXMT030203GM-I</p> <p>GM-I</p> |

## ■ Criteria for judging tool life

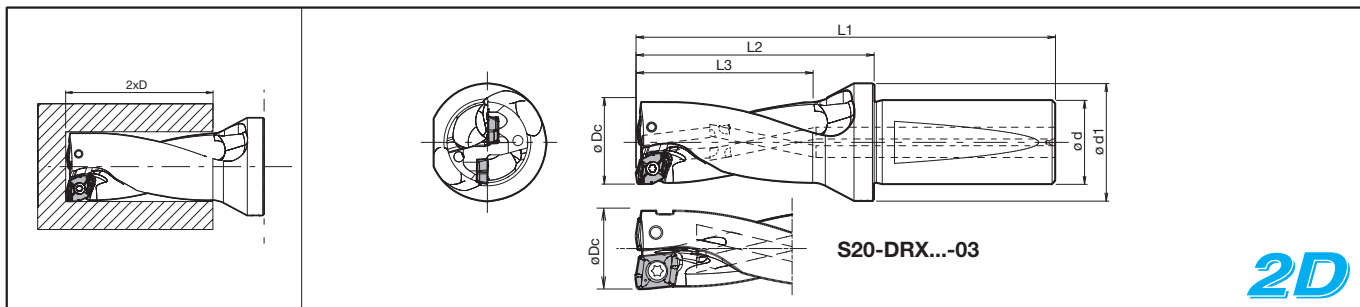
| How to judge tool life                      | Guide line for judging tool life                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tool marks occur due to excessive edge wear | <ul style="list-style-type: none"> <li>·When using a new insert: new insert<br/>The DRX Magic Drill is designed to deflect outward during operation and return to origin after operation, therefore no tool mark remains.</li> <li>·In the case of reaching tool life<br/>The drill will begin to bow inward due to increasing cutting forces on the outer edge caused by edge wear. And tool mark remains when tool is retracted due to the cutting edge being in contact with finished surface<br/>(Depends on workpiece and cutting conditions, it may happen even with new insert)</li> </ul> |
| control by drilled diameter                 | It can be judged to have reached its tool life when drilling diameter becomes suddenly smaller                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Burr generation status at the end           | It can be judged to have reached its tool life when remaining burrs become large at the end due to its worn out edge.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| change of cutting noise                     | Cutting noise becomes loud                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| change of vibration                         | Being closer to its tool life, larger vibration and loud noise will be prevalent. This can be difficult to hear the difference in case of smaller diameter.                                                                                                                                                                                                                                                                                                                                                                                                                                       |

### ◆ Caution

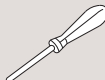
|                                                                                     |                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>When drilling through the workpiece, a disk may be ejected. Proper machine guarding is necessary to prevent injury when operating machine with no cover such as a conventional lathe.</p> |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Holder Line Up

### DRX type(2 X D Drilling Depth)



#### Holder Dimension

| Description       | Stock | No. of Insert | Dimensions (mm) |     |    |    |    |     |                           | Spare Parts                                                                                      |                                                                                               | Applicable Insert<br>P5                                      |
|-------------------|-------|---------------|-----------------|-----|----|----|----|-----|---------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|                   |       |               | øDc             | L1  | L2 | L3 | ød | ød1 | Max. Offset (Radial) (mm) | Clamp Screw<br> | Wrench<br> |                                                              |
| S20 -DRX120M-2-03 | ●     | 2             | 12              | 88  | 45 | 24 | 20 | 27  | +0.5                      | SB-2042TRG                                                                                       | DTM-6                                                                                         | ZXMT030203○○-E<br>(External)<br>ZXMT030203GM-I<br>(Internal) |
| -DRX125M-2-03     | ●     |               | 12.5            | 89  | 46 | 25 |    |     | +0.4                      |                                                                                                  |                                                                                               |                                                              |
| -DRX130M-2-03     | ●     |               | 13              | 90  | 47 | 26 |    |     | +0.3                      |                                                                                                  |                                                                                               |                                                              |
| -DRX135M-2-04     | ●     | 2             | 13.5            | 91  | 48 | 27 | 20 | 27  | +0.5                      | SB-2042TRG                                                                                       | DTM-6                                                                                         | ZXMT040203○○                                                 |
| -DRX140M-2-04     | ●     |               | 14              | 92  | 49 | 28 |    |     | +0.4                      |                                                                                                  |                                                                                               |                                                              |
| -DRX145M-2-04     | ●     |               | 14.5            | 93  | 50 | 29 |    |     | +0.3                      |                                                                                                  |                                                                                               |                                                              |
| -DRX150M-2-04     | ●     |               | 15              | 94  | 51 | 30 |    |     | +0.2                      |                                                                                                  |                                                                                               |                                                              |
| S25 -DRX155M-2-05 | ●     | 2             | 15.5            | 109 | 55 | 31 | 25 | 32  | +0.8                      | SB-2045TR                                                                                        | DTM-6                                                                                         | ZXMT05T203○○                                                 |
| -DRX160M-2-05     | ●     |               | 16              | 110 | 56 | 32 |    |     | +0.7                      |                                                                                                  |                                                                                               |                                                              |
| -DRX165M-2-05     | ●     |               | 16.5            | 111 | 57 | 33 |    |     | +0.5                      |                                                                                                  |                                                                                               |                                                              |
| -DRX170M-2-05     | ●     |               | 17              | 112 | 58 | 34 |    |     | +0.4                      |                                                                                                  |                                                                                               |                                                              |
| -DRX175M-2-05     | ●     |               | 17.5            | 113 | 59 | 35 |    |     | +0.3                      |                                                                                                  |                                                                                               |                                                              |
| -DRX180M-2-05     | ●     |               | 18              | 114 | 60 | 36 |    |     | +0.2                      |                                                                                                  |                                                                                               |                                                              |
| -DRX185M-2-06     | ●     | 2             | 18.5            | 112 | 58 | 37 | 25 | 32  | +0.9                      | SB-2250TR                                                                                        | DTM-7                                                                                         | ZXMT06T204○○                                                 |
| -DRX190M-2-06     | ●     |               | 19              | 113 | 59 | 38 |    |     | +0.8                      |                                                                                                  |                                                                                               |                                                              |
| -DRX195M-2-06     | ●     |               | 19.5            | 114 | 60 | 39 |    |     | +0.7                      |                                                                                                  |                                                                                               |                                                              |
| -DRX200M-2-06     | ●     |               | 20              | 115 | 61 | 40 |    |     | +0.5                      |                                                                                                  |                                                                                               |                                                              |
| -DRX205M-2-06     | ●     |               | 20.5            | 116 | 62 | 41 |    |     | +0.4                      |                                                                                                  |                                                                                               |                                                              |
| -DRX210M-2-06     | ●     |               | 21              | 117 | 63 | 42 |    |     | +0.3                      |                                                                                                  |                                                                                               |                                                              |
| -DRX215M-2-06     | ●     | 2             | 21.5            | 118 | 64 | 43 | 25 | 35  | +0.2                      | SB-2570TR                                                                                        | DTM-8                                                                                         | ZXMT070305○○                                                 |
| -DRX220M-2-07     | ●     |               | 22              | 119 | 65 | 44 |    |     | +1.2                      |                                                                                                  |                                                                                               |                                                              |
| -DRX225M-2-07     | ●     |               | 22.5            | 120 | 66 | 45 |    |     | +1.0                      |                                                                                                  |                                                                                               |                                                              |
| -DRX230M-2-07     | ●     |               | 23              | 121 | 67 | 46 |    |     | +0.9                      |                                                                                                  |                                                                                               |                                                              |
| -DRX235M-2-07     | ●     |               | 23.5            | 122 | 68 | 47 |    |     | +0.8                      |                                                                                                  |                                                                                               |                                                              |
| -DRX240M-2-07     | ●     |               | 24              | 123 | 69 | 48 |    |     | +0.7                      |                                                                                                  |                                                                                               |                                                              |
| -DRX245M-2-07     | ●     | 2             | 24.5            | 124 | 70 | 49 | 32 | 45  | +0.5                      | SB-3080TR                                                                                        | DTM-10                                                                                        | ZXMT09T306○○                                                 |
| -DRX250M-2-07     | ●     |               | 25              | 125 | 71 | 50 |    |     | +0.4                      |                                                                                                  |                                                                                               |                                                              |
| -DRX255M-2-07     | ●     |               | 25.5            | 126 | 72 | 51 |    |     | +0.3                      |                                                                                                  |                                                                                               |                                                              |
| -DRX260M-2-07     | ●     |               | 26              | 127 | 73 | 52 |    |     | +0.2                      |                                                                                                  |                                                                                               |                                                              |
| S32 -DRX270M-2-09 | ●     | 2             | 27              | 136 | 77 | 54 | 32 | 45  | +1.6                      |                                                                                                  |                                                                                               |                                                              |
| -DRX280M-2-09     | ●     |               | 28              | 138 | 79 | 56 |    |     | +1.3                      |                                                                                                  |                                                                                               |                                                              |
| -DRX290M-2-09     | ●     |               | 29              | 140 | 81 | 58 |    |     | +1.1                      |                                                                                                  |                                                                                               |                                                              |
| -DRX300M-2-09     | ●     |               | 30              | 142 | 83 | 60 |    |     | +0.8                      |                                                                                                  |                                                                                               |                                                              |
| -DRX310M-2-09     | ●     |               | 31              | 144 | 85 | 62 |    |     | +0.6                      |                                                                                                  |                                                                                               |                                                              |

·When offset machining, reduce feed rate to 0.08mm/rev. or less  
·See page 16 for Adjustable Sleeve SHE.

