# Instruction manual


## µGrind G200

good better BLUE

GDS®
Made in Germany


① µGrind HPS Mini

② Threaded push plug

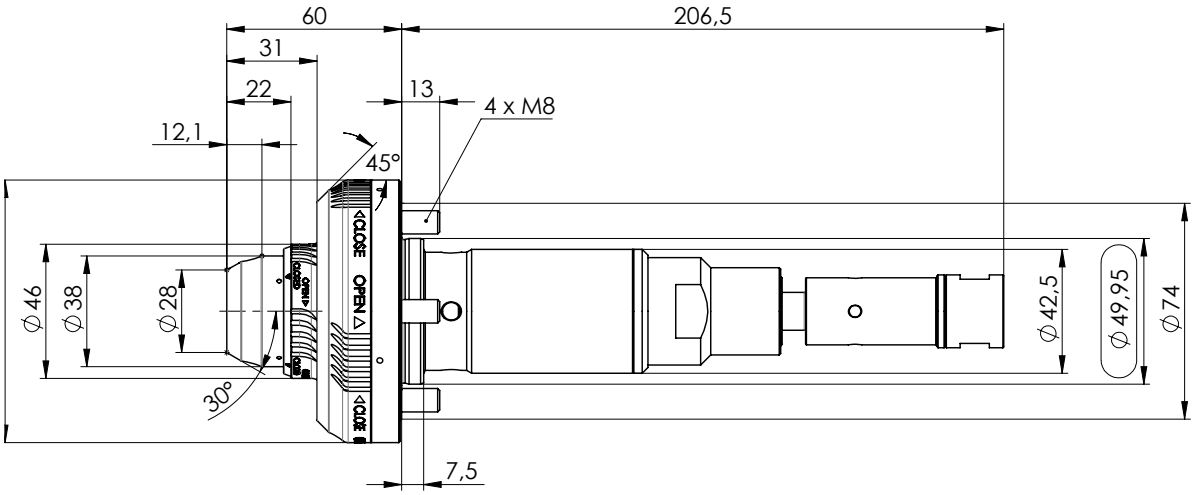
③ Plastic tipped mallet

④ GDS wrench GDS SW 5.0 x 150

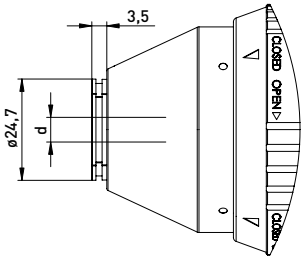
⑤ USB flash drive with instruction manual, video, & drawings

