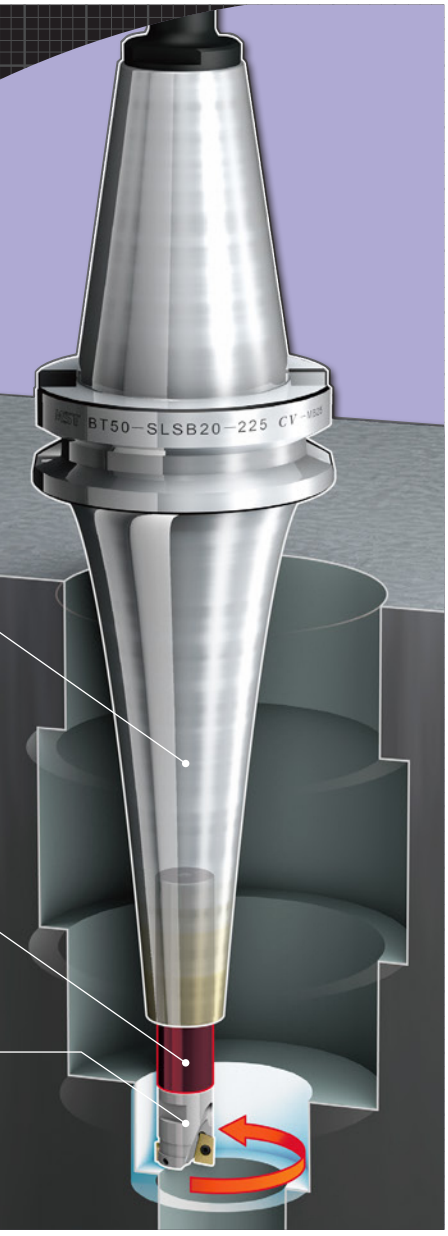
Indexable
End-Mill Arbor

# MILL BORE

## Bore machining using an end-mill!




### SHRINK-FIT HOLDER SLIMLINE

*A broad line-up*
*We can provide the optimum design for your work-piece.*

### Carbide Arbor

*Undercut design eliminates interference!*
*Freely choose the combination for effective length*

### Indexable End-Mill

*Available for various types of cutting tools from every cutter manufacturer!*

MST

PAT.P

MST corporation

2309

# What is a MILL BORE?

The MILL BORE (Milling/Mill + Boring/Bore) is the optimum tool holder for helical boring machining.It maximizes the cutting performance and solves various problems associated with boring heads.

Differences in a tool pass between a boring head and MILL BORE.

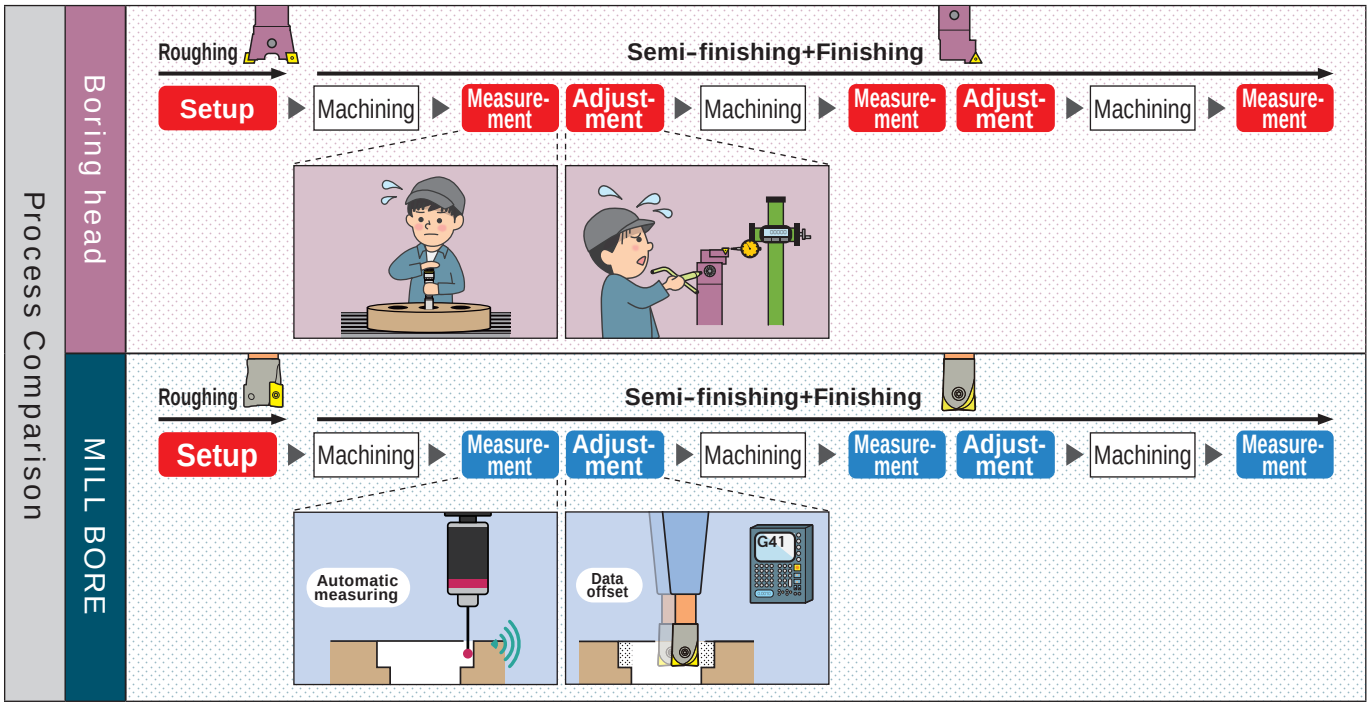
## Improved Bore Machining Process

Boring diameter adjustment is required when using a boring head.Reducing setup and adjustment time is far more important than reducing machining time.

### Skilless operation

● Eliminates operation that relies on the experience and skills of **skilled workers**.

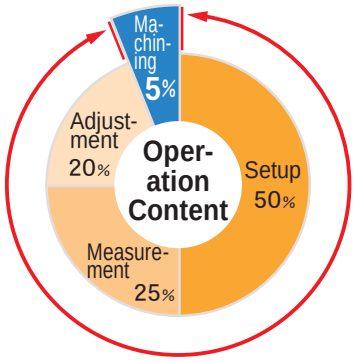
= Skilled operations = Machine automated




### Process integration reduces setup time

● Reducing the number of tool holders allows increased machine utilization.

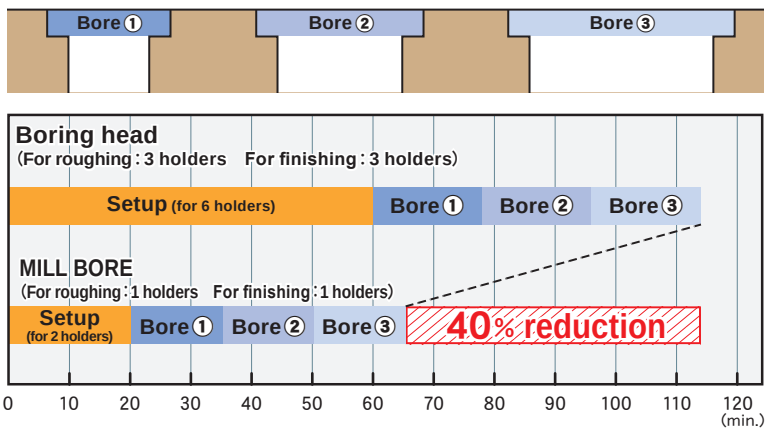
**Boring operation time percentages**
**(Boring head)**




**Non-machining time is 95%.**

**Time comparison from setup to machining completion**

・When machining 3 different holes in one workpiece

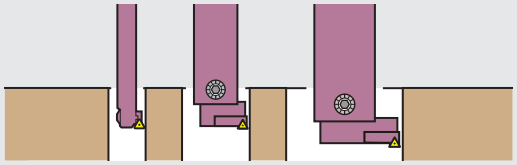


# Advantages of replacing a boring head

## Boring head

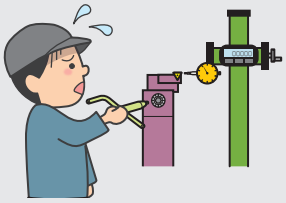
### Longer setup time

- Boring heads are required for each bore diameter.
- Occupies tool magazine pods



### Skill is required for diameter adjustment.

- Manual operation is required.

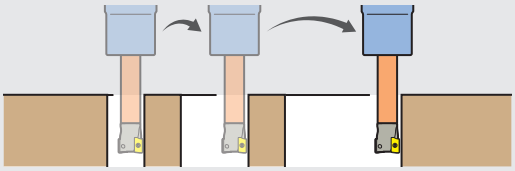


## MILL BORE

### Reduced of setup process!

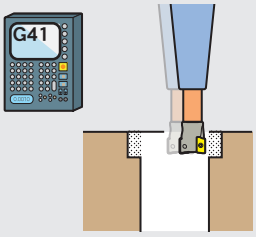
Solutions

- Different hole diameters can be machined with one holder.
- Do not occupy tool magazine pods.



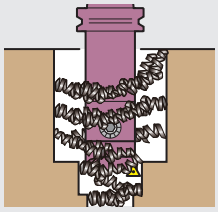
### Since the diameter of the holder is not adjusted, operator skill is not required !

- Machining diameter compensation by numerical input



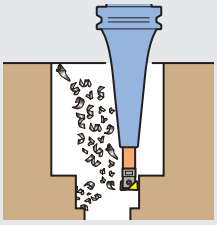

### Coiled shavings

- Continuous machining
- It may cause machining defects and machine stoppage.



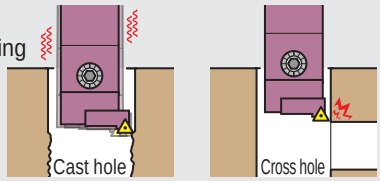
### Small cutting chips!

- Intermittent machining
- Without problems



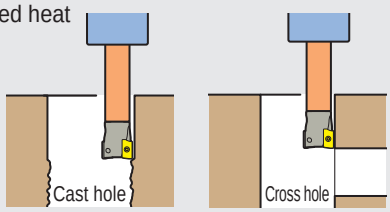
### Unstable machining

- Machining accuracy is easily affected by pilot holes.
- Heat generated from the cutter
- Not good for interrupted cutting



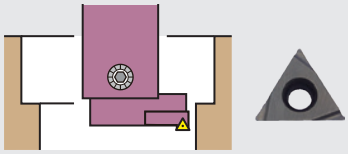

### Stable machining!

- Machining accuracy is less affected by pilot holes.
- No effect from generated heat
- Stable interrupted machining




### Limited selection of inserts

- Since it is a cutting tool for a turning operation, there are few options for size, geometry and coating.