Recommended Cutting Condition P15  
Trouble Shooting P14

● Holder Dimension

| Description              | Stock | No. of Insert | Dimensions (mm) |     |     |     |    |     | Max. Offset<br>(Radial)<br>(mm) | Spare Parts                                                                         |                                                                                     | Applicable Insert<br> P5 |
|--------------------------|-------|---------------|-----------------|-----|-----|-----|----|-----|---------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|                          |       |               | øDc             | L1  | L2  | L3  | ød | ød1 |                                 | Clamp Screw                                                                         | Wrench                                                                              |                                                                                                             |
|                          |       |               |                 |     |     |     |    |     |                                 |  |  |                                                                                                             |
| <b>S40 -DRX320M-2-11</b> | ●     | 2             | 32              | 169 | 100 | 64  | 40 | 55  | +2.2                            | SB-4085TR                                                                           | DTM-15                                                                              | ZXMT11T306○○                                                                                                |
| <b>-DRX330M-2-11</b>     | ●     |               | 33              | 171 | 102 | 66  |    |     | +1.9                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX340M-2-11</b>     | ●     |               | 34              | 173 | 104 | 68  |    |     | +1.7                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX350M-2-11</b>     | ●     |               | 35              | 175 | 106 | 70  |    |     | +1.4                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX360M-2-11</b>     | ●     |               | 36              | 177 | 108 | 72  |    |     | +1.2                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX370M-2-11</b>     | ●     |               | 37              | 179 | 110 | 74  |    |     | +0.9                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX380M-2-11</b>     | ●     |               | 38              | 181 | 112 | 76  |    |     | +0.7                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX390M-2-14</b>     | ●     | 2             | 39              | 179 | 110 | 78  | 40 | 55  | +2.8                            | SB-5090TR                                                                           | DT-20                                                                               | ZXMT140408○○                                                                                                |
| <b>-DRX400M-2-14</b>     | ●     |               | 40              | 181 | 112 | 80  |    |     | +2.5                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX410M-2-14</b>     | ●     |               | 41              | 183 | 114 | 82  |    |     | +2.3                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX420M-2-14</b>     | ●     |               | 42              | 185 | 116 | 84  |    |     | +2.0                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX430M-2-14</b>     | ●     |               | 43              | 187 | 118 | 86  |    | 60  | +1.8                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX440M-2-14</b>     | ●     |               | 44              | 189 | 120 | 88  |    |     | +1.5                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX450M-2-14</b>     | ●     |               | 45              | 191 | 122 | 90  |    |     | +1.3                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX460M-2-14</b>     | ●     |               | 46              | 193 | 124 | 92  |    |     | +1.0                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX470M-2-14</b>     | ●     |               | 47              | 195 | 126 | 94  |    |     | +0.8                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX480M-2-17</b>     | ●     | 2             | 48              | 194 | 125 | 96  | 40 | 60  | +3.8                            | SB-60120TR                                                                          | DT-25                                                                               | ZXMT170608○○                                                                                                |
| <b>-DRX490M-2-17</b>     | ●     |               | 49              | 196 | 127 | 98  |    |     | +3.5                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX500M-2-17</b>     | ●     |               | 50              | 198 | 129 | 100 |    |     | +3.3                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX510M-2-17</b>     | ●     |               | 51              | 200 | 131 | 102 |    |     | +3.0                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX520M-2-17</b>     | ●     |               | 52              | 202 | 133 | 104 |    |     | +2.8                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX530M-2-17</b>     | ●     |               | 53              | 204 | 135 | 106 |    |     | +2.5                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX540M-2-17</b>     | ●     |               | 54              | 206 | 137 | 108 |    | 65  | +2.3                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX550M-2-17</b>     | ●     |               | 55              | 208 | 139 | 110 |    |     | +2.0                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX560M-2-17</b>     | ●     |               | 56              | 210 | 141 | 112 |    |     | +1.8                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX570M-2-17</b>     | ●     |               | 57              | 212 | 143 | 114 |    |     | +1.5                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX580M-2-17</b>     | ●     |               | 58              | 214 | 145 | 116 |    |     | +1.3                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX590M-2-17</b>     | ●     |               | 59              | 216 | 147 | 118 |    |     | +1.0                            |                                                                                     |                                                                                     |                                                                                                             |
| <b>-DRX600M-2-17</b>     | ●     |               | 60              | 218 | 149 | 120 |    |     | +0.8                            |                                                                                     |                                                                                     |                                                                                                             |

·When offset machining, reduce feed rate to 0.08mm/rev. or less  
·See page 16 for Adjustable Sleeve SHE.

Recommended Cutting Condition ➡ P15  
Trouble Shooting ➡ P14

·Cutting Tolerance (2D Type)

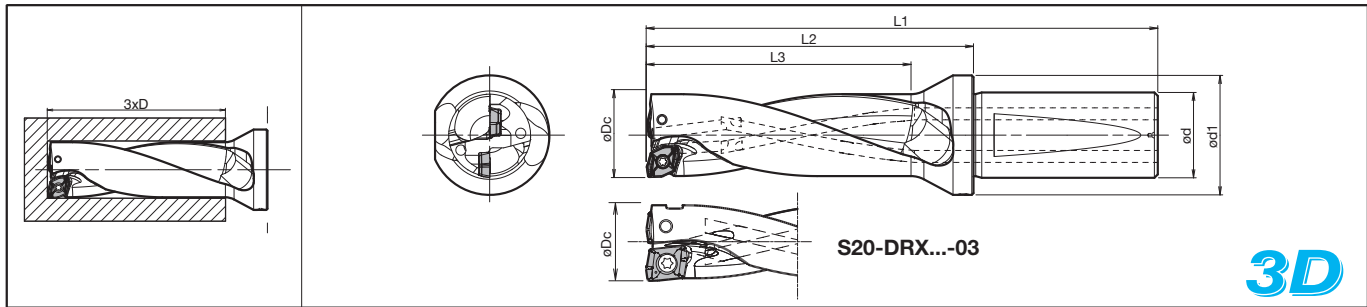
| Dc      | Cutting Tolerance (mm) |
|---------|------------------------|
| ø12~ø26 | +0.20<br>-0.10         |
| ø27~ø38 | +0.25<br>-0.15         |
| ø39~ø60 | +0.30<br>-0.20         |

\*Listed tolerance is guideline numbers.

These guideline numbers may be variable depending on machines, workpiece, clamping conditions and cutting conditions.

## ■ Holder Line Up

### DRX type(3 X D Drilling Depth)



#### ● Holder Dimension

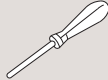
| Description              | Stock | No. of Insert | Dimensions (mm) |     |     |      |    |     |                                 | Spare Parts |        | Applicable Insert<br>P5                                      |
|--------------------------|-------|---------------|-----------------|-----|-----|------|----|-----|---------------------------------|-------------|--------|--------------------------------------------------------------|
|                          |       |               | øDc             | L1  | L2  | L3   | ød | ød1 | Max. Offset<br>(Radial)<br>(mm) | Clamp Screw | Wrench |                                                              |
|                          |       |               |                 |     |     |      |    |     |                                 |             |        |                                                              |
| <b>S20</b> -DRX120M-3-03 | ●     | 2             | 12              | 100 | 57  | 36   |    |     | +0.5                            | SB-2042TRG  | DTM-6  | ZXMT030203○○-E<br>(External)<br>ZXMT030203GM-I<br>(Internal) |
| -DRX125M-3-03            | ●     |               | 12.5            | 102 | 59  | 37.5 | 20 | 27  | +0.4                            |             |        |                                                              |
| -DRX130M-3-03            | ●     |               | 13              | 103 | 60  | 39   |    |     | +0.3                            |             |        |                                                              |
| -DRX135M-3-04            | ●     | 2             | 13.5            | 105 | 62  | 40.5 |    |     | +0.5                            | SB-2042TRG  | DTM-6  | ZXMT040203○○                                                 |
| -DRX140M-3-04            | ●     |               | 14              | 106 | 63  | 42   | 20 | 27  | +0.4                            |             |        |                                                              |
| -DRX145M-3-04            | ●     |               | 14.5            | 108 | 65  | 43.5 |    |     | +0.3                            |             |        |                                                              |
| -DRX150M-3-04            | ●     |               | 15              | 109 | 66  | 45   |    |     | +0.2                            |             |        |                                                              |
| <b>S25</b> -DRX155M-3-05 | ●     | 2             | 15.5            | 124 | 70  | 46.5 |    |     | +0.8                            | SB-2045TR   | DTM-6  | ZXMT05T203○○                                                 |
| -DRX160M-3-05            | ●     |               | 16              | 126 | 71  | 48   |    |     | +0.7                            |             |        |                                                              |
| -DRX165M-3-05            | ●     |               | 16.5            | 127 | 73  | 49.5 | 25 | 32  | +0.5                            |             |        |                                                              |
| -DRX170M-3-05            | ●     |               | 17              | 129 | 74  | 51   |    |     | +0.4                            |             |        |                                                              |
| -DRX175M-3-05            | ●     | 2             | 17.5            | 130 | 76  | 52.5 |    |     | +0.3                            | SB-2250TR   | DTM-7  | ZXMT06T204○○                                                 |
| -DRX180M-3-05            | ●     |               | 18              | 132 | 77  | 54   |    |     | +0.2                            |             |        |                                                              |
| -DRX185M-3-06            | ●     |               | 18.5            | 131 | 77  | 55.5 |    |     | +0.9                            |             |        |                                                              |
| -DRX190M-3-06            | ●     |               | 19              | 132 | 78  | 57   |    |     | +0.8                            |             |        |                                                              |
| -DRX195M-3-06            | ●     |               | 19.5            | 134 | 80  | 58.5 |    |     | +0.7                            |             |        |                                                              |
| -DRX200M-3-06            | ●     |               | 20              | 135 | 81  | 60   | 25 | 32  | +0.5                            |             |        |                                                              |
| -DRX205M-3-06            | ●     |               | 20.5            | 137 | 83  | 61.5 |    |     | +0.4                            |             |        |                                                              |
| -DRX210M-3-06            | ●     |               | 21              | 138 | 84  | 63   |    |     | +0.3                            |             |        |                                                              |
| -DRX215M-3-06            | ●     | 2             | 21.5            | 140 | 86  | 64.5 |    |     | +0.2                            | SB-2570TR   | DTM-8  | ZXMT070305○○                                                 |
| -DRX220M-3-07            | ●     |               | 22              | 141 | 86  | 66   |    |     | +1.2                            |             |        |                                                              |
| -DRX225M-3-07            | ●     |               | 22.5            | 142 | 88  | 67.5 |    |     | +1.0                            |             |        |                                                              |
| -DRX230M-3-07            | ●     |               | 23              | 144 | 89  | 69   |    |     | +0.9                            |             |        |                                                              |
| -DRX235M-3-07            | ●     |               | 23.5            | 145 | 91  | 70.5 |    |     | +0.8                            |             |        |                                                              |
| -DRX240M-3-07            | ●     |               | 24              | 147 | 92  | 72   | 25 | 35  | +0.7                            |             |        |                                                              |
| -DRX245M-3-07            | ●     |               | 24.5            | 148 | 94  | 73.5 |    |     | +0.5                            |             |        |                                                              |
| -DRX250M-3-07            | ●     |               | 25              | 150 | 95  | 75   |    |     | +0.4                            |             |        |                                                              |
| -DRX255M-3-07            | ●     | 2             | 25.5            | 151 | 97  | 76.5 |    |     | +0.3                            | SB-3080TR   | DTM-10 | ZXMT09T306○○                                                 |
| -DRX260M-3-07            | ●     |               | 26              | 153 | 98  | 78   |    |     | +0.2                            |             |        |                                                              |
| <b>S32</b> -DRX265M-3-09 | ●     |               | 26.5            | 161 | 102 | 79.5 |    |     | +1.7                            |             |        |                                                              |
| -DRX270M-3-09            | ●     |               | 27              | 163 | 103 | 81   |    |     | +1.6                            |             |        |                                                              |
| -DRX275M-3-09            | ●     |               | 27.5            | 164 | 105 | 82.5 |    |     | +1.5                            |             |        |                                                              |
| -DRX280M-3-09            | ●     |               | 28              | 166 | 106 | 84   |    |     | +1.3                            |             |        |                                                              |
| -DRX285M-3-09            | ●     |               | 28.5            | 167 | 108 | 85.5 |    |     | +1.2                            |             |        |                                                              |
| -DRX290M-3-09            | ●     |               | 29              | 169 | 109 | 87   | 32 |     | +1.1                            |             |        |                                                              |
| -DRX295M-3-09            | ●     | 2             | 29.5            | 170 | 111 | 88.5 |    |     | +1.1                            | SB-3080TR   | DTM-10 | ZXMT09T306○○                                                 |
| -DRX300M-3-09            | ●     |               | 30              | 172 | 112 | 90   |    |     | +0.8                            |             |        |                                                              |
| -DRX305M-3-09            | ●     |               | 30.5            | 173 | 114 | 91.5 |    |     | +0.7                            |             |        |                                                              |
| -DRX310M-3-09            | ●     |               | 31              | 175 | 115 | 93   |    |     | +0.6                            |             |        |                                                              |
| -DRX315M-3-09            | ●     |               | 31.5            | 176 | 117 | 94.5 |    |     | +0.5                            |             |        |                                                              |
| -DRX320M-3-11            | ●     |               | 32              | 201 | 132 | 96   |    |     | +2.2                            |             |        |                                                              |
| -DRX330M-3-11            | ●     | 2             | 33              | 204 | 135 | 99   |    |     | +1.9                            | SB-4085TR   | DTM-15 | ZXMT11T306○○                                                 |
| -DRX340M-3-11            | ●     |               | 34              | 207 | 138 | 102  |    |     | +1.7                            |             |        |                                                              |
| -DRX350M-3-11            | ●     |               | 35              | 210 | 141 | 105  | 40 | 55  | +1.4                            |             |        |                                                              |
| -DRX360M-3-11            | ●     |               | 36              | 213 | 144 | 108  |    |     | +1.2                            |             |        |                                                              |
| -DRX370M-3-11            | ●     |               | 37              | 216 | 147 | 111  |    |     | +0.9                            |             |        |                                                              |
| -DRX380M-3-11            | ●     |               | 38              | 219 | 150 | 114  |    |     | +0.7                            |             |        |                                                              |

·When offset machining, reduce feed rate to 0.08mm/rev. or less  
·See page 16 for Adjustable Sleeve SHE.

