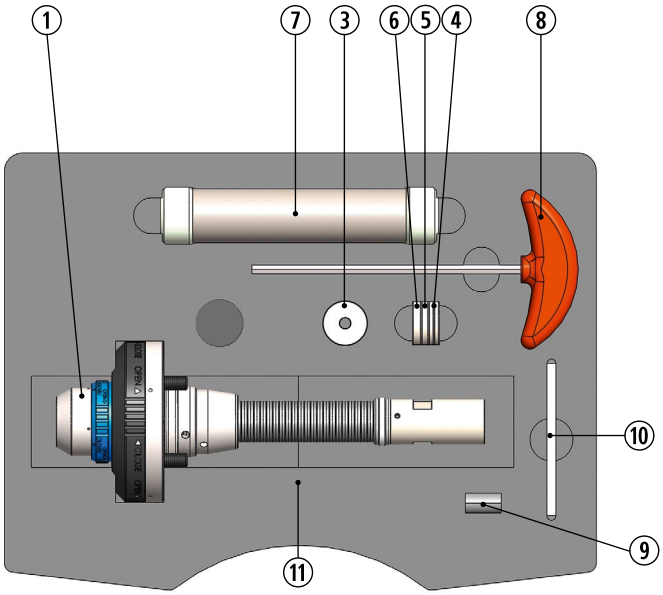
Instruction manual

µGrind HPS Mini

good better BLUE

GDS®
Made in Germany



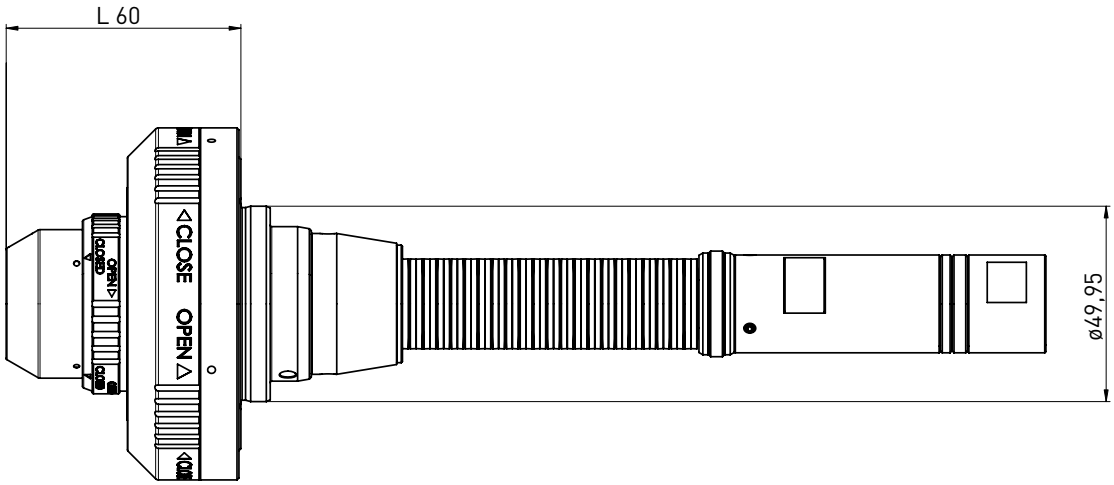
1. µGrind HPS Mini
3. Threaded push plug L20
4. Shim 3 mm (2 pcs.)
5. Shim 4 mm
6. Shim 5 mm
7. Plastic tipped mallet
8. GDS wrench GDS SW 5.0 x 150
9. USB flash drive with instruction manual, video, & drawings
10. QC certificate
11. µGrind HPS Mini case

For use on the following machine(s):