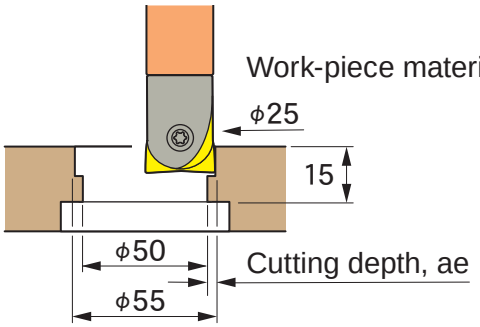
Bore dia. = Boring Head = Insert

### Wide variety of inserts available!

- Since it is a cutting tool for milling operations, there are many options for size, geometry and coating.

# Case study of the MILL BORE and indexable end-mill

## Comparison of machining process




| Machining Process | Target dimension (mm) | Cutting depth, ae (mm) |
|---|---|---|
| Roughing | ϕ50 → ϕ54.6 | 2.3 |
| Semi-finishing | ϕ54.6 → ϕ54.8 | 0.1 |
| Finishing | ϕ54.8 → ϕ55 | 0.1 |

| Machining process | ❶ | | ❷ | | ❸ | |
|---|---|---|---|---|---|---|
| Roughing |  High Feed (Four-flute) | Cutting conditions<br>V(m/min) 200<br>fz(mm/t) 1.0<br>ap(mm) 0.8<br>Machining time (sec) 17 |  Finishing (Two-flute) | Cutting conditions<br>V(m/min) 350<br>fz(mm/t) 0.3<br>ap(mm) 1.5<br>Machining time (sec) 35 |  Finishing (Four-flute) | Cutting conditions<br>V(m/min) 250<br>fz(mm/t) 0.1<br>ap(mm) 3.0<br>Machining time (sec) 39 |
| Semi-Finishing ↓ Finishing |  Finishing (Two-flute) | Cutting conditions<br>V(m/min) 350<br>fz(mm/t) 0.1<br>ap(mm) 2.0<br>Machining time (sec) 74×2 |  Finishing (Two-flute) | Cutting conditions<br>V(m/min) 350<br>fz(mm/t) 0.1<br>ap(mm) 1.0<br>Machining time (sec) 74×2 |  Finishing (Four-flute) | Cutting conditions<br>V(m/min) 350<br>fz(mm/t) 0.1<br>ap(mm) 3.0<br>Machining time (sec) 30×2 |

| | ❶ | ❷ | ❸ |
|---|---|---|---|
| Total machining time (sec) | 165 | 241 | 99 |
| Target dimension error (mm) | −ϕ0.002 | −ϕ0.001 | −ϕ0.003 |
| Roundness (μm) | 5.5 | 3.5 | 7.5 |
| Cylindricity (μm) | 7.1 | 5.3 | 10.3 |
| Surface roughness Rz (μm) | 6.2 | 3.5 | 6.7 |
| Number of tools used (pieces) | 2 | 1 | 1 |

※ During the roughing process, the machine load causes cutting tool deflection. As a result, the finished diameter becomes smaller than the target dimension. If finishing is performed continuously, the machining allowance becomes unstable and the machined dimension is not stable. Machining dimensions are stabilized when you carry out semi-finishing under the same conditions as finishing. In addition, when you use automatic measurement before the finishing process, semi-finishing is required to ensure accurate dimensional measurement.

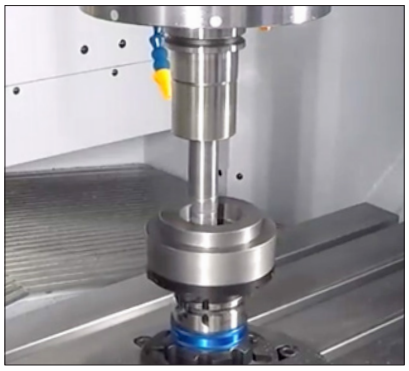
## Considerations

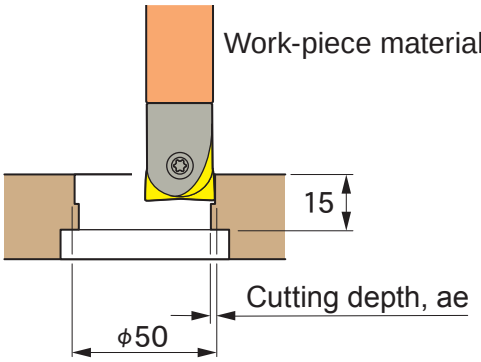
- Process ❶ is the fastest for the roughing process. When you have many work-pieces, dividing the cutting tools for each process, as in ❶, results in stable machining (reduced cutting tool costs).
- For finishing tools, if ap(mm) is reduced as shown in process ❷, you can achieve high-precision machining. In the case of single item machining, ❷ can be done with one cutting tool.
- Process ❸ has the fastest machining time. However, its machining accuracy is inferior to ❶ and ❷.

★Depending on the number of workpieces, desired machining accuracy, and machining time, different interchangeable tools can be used to achieve better machining.

# Finishing Comparison

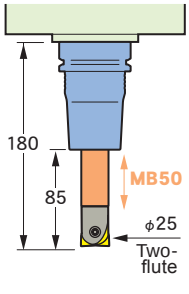
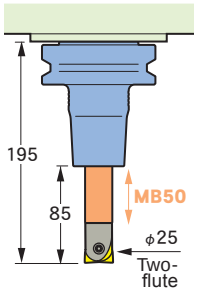
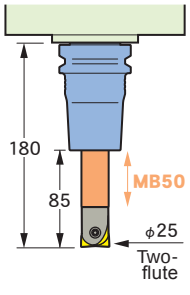
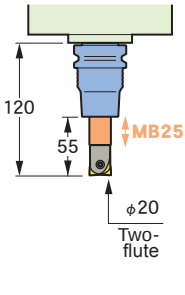
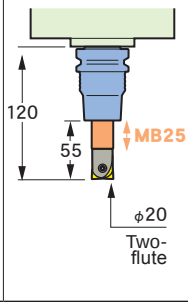
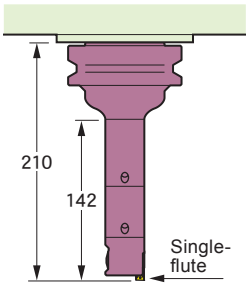
Even if the machine manufacturer, spindle size and model year are different, accuracy within the generally required tolerance can be achieved.






- **The generally required tolerance for bore applications**

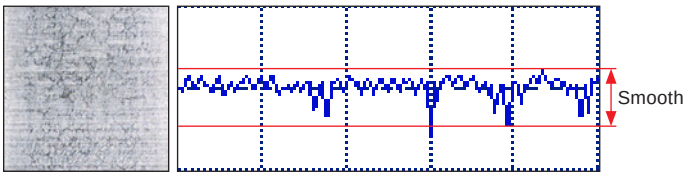
| | |
|---|---|
| Roundness (μm) | Below 10～20 |
| Cylindricity (μm) | Below 10～20 |
| Surface roughness Rz (μm) | Below 6.3 |

| | MILL BORE | | | | | Boring head | |
|---|---|---|---|---|---|---|---|
| | A63 | BT50 | BT40 | BT30 | BT30 | BT50 | |
| |  |  |  |  |  |  | |
| Machine used | Company A | Company B | Company C | Company D | Company E | Company B | |
| Machine age | 6 years | 19 years | 1 month | 5 month | 4 month | 19 years | |
| Cutting Tool | Indexable End-Mill for finishing | | | | | Carbide Coated | CBN |
| Cutting speed (m/min) | 350 | | | | | 160 | 500 |
| Feed rate per tooth (mm/tooth) | 0.10 | | | 0.05 | | — | |
| Cutting depth ae (mm) | 0.10 | | | 0.03 | | 0.1 | |
| pitch (mm/rev) | 1.0 | | | | | 0.06 | |
| Roundness (μm) | 3.5 | 5.7 | 4.3 | 2.8 | 3.8 | 2.2 | 3.1 |
| Cylindricity (μm) | 5.3 | 6.3 | 10.0 | 3.4 | 4.5 | 3.1 | 3.6 |
| Surface roughness Rz (μm) | 3.5 | 6.8 | 5.7 | 3.9 | 5.2 | 6.2 | 5.9 |

# Surface roughness comparison

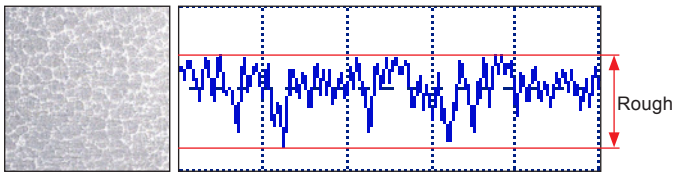
MILL BORE

- Wide pitch mark, but smooth surface




Boring head

- Fine pitch mark, but rough surface



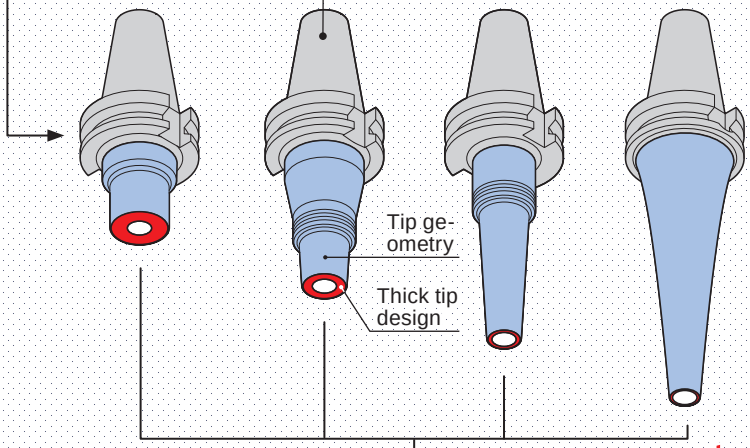
# System

The MILL BORE is ideal for the indexable cutting tools of various manufacturers. The combination of a wide variety of Slimline shrink-fit holders and the effective length of the carbide arbor (dia.6-32) provides the perfect solution for your applications.

MILL BORE

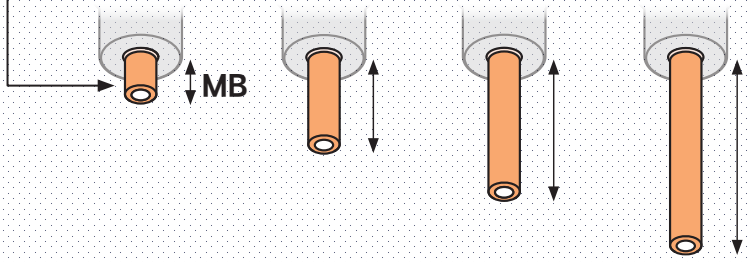
## ❶ Slimline 1,200 combinations

**BT** 30/40/50
**HSK** A50/63/100




## ❷ Carbide Arbor +

No need for shrink-fit heater




**MB (carbide arbor projection) 25 ··· 150 ··· 225**

If you have a shrink-fit heater, you can combine them yourselves.