Recommended Cutting Condition ● P15  
Trouble Shooting ● P14

●:Standard Stock

## ● Holder Dimension

| Description                                                                                                                                                                                                               | Stock                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | No. of Insert | Dimensions (mm)                                                            |                                                                                         |                                                                                         |                                                                                         |    |                                      | Max. Offset<br>(Radial)<br>(mm)                                                                      | Spare Parts                                                                         |                                                                                     | Applicable Insert<br> P5 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----|--------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               | øDc                                                                        | L1                                                                                      | L2                                                                                      | L3                                                                                      | ød | ød1                                  |                                                                                                      | Clamp Screw                                                                         | Wrench                                                                              |                                                                                                             |
|                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                                                                            |                                                                                         |                                                                                         |                                                                                         |    |                                      |                                                                                                      |  |  |                                                                                                             |
| <b>S40</b> -DRX390M-3-14<br>-DRX400M-3-14<br>-DRX410M-3-14<br>-DRX420M-3-14<br>-DRX430M-3-14<br>-DRX440M-3-14<br>-DRX450M-3-14<br>-DRX460M-3-14<br>-DRX470M-3-14                                                          | <br><br><br><br><br><br><br><br>                                                                                                                                                                                                                                                                                                                                                         | 2             | 39<br>40<br>41<br>42<br>43<br>44<br>45<br>46<br>47                         | 218<br>221<br>224<br>227<br>230<br>233<br>236<br>239<br>242                             | 149<br>152<br>155<br>158<br>161<br>164<br>167<br>170<br>173                             | 117<br>120<br>123<br>126<br>129<br>132<br>135<br>138<br>141                             | 40 | 55<br><br><br><br><br><br><br><br>60 | +2.8<br>+2.5<br>+2.3<br>+2.0<br>+1.8<br>+1.5<br>+1.3<br>+1.0<br>+0.8                                 | SB-5090TR                                                                           | DT-20                                                                               | ZXMT140408○○                                                                                                |
| -DRX480M-3-17<br>-DRX490M-3-17<br>-DRX500M-3-17<br>-DRX510M-3-17<br>-DRX520M-3-17<br>-DRX530M-3-17<br>-DRX540M-3-17<br>-DRX550M-3-17<br>-DRX560M-3-17<br>-DRX570M-3-17<br>-DRX580M-3-17<br>-DRX590M-3-17<br>-DRX600M-3-17 | <br><br><br><br><br><br><br><br><br><br><br><br> | 2             | 48<br>49<br>50<br>51<br>52<br>53<br>54<br>55<br>56<br>57<br>58<br>59<br>60 | 242<br>245<br>248<br>251<br>254<br>257<br>260<br>263<br>266<br>269<br>272<br>275<br>278 | 173<br>176<br>179<br>182<br>185<br>188<br>191<br>194<br>197<br>200<br>203<br>206<br>209 | 144<br>147<br>150<br>153<br>156<br>159<br>162<br>165<br>168<br>171<br>174<br>177<br>180 | 40 | 60<br><br><br><br><br><br><br><br>65 | +3.8<br>+3.5<br>+3.3<br>+3.0<br>+2.8<br>+2.5<br>+2.3<br>+2.0<br>+1.8<br>+1.5<br>+1.3<br>+1.0<br>+0.8 | SB-60120TR                                                                          | DT-25                                                                               | ZXMT170608○○                                                                                                |

·When offset machining, reduce feed rate to 0.08mm/rev. or less  
·See page 16 for Adjustable Sleeve SHE.

Recommended Cutting Condition P15  
Trouble Shooting P14

## ·Cutting Tolerance (3D Type)

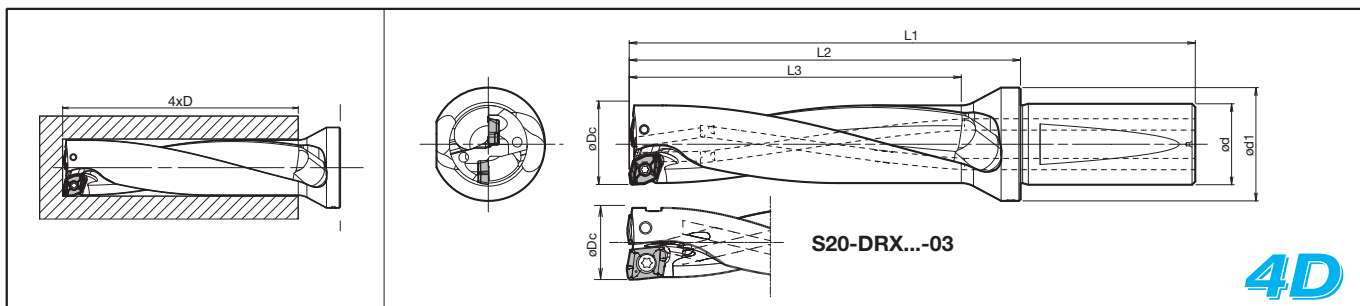
| Dc        | Cutting Tolerance (mm) |
|-----------|------------------------|
| ø12~ø26   | +0.20<br>-0.10         |
| ø26.5~ø38 | +0.25<br>-0.15         |
| ø39~ø60   | +0.30<br>-0.20         |

\*Listed tolerance is guideline numbers.

These guideline numbers may be variable depending on machines, workpiece, clamping conditions and cutting conditions.

## Holder Line Up

### DRX type(4 X D Drilling Depth)



#### Holder Dimension

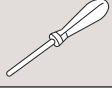
| Description       | Stock | No. of Insert | Dimensions (mm) |     |     |     |    |     | Max. Offset (Radial) (mm) | Spare Parts |        | Applicable Insert<br>P5                                      |
|-------------------|-------|---------------|-----------------|-----|-----|-----|----|-----|---------------------------|-------------|--------|--------------------------------------------------------------|
|                   |       |               | øDc             | L1  | L2  | L3  | ød | ød1 |                           | Clamp Screw | Wrench |                                                              |
| S20 -DRX120M-4-03 | ●     | 2             | 12              | 112 | 69  | 48  | 20 | 27  | +0.5                      | SB-2042TRG  | DTM-6  | ZXMT030203○○-E<br>(External)<br>ZXMT030203GM-I<br>(Internal) |
| -DRX125M-4-03     | ●     |               | 12.5            | 114 | 71  | 50  |    |     | +0.4                      |             |        |                                                              |
| -DRX130M-4-03     | ●     |               | 13              | 116 | 73  | 52  |    |     | +0.3                      |             |        |                                                              |
| -DRX135M-4-04     | ●     | 2             | 13.5            | 118 | 75  | 54  | 20 | 27  | +0.5                      | SB-2042TRG  | DTM-6  | ZXMT040203○○                                                 |
| -DRX140M-4-04     | ●     |               | 14              | 120 | 77  | 56  |    |     | +0.4                      |             |        |                                                              |
| -DRX145M-4-04     | ●     |               | 14.5            | 122 | 79  | 58  |    |     | +0.3                      |             |        |                                                              |
| -DRX150M-4-04     | ●     |               | 15              | 124 | 81  | 60  |    |     | +0.2                      |             |        |                                                              |
| S25 -DRX155M-4-05 | ●     | 2             | 15.5            | 140 | 86  | 62  | 25 | 32  | +0.8                      | SB-2045TR   | DTM-6  | ZXMT05T203○○                                                 |
| -DRX160M-4-05     | ●     |               | 16              | 142 | 87  | 64  |    |     | +0.7                      |             |        |                                                              |
| -DRX165M-4-05     | ●     |               | 16.5            | 144 | 90  | 66  |    |     | +0.5                      |             |        |                                                              |
| -DRX170M-4-05     | ●     |               | 17              | 146 | 91  | 68  |    |     | +0.4                      |             |        |                                                              |
| -DRX175M-4-05     | ●     |               | 17.5            | 148 | 94  | 70  |    |     | +0.3                      |             |        |                                                              |
| -DRX180M-4-05     | ●     | 2             | 18              | 150 | 95  | 72  | 25 | 32  | +0.2                      | SB-2250TR   | DTM-7  | ZXMT06T204○○                                                 |
| -DRX185M-4-06     | ●     |               | 18.5            | 149 | 95  | 74  |    |     | +0.9                      |             |        |                                                              |
| -DRX190M-4-06     | ●     |               | 19              | 151 | 97  | 76  |    |     | +0.8                      |             |        |                                                              |
| -DRX195M-4-06     | ●     |               | 19.5            | 153 | 99  | 78  |    |     | +0.7                      |             |        |                                                              |
| -DRX200M-4-06     | ●     |               | 20              | 155 | 101 | 80  |    |     | +0.5                      |             |        |                                                              |
| -DRX205M-4-06     | ●     |               | 20.5            | 157 | 103 | 82  |    |     | +0.4                      |             |        |                                                              |
| -DRX210M-4-06     | ●     |               | 21              | 159 | 105 | 84  |    |     | +0.3                      |             |        |                                                              |
| -DRX215M-4-06     | ●     |               | 21.5            | 161 | 107 | 86  |    |     | +0.2                      |             |        |                                                              |
| -DRX220M-4-07     | ●     | 2             | 22              | 163 | 108 | 88  | 25 | 35  | +1.2                      | SB-2570TR   | DTM-8  | ZXMT070305○○                                                 |
| -DRX225M-4-07     | ●     |               | 22.5            | 165 | 111 | 90  |    |     | +1.0                      |             |        |                                                              |
| -DRX230M-4-07     | ●     |               | 23              | 167 | 112 | 92  |    |     | +0.9                      |             |        |                                                              |
| -DRX235M-4-07     | ●     |               | 23.5            | 169 | 115 | 94  |    |     | +0.8                      |             |        |                                                              |
| -DRX240M-4-07     | ●     |               | 24              | 171 | 116 | 96  |    |     | +0.7                      |             |        |                                                              |
| -DRX245M-4-07     | ●     |               | 24.5            | 173 | 119 | 98  |    |     | +0.5                      |             |        |                                                              |
| -DRX250M-4-07     | ●     |               | 25              | 175 | 120 | 100 |    |     | +0.4                      |             |        |                                                              |
| -DRX255M-4-07     | ●     |               | 25.5            | 177 | 123 | 102 |    |     | +0.3                      |             |        |                                                              |
| -DRX260M-4-07     | ●     |               | 26              | 179 | 124 | 104 |    |     | +0.2                      |             |        |                                                              |
| S32 -DRX270M-4-09 | ●     | 2             | 27              | 190 | 130 | 108 | 32 | 42  | +1.6                      | SB-3080TR   | DTM-10 | ZXMT09T306○○                                                 |
| -DRX280M-4-09     | ●     |               | 28              | 194 | 134 | 112 |    |     | +1.3                      |             |        |                                                              |
| -DRX290M-4-09     | ●     |               | 29              | 198 | 138 | 116 |    |     | +1.1                      |             |        |                                                              |
| -DRX300M-4-09     | ●     |               | 30              | 202 | 142 | 120 |    |     | +0.8                      |             |        |                                                              |
| -DRX310M-4-09     | ●     |               | 31              | 206 | 146 | 124 |    |     | +0.6                      |             |        |                                                              |
| S40 -DRX320M-4-11 | ●     | 2             | 32              | 223 | 154 | 128 | 40 | 50  | +2.2                      | SB-4085TR   | DTM-15 | ZXMT11T306○○                                                 |
| -DRX330M-4-11     | ●     |               | 33              | 227 | 158 | 132 |    |     | +1.9                      |             |        |                                                              |
| -DRX340M-4-11     | ●     |               | 34              | 231 | 162 | 136 |    |     | +1.7                      |             |        |                                                              |
| -DRX350M-4-11     | ●     |               | 35              | 235 | 166 | 140 |    |     | +1.4                      |             |        |                                                              |
| -DRX360M-4-11     | ●     |               | 36              | 239 | 170 | 144 |    |     | +1.2                      |             |        |                                                              |
| -DRX370M-4-11     | ●     |               | 37              | 243 | 174 | 148 |    |     | +0.9                      |             |        |                                                              |
| -DRX380M-4-11     | ●     |               | 38              | 247 | 178 | 152 |    |     | +0.7                      |             |        |                                                              |