⑥ QC certificate

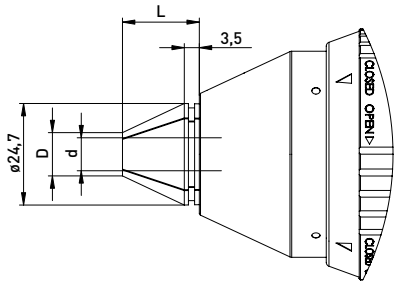
## µGrind G200

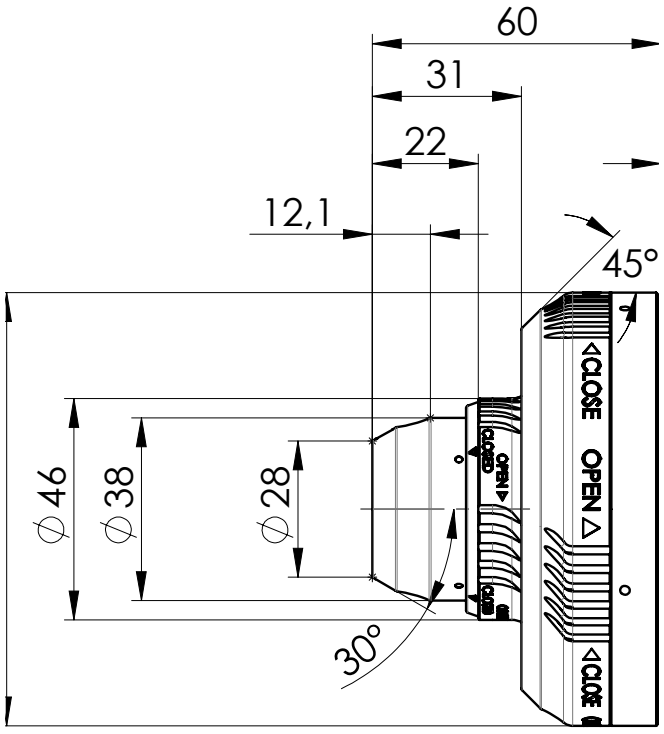


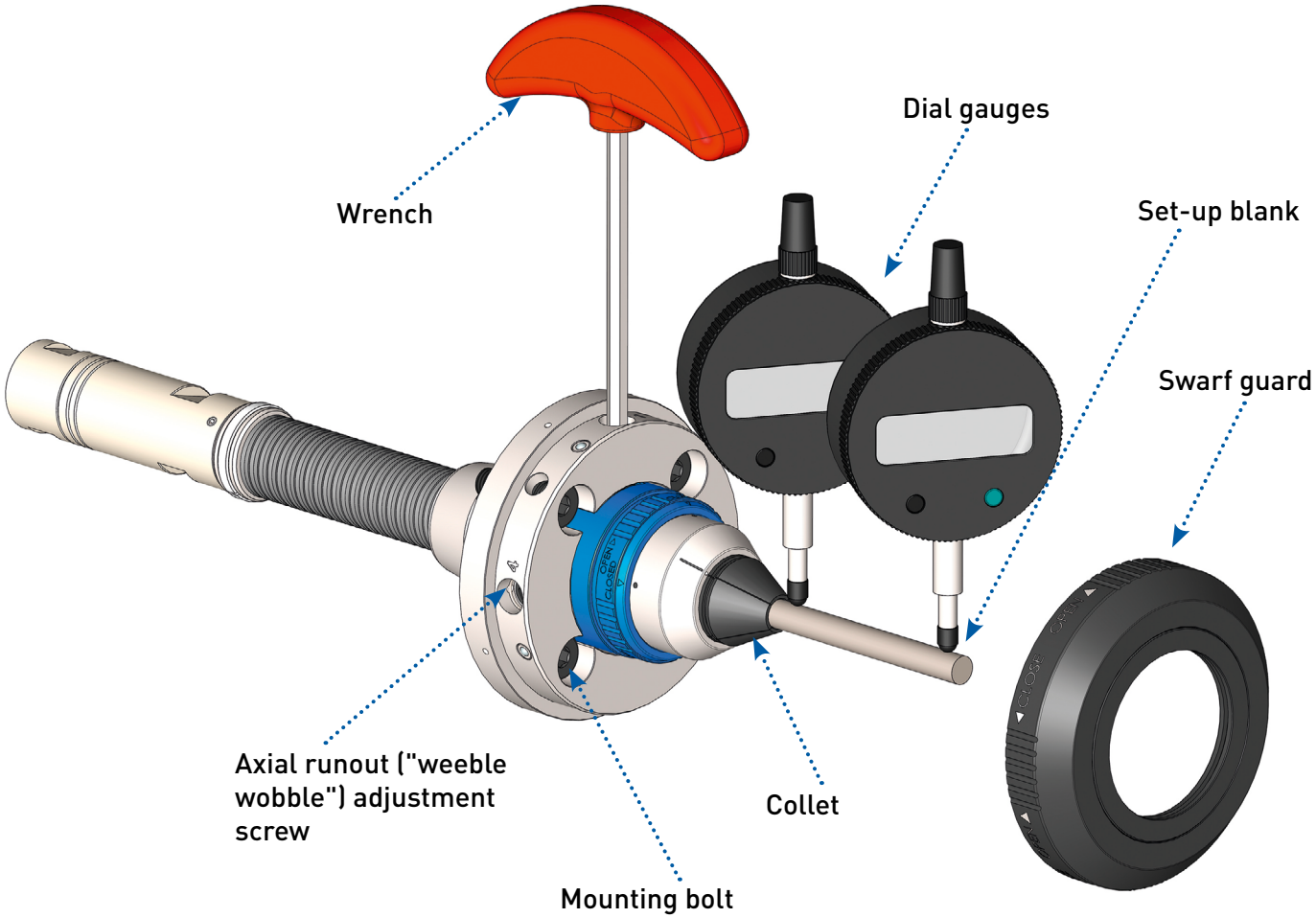

## Flat-faced collet:

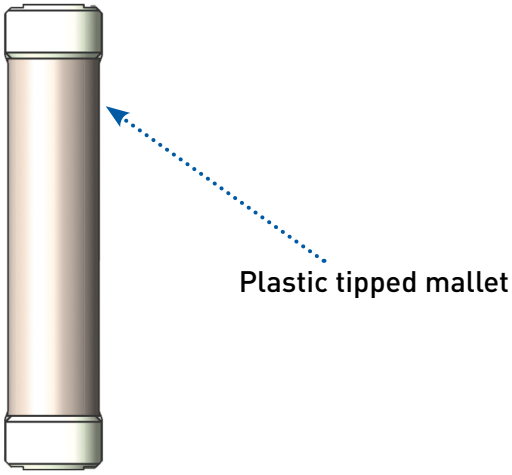



## Tapered collet:





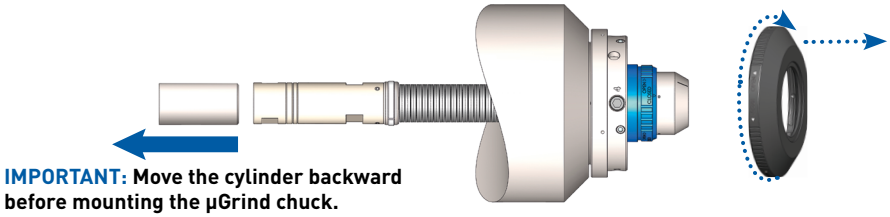



## Step 1: Preparation

1. Install the push plug into the back of the chuck
2. Ensure the face of the A-axis is clean and flat
3. Ensure the µGrind chuck is at room temperature
4. Clean all contact surfaces of the chuck
5. Remove the swarf guard by turning it to OPEN position
6. Use the machine control to move the clamping cylinder back (into "clamped" position)

TIP