## ❸ Indexable End-Mill

High accuracy

**High Feed** | **Shoulder milling** | **For finishing**

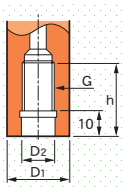
Single-flute
Installation using a reamer bolt

Using a wiper insert improves the finished surface condition.

Roughing → Finishing

### Dimensions of mounting area for an Indexable tool

Some indexable tools cannot be mounted. When installing indexable tools, confirm the thread dimensions of your indexable tool or contact us.




| Cutter dia. | φD1 | G | φD2 | h |
|---|---|---|---|---|
| 16 | 15 | M 8 | 8.5 | 18 |
| 20 | 19 | M10 | 10.5 | 22 |
| 25 | 24 | M12 | 12.5 | 22 |
| 32/40 | 29 | M16 | 17 | 25 |

For center-through spindle coolant

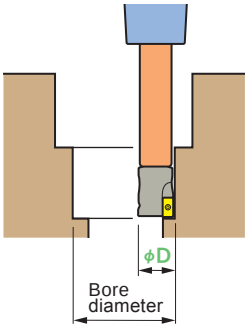
# Selection Procedure

Follow the steps below to select the optimal combination according to work-piece diameter, depth and shape.

## Step① Select ϕD (cutter diameter) according to bore diameter.

● The optimum cutter diameter is **20 to 60%** of the bore diameter.

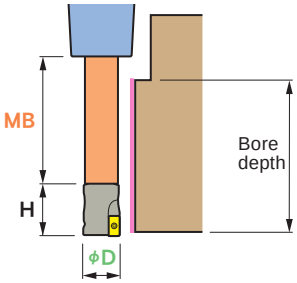

| ϕD (Cutter dia.) | G |
|---|---|
| 16 | M 8 |
| 20 | M10 |
| 25 | M12 |
| 32/40 | M16 |




## Step② Select MB length (carbide arbor projection) according to the bore depth.

● Total projection of a carbide arbor and an indexable tool length should be longer than the bore depth. Bore depth < MB+H.

| ϕD (Cutter dia.) | MB (carbide arbor projection) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 25 | 50 | 75 | 90 | 105 | – | – | – | – |
| 20 | 25 | 50 | 75 | 100 | 120 | 140 | – | – | – |
| 25 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | – | – |
| 32/40 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 |




## Step③ Select a **shrink-fit holder** according to the shape of the work-piece.

● If there is interference with the workpiece, avoid interference by using a different holder shape instead of increasing the MB (carbide arbor length) protrusion.

- In case of no interference (Fig-1).
  → Select thick, short shrink-fit holder.
- In case of interference (Fig-2).
  → Select a shrink-fit holder that minimizes the carbide arbor projection.

You can download CAD data(2D and 3D) at MST's website.
※Registration is required when you download CAD data.

Fig-1

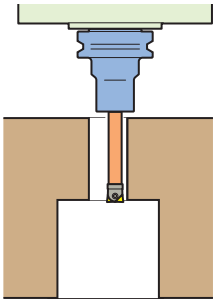
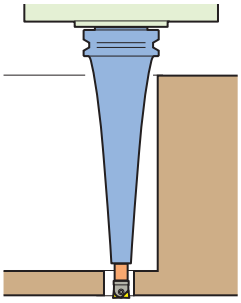


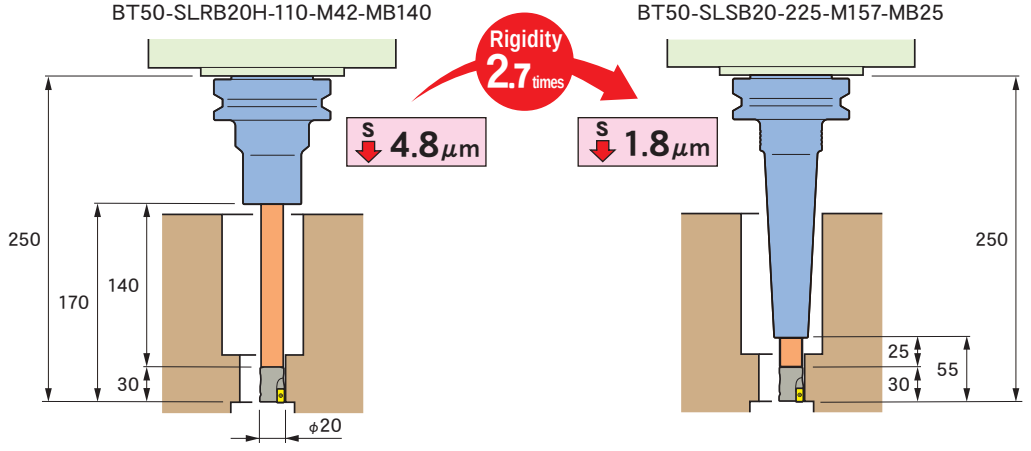
Fig-2



# About the rigidity value S

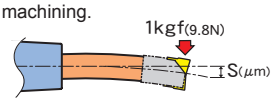
Even if the overall length of the MILL BORE is the same, the rigidity of the MILL BORE will vary greatly depending on the combination of the shrink-fit holder and the projection of the carbide arbor.

Use "the rigidity value S" in the dimension table for determining cutting conditions and selecting the MILL BORE.




## What is the "rigidity value S"?

The rigidity value represents the amount of deflection for the entire holder and tool when a bending load of 1 kgf (9.8 N) is applied to the tip of the tool.The smaller the value means the higher the rigidity, resulting in stable machining.



# BT40

Fig.1

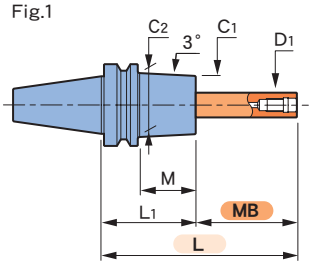



Fig.2

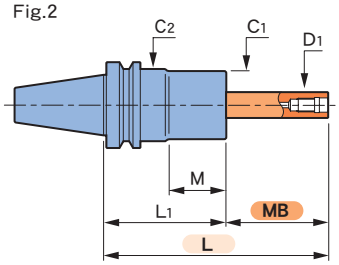



Fig.3

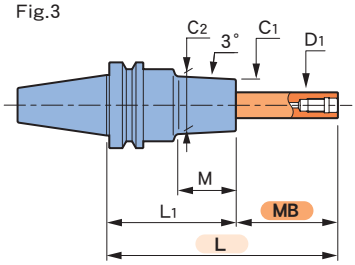



Fig.4

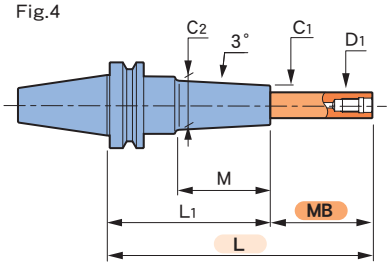
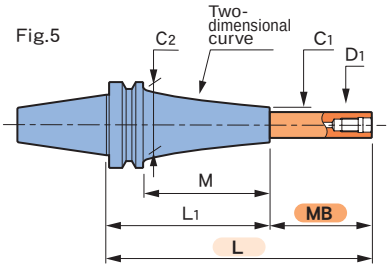



Fig.5




MILL BORE CODE

## BT40-SLRB16-75-M22 - MB25

SLIMLINE CODE

Carbide arbor projection

CV : Curve

S : Rigidity value (μm/kgf) P. 6

M8 ϕ16

| SLIMLINE CODE | Fig. | ϕC1 | L1 | M | ϕC2 | MB (Carbide arbor projection) ϕD1=15 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 90 | | 105 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S |
| BT40-SLRB16S- 65-M 33 | 1 | 38 | 65 | 33 | 41.5 | 90 | 0.4 | 115 | 1.2 | 140 | 2.6 | 155 | 3.9 | 170 | 5.5 |
| BT40-SLRB16H- 80-M 32 | 2 | 42 | 80 | 32 | 53 | 105 | 0.4 | 130 | 1.2 | 155 | 2.6 | 170 | 3.9 | 185 | 5.5 |
| BT40-SLRB16 - 75-M 22 | 3 | 32 | 75 | 22 | 34.3 | 100 | 0.5 | 125 | 1.3 | 150 | 2.8 | 165 | 4.1 | 180 | 5.7 |
| - 95-M 42 | | | 95 | 42 | 36.4 | 120 | 0.6 | 145 | 1.5 | 170 | 3.0 | 185 | 4.4 | 200 | 6.1 |
| -105-M 22 | | | 105 | 22 | 34.3 | 130 | | 155 | | 180 | 3.1 | 195 | | 210 | |
| -120-M 67 | | | 120 | 67 | 39 | 145 | 0.8 | 170 | 1.8 | 195 | 3.4 | 210 | 4.9 | 225 | 6.7 |
| -125-M 42 | | | 125 | 42 | 36.4 | 150 | | 175 | | 200 | | 215 | 4.8 | 230 | 6.6 |
| -135-M 22 | | | 135 | 22 | 34.3 | 160 | 0.7 | 185 | 1.6 | 210 | 3.1 | 225 | 4.5 | 240 | 6.2 |
| -150-M 67 | | | 150 | 67 | 39 | 175 | 1.1 | 200 | 2.1 | 225 | 3.9 | 240 | 5.4 | – | |
| -155-M 42 | | | 155 | 42 | 36.4 | 180 | 0.9 | 205 | 1.8 | 230 | 3.5 | 245 | 4.9 | 260 | 6.7 |
| -180-M 67 | | | 180 | 67 | 39 | 205 | 1.2 | 230 | 2.2 | 255 | 4.0 | 270 | 5.5 | – | |
| BT40-SLSB16 - 95-M 42 | 4 | 24 | 95 | 42 | 28.4 | 120 | 0.9 | 145 | 1.9 | 170 | 3.8 | 185 | 5.3 | – | |
| -120-M 67 | | | 120 | 67 | 31 | 145 | 1.3 | 170 | 2.6 | 195 | 4.7 | 210 | 6.4 | – | |
| -125-M 42 | | | 125 | 42 | 28.4 | 150 | 1.1 | 175 | 2.2 | 200 | 4.1 | 215 | 5.7 | – | |
| -150-M 67 | | | 150 | 67 | 31 | 175 | 1.6 | 200 | 3.0 | 225 | 5.1 | 240 | 6.9 | – | |
| - M 97 | | | | 97 | 34.2 | | 1.9 | | 3.4 | | 5.7 | – | | – | |
| -155-M 42 | | | 155 | 42 | 28.4 | 180 | 1.1 | 205 | 2.3 | 230 | 4.2 | 245 | 5.8 | – | |
| -180-M 67 | | | 180 | 67 | 31 | 205 | 1.7 | 230 | 3.1 | 255 | 5.3 | 270 | 7.0 | – | |
| - M 97 | | | | 97 | 34.2 | | 2.3 | | 3.9 | | 6.3 | – | | – | |
| - M 127 | | | | 127 | 37.3 | | | | 4.0 | | 6.4 | – | | – | |
| -210-M 97 | | | 210 | 97 | 34.2 | 235 | 2.4 | 260 | | 285 | 6.5 | – | | – | |
| - M 127 | | | | 127 | 37.3 | | 2.6 | | 4.2 | | 6.8 | – | | – | |
| - M 157 | | | | 157 | 40.5 | | 2.9 | | 4.7 | – | | – | | – | |
| -240-M 127 | | | 240 | 127 | 37.3 | 265 | 2.8 | 290 | 4.6 | 315 | 7.2 | – | | – | |
| - M 157 | | | | 157 | 40.5 | | 3.2 | | 5.0 | – | | – | | – | |
| -270-M 157 | | | 270 | | | 295 | 3.5 | 320 | 5.4 | – | | – | | – | |
| BT40-SLSB16 - 90CV | 5 | 21 | 90 | 63 | 53 | 115 | 0.8 | 140 | 1.8 | 165 | 3.5 | 180 | 5.0 | 195 | 7.0 |
| -120CV | | | 120 | 93 | | 145 | 1.0 | 170 | 2.1 | 195 | 4.0 | 210 | 5.6 | – | |
| -150CV | | | 150 | 123 | | 175 | 1.7 | 200 | 3.1 | 225 | 5.3 | 240 | 7.2 | – | |
| -180CV | | | 180 | 153 | | 205 | 2.1 | 230 | 3.7 | 255 | 6.1 | – | | – | |
| -210CV | | | 210 | 183 | | 235 | 3.2 | 260 | 5.2 | – | | – | | – | |
| -240CV | | | 240 | 213 | | 265 | 4.0 | 290 | 6.2 | – | | – | | – | |