When offset machining, reduce feed rate to 0.08mm/rev. or less  
See page 16 for Adjustable Sleeve SHE.

Recommended Cutting Condition P15  
Trouble Shooting P14

●:Standard Stock

● Holder Dimension

| Description              | Stock | No. of Insert | Dimensions (mm) |     |     |     |    |     | Max. Offset (Radial) (mm) | Spare Parts                                                                         |                                                                                     | Applicable Insert<br>➡ P5 |
|--------------------------|-------|---------------|-----------------|-----|-----|-----|----|-----|---------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------|
|                          |       |               |                 |     |     |     |    |     |                           | Clamp Screw                                                                         | Wrench                                                                              |                           |
|                          |       |               | øDc             | L1  | L2  | L3  | ød | ød1 |                           |  |  |                           |
| <b>S40 -DRX390M-4-14</b> | ●     | 2             | 39              | 257 | 188 | 156 | 40 | 55  | +2.8                      | SB-5090TR                                                                           | DT-20                                                                               | ZXMT140408○○              |
| <b>-DRX400M-4-14</b>     | ●     |               | 40              | 261 | 192 | 160 |    |     | +2.5                      |                                                                                     |                                                                                     |                           |
| <b>-DRX410M-4-14</b>     | ●     |               | 41              | 265 | 196 | 164 |    |     | +2.3                      |                                                                                     |                                                                                     |                           |
| <b>-DRX420M-4-14</b>     | ●     |               | 42              | 269 | 200 | 168 |    |     | +2.0                      |                                                                                     |                                                                                     |                           |
| <b>-DRX430M-4-14</b>     | ●     |               | 43              | 273 | 204 | 172 |    | 60  | +1.8                      |                                                                                     |                                                                                     |                           |
| <b>-DRX440M-4-14</b>     | ●     |               | 44              | 277 | 208 | 176 |    |     | +1.5                      |                                                                                     |                                                                                     |                           |
| <b>-DRX450M-4-14</b>     | ●     |               | 45              | 281 | 212 | 180 |    |     | +1.3                      |                                                                                     |                                                                                     |                           |
| <b>-DRX460M-4-14</b>     | ●     |               | 46              | 285 | 216 | 184 |    |     | +1.0                      |                                                                                     |                                                                                     |                           |
| <b>-DRX470M-4-14</b>     | ●     |               | 47              | 289 | 220 | 188 |    |     | +0.8                      |                                                                                     |                                                                                     |                           |
| <b>S50 -DRX480M-4-17</b> | ●     | 2             | 48              | 290 | 221 | 192 | 50 | 60  | +3.8                      | SB-60120TR                                                                          | DT-25                                                                               | ZXMT170608○○              |
| <b>-DRX490M-4-17</b>     | ●     |               | 49              | 294 | 225 | 196 |    |     | +3.5                      |                                                                                     |                                                                                     |                           |
| <b>-DRX500M-4-17</b>     | ●     |               | 50              | 298 | 229 | 200 |    |     | +3.3                      |                                                                                     |                                                                                     |                           |
| <b>-DRX510M-4-17</b>     | ●     |               | 51              | 302 | 233 | 204 |    |     | +3.0                      |                                                                                     |                                                                                     |                           |
| <b>-DRX520M-4-17</b>     | ●     |               | 52              | 306 | 237 | 208 |    |     | +2.8                      |                                                                                     |                                                                                     |                           |
| <b>-DRX530M-4-17</b>     | ●     |               | 53              | 310 | 241 | 212 |    |     | +2.5                      |                                                                                     |                                                                                     |                           |
| <b>-DRX540M-4-17</b>     | ●     |               | 54              | 314 | 245 | 216 | 65 | 65  | +2.3                      |                                                                                     |                                                                                     |                           |
| <b>-DRX550M-4-17</b>     | ●     |               | 55              | 318 | 249 | 220 |    |     | +2.0                      |                                                                                     |                                                                                     |                           |
| <b>-DRX560M-4-17</b>     | ●     |               | 56              | 322 | 253 | 224 |    |     | +1.8                      |                                                                                     |                                                                                     |                           |
| <b>-DRX570M-4-17</b>     | ●     |               | 57              | 326 | 257 | 228 |    |     | +1.5                      |                                                                                     |                                                                                     |                           |
| <b>-DRX580M-4-17</b>     | ●     |               | 58              | 330 | 261 | 232 |    |     | +1.3                      |                                                                                     |                                                                                     |                           |
| <b>-DRX590M-4-17</b>     | ●     |               | 59              | 334 | 265 | 236 |    |     | +1.0                      |                                                                                     |                                                                                     |                           |
| <b>-DRX600M-4-17</b>     | ●     |               | 60              | 338 | 269 | 240 |    |     | +0.8                      |                                                                                     |                                                                                     |                           |

·When offset machining, reduce feed rate to 0.08mm/rev. or less  
·See page 16 for Adjustable Sleeve SHE.

Recommended Cutting Condition ➡ P15  
Trouble Shooting ➡ P14

·Cutting Tolerance (4D Type)

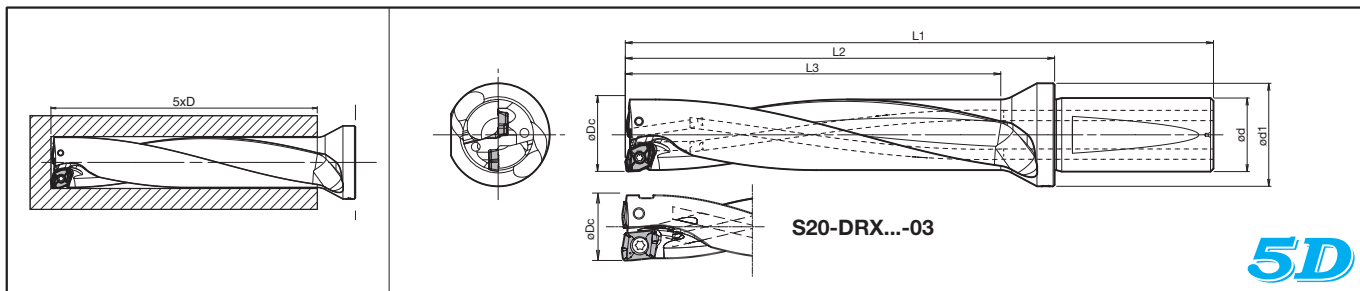
| Dc      | Cutting Tolerance (mm) |
|---------|------------------------|
| ø12~ø26 | +0.25<br>-0.10         |
| ø27~ø38 | +0.30<br>-0.15         |
| ø39~ø60 | +0.35<br>-0.20         |

\*Listed tolerance is guideline numbers.

These guideline numbers may be variable depending on machines, workpiece, clamping conditions and cutting conditions.