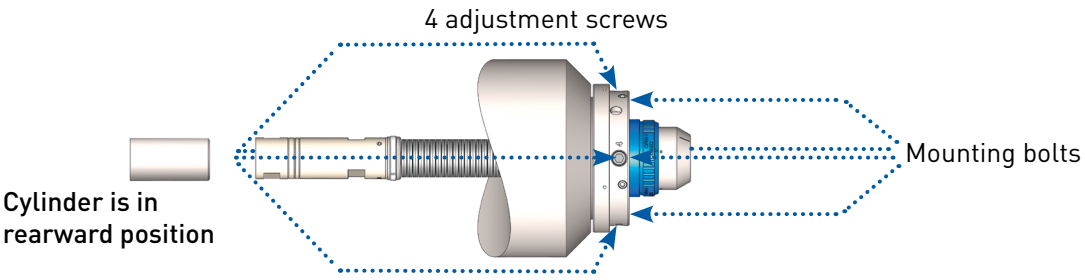
See the video included on the USB stick: GDS µGrind Einstell Video.mp4



**IMPORTANT:** Move the cylinder backward before mounting the µGrind chuck.

## Step 2: Mount µGrind Chuck

1. Using the T-handle wrench (4), loosen the 4 "weeble wobble" adjustment screws around the periphery if not already loose (but do NOT remove)
2. Mount the µGrind chuck onto the spindle face using the T-handle wrench (4). Secure the bolts "finger tight." They will be tightened later, when adjusting the run-out



## Step 3: Prepare for HPS collet

1. Use the machine control to move the pneumatic cylinder into the forward position ("unclamped"). This opens the µGrind chuck