### CAD data download

DXF/STP CAD

**You can download CAD data (2D and 3D) at MST's website.**

※Registration is required when you download CAD data.

Please use the QR cord for your registration.



MST

## M10 φ20

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=19 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 120 | | 140 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S |
| BT40-SLRB20S- 70-M 41 | 1 | 45 | 70 | 41 | 49.4 | 95 | 0.3 | 120 | 0.6 | 145 | 1.3 | 170 | 2.3 | 190 | 3.4 | 210 | 4.8 |
| BT40-SLRB20H- 90-M 42 | 2 | 50 | 90 | 42 | 53 | 115 | 0.3 | 140 | 0.7 | 165 | 1.3 | 190 | 2.3 | 210 | 3.5 | 230 | 4.9 |
| BT40-SLRB20 - 95-M 42 | 3 | 38 | 95 | 42 | 42.4 | 120 | 0.4 | 145 | 0.8 | 170 | 1.5 | 195 | 2.5 | 215 | 3.7 | – | |
| -120-M 67 | | | 120 | 67 | 45 | 145 | 0.5 | 170 | 0.9 | 195 | 1.7 | 220 | 2.8 | 240 | 4.1 | – | |
| -125-M 42 | | | 125 | 42 | 42.4 | 150 | | 175 | | 200 | 1.6 | 225 | | 245 | 4.0 | – | |
| -150-M 67 | | | 150 | 67 | 45 | 175 | 0.6 | 200 | 2.9 | 225 | 1.9 | 250 | 3.1 | 270 | 4.4 | – | |
| -155-M 42 | | | 155 | 42 | 42.4 | 180 | | 205 | 1.1 | 230 | | 255 | 3.0 | 275 | 4.3 | – | |
| -180-M 67 | | | 180 | 67 | 45 | 205 | 0.8 | 230 | 1.3 | 255 | 2.2 | 280 | 3.4 | 300 | 4.8 | – | |
| BT40-SLSB20 - 95-M 42 | 4 | 29 | 95 | 42 | 33.4 | 120 | 0.5 | 145 | 1.1 | 170 | 1.9 | 195 | 3.2 | 215 | 4.5 | – | |
| -120-M 67 | | | 120 | 67 | 36 | 145 | 0.8 | 170 | 1.5 | 195 | 2.5 | 220 | 3.9 | – | | – | |
| -125-M 42 | | | 125 | 42 | 33.4 | 150 | | 175 | 1.4 | 200 | 2.3 | 225 | 3.7 | – | | – | |
| -150-M 67 | | | 150 | 67 | 36 | 175 | 1.1 | 200 | 1.9 | 225 | 3.0 | 250 | 4.5 | – | | – | |
| -M 97 | | | | 97 | 39.2 | | | | | | | | | – | | – | |
| -155-M 42 | | | 155 | 42 | 33.4 | 180 | 0.8 | 205 | 1.4 | 230 | 2.4 | 255 | 3.8 | – | | – | |
| -180-M 67 | | | 180 | 67 | 36 | 205 | 1.2 | 230 | 2.0 | 255 | 3.1 | 280 | 4.7 | – | | – | |
| -M 97 | | | | 97 | 39.2 | | 1.3 | | 2.1 | | 3.2 | | 4.9 | – | | – | |
| -M 127 | | | | 127 | 42.3 | | 1.5 | | 2.4 | | 3.6 | – | | – | | – | |
| -210-M 97 | | | 210 | 97 | 39.2 | 235 | | 260 | | 285 | | – | | – | | – | |
| -M 127 | | | | 127 | 42.3 | | 1.7 | | 2.6 | | 3.9 | – | | – | | – | |
| -M 157 | | | | 157 | 45.5 | | 1.9 | | 2.9 | | 4.2 | – | | – | | – | |
| -240-M 127 | | | 240 | 127 | 42.3 | 265 | 2.0 | 290 | 3.0 | 315 | 4.3 | – | | – | | – | |
| -M 157 | | | | 157 | 45.5 | | 2.2 | | 3.2 | | 4.6 | – | | – | | – | |
| -270-M 157 | | | 270 | | | 295 | 2.5 | 320 | 3.6 | – | | – | | – | | – | |
| BT40-SLSB20 - 90CV | 5 | 26 | 90 | 63 | 50.5 | 115 | 0.5 | 140 | 1.0 | 165 | 1.9 | 190 | 3.1 | 210 | 4.5 | – | |
| -120CV | | | 120 | 93 | 53 | 145 | 0.7 | 170 | 1.4 | 195 | 2.3 | 220 | 3.7 | – | | – | |
| -150CV | | | 150 | 123 | | 175 | 1.3 | 200 | 2.1 | 225 | 3.3 | – | | – | | – | |
| -180CV | | | 180 | 153 | | 205 | 1.7 | 230 | 2.7 | 255 | 4.0 | – | | – | | – | |
| -210CV | | | 210 | 183 | | 235 | 2.2 | 260 | 3.4 | 285 | 4.9 | – | | – | | – | |
| -240CV | | | 240 | 213 | | 265 | 2.9 | 290 | 4.2 | – | | – | | – | | – | |

## M12 φ25

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=24 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 125 | | 150 | 175 |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S |
| BT40-SLRB25S- 75-M 30 | 1 | 49 | 75 | 30 | 52.2 | 100 | 0.2 | 125 | 0.4 | 150 | 0.7 | 175 | 1.1 | 200 | 1.8 | 225 | 2.7 |
| BT40-SLRB25H- 95-M 42 | 2 | 51 | 95 | 42 | 53 | 120 | 0.2 | 145 | 0.4 | 170 | 0.8 | 195 | 1.3 | 220 | 1.9 | – | – |
| BT40-SLRB25 - 95-M 42 | 3 | 45 | 95 | 42 | 49.4 | 120 | 0.2 | 145 | 0.5 | 170 | 0.8 | 195 | 1.3 | 220 | 2.0 | – | – |
| -125-M 42 | | | 125 | | | 150 | 0.4 | 175 | 0.6 | 200 | 1.0 | 225 | 1.5 | 250 | 2.3 | – | – |
| -155-M 42 | | | 155 | | | 180 | 0.5 | 205 | 0.8 | 230 | 1.2 | 255 | 1.8 | 280 | 2.6 | – | – |

## M16 φ32 φ40

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=29 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 125 | | 150 | | 175 | | 200 | 225 |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S | L | S | L | S |
| BT40-SLRB32 - 95-M 42 | 3 | 54 | 95 | 42 | 58.4 | 120 | 0.2 | 145 | 0.3 | 170 | 0.5 | 195 | 0.8 | 220 | 1.2 | – | | – | | – | – |

■**Option** ●Retention knob

■**Caution** ●Some of an indexable tool cannot be mounted. When installing indexable tools, confirm thread dimensions of an indexable tool in ➔ P. 5 or contact us.

●About **MB (carbide arbor projection)**
The product line-up and information in this catalog is based on steel and cast iron work-piece applications.
Depending on the work-piece material, the MILL BORE marked with " - " is available. For details, please contact us.

Fig.1

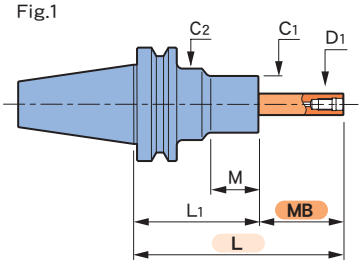



Fig.2

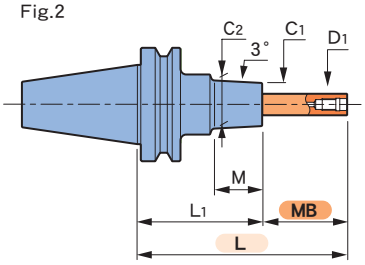



Fig.3

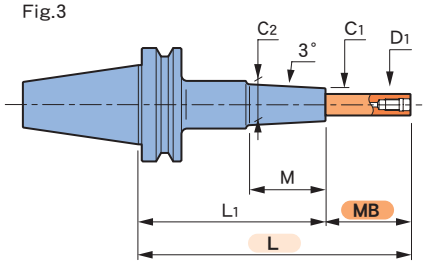
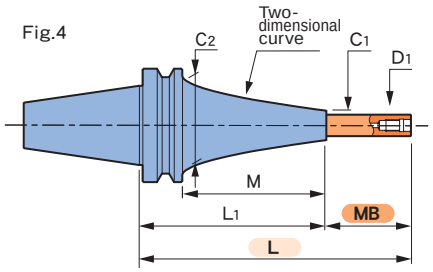