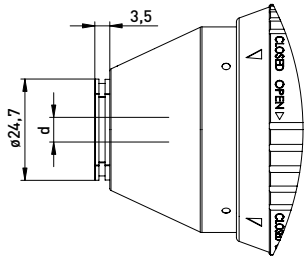
WALTER

Mini Automation

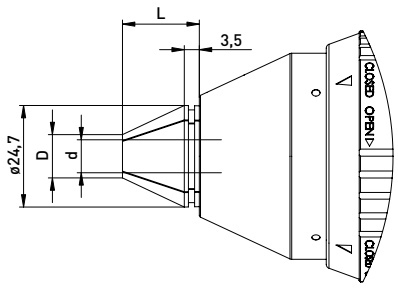
µGrind HPS Mini



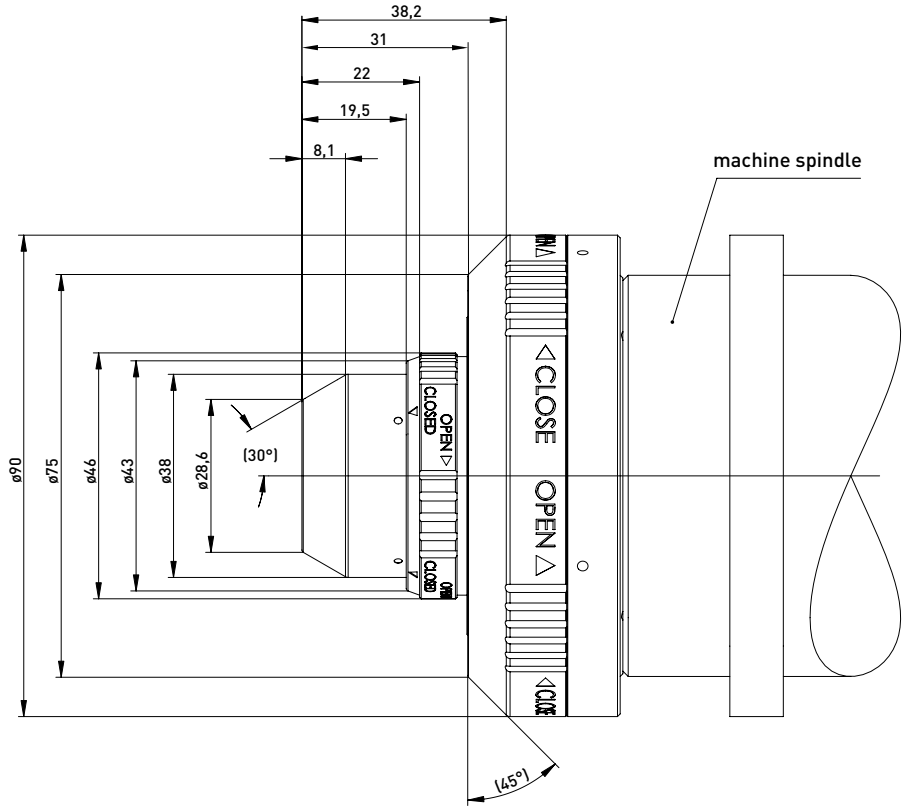
Flat-faced collet:

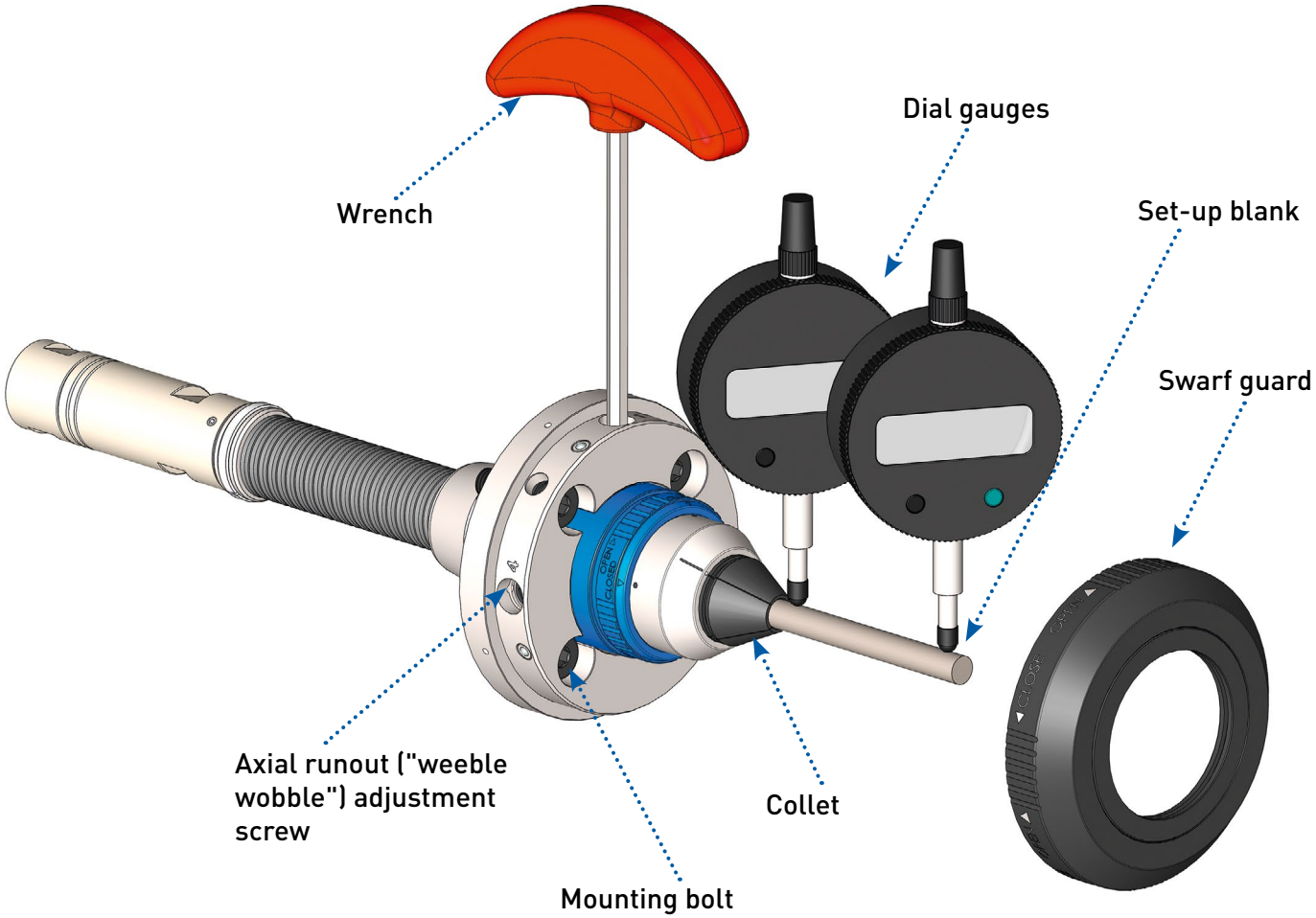


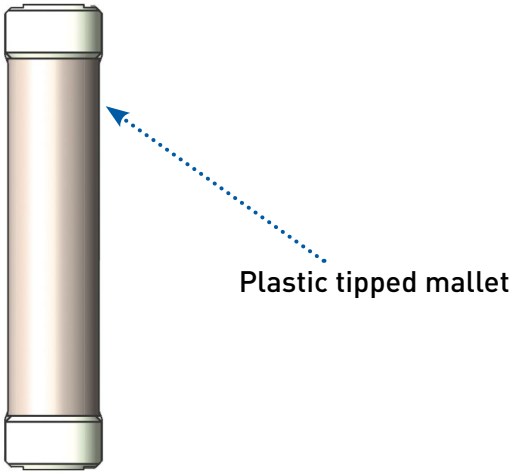
Tapered collet:

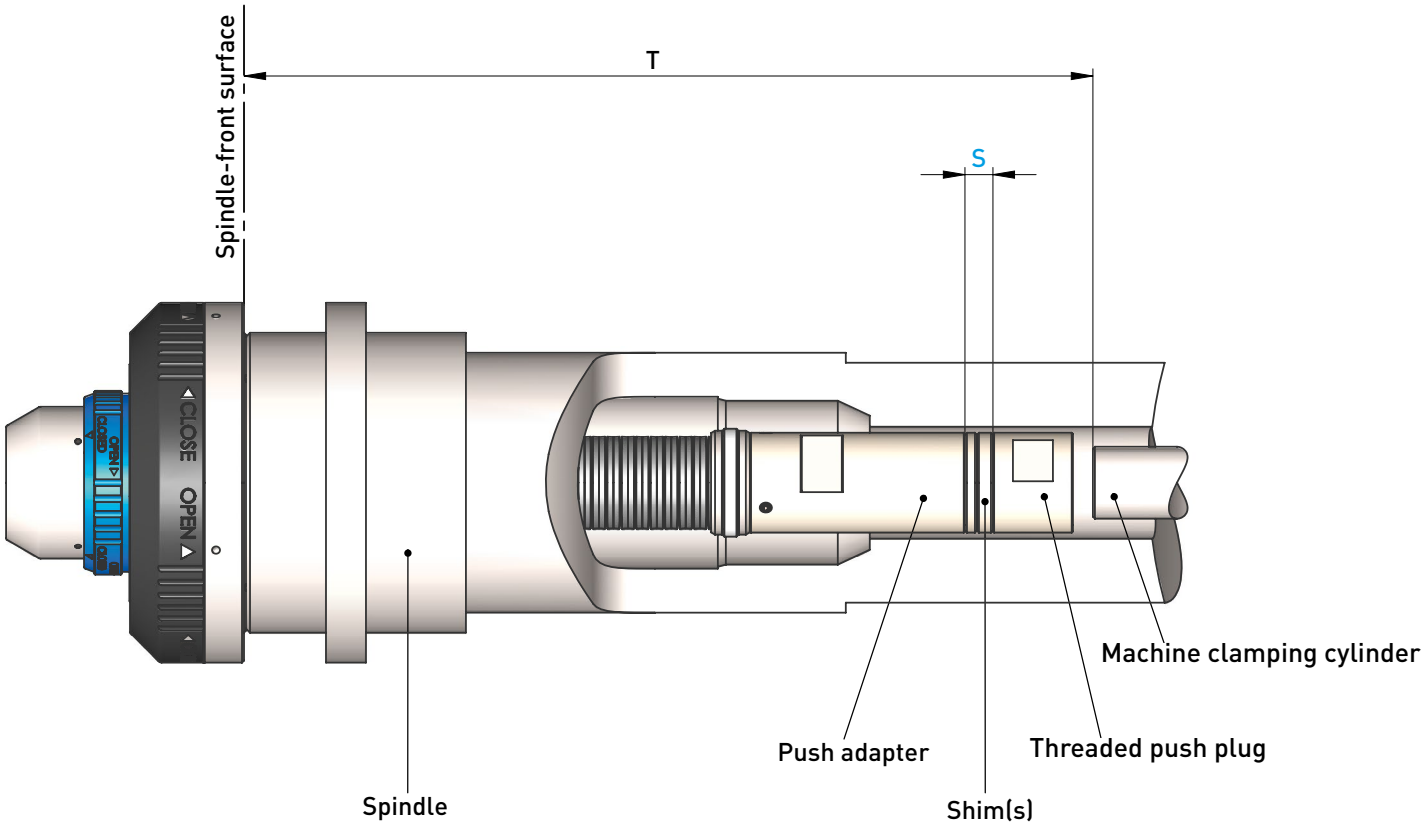


Do NOT use collets over ø12 mm or ø½"!









Assembly

1. Move the machine's clamping cylinder back using the machine control
2. Measure depth **"T"** from the flat spindle face to the top of the clamping cylinder
3. Calculate shim size **"S"** using following formula: **T-204.8 = S**
4. Chose shim(s) according to their labeled size, with a maximum deviation of 0.5 mm from **S**. **Again, do NOT exceed a deviation of 0.5 mm!**
5. Slide the appropriate shim(s) onto the threaded push plug and then screw the plug into the chuck's push adapter

TIP

Examples for shim choice:

S= 6.4 mm If you use 2 x shim 3 for a total of 6 mm
Deviation would be 0.4 mm ✓

S= 6.4 mm If you use shim 4 + shim 3 for a total of 7 mm
Deviation would be 0.6 mm×

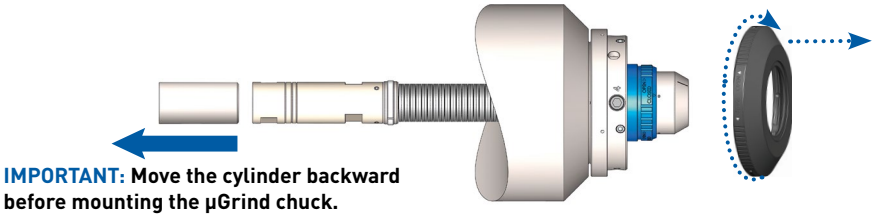
S= 4.7mm If you use shim 5 for a total of 5 mm
Deviation would be 0.3 mm ✓

