

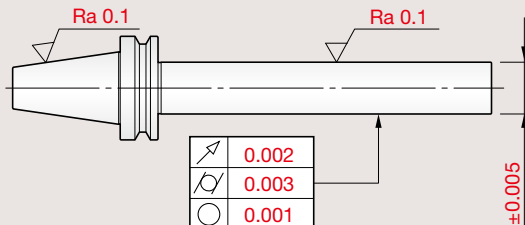
DYNA TEST [For static precision measurement]

A high-precision test bar developed by BIG's precise machining technology.

- Periodic accuracy evaluation eliminates machining defects.

● Precision standard of BIG Test Bars

BIG provides high quality test bars, produced under a strict quality control system.



| | |
|--------------------------|------------|
| Runout accuracy | 0.002mm |
| Roundness | 0.001mm |
| Cylindricity | 0.003mm |
| Surface roughness | Ra: 0.1 μm |
| Outer diameter tolerance | ±0.005mm |

● Calibration certificate and traceability diagram (with charge)

A calibration certificate and traceability diagram is offered upon request with charge for reliable use of these test bars or for the customers certified with ISO9000.

Traceability is defined under JIS Z8103 as "the establishment of a pathway related to national and international standards in which standard instruments or measuring instruments are continually calibrated according to higher-level measurement standards."



Static accuracy of machining centers is regulated in JIS-B6336 and 6338. We recommend periodic accuracy checks for stable production.

JIS standard machine spindle value

Runout of spindle inner taper

| | Horizontal M/C | Vertical M/C |
|---------------|--------------------|-------------------|
| Test bar nose | 0.007 (mm) or less | 0.01 (mm) or less |
| 300mm tip | 0.015 (mm) or less | 0.02 (mm) or less |

BIG-PLUS Type

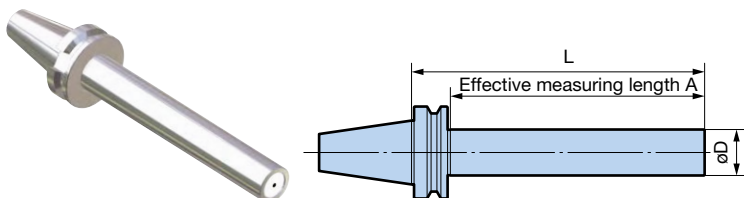


Caution

- Only use PULLSTUD BOLTS made by BIG. For PULLSTUD BOLT, **G29**

■ BBT Shank [MAS403 and JIS B6339]

· The short type is ideal for ATC repeatability inspection.

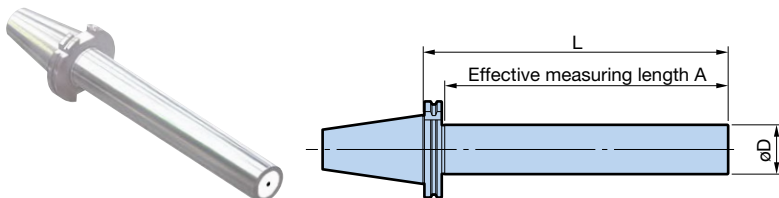


BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional **BT spindles**.

| BIG-PLUS BBT SHANK Model | L | A | øD |
|--------------------------|-----|-----|----|
| BBT30-32-L150 | 150 | 125 | 32 |
| -L235 | 235 | 210 | |
| BBT40-50-L200 | 200 | 170 | 50 |
| -L350 | 350 | 320 | |
| BBT50-50-L200 | 200 | 159 | 50 |
| -L360 | 360 | 319 | |

1. The BBT Shank conforms to JIS-BT standards.

■ BDV Shank [DIN 69871 and ISO 7388-1]

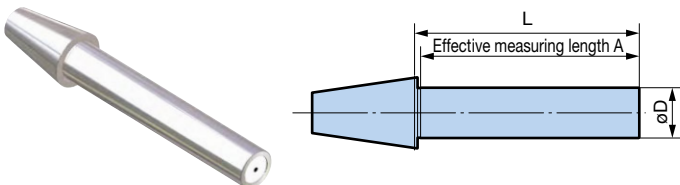


BIG-PLUS (BDV Shank) tools can be used on both BIG-PLUS spindles and conventional **DV spindles**.

| BIG-PLUS BDV SHANK Model | L | A | øD |
|--------------------------|-----|-----|----|
| BDV40-50-L340SD | 340 | 310 | 50 |
| BDV50-50-L340SD | 340 | 318 | 50 |

Basic Type

· Can also be used as a setting gauge for tool presetters.