Fig.4




MILL BORE CODE

**BT50 - SLRB16 - 90 - M22 - MB25**

SLIMLINE CODE

Carbide arbor projection

CV : Curve

S : Rigidity value (μm/kgf) P. 6

M8 φ16

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=15 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 90 | | 105 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S |
| BT50-SLRB16H- 95-M 32 | 1 | 42 | 95 | 32 | 53 | 120 | 0.4 | 145 | 1.2 | 170 | 2.6 | 185 | 3.8 | 200 | 5.4 |
| BT50-SLRB16 - 90-M 22 | 2 | 32 | 90 | 22 | 34.3 | 115 | 0.5 | 140 | 1.3 | 165 | 2.7 | 180 | 4.0 | 195 | 5.7 |
| - 110-M 42 | | | 110 | 42 | 36.4 | 135 | 0.6 | 160 | 1.5 | 185 | 3.0 | 200 | 4.4 | 215 | 6.1 |
| - 120-M 22 | | | 120 | 22 | 34.3 | 145 | | 170 | | 195 | | 210 | | 225 | |
| - 135-M 67 | | | 135 | 67 | 39 | 160 | 0.8 | 185 | 1.8 | 210 | 3.4 | 225 | 4.8 | 240 | 6.6 |
| - 140-M 42 | | | 140 | 42 | 36.4 | 165 | | 190 | 1.7 | 215 | | 230 | | 245 | |
| - 150-M 22 | | | 150 | 22 | 34.3 | 175 | 0.6 | 200 | 1.5 | 225 | 3.0 | 240 | 4.4 | 255 | 6.1 |
| - 165-M 67 | | | 165 | 67 | 39 | 190 | 1.1 | 215 | 2.1 | 240 | 3.9 | 255 | 5.4 | 270 | 7.2 |
| - 170-M 42 | | | 170 | 42 | 36.4 | 195 | 0.8 | 220 | 1.8 | 245 | 3.4 | 260 | 4.8 | 275 | 6.6 |
| - 195-M 67 | | | 195 | 67 | 39 | 220 | 1.1 | 245 | 2.1 | 270 | 3.9 | 285 | 5.4 | 300 | 7.2 |
| BT50-SLSB16 - 110-M 42 | 3 | 24 | 110 | 42 | 28.4 | 135 | 0.9 | 160 | 1.9 | 185 | 3.7 | 200 | 5.3 | 215 | 7.2 |
| - 135-M 67 | | | 135 | 67 | 31 | 160 | 1.3 | 185 | 2.6 | 210 | 4.7 | 225 | 6.4 | – | |
| - 140-M 42 | | | 140 | 42 | 28.4 | 165 | 1.1 | 190 | 2.2 | 215 | 4.1 | 230 | 5.7 | – | |
| - 165-M 67 | | | 165 | 67 | 31 | 190 | 1.6 | 215 | 2.9 | 240 | 5.1 | 255 | 6.9 | – | |
| - M 97 | | | | 97 | 34.2 | | 1.9 | | 3.4 | | 5.7 | – | | – | |
| - 170-M 42 | | | 170 | 42 | 28.4 | 195 | 1.1 | 220 | 2.2 | 245 | 4.1 | 260 | 5.7 | – | |
| - 195-M 67 | | | 195 | 67 | 31 | 220 | 1.6 | 245 | 2.9 | 270 | 5.1 | 285 | 6.9 | – | |
| - M 97 | | | | 97 | 34.2 | | 2.3 | | 3.9 | | 6.3 | – | | – | |
| - M 127 | | | | 127 | 37.3 | | | | | | | – | | – | |
| - 225-M 97 | | | 225 | 97 | 34.2 | 250 | | 275 | | 300 | | – | | – | |
| - M 127 | | | | 127 | 37.3 | | 2.5 | | 4.1 | | 6.6 | – | | – | |
| - M 157 | | | | 157 | 40.5 | | 2.8 | | 4.6 | | 7.2 | – | | – | |
| - 255-M 127 | | | 255 | 127 | 37.3 | 280 | 2.5 | 305 | 4.2 | 330 | 6.7 | – | | – | |
| - M 157 | | | | 157 | 40.5 | | 3.1 | | 4.9 | – | | – | | – | |
| - 285-M 157 | | | 285 | | | 310 | | 335 | | – | | – | | – | |
| BT50-SLSB16 - 165CV | 4 | 21 | 165 | 127 | 85 | 190 | 0.8 | 215 | 1.8 | 240 | 3.5 | 255 | 5.0 | 270 | 6.9 |
| - 195CV | | | 195 | 157 | | 220 | 1.3 | 245 | 2.6 | 270 | 4.6 | 285 | 6.3 | – | |
| - 225CV | | | 225 | 187 | | 250 | 1.4 | 275 | | 300 | 4.7 | 315 | 6.4 | – | |
| - 255CV | | | 255 | 217 | | 280 | 2.2 | 305 | 3.8 | 330 | 6.2 | – | | – | |
| - 285CV | | | 285 | 247 | | 310 | 2.3 | 335 | 3.9 | 360 | 6.3 | – | | – | |
| - 315CV | | | 315 | 277 | | 340 | 2.9 | 365 | 4.7 | – | | – | | – | |

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MST

## M10 φ20

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=19 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 120 | | 140 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S |
| BT50-SLRB20H-110-M 42 | 1 | 50 | 110 | 42 | 63 | 135 | 0.3 | 160 | 0.6 | 185 | 1.2 | 210 | 2.2 | 230 | 3.3 | 250 | 4.8 |
| BT50-SLRB20 -110-M 42 | 2 | 38 | 110 | 42 | 42.4 | 135 | 0.3 | 160 | 0.7 | 185 | 1.4 | 210 | 2.5 | 230 | 3.6 | 250 | 5.2 |
| -135-M 67 | | | 135 | 67 | 45 | 160 | 0.4 | 185 | 0.9 | 210 | 1.6 | 235 | 2.8 | 255 | 4.0 | 275 | 5.6 |
| -140-M 42 | | | 140 | 42 | 42.4 | 165 | | 190 | 0.8 | 215 | | 240 | 2.7 | 260 | 3.9 | 280 | 5.4 |
| -165-M 67 | | | 165 | 67 | 45 | 190 | 0.6 | 215 | 1.0 | 240 | 1.8 | 265 | 3.0 | 285 | 4.3 | – | |
| -170-M 42 | | | 170 | 42 | 42.4 | 195 | 0.4 | 220 | 0.9 | 245 | 1.6 | 270 | 2.7 | 290 | 3.9 | 310 | 5.5 |
| -195-M 67 | | | 195 | 67 | 45 | 220 | 0.6 | 245 | 1.1 | 270 | 1.9 | 295 | 3.0 | 315 | 4.3 | – | |
| BT50-SLSB20 -110-M 42 | 3 | 29 | 110 | 42 | 33.4 | 135 | 0.5 | 160 | 1.0 | 185 | 1.9 | 210 | 3.1 | 230 | 4.5 | – | |
| -135-M 67 | | | 135 | 67 | 36 | 160 | 0.8 | 185 | 1.5 | 210 | 2.5 | 235 | 3.9 | 255 | 5.4 | – | |
| -140-M 42 | | | 140 | 42 | 33.4 | 165 | 0.7 | 190 | 1.3 | 215 | 2.3 | 240 | 3.6 | 260 | 5.1 | – | |
| -165-M 67 | | | 165 | 67 | 36 | 190 | 1.1 | 215 | 1.8 | 240 | 3.0 | 265 | 4.5 | – | | – | |
| -M 97 | | | | 97 | 39.2 | | | | | | 2.9 | | 4.4 | – | | – | |
| -170-M 42 | | | 170 | 42 | 33.4 | 195 | 0.7 | 220 | 1.3 | 245 | 2.3 | 270 | 3.6 | 290 | 5.1 | – | |
| -195-M 67 | | | 195 | 67 | 36 | 220 | 1.1 | 245 | 1.9 | 270 | 3.0 | 295 | 4.5 | – | | – | |
| -M 97 | | | | 97 | 39.2 | | 1.2 | | 2.0 | | 3.1 | | 4.7 | – | | – | |
| -M 127 | | | | 127 | 42.3 | | 1.4 | | 2.3 | | 3.5 | | 5.2 | – | | – | |
| -225-M 97 | | | 225 | 97 | 39.2 | 250 | 1.2 | 275 | 2.0 | 300 | 3.2 | 325 | 4.8 | – | | – | |
| -M 127 | | | | 127 | 42.3 | | 1.6 | | 2.5 | | 3.8 | | 5.5 | – | | – | |
| -M 157 | | | | 157 | 45.5 | | 1.8 | | 2.7 | | 4.1 | – | | – | | – | |
| -255-M 127 | | | 255 | 127 | 42.3 | 280 | 1.7 | 305 | 2.6 | 330 | 3.8 | 355 | 5.6 | – | | – | |
| -M 157 | | | | 157 | 45.5 | | 2.1 | | 3.1 | | 4.4 | – | | – | | – | |
| -285-M 157 | | | 285 | | | 310 | | 335 | | 360 | 4.5 | – | | – | | – | |
| BT50-SLSB20 -165CV | 4 | 26 | 165 | 127 | 85 | 190 | 0.6 | 215 | 1.1 | 240 | 2.0 | 265 | 3.3 | 285 | 4.6 | – | |
| -195CV | | | 195 | 157 | | 220 | 0.7 | 245 | 1.2 | 270 | 2.1 | 295 | 3.4 | 315 | 4.8 | – | |
| -225CV | | | 225 | 187 | | 250 | 1.1 | 275 | 1.9 | 300 | 3.0 | 325 | 4.6 | – | | – | |
| -255CV | | | 255 | 217 | | 280 | 1.2 | 305 | 2.0 | 330 | 3.1 | 355 | 4.7 | – | | – | |
| -285CV | | | 285 | 247 | | 310 | 1.7 | 335 | 2.6 | 360 | 3.8 | 385 | 5.6 | – | | – | |
| -315CV | | | 315 | 277 | | 340 | 2.2 | 365 | 3.2 | 390 | 4.7 | – | | – | | – | |

## M12 φ25

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=24 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 125 | | 150 | | 175 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S | L | S |
| BT50-SLRB25H-110-M 42 | 1 | 58 | 110 | 42 | 63 | 135 | 0.2 | 160 | 0.3 | 185 | 0.6 | 210 | 1.1 | 235 | 1.7 | 260 | 2.5 | 285 | 3.6 |
| BT50-SLRB25 -110-M 42 | 2 | 45 | 110 | 42 | 49.4 | 135 | 0.2 | 160 | 0.4 | 185 | 0.7 | 210 | 1.2 | 235 | 1.9 | 260 | 2.8 | 285 | 4.0 |
| -140-M 42 | | | 140 | | | 165 | 0.3 | 190 | 0.5 | 215 | 0.9 | 240 | 1.4 | 265 | 2.2 | 290 | 3.1 | 315 | 4.3 |
| -170-M 42 | | | 170 | | | 195 | | 220 | 0.6 | 245 | | 270 | 1.5 | 295 | | 320 | 3.2 | 345 | 4.4 |

## M16 φ32 φ40

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=29 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 125 | | 150 | | 175 | | 200 | 225 |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S | L | S | L | S |
| BT50-SLRB32 -110-M 42 | 2 | 54 | 110 | 42 | 58.4 | 135 | 0.1 | 160 | 0.3 | 185 | 0.4 | 210 | 0.7 | 235 | 1.1 | 260 | 1.5 | 285 | 2.1 | 310 | 2.8 | 335 | 3.7 |
| -140-M 42 | | | 140 | | | 165 | 0.2 | 190 | | 215 | 0.5 | 240 | 0.8 | 265 | 1.2 | 290 | 1.7 | 315 | 2.3 | 340 | 3.1 | 365 | 4.0 |
| -170-M 42 | | | 170 | | | 195 | | 220 | 0.4 | 245 | 0.6 | 270 | 0.9 | 295 | | 320 | | 345 | 2.4 | 370 | | 395 | 4.1 |

■**Option** ●Retention knob

■**Caution** ●Some of an indexable tool cannot be mounted. When installing indexable tools, confirm thread dimensions of an indexable tool in ➔ P. 5 or contact us.