S= 4.7mm If you use shim 4 for a total of 4 mm
Deviation would be 0.7 mm ×

Step 1: Preparation

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

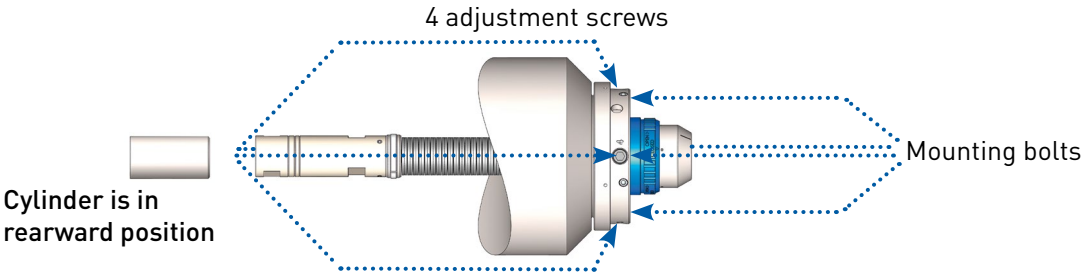
TIP See the video included on the USB stick: GDS µGrind Einstell Video.mp4



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 blue ring to the OPEN position (fig. 1)

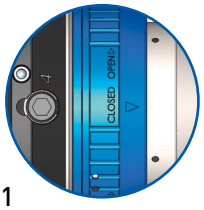
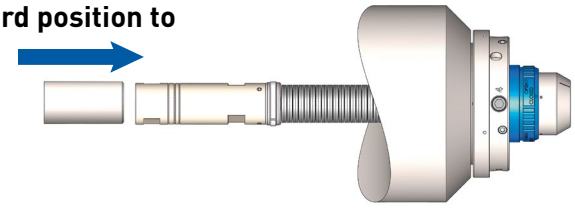


Fig. 1
Detail: Blue ring in OPEN position

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

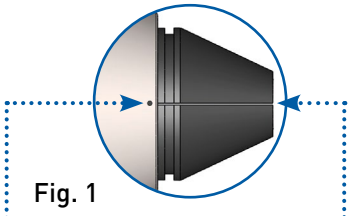


Fig. 1

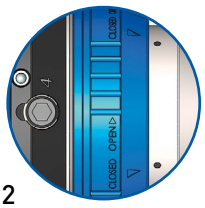
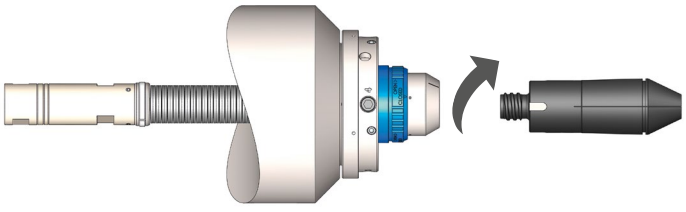


Fig. 2
Detail: Blue ring in CLOSE position

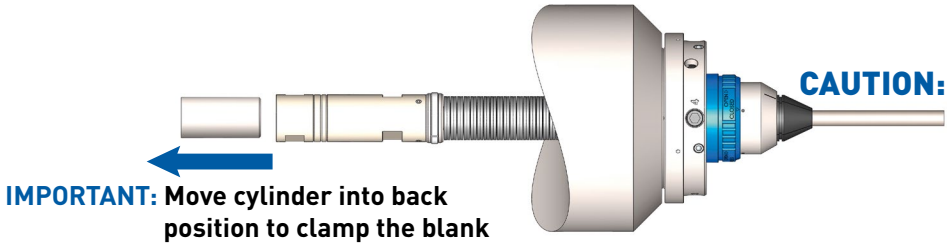


Note: Turning the blue ring from OPEN to CLOSE position moves a pin into one of the notches at the end of the HPS collet to prevent it from rotating. If you are unable to turn the blue sleeve fully to the "Close" position, you may have to turn the collet slightly. Then make sure you are able to turn the collet a tiny bit in each direction. Conversely, if the blue sleeve 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)

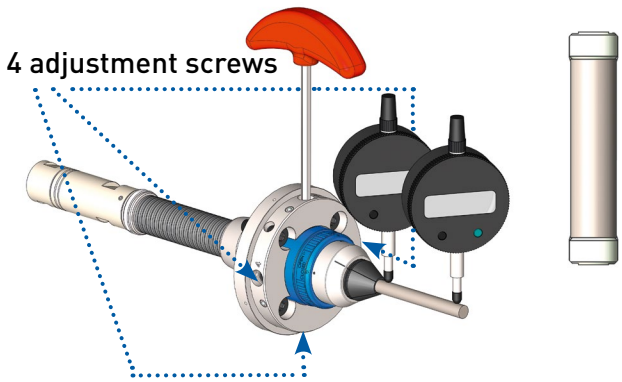
TIP

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 mm.