# Holder Line Up

## DRX type(5 X D Drilling Depth)



### Holder Dimension

| Description                                                                                                                                                                                                                   | Stock                                                                                                                                                 | No. of Insert | Dimensions (mm)                                                                      |     |     |     |     |     | Max. Offset<br>(Radial)<br>(mm) | Spare Parts                                                                        |                                                                                     | Applicable Insert<br> P5 |              |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|---------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|--------------|
|                                                                                                                                                                                                                               |                                                                                                                                                       |               |                                                                                      |     |     |     |     |     |                                 | Clamp Screw                                                                        | Wrench                                                                              |                                                                                                             |              |              |
|                                                                                                                                                                                                                               |                                                                                                                                                       |               |  Dc | L1  | L2  | L3  | ød  | ød1 |                                 |  |  |                                                                                                             |              |              |
| S20 -DRX120M-5-03<br>-DRX130M-5-03<br>-DRX140M-5-04<br>-DRX150M-5-04                                                                                                                                                          | ●                                                                                                                                                     | 2             | 12                                                                                   | 124 | 81  | 60  | 20  | 27  | +0.5                            | SB-2042TRG                                                                         | DTM-6                                                                               | ZXMT030203○○-E(External)<br>ZXMT030203GM-I(Internal)                                                        |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 13                                                                                   | 129 | 86  | 65  |     |     | +0.3                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 14                                                                                   | 134 | 91  | 70  | 20  | 27  | +0.4                            | SB-2042TRG                                                                         | DTM-6                                                                               |                                                                                                             | ZXMT040203○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 15                                                                                   | 139 | 96  | 75  |     |     | +0.2                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| S25 -DRX160M-5-05<br>-DRX170M-5-05<br>-DRX180M-5-05                                                                                                                                                                           | ●                                                                                                                                                     | 2             | 16                                                                                   | 158 | 103 | 80  |     |     | +0.7                            | SB-2045TR                                                                          | DTM-6                                                                               | ZXMT05T203○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 17                                                                                   | 163 | 108 | 85  | 25  | 32  | +0.4                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 18                                                                                   | 168 | 113 | 90  |     |     | +0.2                            | SB-2250TR                                                                          | DTM-7                                                                               |                                                                                                             | ZXMT06T204○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 19                                                                                   | 170 | 116 | 95  |     |     | +0.8                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| -DRX190M-5-06<br>-DRX200M-5-06<br>-DRX210M-5-06                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 20                                                                                   | 175 | 121 | 100 | 25  | 32  | +0.5                            | SB-2250TR                                                                          | DTM-7                                                                               | ZXMT06T204○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 21                                                                                   | 180 | 126 | 105 |     |     | +0.3                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | -DRX220M-5-07<br>-DRX230M-5-07<br>-DRX240M-5-07<br>-DRX250M-5-07<br>-DRX260M-5-07                                                                     | ●             | 2                                                                                    | 22  | 185 | 130 | 110 |     |                                 | +1.2                                                                               | SB-2570TR                                                                           |                                                                                                             | DTM-8        | ZXMT070305○○ |
|                                                                                                                                                                                                                               |                                                                                                                                                       | ●             |                                                                                      | 23  | 190 | 135 | 115 |     |                                 | +0.9                                                                               |                                                                                     |                                                                                                             |              |              |
| ●                                                                                                                                                                                                                             |                                                                                                                                                       | 2             | 24                                                                                   | 195 | 140 | 120 | 25  | 32  | +0.7                            | SB-2570TR                                                                          | DTM-8                                                                               | ZXMT070305○○                                                                                                |              |              |
| ●                                                                                                                                                                                                                             |                                                                                                                                                       |               | 25                                                                                   | 200 | 145 | 125 |     |     | +0.4                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| S32 -DRX270M-5-09<br>-DRX280M-5-09<br>-DRX290M-5-09<br>-DRX300M-5-09<br>-DRX310M-5-09                                                                                                                                         | ●                                                                                                                                                     | 2             | 26                                                                                   | 205 | 150 | 130 |     |     | +0.2                            | SB-2570TR                                                                          | DTM-8                                                                               |                                                                                                             | ZXMT070305○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 27                                                                                   | 217 | 157 | 135 |     |     | +1.6                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 28                                                                                   | 222 | 162 | 140 |     | 42  | +1.3                            | SB-3080TR                                                                          | DTM-10                                                                              | ZXMT09T306○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 29                                                                                   | 227 | 167 | 145 | 32  |     | +1.1                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| S40 -DRX320M-5-11<br>-DRX330M-5-11<br>-DRX340M-5-11<br>-DRX350M-5-11<br>-DRX360M-5-11<br>-DRX370M-5-11<br>-DRX380M-5-11                                                                                                       | ●                                                                                                                                                     | 2             | 30                                                                                   | 232 | 172 | 150 |     | 45  | +0.8                            | SB-3080TR                                                                          | DTM-10                                                                              |                                                                                                             | ZXMT09T306○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 31                                                                                   | 237 | 177 | 155 |     |     | +0.6                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | -DRX390M-5-14<br>-DRX400M-5-14<br>-DRX410M-5-14<br>-DRX420M-5-14<br>-DRX430M-5-14<br>-DRX440M-5-14<br>-DRX450M-5-14<br>-DRX460M-5-14<br>-DRX470M-5-14 | ●             | 2                                                                                    | 32  | 255 | 186 | 160 |     |                                 | +2.2                                                                               | SB-4085TR                                                                           | DTM-15                                                                                                      |              | ZXMT11T306○○ |
|                                                                                                                                                                                                                               |                                                                                                                                                       | ●             |                                                                                      | 33  | 260 | 191 | 165 |     |                                 | +1.9                                                                               |                                                                                     |                                                                                                             |              |              |
| ●                                                                                                                                                                                                                             |                                                                                                                                                       | 2             | 34                                                                                   | 265 | 196 | 170 | 40  | 50  | +1.7                            | SB-4085TR                                                                          | DTM-15                                                                              | ZXMT11T306○○                                                                                                |              |              |
| ●                                                                                                                                                                                                                             |                                                                                                                                                       |               | 35                                                                                   | 270 | 201 | 175 |     |     | +1.4                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| S50 -DRX480M-5-17<br>-DRX490M-5-17<br>-DRX500M-5-17<br>-DRX510M-5-17<br>-DRX520M-5-17<br>-DRX530M-5-17<br>-DRX540M-5-17<br>-DRX550M-5-17<br>-DRX560M-5-17<br>-DRX570M-5-17<br>-DRX580M-5-17<br>-DRX590M-5-17<br>-DRX600M-5-17 | ●                                                                                                                                                     | 2             | 36                                                                                   | 275 | 206 | 180 |     |     | +1.2                            | SB-4085TR                                                                          | DTM-15                                                                              |                                                                                                             | ZXMT11T306○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 37                                                                                   | 280 | 211 | 185 |     |     | +0.9                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 38                                                                                   | 285 | 216 | 190 |     |     | +0.7                            | SB-4085TR                                                                          | DTM-15                                                                              | ZXMT11T306○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 39                                                                                   | 296 | 227 | 195 |     |     | +2.8                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| -DRX390M-5-14<br>-DRX400M-5-14<br>-DRX410M-5-14<br>-DRX420M-5-14<br>-DRX430M-5-14<br>-DRX440M-5-14<br>-DRX450M-5-14<br>-DRX460M-5-14<br>-DRX470M-5-14                                                                         | ●                                                                                                                                                     | 2             | 40                                                                                   | 301 | 232 | 200 |     | 55  | +2.5                            | SB-5090TR                                                                          | DT-20                                                                               |                                                                                                             | ZXMT140408○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 41                                                                                   | 306 | 237 | 205 |     |     | +2.3                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 42                                                                                   | 311 | 242 | 210 |     |     | +2.0                            | SB-5090TR                                                                          | DT-20                                                                               | ZXMT140408○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 43                                                                                   | 316 | 247 | 215 | 40  |     | +1.8                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| S50 -DRX480M-5-17<br>-DRX490M-5-17<br>-DRX500M-5-17<br>-DRX510M-5-17<br>-DRX520M-5-17<br>-DRX530M-5-17<br>-DRX540M-5-17<br>-DRX550M-5-17<br>-DRX560M-5-17<br>-DRX570M-5-17<br>-DRX580M-5-17<br>-DRX590M-5-17<br>-DRX600M-5-17 | ●                                                                                                                                                     | 2             | 44                                                                                   | 321 | 252 | 220 |     | 60  | +1.5                            | SB-5090TR                                                                          | DT-20                                                                               |                                                                                                             | ZXMT140408○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 45                                                                                   | 326 | 257 | 225 |     |     | +1.3                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 46                                                                                   | 331 | 262 | 230 |     |     | +1.0                            | SB-5090TR                                                                          | DT-20                                                                               | ZXMT140408○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 47                                                                                   | 336 | 267 | 235 |     |     | +0.8                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| -DRX390M-5-14<br>-DRX400M-5-14<br>-DRX410M-5-14<br>-DRX420M-5-14<br>-DRX430M-5-14<br>-DRX440M-5-14<br>-DRX450M-5-14<br>-DRX460M-5-14<br>-DRX470M-5-14                                                                         | ●                                                                                                                                                     | 2             | 48                                                                                   | 338 | 269 | 240 |     |     | +3.8                            | SB-60120TR                                                                         | DT-25                                                                               |                                                                                                             | ZXMT170608○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 49                                                                                   | 343 | 274 | 245 |     |     | +3.5                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 50                                                                                   | 348 | 279 | 250 |     | 60  | +3.3                            | SB-60120TR                                                                         | DT-25                                                                               | ZXMT170608○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 51                                                                                   | 353 | 284 | 255 |     |     | +3.0                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| -DRX520M-5-17<br>-DRX530M-5-17<br>-DRX540M-5-17<br>-DRX550M-5-17<br>-DRX560M-5-17<br>-DRX570M-5-17<br>-DRX580M-5-17<br>-DRX590M-5-17<br>-DRX600M-5-17                                                                         | ●                                                                                                                                                     | 2             | 52                                                                                   | 358 | 289 | 260 |     |     | +2.8                            | SB-60120TR                                                                         | DT-25                                                                               |                                                                                                             | ZXMT170608○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 53                                                                                   | 363 | 294 | 265 |     |     | +2.5                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 54                                                                                   | 368 | 299 | 270 | 50  |     | +2.3                            | SB-60120TR                                                                         | DT-25                                                                               | ZXMT170608○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 55                                                                                   | 373 | 304 | 275 |     |     | +2.0                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| -DRX560M-5-17<br>-DRX570M-5-17<br>-DRX580M-5-17<br>-DRX590M-5-17<br>-DRX600M-5-17                                                                                                                                             | ●                                                                                                                                                     | 2             | 56                                                                                   | 378 | 309 | 280 |     |     | +1.8                            | SB-60120TR                                                                         | DT-25                                                                               |                                                                                                             | ZXMT170608○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 57                                                                                   | 383 | 314 | 285 |     |     | +1.5                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     | 2             | 58                                                                                   | 388 | 319 | 290 |     | 65  | +1.3                            | SB-60120TR                                                                         | DT-25                                                                               | ZXMT170608○○                                                                                                |              |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               | 59                                                                                   | 393 | 324 | 295 |     |     | +1.0                            |                                                                                    |                                                                                     |                                                                                                             |              |              |
| -DRX560M-5-17<br>-DRX570M-5-17<br>-DRX580M-5-17<br>-DRX590M-5-17<br>-DRX600M-5-17                                                                                                                                             | ●                                                                                                                                                     | 2             | 60                                                                                   | 398 | 329 | 300 |     |     | +0.8                            | SB-60120TR                                                                         | DT-25                                                                               |                                                                                                             | ZXMT170608○○ |              |
|                                                                                                                                                                                                                               | ●                                                                                                                                                     |               |                                                                                      |     |     |     |     |     |                                 |                                                                                    |                                                                                     |                                                                                                             |              |              |

When offset machining, reduce feed rate to 0.08mm/rev. or less  
See page 16 for Adjustable Sleeve SHE.

Recommended Cutting Condition P15  
Trouble Shooting P14  
●:Standard Stock

### Cutting Tolerance (5D Type)

| Dc      | Cutting Tolerance (mm) | Dc      | Cutting Tolerance (mm) | Dc      | Cutting Tolerance (mm) |
|---------|------------------------|---------|------------------------|---------|------------------------|
| ø12~ø26 | +0.30<br>-0.10         | ø27~ø38 | +0.35<br>-0.15         | ø39~ø60 | +0.40<br>-0.20         |

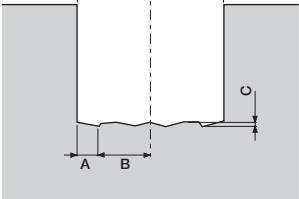
\*Listed tolerance is guideline numbers.  
These guideline numbers may be variable depending on machines, workpiece, clamping conditions and cutting conditions.

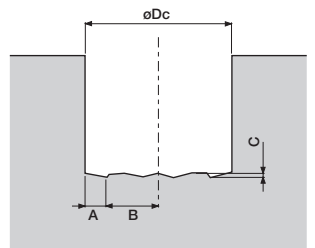
## Troubleshooting

| Problem                                           | Details                                                                                               | Cause                                              | Countermeasure                                                                                                                                                                           |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hole diameter becomes smaller at hole bottom      | <p>No problem at hole inlet, but hole diameter decreases gradually.</p> <p><math>A &gt; B</math></p>  | Clogged chip from inner and outer edge.            | Change the cutting conditions<br>·Increase the cutting speed<br>·Reduce the feed rate<br>See "Recommended Cutting Conditions" on page 15.                                                |
| Hole diameter becomes larger at hole bottom       | <p>No problem at hole inlet, but hole diameter increases gradually.</p> <p><math>A &lt; B'</math></p> | Clogged chip from inner edge.                      | Change the cutting conditions<br>·Increase the cutting speed<br>·Reduce the feed rate<br>See "Recommended Cutting Conditions" on page 15.<br>·Check the center height<br>See page 17-18. |
| Hole diameter becomes smaller from the hole inlet |                                                                                                       | Improper cutting dia. adjustment                   | When using with lathe, adjust the hole dia. by moving the tool the in X-axis direction.<br>See page 17.                                                                                  |
|                                                   |                                                                                                       | Inner insert is above the center (No core remains) | Adjust the center height<br>See page 17-18.                                                                                                                                              |

