# Comparison of machining performance between ReamMeister and ID boring tool

- A comparative test was done by using ReamMeister and an ID boring bar for finishing an inner diameter of deep holes.
- Anticipating turret misalignment in the NC lathe, ReamMeister was intentionally offset by 0.3mm from the center for machining.
- In order to use the reamer with the offset center, a floating holder was adapted.
  (For lathes with adjustable Y-axis or turning centers with tool rotation capability, a standard holder can be used without using a floating holder.)

**REAMMEISTER**
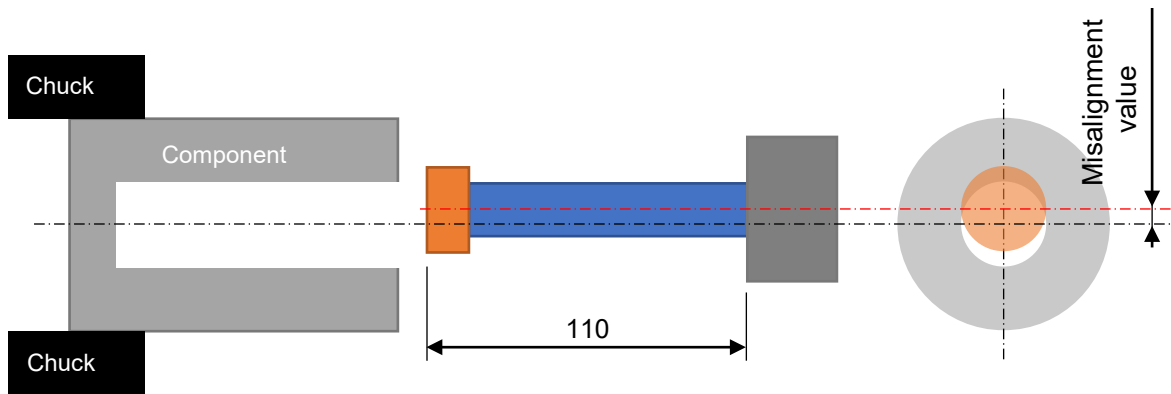


**ID boring tool**



Pre hole dia. ：φ15.8
Finish hole dia. ：φ16
Misalignment value ：0.3mm
Tool holder ：GFIST25ER32（collet: ER32SEAL20AA）
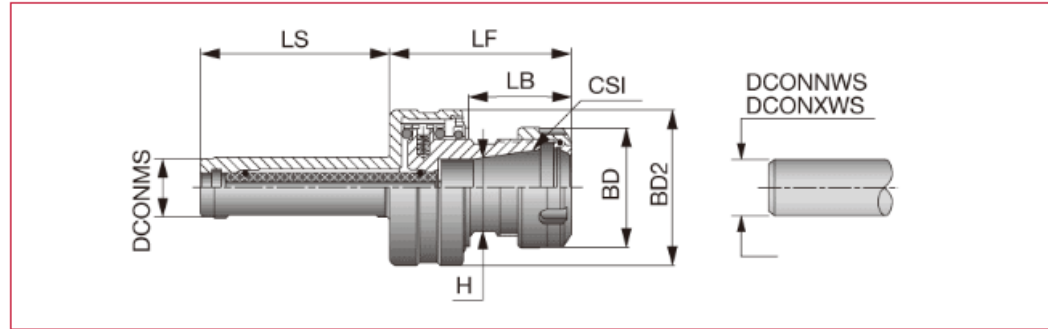Reaming body ：TRM-T7-R20-5
Reaming head ：HRM-16.001-AS-T7 AH725
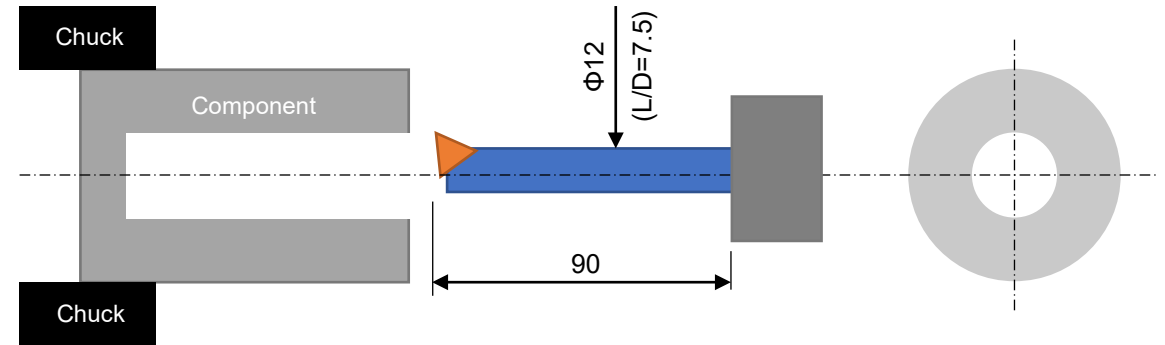
Pre hole dia. ：φ15
Finish hole dia. ：φ16
ID boring tool ：E12Q-SCLCR06-D140 (Carbide shank)
Insert ：CCMT060204-PSS T9215