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

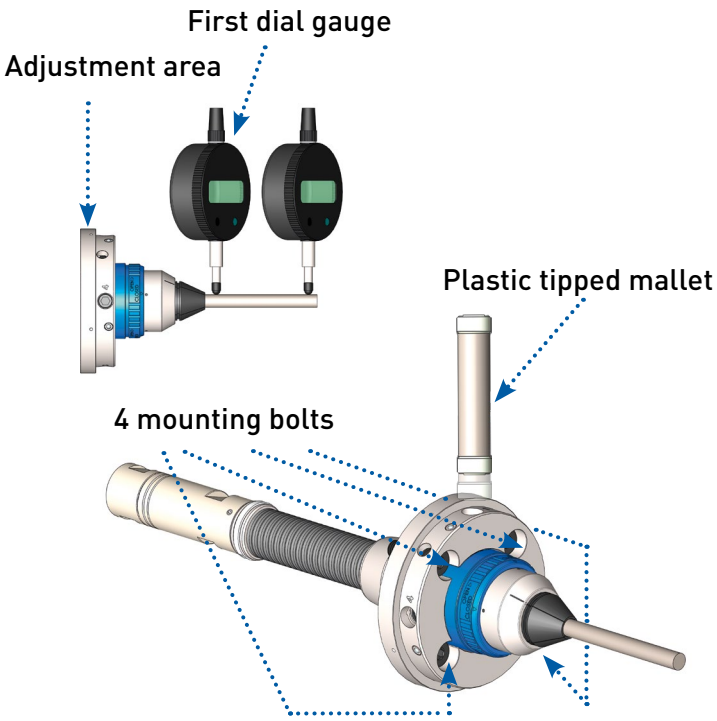


Step 2: Run-Out

Focus on the first dial gauge.

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

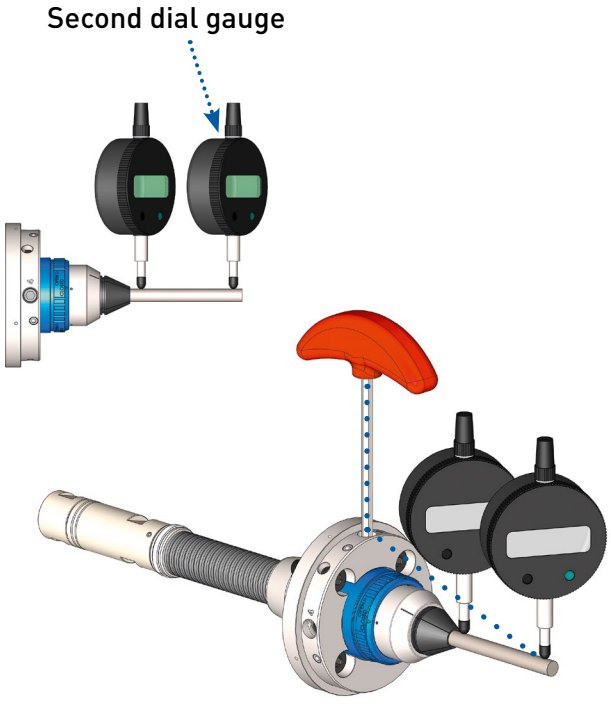
1. Turn the A-axis until the dial gauge reaches the peak. Reduce this value by half by lightly tapping the adjustment area with the mallet
2. Repeat this procedure until you adjust run-out to within 0.001 mm. Now tighten the four mounting bolts (ideally to 12 Nm)
3. Unclamp and clamp the blank three 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 blue 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 blue ring from CLOSE to OPEN and unscrew the HPS collet

Step 3:

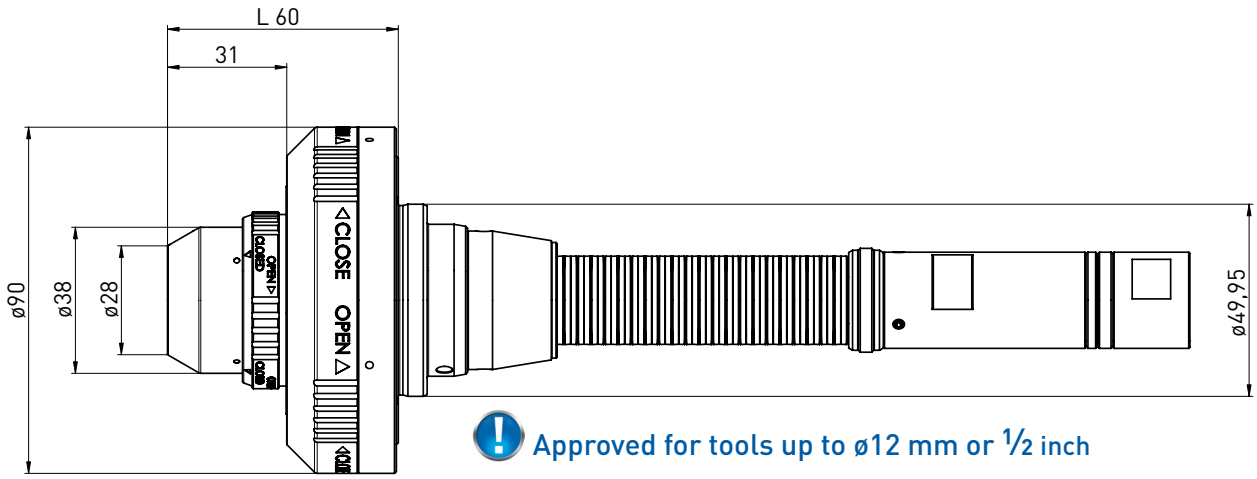
- Remove the swarf guard and loosen the four adjustment screws with the wrench (8)

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 and then in the µGrind case along with the other accessories
- 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.

µGrind HPS Mini



Approved for tools up to ø12 mm or ½ inch

Delivery includes:
Case, platic tipped adjustment mallet, wrench, intermediate shims, USB flash drive with instructions

Item No.	Name	D	L
400001002	µGrind HPS	49,95	60

Available for the following machine(s):

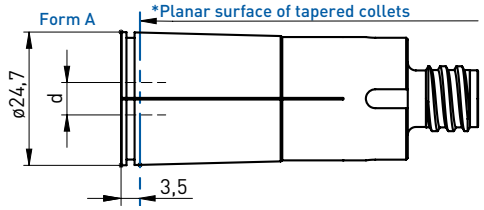
WALTER

Helitronic Mini Automation

Item No.	Name
350270002	Alignment set HPS **(excl. dial gauges)** Incl. HPS Collets ø8 and ø10, Certified blanks of ø8 and ø10
350270003	Dial gauges (2 pcs.)

NEW

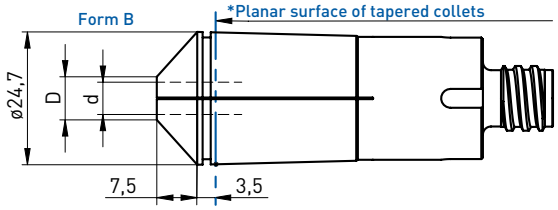
Flat-faced HPS collets:



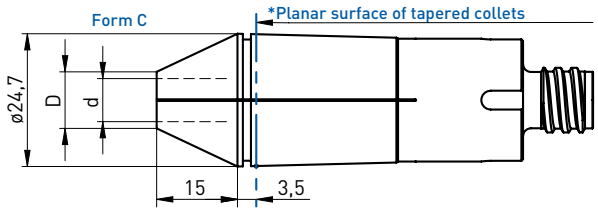
Item No.	Name - ø d	Form
350260003	HPS Collet 20 - ø3 mm	A
350260004	HPS Collet 20 - ø4 mm	A
350260005	HPS Collet 20 - ø5 mm	A
350260006	HPS Collet 20 - ø6 mm	A
350260007	HPS Collet 20 - ø7 mm	A
350260008	HPS Collet 20 - ø8 mm	A
350260010	HPS Collet 20 - ø10 mm	A
350260011	HPS Collet 20 - ø11 mm	A
350260012	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:



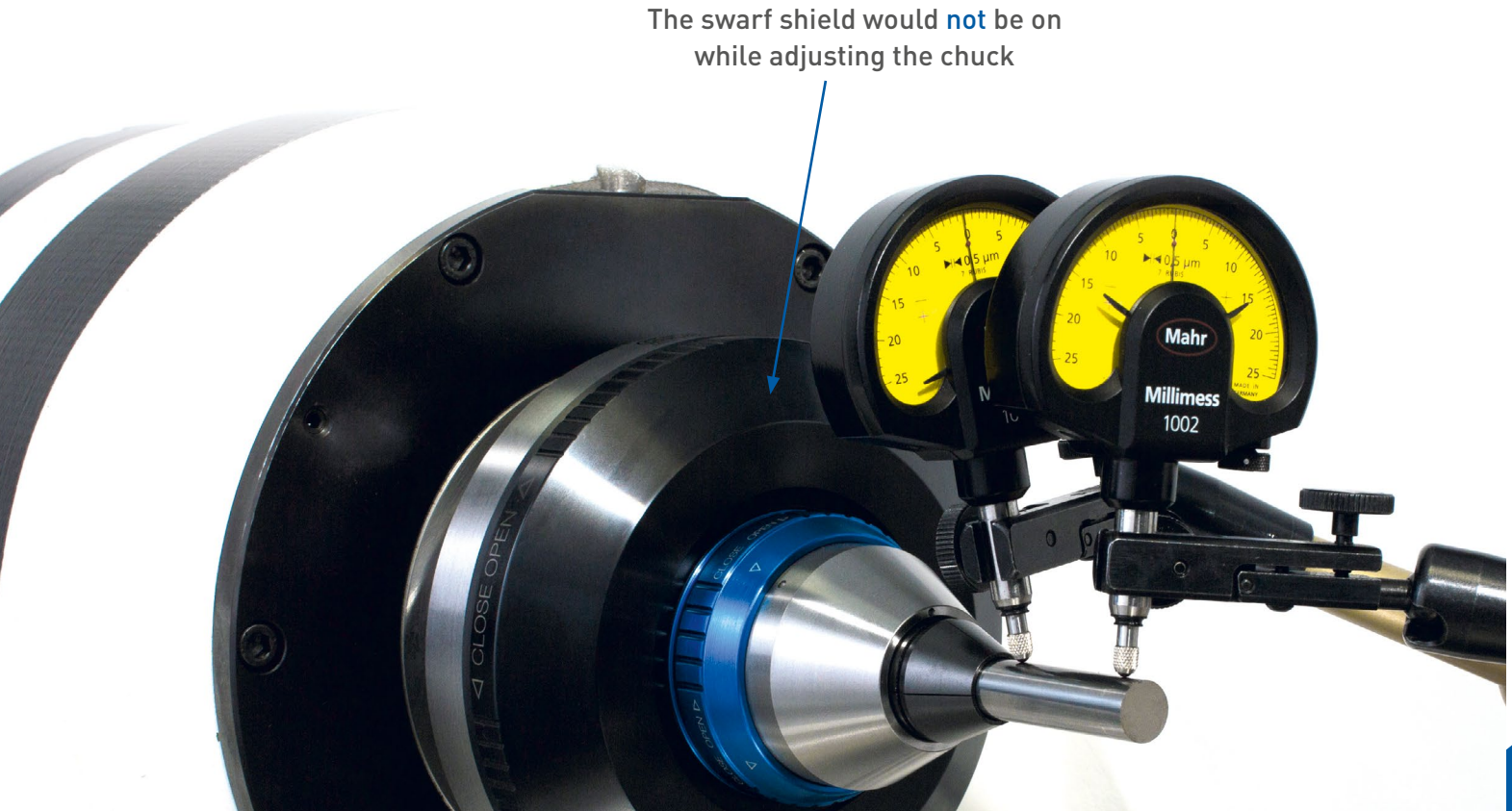
Item No.	Name -ø d	Form
350260130	HPS Collet 20K - ø2.35 mm	B
350260103	HPS Collet 20K - ø3 mm	B
350260104	HPS Collet 20K - ø4 mm	B
350260105	HPS Collet 20K - ø5 mm	B
350260106	HPS Collet 20K - ø6 mm	B
350260301	HPS Collet 20K - ø1/8''	B
350260302	HPS Collet 20K - ø3/16''	B
350260303	HPS Collet 20K -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



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

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