2. Turn the green ring to the OPEN position (fig. 1)

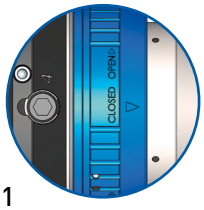
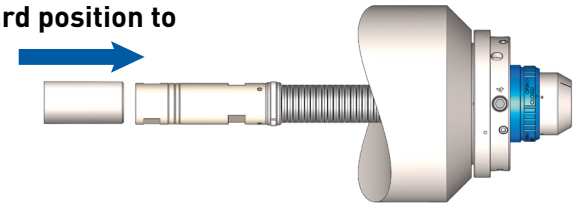



Fig. 1
Detail: Green ring in OPEN position

**IMPORTANT: Move the machine cylinder into forward position to open the chuck.**



## Step 4: Install HPS collet

1. Insert the HPS collet and screw it in clockwise until you feel resistance. Now turn the collet counter-clockwise until the next slot meets the marking point on the chuck (fig.1).

2. Turn the green ring into CLOSE position (fig. 2).
   Please see the note below.

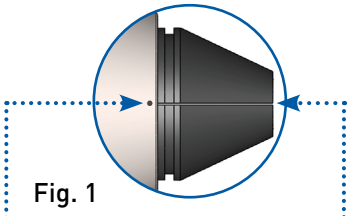


Fig. 1
Collet slot
Marking point on the chuck

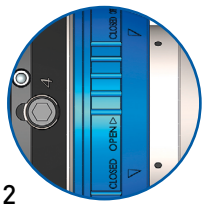
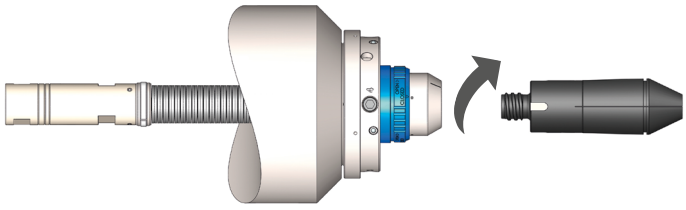



Fig. 2
Detail: Green ring in CLOSE position

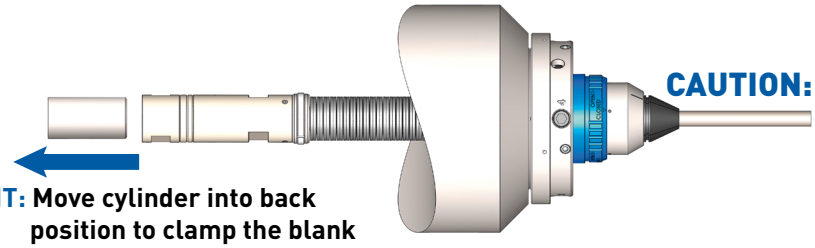


**Note:** Turning the green ring from OPEN to CLOSE position moves a pin into one of the notches at the end of the HPS collet to prevent it from rotating. If you are unable to turn the green ring fully to the "Close" position, you may have to turn the collet slightly. Then make sure you are able to turn the collet a tiny bit in each direction. Conversely, if the green ring is in the "Close" position but you are able to turn the collet, the pin is behind the collet and you will damage it when clamping your first tool blank.

**Step 5:** Insert Set-up Blank

1. Insert the best possible blank into the HPS collet and use the machine control to clamp the tool (machine cylinder in the back position)

**The collet** must **NEVER** be clamped without a blank or tool inside!



**IMPORTANT:** **Move cylinder into back position to clamp the blank**

**CAUTION:** **During any machine shutdown, a tool must remain clamped**

## Adjustment of Run-out and Repeatability

Please take some time to adjust radial and axial run-out (weeble-wobble). The better you adjust the µGrind chuck during setup, the more precise it will remain when changing collets. The video will be helpful (GDS µGrind Einstell Video.mp4)

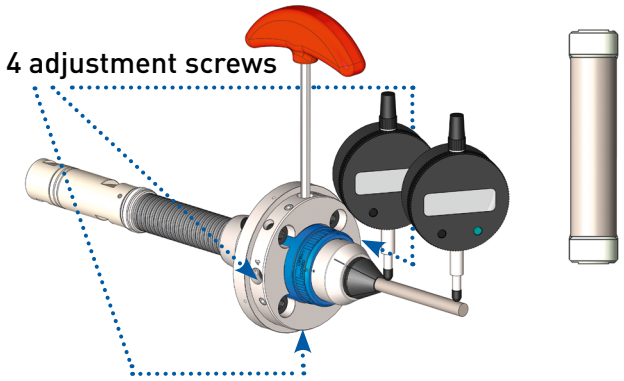
TIP

Use two dial gauges with a resolution of at least 0.001 mm.