# Floating holder and collet

**TUNGHOLD** TUNGGFI

Family Designation: GFI-ST-ER(reamer chuck) Floating Reamer DIN 6499 Collet Chucks with Cylindrical Shanks with a Clamping Flat



※The holder side can be adjusted up to maximum of 1.6mm, but it cannot adjust an offset beyond the radial cutting edge length on the reamer.
For the standard ReamMeister head, the maximum radial cutting edge length is 0.5mm.
Please make sure that the miss-alignment value does not exceed the radial cutting edge of ReamMeister.

HRM-AS

HRM-BL



↓※applicable floating range

Item Designation: GFIST25ER32

| DCONMS | CSI | DCONNWS | DCONXWS | LS | LF | LB | BD | BD_2 | R FI | H | CSP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25.000 | ER32 | 2.00 | 20.00 | 80.0 | 76.90 | 45.90 | 50.00 | 65.00 | 1.6 | 36.0 | With coolant hole |
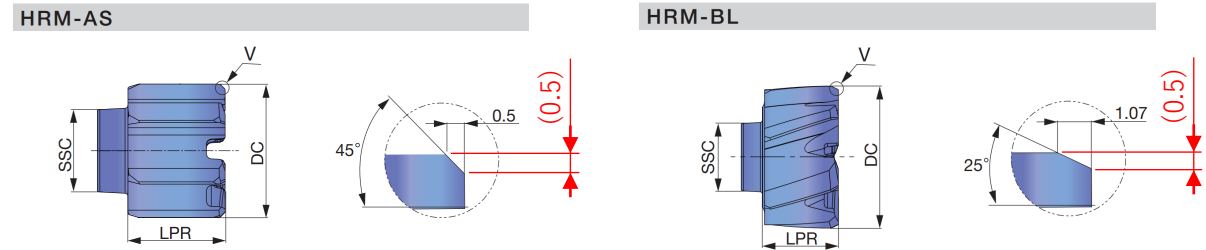
**TUNGHOLD**

ER-SEAL-AA : DIN 6499 'AA' Ultra Precise ER Sealed Spring Collet for metric tool, exact size collet.
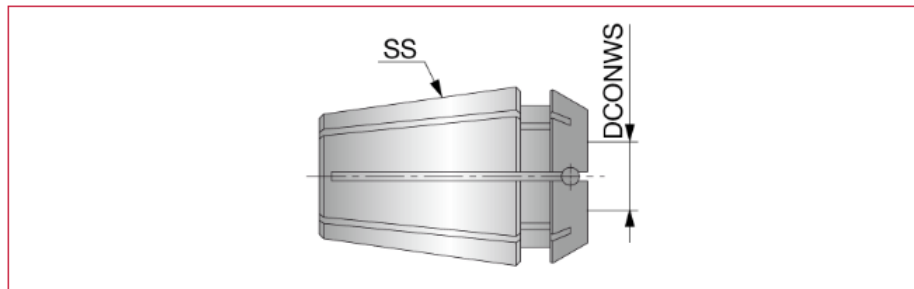


| Collet Description | SS | DCONWS | Applicable ReamMeister Connection Sizes | Applicable Head Diameter |
|---|---|---|---|---|
| ER32SEAL16AA | ER32 | 16 | T5, T6 | 11.500～16.000 |
| ER32SEAL20AA | ER32 | 20 | T7, T8 | 16.001～25.400 |