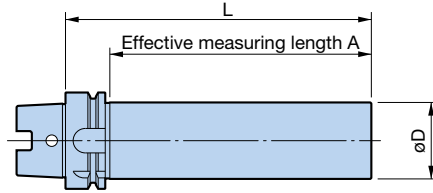


| Model | L | A | øD |
|---------------------|-----|-----|----|
| NT30-32-L150 | 150 | 142 | 32 |
| -L225 | 225 | 217 | |
| NT40-50-L200 | 200 | 184 | 50 |
| -L335 | 335 | 319 | |
| NT50-50-L200 | 200 | 191 | 50 |
| -L335 | 335 | 326 | |

HSK Shank Type



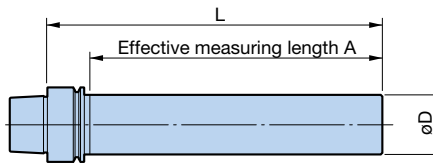
■ HSK-A Type [DIN 69893-1 and ISO 12164-1]



| Model | L | A | øD |
|---------------------------|-----|-----|----|
| HSK-A 40-32-L180SD | 180 | 157 | 32 |
| -A 50-32-L150SD | 150 | 121 | |
| -L240SD | 240 | 211 | |
| -A 63-50-L200SD | 200 | 171 | 50 |
| -L350SD | 350 | 321 | |
| HSK-A100-50-L200SD | 200 | 168 | |
| -L350SD | 350 | 318 | |

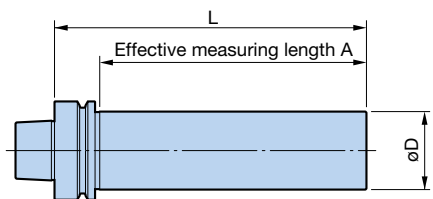
1. As the depth of the drive keys are symmetrical, it can be mounted in 180° inversion.

■ HSK-E Type [DIN 69893-5]



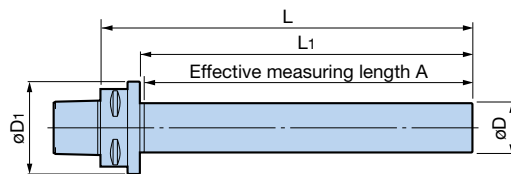
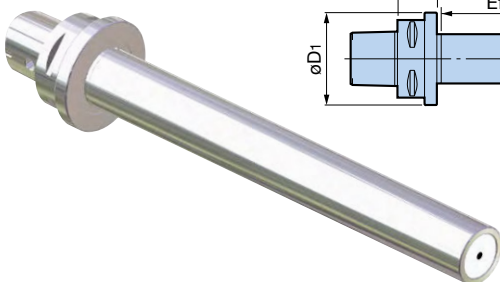
| Model | L | A | øD |
|------------------------|-----|-----|----|
| HSK-E25-20-L175 | 175 | 163 | 20 |
| -E32-20-L180 | 180 | 158 | |
| -E40-32-L180 | | 157 | 32 |
| -E50-32-L240 | 240 | 211 | |

■ HSK-F Type [DIN 69893-6]



| Model | L | A | øD |
|------------------------|-----|-----|----|
| HSK-F63-50-L200 | 200 | 171 | 50 |
| -L350 | 350 | 321 | |

BIG CAPTO SHANK Type



| Model | L | L1 | A | øD | øD1 |
|-------------------|-----|-----|-----|----|-----|
| C5-32-L150 | 180 | 150 | 148 | 32 | 63 |
| - 215 | 245 | 215 | 213 | | |
| -40-L250 | 280 | 250 | 247 | 40 | |
| C6-40-L150 | 182 | 150 | 147 | 40 | 75 |
| -L200 | 232 | 200 | 197 | | |
| -L320 | 352 | 320 | 317 | | |
| C8-40-L200 | 240 | 200 | 197 | 40 | 85 |
| -L320 | 360 | 320 | 317 | | |

DYNA TEST [For dynamic precision measurement]

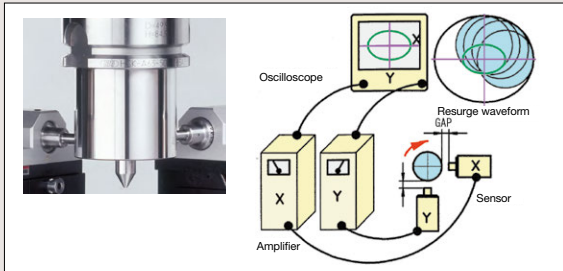
Evaluates the dynamic runout accuracy of the machine spindle by measuring the runout while rotating at practical speeds.