### ◆ DRX Hole Bottom Shape(mm)

| øDc  | A   | B   | C   | øDc                                                                                                                                               | A   | B    | C   | øDc  | A    | B    | C   |  |  |
|------|-----|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|-----|------|------|------|-----|--|--|
| 12.0 | 1.8 | 4.2 | 0.5 | 24.5                                                                                                                                              | 3.2 | 9.1  | 0.8 | 39.0 | 5.8  | 13.7 | 1.5 |  |  |
| 12.5 |     | 4.5 |     | 25.0                                                                                                                                              |     | 9.3  |     | 40.0 |      | 14.2 |     |  |  |
| 13.0 |     | 4.7 |     | 25.5                                                                                                                                              |     | 9.6  |     | 41.0 |      | 14.7 |     |  |  |
| 13.5 | 2   | 4.8 | 0.5 | 26.0                                                                                                                                              | 3.9 | 9.8  | 1.0 | 42.0 |      | 15.2 |     |  |  |
| 14.0 |     | 5.0 |     | 26.5                                                                                                                                              |     | 9.4  |     | 43.0 |      | 15.7 |     |  |  |
| 14.5 |     | 5.3 |     | 27.0                                                                                                                                              |     | 9.6  |     | 44.0 |      | 16.2 |     |  |  |
| 15.0 |     | 5.5 |     | 27.5                                                                                                                                              |     | 9.9  |     | 45.0 |      | 16.7 |     |  |  |
| 15.5 |     | 5.8 | 0.6 | 28.0                                                                                                                                              |     | 10.1 | 1.1 | 46.0 | 17.2 |      |     |  |  |
| 16.0 |     | 6.0 |     | 28.5                                                                                                                                              |     | 10.4 |     | 47.0 | 17.7 |      |     |  |  |
| 16.5 |     | 6.3 |     | 29.0                                                                                                                                              |     | 10.6 |     | 48.0 | 16.9 |      |     |  |  |
| 17.0 |     | 6.5 |     | 29.5                                                                                                                                              |     | 10.9 |     | 49.0 | 17.4 |      |     |  |  |
| 17.5 | 2.4 | 6.8 | 0.7 | 30.0                                                                                                                                              | 4.7 | 11.1 | 1.2 | 50.0 | 17.9 |      |     |  |  |
| 18.0 |     | 7.0 |     | 30.5                                                                                                                                              |     | 11.4 |     | 51.0 | 18.4 |      |     |  |  |
| 18.5 |     | 6.9 |     | 31.0                                                                                                                                              |     | 11.6 |     | 52.0 | 18.9 |      |     |  |  |
| 19.0 |     | 7.1 |     | 31.5                                                                                                                                              |     | 11.9 |     | 53.0 | 19.4 |      |     |  |  |
| 19.5 |     | 7.4 | 0.8 | 32.0                                                                                                                                              |     | 11.3 | 1.1 | 54.0 | 19.9 |      |     |  |  |
| 20.0 |     | 7.6 |     | 33.0                                                                                                                                              |     | 11.8 |     | 55.0 | 20.4 |      |     |  |  |
| 20.5 |     | 7.9 |     | 34.0                                                                                                                                              |     | 12.3 |     | 56.0 | 20.9 |      |     |  |  |
| 21.0 |     | 8.1 |     | 35.0                                                                                                                                              |     | 12.8 |     | 57.0 | 21.4 |      |     |  |  |
| 21.5 | 3.2 | 8.4 | 0.8 | 36.0                                                                                                                                              |     | 13.3 | 1.2 | 58.0 | 21.9 |      |     |  |  |
| 22.0 |     | 7.8 |     | 37.0                                                                                                                                              |     | 13.8 |     | 59.0 | 22.4 |      |     |  |  |
| 22.5 |     | 8.1 |     | 38.0                                                                                                                                              |     | 14.3 |     | 60.0 | 22.9 |      |     |  |  |
| 23.0 |     | 8.3 |     | Available for 2XD,3XD,4XD,5XD<br>*Figures above are nominal sizes(Varies from -0.1mm to +0.1mm depending on work material and cutting conditions) |     |      |     |      |      |      |     |  |  |
| 23.5 |     | 8.6 |     |                                                                                                                                                   |     |      |     |      |      |      |     |  |  |
| 24.0 |     | 8.8 |     |                                                                                                                                                   |     |      |     |      |      |      |     |  |  |





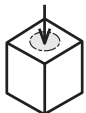
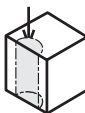
## ■ DRX Recommended Cutting Conditions (Coolant)

| Work Material                    | Recommended Grade(Vc=m/min) |              |              |         | Cutting Dia.<br>(mm) | Holder Type(Cutting Depth) |           |           |           |           |           |           |           |           |
|----------------------------------|-----------------------------|--------------|--------------|---------|----------------------|----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                  | MEGACOAT                    |              |              | Carbide |                      |                            |           |           |           |           |           |           |           |           |
|                                  | PR1230                      | PR1225       | PR1210       | GW15    |                      |                            |           |           |           |           |           |           |           |           |
|                                  | GM<br>GH                    | SM           | GM           | SM      |                      | 2D~3D                      |           |           | 4D        |           |           | 5D        |           |           |
|                                  |                             |              |              |         |                      | feed(mm/rev.)              |           |           |           |           |           |           |           |           |
| GM                               | GH                          | SM           | GM           | GH      | SM                   | GM                         | GH        | SM        | GM        | GH        | SM        |           |           |           |
| Low Carbon Steel<br>(SS400,S15C) | ☆<br>120-240                | ★<br>120-240 |              |         | φ12~φ15              | 0.06~0.10                  | 0.06~0.10 | 0.04~0.10 | 0.05~0.08 | 0.05~0.08 | 0.04~0.08 | 0.04~0.07 | 0.04~0.07 | 0.04~0.08 |
|                                  |                             |              |              |         | φ15.5~φ18            | 0.06~0.12                  | 0.06~0.12 | 0.06~0.12 | 0.05~0.10 | 0.05~0.10 | 0.05~0.10 | 0.05~0.08 | 0.05~0.08 | 0.04~0.09 |
|                                  |                             |              |              |         | φ18.5~φ26            | 0.08~0.14                  | 0.08~0.14 | 0.06~0.14 | 0.06~0.12 | 0.08~0.12 | 0.05~0.12 | 0.06~0.10 | 0.06~0.10 | 0.04~0.10 |
|                                  |                             |              |              |         | φ26.5~φ60            | 0.08~0.14                  | 0.08~0.14 | 0.06~0.14 | 0.06~0.12 | 0.08~0.12 | 0.05~0.12 | 0.06~0.10 | 0.06~0.10 | 0.04~0.10 |
| Carbon Steel<br>(S45C)           | ★<br>100-180                | ☆<br>100-180 |              |         | φ12~φ15              | 0.04~0.14                  | 0.04~0.14 | 0.04~0.10 | 0.04~0.10 | 0.04~0.10 | 0.04~0.08 | 0.04~0.08 | 0.04~0.08 | 0.04~0.07 |
|                                  |                             |              |              |         | φ15.5~φ18            | 0.06~0.16                  | 0.06~0.16 | 0.06~0.12 | 0.05~0.12 | 0.05~0.12 | 0.05~0.10 | 0.05~0.10 | 0.05~0.10 | 0.05~0.08 |
|                                  |                             |              |              |         | φ18.5~φ26            | 0.08~0.20                  | 0.08~0.20 | 0.06~0.14 | 0.07~0.16 | 0.07~0.16 | 0.05~0.12 | 0.06~0.12 | 0.06~0.12 | 0.05~0.10 |
|                                  |                             |              |              |         | φ26.5~φ60            | 0.08~0.20                  | 0.08~0.20 | 0.06~0.14 | 0.07~0.16 | 0.07~0.16 | 0.05~0.12 | 0.06~0.12 | 0.06~0.12 | 0.05~0.10 |
| Alloy Steel<br>(SCM,SCr)         | ★<br>100-160                | ☆<br>100-160 |              |         | φ12~φ15              | 0.04~0.14                  | 0.04~0.14 | 0.04~0.10 | 0.04~0.10 | 0.04~0.10 | 0.04~0.08 | 0.04~0.08 | 0.04~0.08 | 0.04~0.07 |
|                                  |                             |              |              |         | φ15.5~φ18            | 0.06~0.16                  | 0.06~0.16 | 0.06~0.12 | 0.05~0.12 | 0.05~0.12 | 0.05~0.10 | 0.05~0.10 | 0.05~0.10 | 0.05~0.08 |
|                                  |                             |              |              |         | φ18.5~φ26            | 0.08~0.20                  | 0.08~0.20 | 0.06~0.14 | 0.07~0.16 | 0.07~0.16 | 0.05~0.12 | 0.06~0.12 | 0.06~0.12 | 0.05~0.10 |
|                                  |                             |              |              |         | φ26.5~φ60            | 0.08~0.20                  | 0.08~0.20 | 0.06~0.14 | 0.07~0.16 | 0.07~0.16 | 0.05~0.12 | 0.06~0.12 | 0.06~0.12 | 0.05~0.10 |
| Tool Steel<br>(SKD,NAK)          | ★<br>80-150                 | ☆<br>80-150  |              |         | φ12~φ15              | 0.04~0.08                  | 0.04~0.08 | 0.04~0.08 | 0.04~0.07 | 0.04~0.07 | 0.04~0.07 | 0.04~0.06 | 0.04~0.06 | 0.04~0.06 |
|                                  |                             |              |              |         | φ15.5~φ18            | 0.06~0.12                  | 0.06~0.12 | 0.06~0.10 | 0.05~0.10 | 0.05~0.10 | 0.05~0.08 | 0.04~0.08 | 0.04~0.08 | 0.04~0.07 |
|                                  |                             |              |              |         | φ18.5~φ26            | 0.08~0.15                  | 0.08~0.15 | 0.06~0.12 | 0.06~0.12 | 0.06~0.12 | 0.06~0.10 | 0.05~0.10 | 0.05~0.10 | 0.05~0.08 |
|                                  |                             |              |              |         | φ26.5~φ60            | 0.08~0.15                  | 0.08~0.15 | 0.06~0.12 | 0.06~0.12 | 0.06~0.12 | 0.06~0.10 | 0.05~0.10 | 0.05~0.10 | 0.05~0.08 |
| Stainless Steel<br>(Austinitic)  | ☆<br>70-140                 | ★<br>70-140  |              |         | φ12~φ15              | 0.06~0.10                  | 0.06~0.10 | 0.04~0.10 | 0.05~0.08 | 0.05~0.08 | 0.04~0.08 | 0.04~0.07 | 0.04~0.08 | 0.04~0.08 |
|                                  |                             |              |              |         | φ15.5~φ18            | 0.06~0.10                  | 0.06~0.10 | 0.06~0.12 | 0.05~0.08 | 0.05~0.08 | 0.05~0.11 | 0.04~0.07 | 0.04~0.07 | 0.04~0.10 |
|                                  |                             |              |              |         | φ18.5~φ26            | 0.08~0.12                  | 0.08~0.12 | 0.06~0.14 | 0.07~0.10 | 0.07~0.10 | 0.06~0.12 | 0.07~0.10 | 0.07~0.10 | 0.06~0.12 |
|                                  |                             |              |              |         | φ26.5~φ60            | 0.08~0.12                  | 0.08~0.12 | 0.06~0.14 | 0.07~0.10 | 0.07~0.10 | 0.06~0.12 | 0.07~0.10 | 0.07~0.10 | 0.06~0.12 |
| Gray Cast Iron(FC)               |                             |              | ★<br>100-150 |         | φ12~φ15              | 0.08~0.14                  | ~         | ~         | 0.06~0.12 | ~         | ~         | 0.04~0.10 | ~         | ~         |
|                                  |                             |              |              |         | φ15.5~φ18            | 0.08~0.18                  | ~         | ~         | 0.08~0.16 | ~         | ~         | 0.06~0.12 | ~         | ~         |
|                                  |                             |              |              |         | φ18.5~φ26            | 0.08~0.20                  | ~         | ~         | 0.08~0.18 | ~         | ~         | 0.06~0.14 | ~         | ~         |
|                                  |                             |              |              |         | φ26.5~φ60            | 0.08~0.20                  | ~         | ~         | 0.08~0.18 | ~         | ~         | 0.06~0.14 | ~         | ~         |
| Ductile Cast Iron(FCD)           |                             |              | ★<br>80-120  |         | φ12~φ15              | 0.08~0.12                  | ~         | ~         | 0.06~0.10 | ~         | ~         | 0.04~0.08 | ~         | ~         |
|                                  |                             |              |              |         | φ15.5~φ18            | 0.08~0.16                  | ~         | ~         | 0.08~0.14 | ~         | ~         | 0.06~0.10 | ~         | ~         |
|                                  |                             |              |              |         | φ18.5~φ26            | 0.08~0.18                  | ~         | ~         | 0.08~0.16 | ~         | ~         | 0.06~0.12 | ~         | ~         |
|                                  |                             |              |              |         | φ26.5~φ60            | 0.08~0.18                  | ~         | ~         | 0.08~0.16 | ~         | ~         | 0.06~0.12 | ~         | ~         |
| Aluminum / Non-ferrous Metal     |                             |              | ★<br>200-600 |         | φ12~φ15              | ~                          | ~         | 0.06~0.12 | ~         | ~         | 0.05~0.10 | ~         | ~         | 0.04~0.08 |
|                                  |                             |              |              |         | φ15.5~φ18            | ~                          | ~         | 0.08~0.14 | ~         | ~         | 0.06~0.12 | ~         | ~         | 0.05~0.10 |
|                                  |                             |              |              |         | φ18.5~φ26            | ~                          | ~         | 0.08~0.16 | ~         | ~         | 0.06~0.14 | ~         | ~         | 0.05~0.12 |
|                                  |                             |              |              |         | φ26.5~φ60            | ~                          | ~         | 0.08~0.20 | ~         | ~         | 0.08~0.16 | ~         | ~         | 0.07~0.14 |
| Titanium Alloy                   |                             |              | ★<br>40-70   |         | φ12~φ15              | ~                          | ~         | 0.05~0.08 | ~         | ~         | 0.04~0.07 | ~         | ~         | 0.04~0.06 |
|                                  |                             |              |              |         | φ15.5~φ18            | ~                          | ~         | 0.05~0.08 | ~         | ~         | 0.04~0.07 | ~         | ~         | 0.04~0.06 |
|                                  |                             |              |              |         | φ18.5~φ26            | ~                          | ~         | 0.06~0.10 | ~         | ~         | 0.06~0.08 | ~         | ~         | 0.05~0.07 |
|                                  |                             |              |              |         | φ26.5~φ60            | ~                          | ~         | 0.06~0.10 | ~         | ~         | 0.06~0.08 | ~         | ~         | 0.05~0.07 |