**Floating holders are niche products, and there are holder manufacturers that have discontinued their production. Tungaloy offers TungHold as an option.**

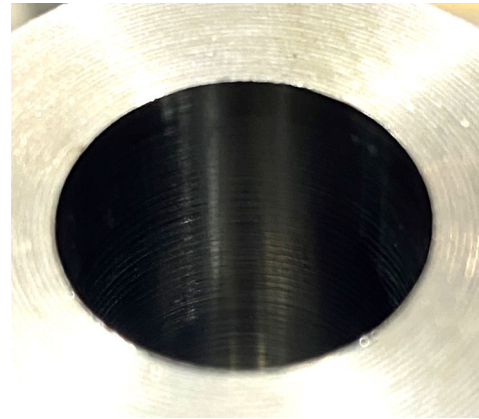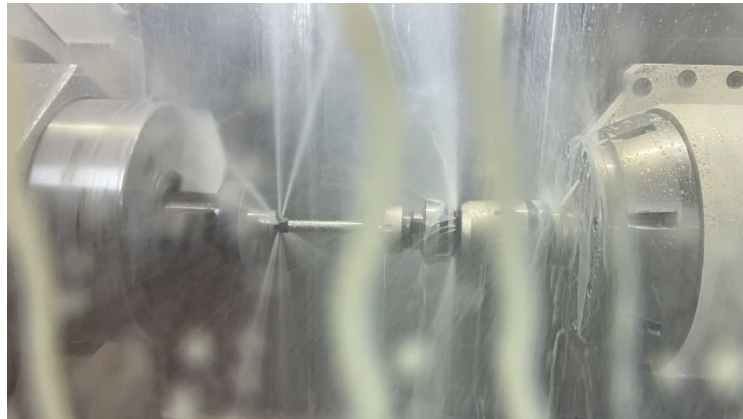# Test results

## REAMMEISTER

Machining parameters
Starting ream～3mm：Vc=10m/min, f=0.3mm/rev
From 3mm onwards.：Vc=100m/min, f=0.6mm/rev

**Machining**

📷 Hole appearance

- ✓ Cycle time 7 sec
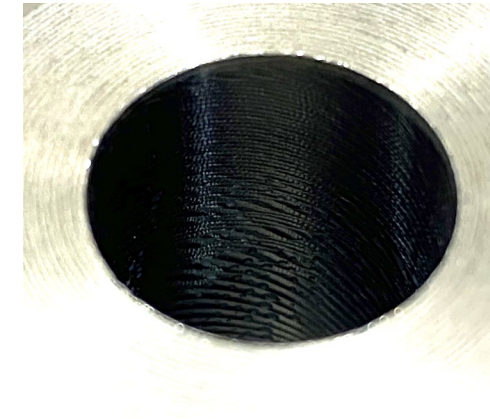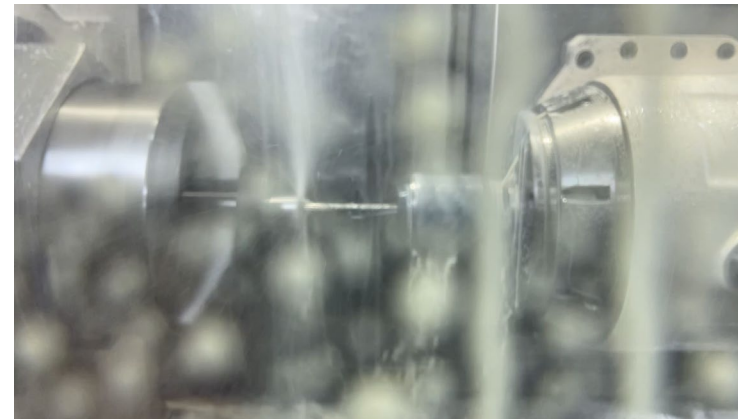- ✓ Without chattering
- ✓ Hole diameter φ16.017