●About **MB (carbide arbor projection)**
The product line-up and information in this catalog is based on steel and cast iron work-piece applications.
Depending on the work-piece material, the MILL BORE marked with " - " is available. For details, please contact us.

Fig.1

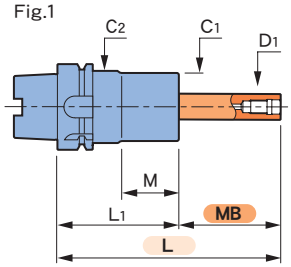



Fig.2

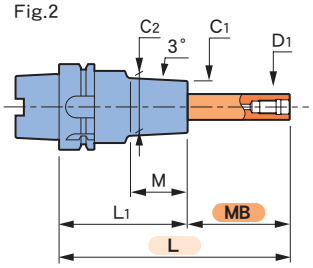



Fig.3

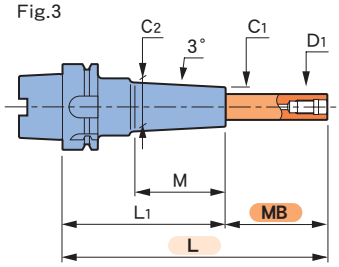
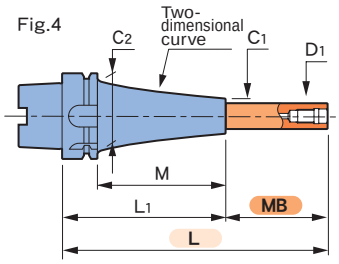



Fig.4




MILL BORE CODE

**A63-SLRB16-75-M22-MB25**

SLIMLINE CODE

Carbide arbor projection

CV : Curve

S : Rigidity value (μm/kgf) P. 6

M8 ϕ16

| SLIMLINE CODE | Fig. | ϕC1 | L1 | M | ϕC2 | MB (Carbide arbor projection) ϕD1=15 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 90 | | 105 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S |
| A63-SLRB16H-80-M32 | 1 | 42 | 80 | 32 | 53 | 105 | 0.4 | 130 | 1.2 | 155 | 2.6 | 170 | 3.8 | 185 | 5.4 |
| A63-SLRB16-75-M22 | 2 | 32 | 75 | 22 | 34.3 | 100 | 0.5 | 125 | 1.3 | 150 | 2.8 | 165 | 4.0 | 180 | 5.7 |
| -95-M42 | | | 95 | 42 | 36.4 | 120 | 0.6 | 145 | 1.5 | 170 | 3.0 | 185 | 4.4 | 200 | 6.1 |
| -105-M22 | | | 105 | 22 | 34.3 | 130 | | 155 | | 180 | | 195 | | 210 | |
| -120-M67 | | | 120 | 67 | 39 | 145 | 0.8 | 170 | 1.8 | 195 | 3.4 | 210 | 4.8 | 225 | 6.6 |
| -125-M42 | | | 125 | 42 | 36.4 | 150 | | 175 | | 200 | | 215 | | 230 | |
| -135-M22 | | | 135 | 22 | 34.3 | 160 | 0.7 | 185 | 1.6 | 210 | 3.1 | 225 | 4.5 | 240 | 6.2 |
| -150-M67 | | | 150 | 67 | 39 | 175 | 1.1 | 200 | 2.1 | 225 | 3.9 | 240 | 5.4 | – | |
| -155-M42 | | | 155 | 42 | 36.4 | 180 | 0.9 | 205 | 1.8 | 230 | 3.5 | 245 | 4.9 | 260 | 6.7 |
| -180-M67 | | | 180 | 67 | 39 | 205 | 1.2 | 230 | 2.2 | 255 | 4.0 | 270 | 5.5 | – | |
| A63-SLSB16-95-M42 | 3 | 24 | 95 | 42 | 28.4 | 120 | 0.9 | 145 | 1.9 | 170 | 3.7 | 185 | 5.3 | 200 | 7.2 |
| -120-M67 | | | 120 | 67 | 31 | 145 | 1.3 | 170 | 2.6 | 195 | 4.7 | 210 | 6.4 | – | |
| -125-M42 | | | 125 | 42 | 28.4 | 150 | 1.1 | 175 | 2.2 | 200 | 4.1 | 215 | 5.7 | – | |
| -150-M67 | | | 150 | 67 | 31 | 175 | 1.6 | 200 | 3.0 | 225 | 5.1 | 240 | 6.9 | – | |
| -M97 | | | | 97 | 34.2 | | 1.9 | | 3.4 | | 5.7 | – | | – | |
| -155-M42 | | | 155 | 42 | 28.4 | 180 | 1.1 | 205 | 2.3 | 230 | 4.2 | 245 | 5.8 | – | |
| -180-M67 | | | 180 | 67 | 31 | 205 | 1.7 | 230 | 3.0 | 255 | 5.2 | 270 | 7.0 | – | |
| -M97 | | | | 97 | 34.2 | | 2.3 | | 3.9 | | 6.3 | – | | – | |
| -M127 | | | | 127 | 37.3 | | | | | | 6.4 | – | | – | |
| -210-M97 | | | 210 | 97 | 34.2 | 235 | 2.4 | 260 | 4.0 | 285 | | – | | – | |
| -M127 | | | | 127 | 37.3 | | 2.5 | | 4.2 | | 6.7 | – | | – | |
| -M157 | | | | 157 | 40.5 | | 2.9 | | 4.6 | | 7.3 | – | | – | |
| -240-M127 | | | 240 | 127 | 37.3 | 265 | 2.8 | 290 | 4.5 | 315 | 7.1 | – | | – | |
| -M157 | | | | 157 | 40.5 | | 3.1 | | 5.0 | – | | – | | – | |
| -270-M157 | | | 270 | | | 295 | 3.5 | 320 | 5.4 | – | | – | | – | |
| A63-SLSB16-90CV | 4 | 21 | 90 | 64 | 53 | 115 | 0.8 | 140 | 1.8 | 165 | 3.5 | 180 | 5.0 | 195 | 6.9 |
| -120CV | | | 120 | 94 | | 145 | 1.0 | 170 | 2.1 | 195 | 4.0 | 210 | 5.6 | – | |
| -150CV | | | 150 | 124 | | 175 | 1.6 | 200 | 3.0 | 225 | 5.3 | 240 | 7.1 | – | |
| -180CV | | | 180 | 154 | | 205 | 2.1 | 230 | 3.6 | 255 | 6.1 | – | | – | |
| -210CV | | | 210 | 184 | | 235 | 3.2 | 260 | 5.2 | – | | – | | – | |
| -240CV | | | 240 | 214 | | 265 | 3.9 | 290 | 6.1 | – | | – | | – | |
| -270CV | | | 270 | 244 | | 295 | 4.8 | 320 | 7.2 | – | | – | | – | |

**CAD data download**

DXF/STP CAD

**You can download CAD data (2D and 3D) at MST's website.**

※Registration is required when you download CAD data.

Please use the QR cord for your registration.

## M10 φ20

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=19 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 120 | | 140 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S |
| A63-SLRB20H- 90-M 42 | 1 | 50 | 90 | 42 | 53 | 115 | 0.3 | 140 | 0.7 | 165 | 1.3 | 190 | 2.3 | 210 | 3.4 | 230 | 4.9 |
| A63-SLRB20 - 95-M 42 | 2 | 38 | 95 | 42 | 42.4 | 120 | 0.4 | 145 | 0.8 | 170 | 1.4 | 195 | 2.5 | 215 | 3.7 | – | |
| -120-M 67 | | | 120 | 67 | 45 | 145 | 0.5 | 170 | 0.9 | 195 | 1.7 | 220 | 2.8 | 240 | 4.0 | – | |
| -125-M 42 | | | 125 | 42 | 42.4 | 150 | 0.4 | 175 | | 200 | 1.6 | 225 | 2.7 | 245 | 3.9 | – | |
| -150-M 67 | | | 150 | 67 | 45 | 175 | 0.6 | 200 | 1.1 | 225 | 1.9 | 250 | 3.1 | 270 | 4.3 | – | |
| -155-M 42 | | | 155 | 42 | 42.4 | 180 | | 205 | 1.0 | 230 | 1.8 | 255 | 3.0 | 275 | 4.2 | – | |
| -180-M 67 | | | 180 | 67 | 45 | 205 | 0.8 | 230 | 1.3 | 255 | 2.1 | 280 | 3.4 | 300 | 4.7 | – | |
| A63-SLSB20 - 95-M 42 | 3 | 29 | 95 | 42 | 33.4 | 120 | 0.5 | 145 | 1.1 | 170 | 1.9 | 195 | 3.2 | 215 | 4.5 | – | |
| -120-M 67 | | | 120 | 67 | 36 | 145 | 0.8 | 170 | 1.5 | 195 | 2.5 | 220 | 3.9 | – | | – | |
| -125-M 42 | | | 125 | 42 | 33.4 | 150 | 0.7 | 175 | 1.3 | 200 | 2.3 | 225 | 3.6 | – | | – | |
| -150-M 67 | | | 150 | 67 | 36 | 175 | 1.1 | 200 | 1.9 | 225 | 3.0 | 250 | 4.5 | – | | – | |
| -M 97 | | | | 97 | 39.2 | | | | 1.8 | | 2.9 | | | – | | – | |
| -155-M 42 | | | 155 | 42 | 33.4 | 180 | 0.8 | 205 | 1.4 | 230 | 2.4 | 255 | 3.7 | – | | – | |
| -180-M 67 | | | 180 | 67 | 36 | 205 | 1.2 | 230 | 1.9 | 255 | 3.1 | 280 | 4.6 | – | | – | |
| -M 97 | | | | 97 | 39.2 | | 1.3 | | 2.0 | | 3.2 | | 4.8 | – | | – | |
| -M 127 | | | | 127 | 42.3 | | 1.5 | | 2.3 | | 3.5 | – | | – | | – | |
| -210-M 97 | | | 210 | 97 | 39.2 | 235 | | 260 | | 285 | | – | | – | | – | |
| -M 127 | | | | 127 | 42.3 | | 1.7 | | 2.6 | | 3.9 | – | | – | | – | |
| -M 157 | | | | 157 | 45.5 | | 1.9 | | 2.8 | | 4.1 | – | | – | | – | |
| -240-M 127 | | | 240 | 127 | 42.3 | 265 | 2.0 | 290 | 2.9 | 315 | 4.3 | – | | – | | – | |
| -M 157 | | | | 157 | 45.5 | | 2.1 | | 3.1 | | 4.5 | – | | – | | – | |
| -270-M 157 | | | 270 | | | 295 | 2.5 | 320 | 3.5 | – | | – | | – | | – | |
| A63-SLSB20 - 90CV | 4 | 26 | 90 | 64 | 51 | 115 | 0.5 | 140 | 1.0 | 165 | 1.9 | 190 | 3.1 | 210 | 4.5 | – | |
| -120CV | | | 120 | 94 | 53 | 145 | 0.7 | 170 | 1.3 | 195 | 2.3 | 220 | 3.7 | – | | – | |
| -150CV | | | 150 | 124 | | 175 | 1.2 | 200 | 2.1 | 225 | 3.3 | 250 | 4.9 | – | | – | |
| -180CV | | | 180 | 154 | | 205 | 1.7 | 230 | 2.6 | 255 | 4.0 | – | | – | | – | |
| -210CV | | | 210 | 184 | | 235 | 2.2 | 260 | 3.3 | 285 | 4.9 | – | | – | | – | |
| -240CV | | | 240 | 214 | | 265 | 2.9 | 290 | 4.2 | – | | – | | – | | – | |
| -270CV | | | 270 | 244 | | 295 | 3.3 | 320 | 4.7 | – | | – | | – | | – | |