·Apply sufficient amount of coolant

★:1st. Recommendation ☆:2nd. Recommendation

## ■ Cutting Conditions by Application

| Application        |                        | Plain Surface                                                                       | Slant Surface                                                                       | Half Cylindrical                                                                    | Hole Expansion                                                                      | Concave Surface                                                                       | Pre-drilled Surface                                                                   | Stacked Plates                                                                        |
|--------------------|------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Shape of workpiece |                        |  |  |  |  |  |  |  |
| DRX type           | Cutting Speed (mm/min) | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                   | 120                                                                                   | Not Available                                                                         |
|                    | Feed rate (mm/rev)     | 0.1                                                                                 | 0.05                                                                                | 0.05                                                                                | 0.05                                                                                | Concave Surface 0.05<br>solid portion 0.1                                             | 0.05                                                                                  | Not Available                                                                         |
| Coolant(internal)  |                        | Yes                                                                                 | Yes                                                                                 | Yes                                                                                 | Yes                                                                                 | Yes                                                                                   | Yes                                                                                   | Not Available                                                                         |

\*Cutting width(Torus-shaped part) when machining pre-drilled surface

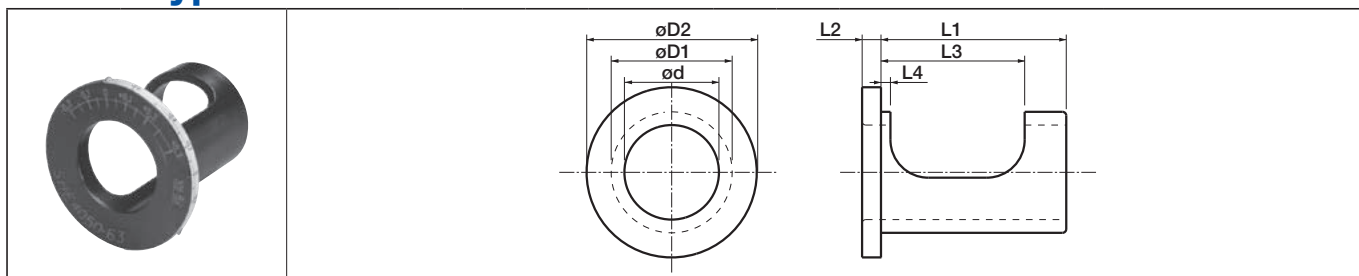
| Drill type                       | 2D~3D         | 4D                      | 5D              |
|----------------------------------|---------------|-------------------------|-----------------|
| Cutting width(Torus-shaped part) | 0.1XD or less | less than corner radius | Not Recommended |

### ◆Max.depth with outer coolant

When machining with outer coolant, Max. depth should be 1.5 times of the cutting diameter

# Adjustable Sleeve for DRX Magic Drill

## SHE type



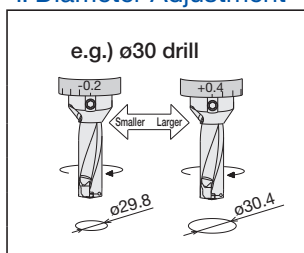
### Sleeve dimensions

| Description |         | Stock | Dimension(mm) |     |     |    |    |    |     | Dia. Adjustment Range | Center Height Adjustment Range |
|-------------|---------|-------|---------------|-----|-----|----|----|----|-----|-----------------------|--------------------------------|
|             |         |       | ød            | øD1 | øD2 | L1 | L2 | L3 | L4  |                       |                                |
| SHE         | 2025-43 | ●     | 20            | 25  | 41  | 43 | 4  | 36 | 3.0 | +0.4~-0.2             | +0.2~-0.15                     |
|             | 2532-48 | ●     | 25            | 32  | 49  | 48 | 6  | 38 | 2.5 | +0.4~-0.2             | +0.2~-0.15                     |
|             | 3240-53 | ●     | 32            | 40  | 58  | 53 | 6  | 43 | 2.5 | +0.4~-0.2             | +0.2~-0.15                     |
|             | 4050-63 | ●     | 40            | 50  | 74  | 63 | 6  | 49 | 3.0 | +0.6~-0.2             | +0.2~-0.2                      |

•Dia. Adjustment Range refer to the cutting diameter.

●: Standard Stock

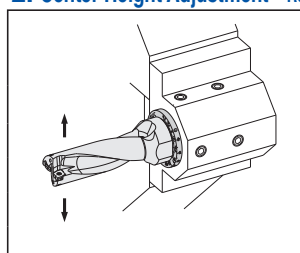
### 1. Diameter Adjustment ~ For Machining Center ~



● Dia. Adjustment Range (mm)

| Shank Diameter | Cutting Dia. | Adjustment Range |
|----------------|--------------|------------------|
| ø20            | ø14~15       | +0.4~-0.2        |
| ø25            | ø15.5~26     |                  |
| ø32            | ø26.5~31.5   |                  |
| ø40            | ø32~60       | +0.6~-0.2        |

### 2. Center Height Adjustment ~ Relief troubles by height adjustment at lathes ~



● Center Height Adjustment Range (mm)

| Shank Diameter | Cutting Dia. | Adjustment Range |
|----------------|--------------|------------------|
| ø20            | ø14~15       | +0.2~-0.15       |
| ø25            | ø15.5~26     |                  |
| ø32            | ø26.5~31.5   |                  |
| ø40            | ø32~60       | +0.3~-0.2        |

## How to Use the Adjustable Sleeve

### 1. Hole Diameter Adjustment when Drilling

- Adjust the scale at the flange periphery of the sleeve to the reference mark of the drill. (Fig. 1)
- When making the hole diameter bigger, rotate the sleeve in (+) direction and to make it smaller, rotate the sleeve in (-) direction.
- When rotating the sleeve, insert the wrench supplied with the drill into the hole on the flange periphery and rotate the sleeve.
- Using the bottom screw of the side-lock arbor, firmly tighten the drill directly through the sleeve's window.

The upper screw should be tightened slightly so that the sleeve will not be damaged. (Fig. 2)

Caution)

- Not applicable for Collet Chuck-type arbor.
- Scale on the sleeve is the reference value. Check the actual cutting diameter after adjusting.

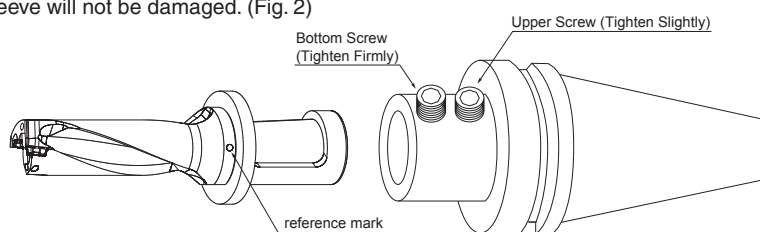


Fig. 1

Fig. 2

### 2. Center-Height Adjustment for Lathes

Most Lathe problems occur with Center Height Deviation.

The Center Height is appropriate if a core approximately 0.5mm diameter remains at the center of the end face. (Fig. 3)

Center-height adjustment is necessary for the case as follows:

- No core remains
- Core diameter is more than 1mm

- Align the drill with the outer insert face parallel to the X-axis of the tool turret. (Fig. 4)
- Align the scale (for the lathe) on the flange face of the sleeve to the center of the drill coolant plug.
- When no core remains, rotate the sleeve to (+) direction to make the core larger, and when the core diameter is more than 1mm, rotate the sleeve to (-) direction to make the core smaller.
- When rotating the sleeve, insert the wrench supplied with the drill into the hole at the flange periphery and rotate the sleeve.
- After completing the adjustment, tighten the drill directly through the window on the sleeve.

Note: Depending on amount of the center height adjustment, the hole diameter may change.

It is recommended that the hole diameter is checked after the center height adjustment.