**Note on run-out and repeatability:**
In order to achieve highest precision and repeatability, adjust the chuck at two different diameters. We recommend setting up with ø8, ø10 or ø12

**Step 1:** Preparation

1. Install the two dial gauges (fig. 1)
2. Get the mallet (7) and wrench (8) ready
3. Ensure adjustment screws are loose
4. Run the machine in manual mode

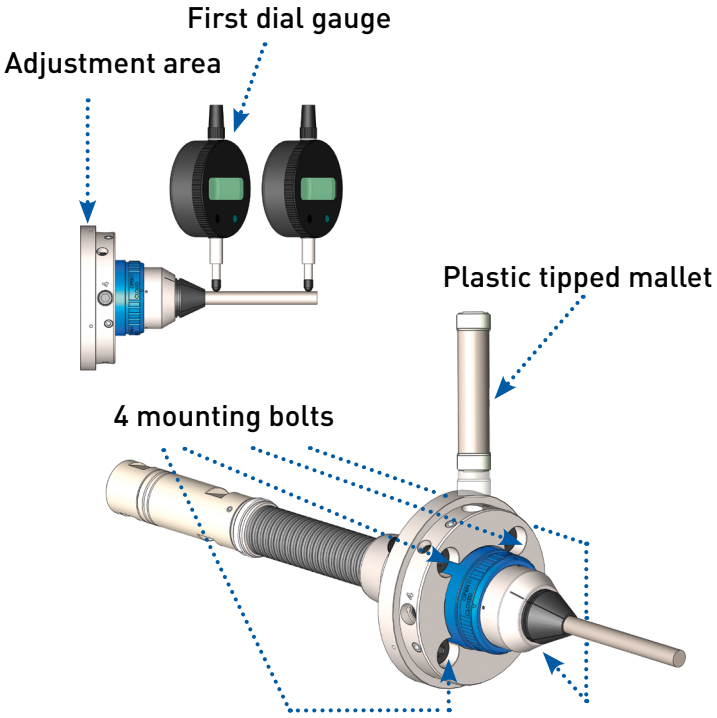


## Step 2: Run-Out

Focus on the first dial gauge.

Run-out is adjusted by tapping on the adjustment area with the plastic tipped mallet (7)

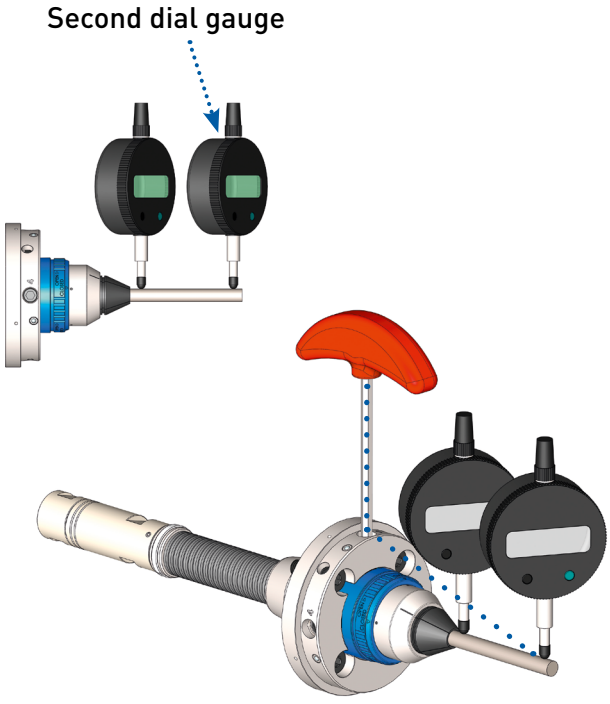
1. Turn the A-axis until the dial gauge reaches the peak. Reduce this value by half by lightly tapping the adjustment area with the mallet
2. Repeat this procedure until you adjust run-out to within 0.001 mm. Now tighten the four mounting bolts (ideally to 12 Nm)
3. Unclamp and clamp the blank three to five times, so the µGrind chuck settles and tension disappears
4. Check the run-out again and readjust, if necessary