## M12 φ25

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=24 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 125 | | 150 | | 175 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S | L | S |
| A63-SLRB25H- 95-M 42 | 1 | 51 | 95 | 42 | 53 | 120 | 0.2 | 145 | 0.4 | 170 | 0.8 | 195 | 1.2 | 220 | 1.9 | 245 | 2.8 | – | |
| A63-SLRB25 - 95-M 42 | 2 | 45 | 95 | 42 | 49.4 | 120 | 0.2 | 145 | 0.4 | 170 | 0.8 | 195 | 1.3 | 220 | 2.0 | – | | – | |
| -125-M 42 | | | 125 | | | 150 | 0.3 | 175 | 0.6 | 200 | 0.9 | 225 | 1.5 | 250 | 2.2 | – | | – | |
| -155-M 42 | | | 155 | | | 180 | 0.5 | 205 | 0.8 | 230 | 1.2 | 255 | 1.8 | 280 | 2.5 | – | | – | |

## M16 φ32 φ40

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=29 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 125 | | 150 | | 175 | | 200 | 225 |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S | L | S | L | S | L | S |
| A63-SLRB32 - 110-M 42 | 2 | 54 | 110 | 42 | 58.4 | 135 | 0.2 | 160 | 0.4 | 185 | 0.6 | 210 | 0.9 | 235 | 1.3 | – | | – | | – | | – | |

■**Std.Access.** ●Coolant duct (Fixed type)
■**Note** ●Swing type coolant ducts are available upon request. For details, please contact us.
■**Caution** ●Some of an indexable tool cannot be mounted. When installing indexable tools, confirm thread dimensions of an indexable tool in ➔ P. 5 or contact us.
●About **MB (carbide arbor projection)**
The product line-up and information in this catalog is based on steel and cast iron work-piece applications.
Depending on the work-piece material, the MILL BORE marked with " - " is available. For details, please contact us.

Fig.1

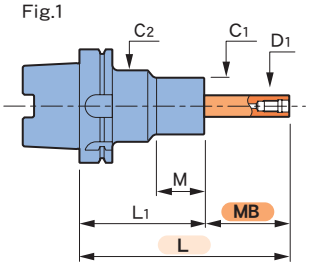



Fig.2

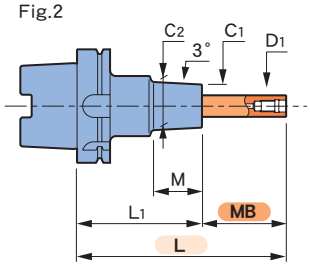
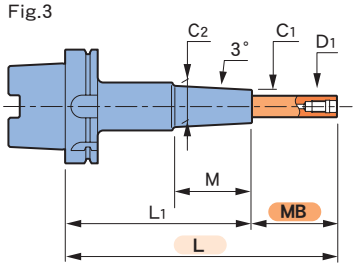



Fig.3



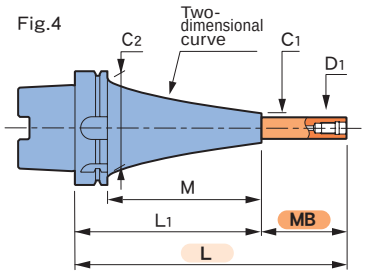

**MILL BORE CODE**

## A100-SLRB16-90-M22-MB25

SLIMLINE CODE

Carbide arbor projection

Fig.4




CV : Curve

S : Rigidity value (μm/kgf) P. 6

M8 φ16

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=15 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 90 | | 105 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S |
| A100-SLRB16H-95-M32 | 1 | 42 | 95 | 32 | 53 | 120 | 0.4 | 145 | 1.2 | 170 | 2.6 | 185 | 3.8 | 200 | 5.4 |
| A100-SLRB16-90-M22 | 2 | 32 | 90 | 22 | 34.3 | 115 | 0.5 | 140 | 1.3 | 165 | 2.8 | 180 | 4.1 | 195 | 5.8 |
| -110-M42 | | | 110 | 42 | 36.4 | 135 | 0.6 | 160 | 1.5 | 185 | 3.1 | 200 | 4.5 | 215 | 6.2 |
| -120-M22 | | | 120 | 22 | 34.3 | 145 | 0.7 | 170 | | 195 | | 210 | | 225 | |
| -135-M67 | | | 135 | 67 | 39 | 160 | 0.9 | 185 | 1.8 | 210 | 3.5 | 225 | 4.9 | 240 | 6.7 |
| -140-M42 | | | 140 | 42 | 36.4 | 165 | | 190 | | 215 | | 230 | | 245 | |
| -150-M22 | | | 150 | 22 | 34.3 | 175 | 0.7 | 200 | 1.5 | 225 | 3.1 | 240 | 4.4 | 255 | 6.1 |
| -165-M67 | | | 165 | 67 | 39 | 190 | 1.1 | 215 | 2.2 | 240 | 4.0 | 255 | 5.5 | – | |
| -170-M42 | | | 170 | 42 | 36.4 | 195 | 0.8 | 220 | 1.8 | 245 | 3.4 | 260 | 4.8 | 275 | 6.6 |
| -195-M67 | | | 195 | 67 | 39 | 220 | 1.1 | 245 | 2.1 | 270 | 3.9 | 285 | 5.4 | – | |
| A100-SLSB16-110-M42 | 3 | 24 | 110 | 42 | 28.4 | 135 | 0.9 | 160 | 2.0 | 185 | 3.8 | 200 | 5.3 | – | |
| -135-M67 | | | 135 | 67 | 31 | 160 | 1.4 | 185 | 2.6 | 210 | 4.7 | 225 | 6.5 | – | |
| -140-M42 | | | 140 | 42 | 28.4 | 165 | 1.1 | 190 | 2.3 | 215 | 4.2 | 230 | 5.8 | – | |
| -165-M67 | | | 165 | 67 | 31 | 190 | 1.6 | 215 | 3.0 | 240 | 5.2 | 255 | 7.0 | – | |
| -M97 | | | | 97 | 34.2 | | 2.0 | | 3.5 | | 5.8 | – | | – | |
| -170-M42 | | | 170 | 42 | 28.4 | 195 | 1.1 | 220 | 2.2 | 245 | 4.1 | 260 | 5.7 | – | |
| -195-M67 | | | 195 | 67 | 31 | 220 | 1.6 | 245 | 3.0 | 270 | 5.1 | 285 | 6.9 | – | |
| -M97 | | | | 97 | 34.2 | | 2.4 | | 4.0 | | 6.4 | – | | – | |
| -M127 | | | | 127 | 37.3 | | 2.3 | | 3.9 | | | – | | – | |
| -225-M97 | | | 225 | 97 | 34.2 | 250 | | 275 | | 300 | 6.3 | – | | – | |
| -M127 | | | | 127 | 37.3 | | 2.5 | | 4.2 | | 6.7 | – | | – | |
| -M157 | | | | 157 | 40.5 | | 2.9 | | 4.6 | – | | – | | – | |
| -255-M127 | | | 255 | 127 | 37.3 | 280 | 2.5 | 305 | 4.2 | 330 | 6.7 | – | | – | |
| -M157 | | | | 157 | 40.5 | | 3.1 | | 4.9 | – | | – | | – | |
| -285-M157 | | | 285 | | | 310 | | 335 | | – | | – | | – | |
| A100-SLSB16-165CV | 4 | 21 | 165 | 136 | 85 | 190 | 0.8 | 215 | 1.8 | 240 | 3.5 | 255 | 5.0 | – | |
| -195CV | | | 195 | 166 | | 220 | 1.3 | 245 | 2.6 | 270 | 4.6 | 285 | 6.3 | – | |
| -225CV | | | 225 | 196 | | 250 | 1.4 | 275 | | 300 | 4.7 | 315 | 6.4 | – | |
| -255CV | | | 255 | 226 | | 280 | 2.2 | 305 | 3.8 | 330 | 6.2 | – | | – | |
| -285CV | | | 285 | 256 | | 310 | 2.3 | 335 | 3.9 | 360 | 6.3 | – | | – | |
| -315CV | | | 315 | 286 | | 340 | 2.9 | 365 | 4.7 | – | | – | | – | |
| -345CV | | | 345 | 316 | | 370 | 3.6 | 395 | 5.6 | – | | – | | – | |