## ID boring tool

Machining parameters
Vc=100m/min,f=0.08mm/rev

**Machining**

📷 Hole appearance

- ✓ Cycle time 24sec
- ✓ With chattering

**Even in the challenging deep hole machining with L/D ratios of 5 and above, where processing is difficult using carbide ID boring tools, ReamMeister enables stable and efficient machining without chattering.**
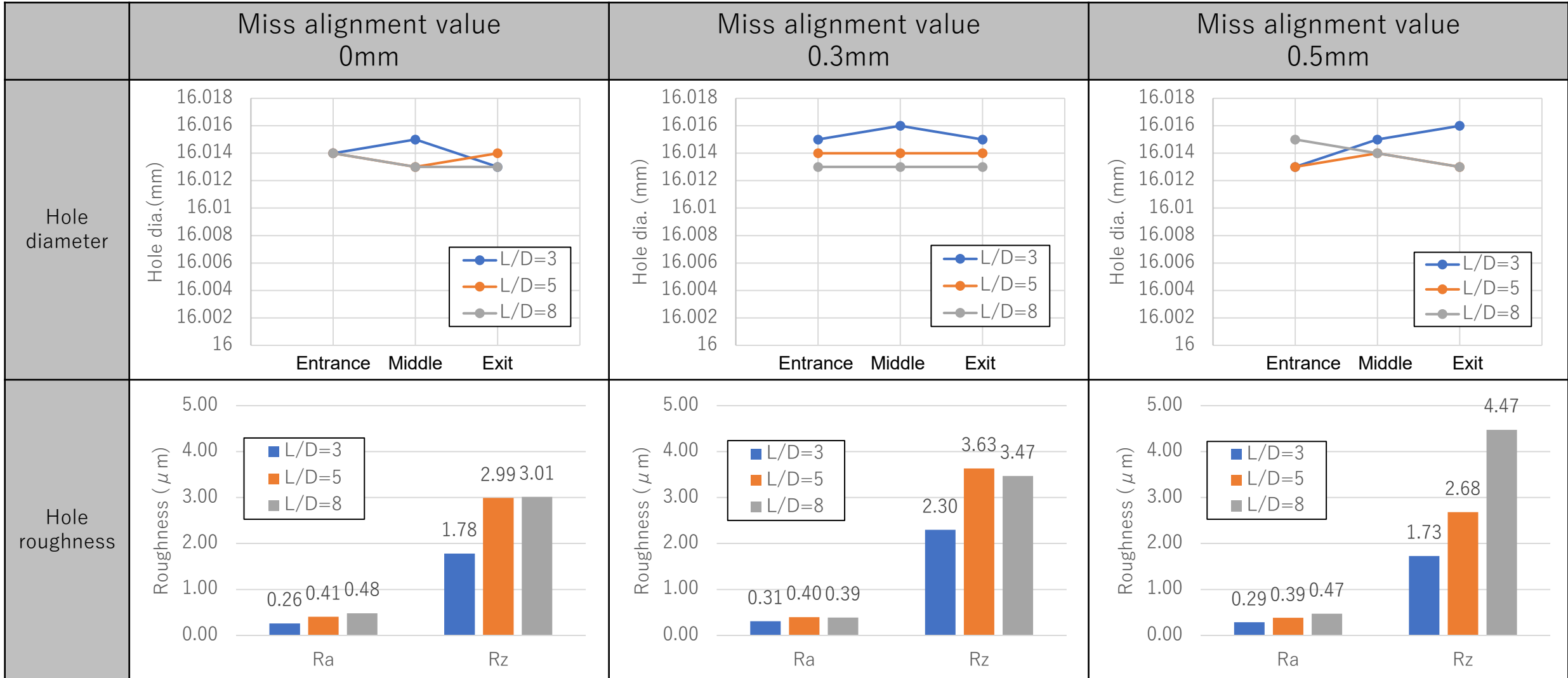
# Hole accuracy: ReamMeister × Floating holder

- Using reamer bodies with L/D ratios of 3, 5, and 8, the hole diameter and surface roughness were measured among varying center offset values.