## Step 3: Wobble

Focus on the second dial gauge.

1. Lightly tighten the 4 adjustment screws.
2. Turn A-axis and stop when the dial gauge reaches the peak
3. Tighten the adjustment screw closest to the peak point using the wrench (8), so the dial gauge result is halved. (Unlike the chuck shown in the video, the adjustment screws on the µGrind Mini cannot be rotated to match the gauge position)
4. Turn the chuck two to three times. If wobble is still detected repeat step 2 and 3 until run-out and wobble are below 0.001 mm. You may find it helpful to tighten the next closest screw
5. Snug the remaining screws without affecting runout
6. Ideally you would now change the collet to check repeatability (see next step). Or mount the swarf guard and grind!




TIP

Check runout again after 20 tools or so to see if temperature changes have affected things. Depending on your application, you may also find it helpful to check periodically after 1,000 to 5,000 tools.

**Note:** Make sure that the µGrind does not contact coolant hoses, etc. during grinding.
Always clean the µGrind chuck after use. Store the chuck in an anticorrosive environment.

## Changing Collets

**Step 1:**

- Move the machine cylinder to the forward position to unclamp the chuck. Remove the blank/tool

**Step 2:**

- Turn the green ring from CLOSE to OPEN and unscrew the HPS collet

**Step 3:**

- Screw the new HPS collet into the chuck, following the instructions on page 7

**Step 4:**

- Clamp a new setup blank to check the run-out and wobble using two dial gauges, or clamp a new blank to grind

## Removing the µGrind Chuck

**Step 1:**

- Move the machine cylinder to the forward position to open the chuck. Remove the test blank/tool

**Step 2:**

- Turn the green ring from CLOSE to OPEN and unscrew the HPS collet

**Step 3:**

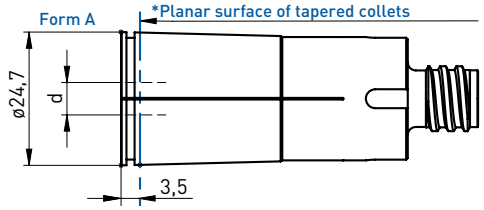
- Remove the swarf guard and loosen the four adjustment screws with the wrench (8)

**Step 4:**

- Move the machine cylinder back (clamped position)
- Loosen the four mounting bolts
- Remove the µGrind chuck and put it into the original bag
- Store the chuck in an anticorrosive environment

**Note:** If you wish to remove the µGrind chuck with an HPS collet in it, a blank/tool must remain clamped in the collet to ensure that neither the chuck nor the collet will be damaged.

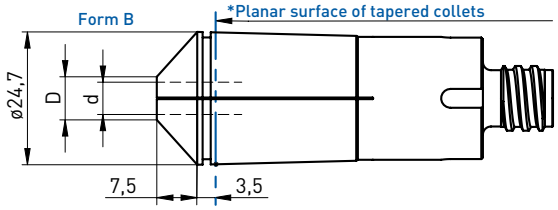
## Flat-faced HPS collets:



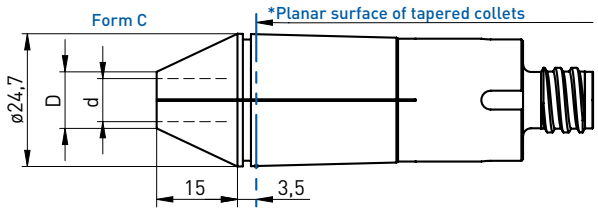

| Item No. | Name - ø d | Form |
|---|---|---|
| 350260003 | HPS Collet 20 - ø3 mm | A |
| 350260004 | HPS Collet 20 - ø4 mm | A |
| 350260005 | HPS Collet 20 - ø5 mm | A |
| 350260006 | HPS Collet 20 - ø6 mm | A |
| 350260007 | HPS Collet 20 - ø7 mm | A |
| 350260008 | HPS Collet 20 - ø8 mm | A |
| 350260010 | HPS Collet 20 - ø10 mm | A |
| 350260011 | HPS Collet 20 - ø11 mm | A |
| 350260012 | HPS Collet 20 - ø12 mm | A |
| 350260201 | HPS Collet 20 - ø1/8'' | A |
| 350260202 | HPS Collet 20 - ø3/16'' | A |
| 350260203 | HPS Collet 20 - ø1/4'' | A |
| 350260204 | HPS Collet 20 - ø5/16'' | A |
| 350260205 | HPS Collet 20 - ø3/8'' | A |
| 350260206 | HPS Collet 20 - ø7/16'' | A |
| 350260207 | HPS Collet 20 - ø1/2'' | A |

TIP For ideal runout ensure a minimum clamping depth of 2.5 x ø behind the "planar surface" referenced in the above diagrams (i.e. inside the nose of the chuck)

## Tapered HPS collets:




| Item No. | Name -ø d | Form |
|---|---|---|
| 350260130 | HPS Collet 20K - ø2.35 mm | B |
| 350260103 | HPS Collet 20K - ø3 mm | B |
| 350260104 | HPS Collet 20K - ø4 mm | B |
| 350260105 | HPS Collet 20K - ø5 mm | B |
| 350260106 | HPS Collet 20K - ø6 mm | B |
| 350260301 | HPS Collet 20K - ø1/8'' | B |
| 350260302 | HPS Collet 20K - ø3/16'' | B |
| 350260303 | HPS Collet 20K - ø1/4'' | B |