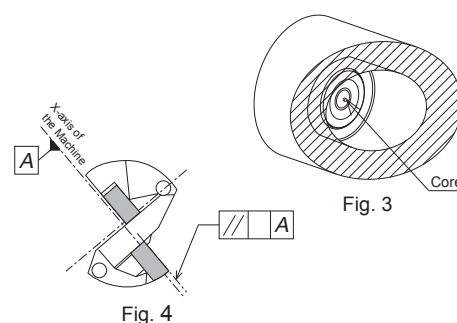


Fig. 3

Fig. 4

## ■ Lathe Installation

- ①The top face of the outer insert should be parallel to the X-axis to allow for offset cutting.
- ②It is recommended to set the outer insert as shown in Fig. 1 with the outer insert facing the operator.  
(It is also possible to use by setting 180° reverse position.)  
In case of the lathe with two turrets, when installing the drill to the lower turret, the outer insert should be set so as to face the operator.  
(It is also possible to use it by setting at 180° reverse position)

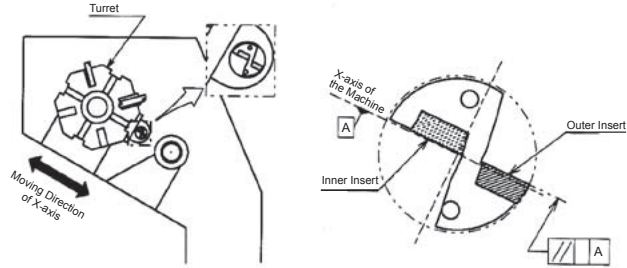


Fig. 1 Installation to the Lathe.

## ■ Cutting Diameter Adjustment

### 1. Cutting Diameter Adjustment

- ①The moving direction of the X-axis depends on the position of the toolholder.
- ②In case of making the hole diameter larger, slide the tool along the X-axis toward the outer insert side. (Fig. 2, Fig. 3)  
For making the hole diameter smaller, slide the tool along the X-axis in the opposite direction.  
(This movement of the axis is called "Offset")  
However, be sure not to make the hole diameter smaller than the drill diameter by 0.2mm or more.  
Otherwise, the toolholder will interfere with the drilled hole. (Fig. 4)  
e.g.) in case of using  $\phi 20$  drill, the hole diameter must not be smaller than 19.8mm.

### 2. Offset Limit of the Cutting Diameter

For the maximum limit of the cutting diameter, refer to "Max. Offset (Radial)" in the Toolholder Dimension table.  
(The figure in the table shows how much it is possible the offset the drill in the radial direction.)  
e.g.) in case of using  $\phi 20$  drill, it is possible to make a hole up to  $\phi 21$  since "Max. Offset (Radial)" is +0.5mm.

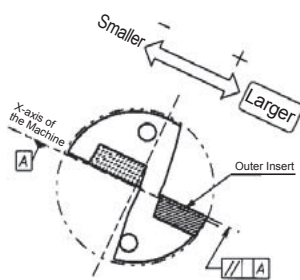


Fig. 2 Outer Insert Facing Up

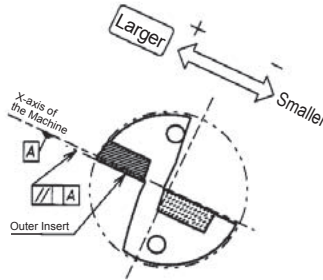


Fig. 3 Outer Insert Facing Down

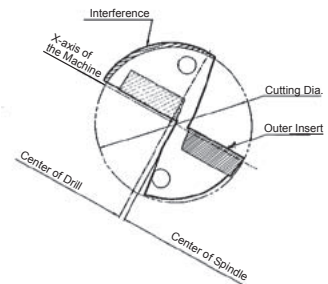


Fig. 4 Excessive offset (For Smaller Hole Diameter)

## ■ Center Height Adjustment

### 1. Center Height of the Inner Insert

When installing as shown in Fig. 1, the Inner Insert will be set around 0.2mm below the Center of Spindle. (Fig. 5)  
This is the normal position of the center height and the drill is designed to be handled in this condition.  
However, in case that the turret of the lathe is out of the Center of Spindle, sometimes the inner insert may be set above the center, or excessively below the center.  
For stable machining, it is essential to check the Center Height carefully.

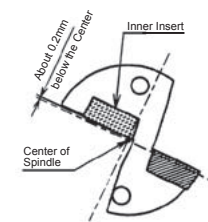


Fig. 5 Front view of the Drill

### 2. How to Check the Center Height

For checking the center height of the inner insert, see the core which remains at the center of the end face of the drilled hole. (Fig. 6)  
If the center height is in the normal condition, the core, about 0.5mm in diameter, will remain after the machining.  
In the following cases, it is necessary to adjust the Center Height.

- No Core remains
- Core diameter is more than 1mm.

\*To test the Center Height, drill a shallow hole about 10mm in depth at low feed rate, less than 0.1mm/rev.

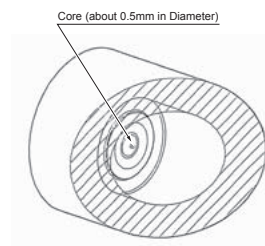


Fig. 6 Center Core

### 3. Center Height Adjustment

#### a) No Core Remains / Core with Excessively Small Diameter

This happens when the Inner Insert is set above the Center Height.  
In case, adjustment is necessary since insert breakage will be probable at the center of the drill. (Fig. 7)

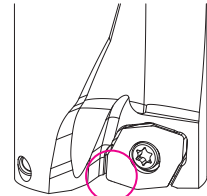


Fig.7 Insert breakage near the center of drill

#### [How to Adjust]

① Install the drill rotated 180°.  
Most problems will be solved by this method.  
(Fig. 8)

② If the core diameter becomes too large after the above adjustment, install the drill by rotating 90° counter-clockwise as shown in Fig. 9 (Outer insert is positioned lower) and adjust the center height by moving the tool in the X-axis direction.

(However, this makes it impossible to adjust the cutting diameter.)

Caution: In case of installing the drill in the reverse direction (Outer insert is positioned above), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole.

- The fundamental solution is to readjust the center position of the turret itself.

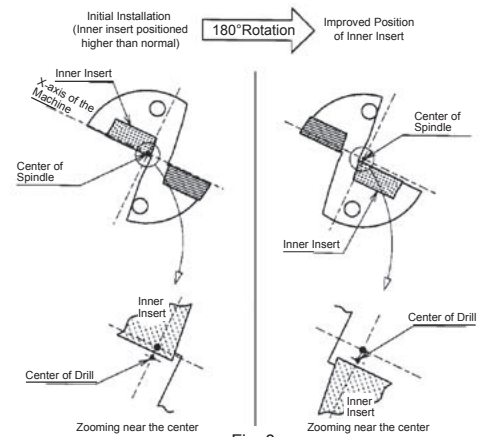


Fig. 8

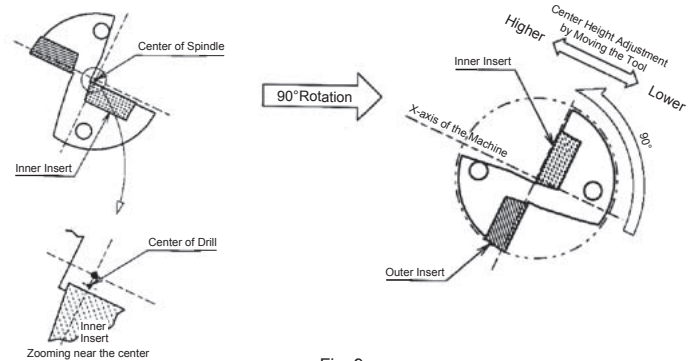


Fig. 9

#### b) Core with Excessively Large Diameter (More than 1mm)

This occurs when the inner insert is set excessively below the center.  
This condition causes poor chip evacuation and on adjustment is required.

#### [How to Adjust]

Install the drill as shown in Fig.10 (Outer insert is positioned on the upper side), and adjust the center height by moving the tool in the X-axis direction.

(However, this makes it impossible to adjust the cutting diameter.)

Caution: When installing the drill in the opposite direction (Outer insert is positioned below), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole.

The best solution is to readjust the center position of the turret itself.

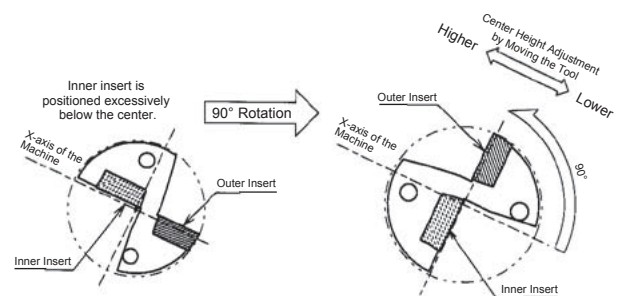
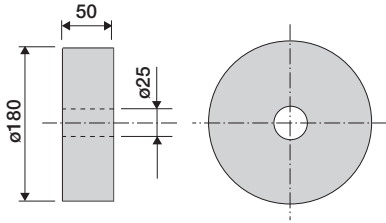


Fig.10

## SKD62(45HRC)

·Vc=60 m/min  
 ·f=0.05 mm/rev  
 ·H=50 mm (Through Hole)  
 ·WET (internal coolant)  
 ·ZXMT070305GH  
 (PR1230)  
 ·S25-DRX250M-4-07



Magic Drill DRX

6pcs/edge

Compe. J

Breakage after 4 holes

Tool life 150%

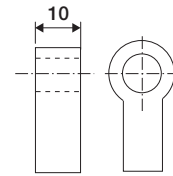
### results

·Magic Drill DRX shows 1.5 times longer tool life than Compe.J.  
 Cutting edge of Competitor J's was broken after 4 holes.  
 Magic drill DRX can drill 6 holes and more.  
 ·Magic drill DRX requires no secondary finishing operation due to its excellent finishing quality

(Evaluation by the user)

## SUS303

·Vc=75 m/min  
 ·f=0.1 mm/rev  
 ·H=10 mm (Through Hole)  
 ·WET (internal coolant)  
 ·ZXMT06T204SM  
 (PR1225)  
 ·S25-DRX200M-3-06



Drilling diameter 20mm  
 depth 10mm  
 Partially interrupted

Magic Drill DRX

1300pcs/edge

Compe. K

500pcs/edge

Tool life 260%

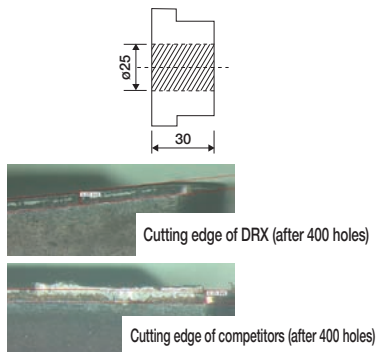
### results

·Magic drill achieved 2.6 times longer machining without sudden breakage which occurred with Competitor K's drill

(Evaluation by the user)

## SCM420HV (cold forging)

·Vc=118 m/min  
 ·f=0.08 mm/rev  
 (0.05 at starting)  
 ·H=30 mm (Through Hole)  
 ·WET (internal coolant)  
 ·ZXMT070305SM  
 (PR1225)  
 ·S25-DRX250M-3-07



Magic Drill DRX

Less material welding, continue to use even after 400 holes

Compe. L

Large material welding (after 400 holes)

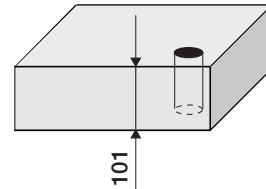
### results

·DRX shows better chip control and less welding than Competitor L

(Evaluation by the user)

## SKT4(42HRC)

·Vc=100 m/min  
 ·f=0.07~0.08 mm/rev  
 ·H=101 mm (Through Hole)  
 ·WET (Outside coolant)  
 ·ZXMT070305GM  
 (PR1230)  
 ·S25-DRX250M-4-07



Die parts ø25x101mm (through hole) x 24 holes

Magic Drill DRX

Cycle time : 28minutes/pc

50% reduction

Conventional tool M

Cycle time : 58minutes/pc

### results

·Non-step drilling is available using the 4xD- DRX even with outer coolant due to the superior chip evacuation performance  
 ·Magic Drill DRX shows 3 times longer tool life than conventional tool M.

(Evaluation by the user)