Machining parameters
Starting ream～3mm：Vc=10m/min, f=0.3mm/rev
From 3mm onwards.：Vc=100m/min, f=0.6mm/rev



**Hole diameter: Regardless of the L/D ratio or miss alignment value, ReamMeister can get consistent hole diameter within H7 tolerance.**
**Hole roughness: While there is a tendency for the surface roughness to worsen as the L/D ratio and miss alignment value becomes bigger, overall, ReamMeister offers satisfying roughness.**

# Features and benefits of ReamMeister compared to ID boring tools
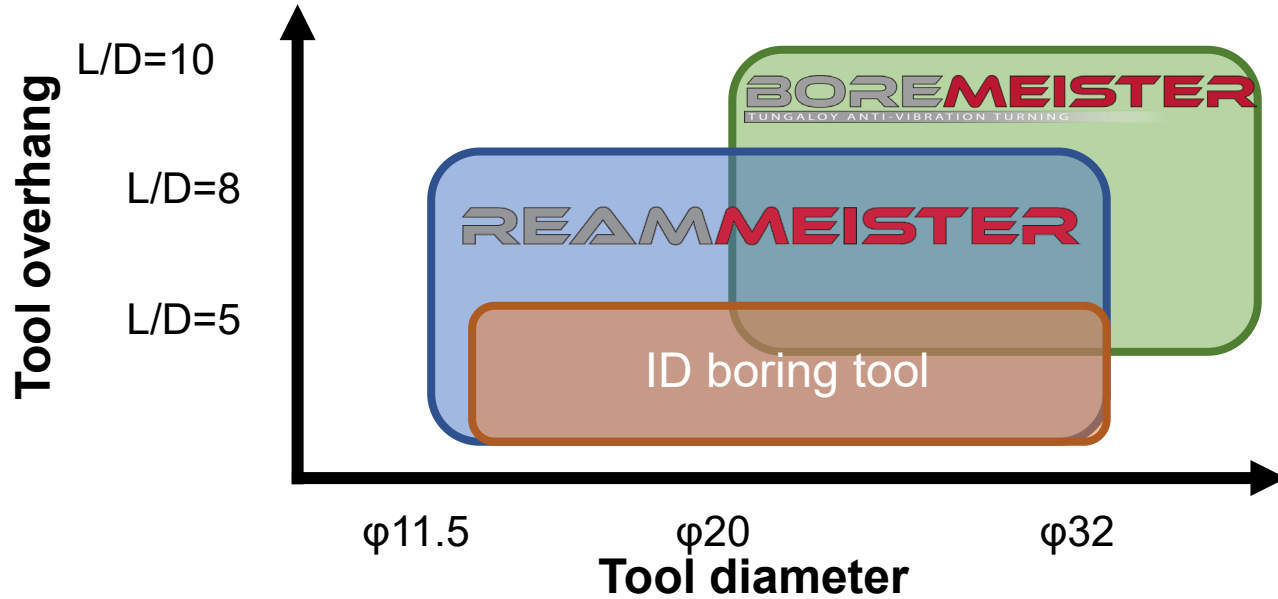


**Advantages of using ReamMeister**
・ Higher productivity
・ Stable machining process by preventing the tool from bending with margin support

**Disadvantages of using ReamMeister**
・ Higher tool cost
・ Inability to machine step shapes and profile shapes

| | BOREMEISTER TUNGALOY ANTI-VIBRATION TURNING (Anti vibration) | ID boring tool (Carbide) | REAMMEISTER (Steel) |
|---|---|---|---|
| Productivity | 😐 | 😐 | 🙂 |
| Stability over L/D=5 | 😐 | ☹️ | 🙂 |
| Running cost | 🙂 | 🙂 | ☹️ |
| Roughness | Ra1.6~3.2 | Ra1.6~3.2 | Ra0.8~1.6 |
| Profile shape | Possible | Possible | Impossible |

**When efficiency and surface roughness are in high priority, REAMMEISTER is the best choice.**