- The dynamic accuracy may differ from static accuracy due to centrifugal force, vibration and heat caused by spindle rotation. Knowing the dynamic accuracy will aid in finding the appropriate cutting parameters for actual machining.

Dynamic runout accuracy

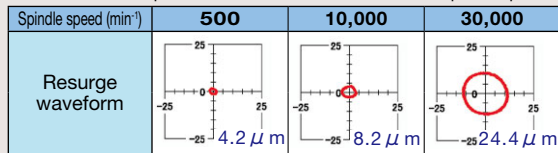
Allows measurement of the runout during actual rotation.

[Example of dynamic runout measuring devices.]



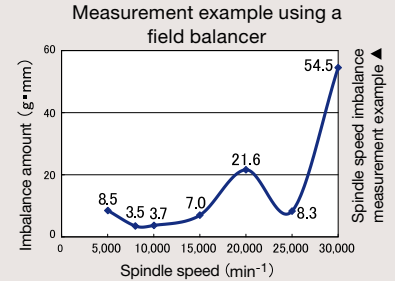
This example uses a static capacitance non-contact displacement meter. X and Y axis displacement can be measured simultaneously, with the resurge waveform displayed on an oscilloscope.

Measurement example of radial direction error at different spindle speeds



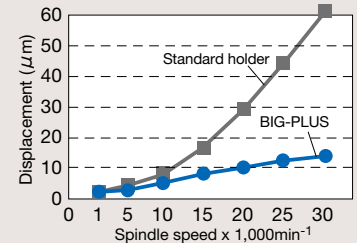
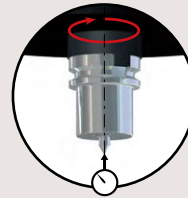
Imbalance

The balance also changes with spindle speed. Tool life and machining accuracy are improved by usage at a spindle speed with good balance performance.



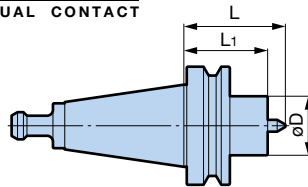
Measurement of Z-axis direction displacement

Z-axis displacement varies depending on the thermal displacement and spindle expansion caused at each spindle speed. The center boss allows measurement with a non-contact displacement meter.



※ Changes due to thermal expansion of the machine spindle are also included.

BIG-PLUS Type



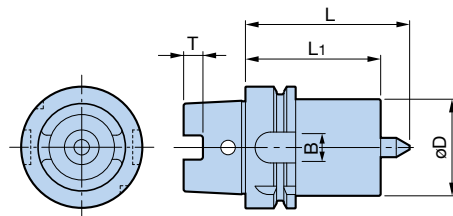
BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

| Model | øD | L | L ₁ |
|--------------|----|----|----------------|
| BBT30-40-Z62 | 40 | 62 | 50 |
| BBT40-50-Z85 | 50 | 85 | 70 |
| BBT50-50-Z85 | 50 | 85 | 70 |

1. Specify the pullstud bolt model, as the taper is ground with the pullstud bolt mounted.

HSK Shank Type

HSK-A Type [DIN 69893-1 and ISO 12164-1]

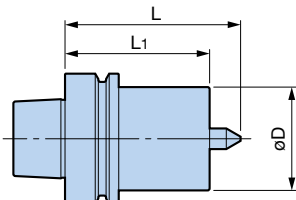


※ HSK-E Type and other shank sizes are also available. Please contact us for details.

| Model | L | L ₁ | øD | B | T |
|-------------------|----|----------------|----|----|-----|
| HSK-A 40-40-Z62AB | 62 | 50 | 40 | 11 | 6 |
| -A 50-40-Z62AB | | | | 14 | 7.5 |
| -A 63-50-Z85AB | 85 | 70 | 50 | 18 | 10 |
| -A100-50-Z85AB | | | | 22 | 15 |

1. Symmetrically designed HSK shanks for improved balance.

HSK-F Type [DIN 69893-6]

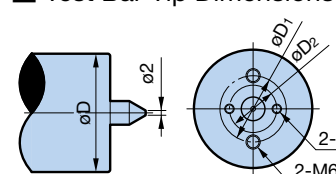


| Model | L | L ₁ | øD |
|----------------|----|----------------|----|
| HSK-F63-50-Z85 | 85 | 70 | 50 |

1. HSK-E Type (DIN 69893-5) is also available

Common for BBT Shank/HSK Shank

Test Bar Tip Dimensions



| | øD | øD ₁ | øD ₂ |
|----------|----|-----------------|-----------------|
| ø40 Type | 18 | 16 | |
| ø50 Type | 28 | 20 | |

※ M4 and M6 threaded holes are prepared for mounting test weights used for field balance measurement.