## M10 φ20

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=19 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 120 | | 140 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S |
| A100-SLRB20H-110-M 42 | 1 | 50 | 110 | 42 | 63 | 135 | 0.3 | 160 | 0.6 | 185 | 1.3 | 210 | 2.2 | 230 | 3.3 | 250 | 4.8 |
| A100-SLRB20 -110-M 42 | 2 | 38 | 110 | 42 | 42.4 | 135 | 0.3 | 160 | 0.7 | 185 | 1.4 | 210 | 2.5 | 230 | 3.7 | 250 | 5.2 |
| -135-M 67 | | | 135 | 67 | 45 | 160 | 0.5 | 185 | 0.9 | 210 | 1.7 | 235 | 2.8 | 255 | 4.0 | 275 | 5.6 |
| -140-M 42 | | | 140 | 42 | 42.4 | 165 | 0.4 | 190 | | 215 | 1.6 | 240 | 2.7 | 260 | 3.9 | 280 | 5.5 |
| -165-M 67 | | | 165 | 67 | 45 | 190 | 0.6 | 215 | 1.1 | 240 | 1.9 | 265 | 3.0 | 285 | 4.3 | – | |
| -170-M 42 | | | 170 | 42 | 42.4 | 195 | 0.4 | 220 | 0.9 | 245 | 1.6 | 270 | 2.7 | 290 | 3.9 | 310 | 5.5 |
| -195-M 67 | | | 195 | 67 | 45 | 220 | 0.6 | 245 | 1.1 | 270 | 1.9 | 295 | 3.0 | 315 | 4.3 | – | |
| A100-SLSB20 -110-M 42 | 3 | 29 | 110 | 42 | 33.4 | 135 | 0.6 | 160 | 1.1 | 185 | 2.0 | 210 | 3.2 | 230 | 4.6 | – | |
| -135-M 67 | | | 135 | 67 | 36 | 160 | 0.9 | 185 | 1.5 | 210 | 2.6 | 235 | 4.0 | 255 | 5.5 | – | |
| -140-M 42 | | | 140 | 42 | 33.4 | 165 | 0.8 | 190 | 1.4 | 215 | 2.4 | 240 | 3.7 | 260 | 5.2 | – | |
| -165-M 67 | | | 165 | 67 | 36 | 190 | 1.2 | 215 | 1.9 | 240 | 3.1 | 265 | 4.6 | – | | – | |
| -M 97 | | | | 97 | 39.2 | | 1.1 | | 1.8 | | 2.9 | | 4.5 | – | | – | |
| -170-M 42 | | | 170 | 42 | 33.4 | 195 | 0.8 | 220 | 1.4 | 245 | 2.3 | 270 | 3.7 | 290 | 5.1 | – | |
| -195-M 67 | | | 195 | 67 | 36 | 220 | 1.1 | 245 | 1.9 | 270 | 3.0 | 295 | 4.5 | – | | – | |
| -M 97 | | | | 97 | 39.2 | | 1.2 | | 2.0 | | 3.2 | | 4.8 | – | | – | |
| -M 127 | | | | 127 | 42.3 | | 1.5 | | 2.3 | | 3.5 | | 5.2 | – | | – | |
| -225-M 97 | | | 225 | 97 | 39.2 | 250 | 1.3 | 275 | 2.0 | 300 | 3.2 | 325 | 4.8 | – | | – | |
| -M 127 | | | | 127 | 42.3 | | 1.7 | | 2.6 | | 3.9 | | 5.6 | – | | – | |
| -M 157 | | | | 157 | 45.5 | | 1.8 | | 2.8 | | 4.1 | – | | – | | – | |
| -255-M 127 | | | 255 | 127 | 42.3 | 280 | 1.7 | 305 | 2.6 | 330 | 3.8 | 355 | 5.6 | – | | – | |
| -M 157 | | | | 157 | 45.5 | | 2.1 | | 3.1 | | 4.5 | – | | – | | – | |
| -285-M 157 | | | 285 | | | 310 | | 335 | | 360 | | – | | – | | – | |
| A100-SLSB20 -165CV | 4 | 26 | 165 | 136 | 85 | 190 | 0.6 | 215 | 1.1 | 240 | 2.0 | 265 | 3.3 | 285 | 4.7 | – | |
| -195CV | | | 195 | 166 | | 220 | 0.7 | 245 | 1.2 | 270 | 2.1 | 295 | 3.4 | 315 | 4.8 | – | |
| -225CV | | | 225 | 196 | | 250 | 1.2 | 275 | 1.9 | 300 | 3.0 | 325 | 4.6 | – | | – | |
| -255CV | | | 255 | 226 | | 280 | 1.3 | 305 | 2.0 | 330 | 3.2 | 355 | 4.7 | – | | – | |
| -285CV | | | 285 | 256 | | 310 | 2.0 | 335 | 3.1 | 360 | 4.5 | – | | – | | – | |
| -315CV | | | 315 | 286 | | 340 | 2.2 | 365 | 3.2 | 390 | 4.7 | – | | – | | – | |
| -345CV | | | 345 | 316 | | 370 | 2.8 | 395 | 4.0 | 420 | 5.6 | – | | – | | – | |

## M12 φ25

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=24 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 125 | | 150 | | 175 | |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S | L | S |
| A100-SLRB25H-110-M 42 | 1 | 58 | 110 | 42 | 63 | 135 | 0.2 | 160 | 0.3 | 185 | 0.6 | 210 | 1.1 | 235 | 1.7 | 260 | 2.6 | 285 | 3.7 |
| A100-SLRB25 -110-M 42 | 2 | 45 | 110 | 42 | 49.4 | 135 | 0.2 | 160 | 0.4 | 185 | 0.8 | 210 | 1.3 | 235 | 1.9 | 260 | 2.9 | 285 | 4.0 |
| -140-M 42 | | | 140 | | | 165 | 0.3 | 190 | 0.6 | 215 | 0.9 | 240 | 1.5 | 265 | 2.2 | 290 | 3.2 | 315 | 4.4 |
| -170-M 42 | | | 170 | | | 195 | | 220 | | 245 | | 270 | | 295 | | 320 | | 345 | |

## M16 φ32 φ40

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=29 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | | 50 | | 75 | | 100 | | 125 | | 150 | | 175 | | 200 | 225 |
| | | | | | | L | S | L | S | L | S | L | S | L | S | L | S | L | S | L | S |
| A100-SLRB32 -110-M 42 | 2 | 54 | 110 | 42 | 58.4 | 135 | 0.1 | 160 | 0.3 | 185 | 0.4 | 210 | 0.7 | 235 | 1.1 | 260 | 1.5 | 285 | 2.1 | 310 | 2.9 | 335 | 3.8 |
| -140-M 42 | | | 140 | | | 165 | 0.2 | 190 | | 215 | 0.5 | 240 | 0.8 | 265 | 1.2 | 290 | 1.7 | 315 | 2.3 | 340 | 3.1 | 365 | 4.0 |
| -170-M 42 | | | 170 | | | 195 | | 220 | 0.4 | 245 | 0.6 | 270 | | 295 | | 320 | | 345 | 2.4 | 370 | | 395 | 4.1 |

■**Std.Access.** ●Coolant duct (Fixed type)
■**Note** ●Swing type coolant ducts are available upon request. For details, please contact us.
■**Caution** ●Some of an indexable tool cannot be mounted. When installing indexable tools, confirm thread dimensions of an indexable tool in ➔ P. 5 or contact us.
●About **MB (carbide arbor projection)**
The product line-up and information in this catalog is based on steel and cast iron work-piece applications.
Depending on the work-piece material, the MILL BORE marked with " - " is available. For details, please contact us.

# BT30

Fig.1

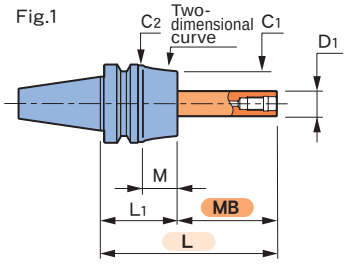
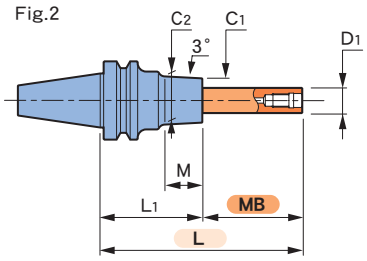



Fig.2




**MILL BORE CODE**

**BT30 - SLRA16 - 60 - M22 - MB25**

SLIMLINE CODE — Carbide arbor projection

**CAD data download**

DXF/STP CAD

You can download CAD data (2D and 3D) at MST's website.

※Registration is required when you download CAD data.

Please use the QR cord for your registration.

S : Rigidity value (μm/kgf) ➔ P. 6

**M8 φ16**

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=15 25 L | 25 S | 50 L | 50 S | 75 L | 75 S | 90 L | 90 S | 105 L | 105 S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT30-SLRB16S- 45 | 1 | 38 | 45 | 20 | 45 | 70 | 0.4 | 95 | 1.2 | 120 | 2.6 | – | | – | |
| BT30-SLRA16 - 60-M 22 | 2 | 26 | 60 | 22 | 28.3 | 85 | 0.6 | 110 | 1.5 | – | | – | | – | |

**M10 φ20**

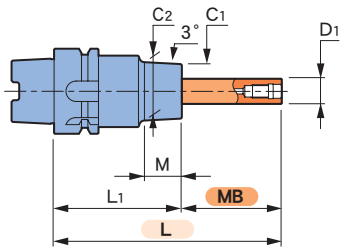
| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=19 25 L | 25 S | 50 L | 50 S | 75 L | 75 S | 100 L | 100 S | 120 L | 120 S | 140 L | 140 S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT30-SLRA20 - 65-M 22 | 2 | 32 | 65 | 22 | 34.3 | 90 | 0.4 | 115 | 0.9 | 140 | 1.6 | – | | – | | – | |

■**Option** ●Retention knob

■**Caution**
- ●Some of an indexable tool cannot be mounted. When installing indexable tools, confirm thread dimensions of an indexable tool in ➔ P. 5 or contact us.
- ●About **MB (carbide arbor projection)**
  The product line-up and information in this catalog is based on steel and cast iron work-piece applications.
  Depending on the work-piece material, the MILL BORE marked with " - " is available. For details, please contact us.

# A50

Fig.1




**MILL BORE CODE**

**A50 - SLRB16 - 75 - M22 - MB25**

SLIMLINE CODE — Carbide arbor projection

S : Rigidity value (μm/kgf) ➔ P. 6

**M8 φ16**

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=15 25 L | 25 S | 50 L | 50 S | 75 L | 75 S | 90 L | 90 S | 105 L | 105 S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A50-SLRB16 - 75-M 22 | 1 | 32 | 75 | 22 | 34.3 | 100 | 0.5 | 125 | 1.3 | 150 | 2.8 | – | | – | |
| -105-M 22 | | | 105 | | | 130 | 0.7 | 155 | 1.6 | 180 | 3.2 | – | | – | |

**M10 φ20**

| SLIMLINE CODE | Fig. | φC1 | L1 | M | φC2 | MB (Carbide arbor projection) φD1=19 25 L | 25 S | 50 L | 50 S | 75 L | 75 S | 100 L | 100 S | 120 L | 120 S | 140 L | 140 S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A50M-SLRB20 - 75-M 22 | 1 | 38 | 75 | 22 | 40.3 | 100 | 0.3 | 125 | 0.7 | 150 | 1.4 | – | | – | | – | |
| -105-M 22 | | | 105 | | | 130 | 0.4 | 155 | 0.8 | 180 | 1.6 | – | | – | | – | |

■**Std.Access.** ●Coolant duct (Fixed type)

■**Note** ●Swing type coolant ducts are available upon request.For details, please contact us.

■**Caution**
- ●Some of an indexable tool cannot be mounted. When installing indexable tools, confirm thread dimensions of an indexable tool in ➔ P. 5 or contact us.
- ●About **MB (carbide arbor projection)**
  The product line-up and information in this catalog is based on steel and cast iron work-piece applications.
  Depending on the work-piece material, the MILL BORE marked with " - " is available. For details, please contact us.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