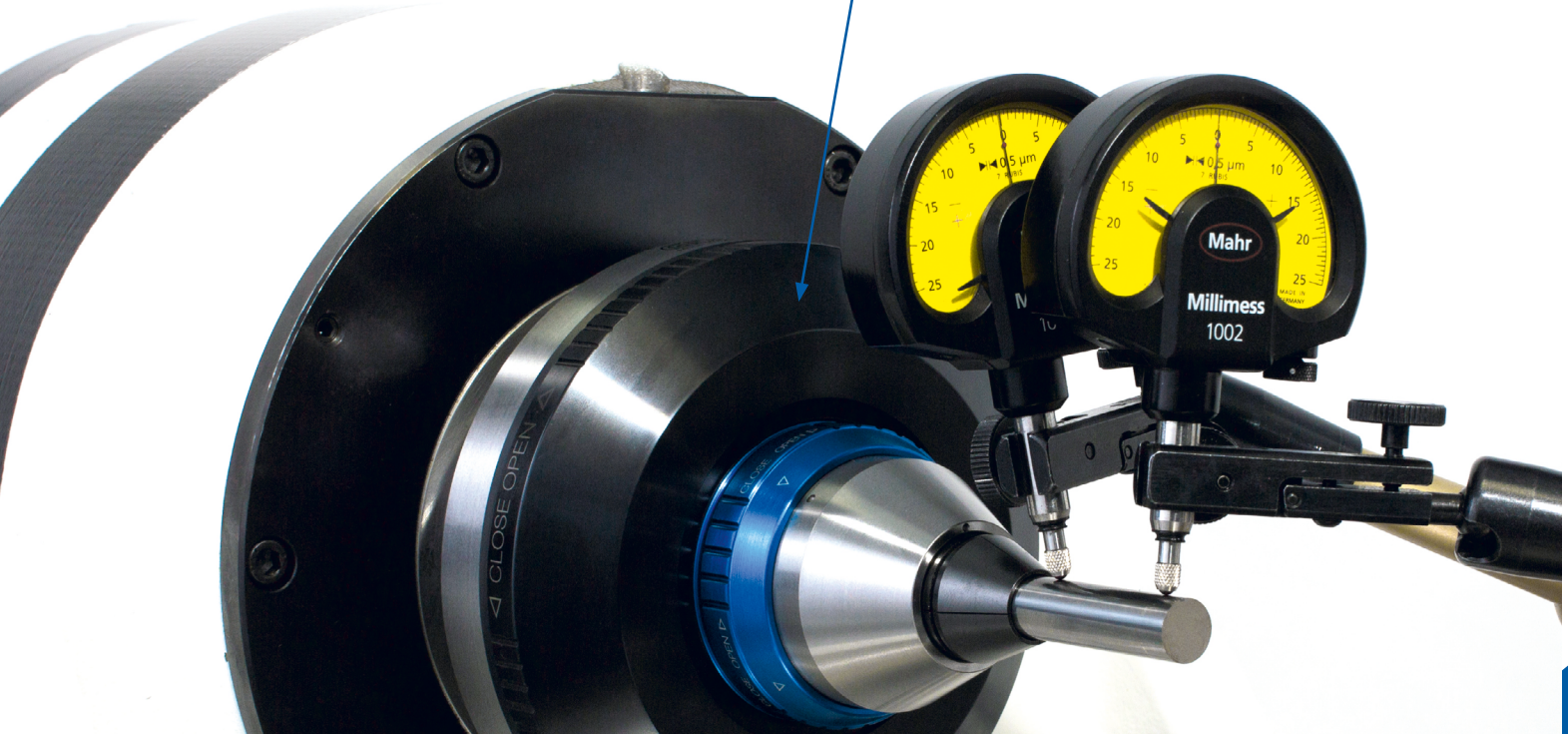



| Item No. | Name -ø d | Form |
|---|---|---|
| 350260107 | HPS Collet 20K - ø7 mm | C |
| 350260108 | HPS Collet 20K - ø8 mm | C |
| 350260109 | HPS Collet 20K - ø9 mm | C |
| 350260110 | HPS Collet 20K - ø10 mm | C |
| 350260111 | HPS Collet 20K - ø11 mm | C |
| 350260112 | HPS Collet 20K - ø12 mm | C |
| 350260304 | HPS Collet 20K - ø5/16'' | C |
| 350260305 | HPS Collet 20K - ø3/8'' | C |
| 350260306 | HPS Collet 20K - ø7/16'' | C |
| 350260307 | HPS Collet 20K - ø1/2'' | C |

## Important:

- The µGrind series automatic chucks are designed for clamping rotationally symmetrical blanks and tools with a shaft tolerance of h6 or better
- Shaft tools according to DIN 1835 Form A, B, E resp. DIN 6535 Form HA, HB, HE can be clamped
- Products of the µGrind series (chucks and collets) must be only used according to their technical specifications
- These products are intended for industrial applications
- Use of µGrind products must respect all applicable specifications and regulations included in this instruction
- Proper function and warranty coverage can only be guaranteed when using original GDS accessories

The swarf shield would **not** be on while adjusting the chuck



## Check the following:

- Check the machine's clamping & unclamping pressure
- Check the blank
- Check the collet and/or try a different collet and blank
- Check for swarf or other contaminents in or behind the µGrind chuck
- Make sure the blue locking ring is closed properly
- Make sure the mounting and adjustment screws are tightened enough
- Nake sure the µGrind chuck is at room temperature
- Uninstall all parts. Clean and start off from the beginning, following the instructions, including checking the T measurement and recalculating which shims should be used

µGRIND®
REVOLUTION IN TOOLGRINDING

µGrind HPS 20 // HPS 20L

µGrind Nann 3409E

µGrind HSK

µGrind Hydro

In North America contact:

**Toolroom Solutions Inc.**
8824 Old Block House Ln
Spotsylvania, VA 22551 USA

Tel: +1 (540) 940-5977
Email: info@toolroom.solutions
Web: www.toolroom.solutions

GDS®
Made in Germany

GDS Präzisionszerspanungs GmbH
Endelbergstrasse 8
D - 72131 Ofterdingen

TOOLROOM SOLUTIONS