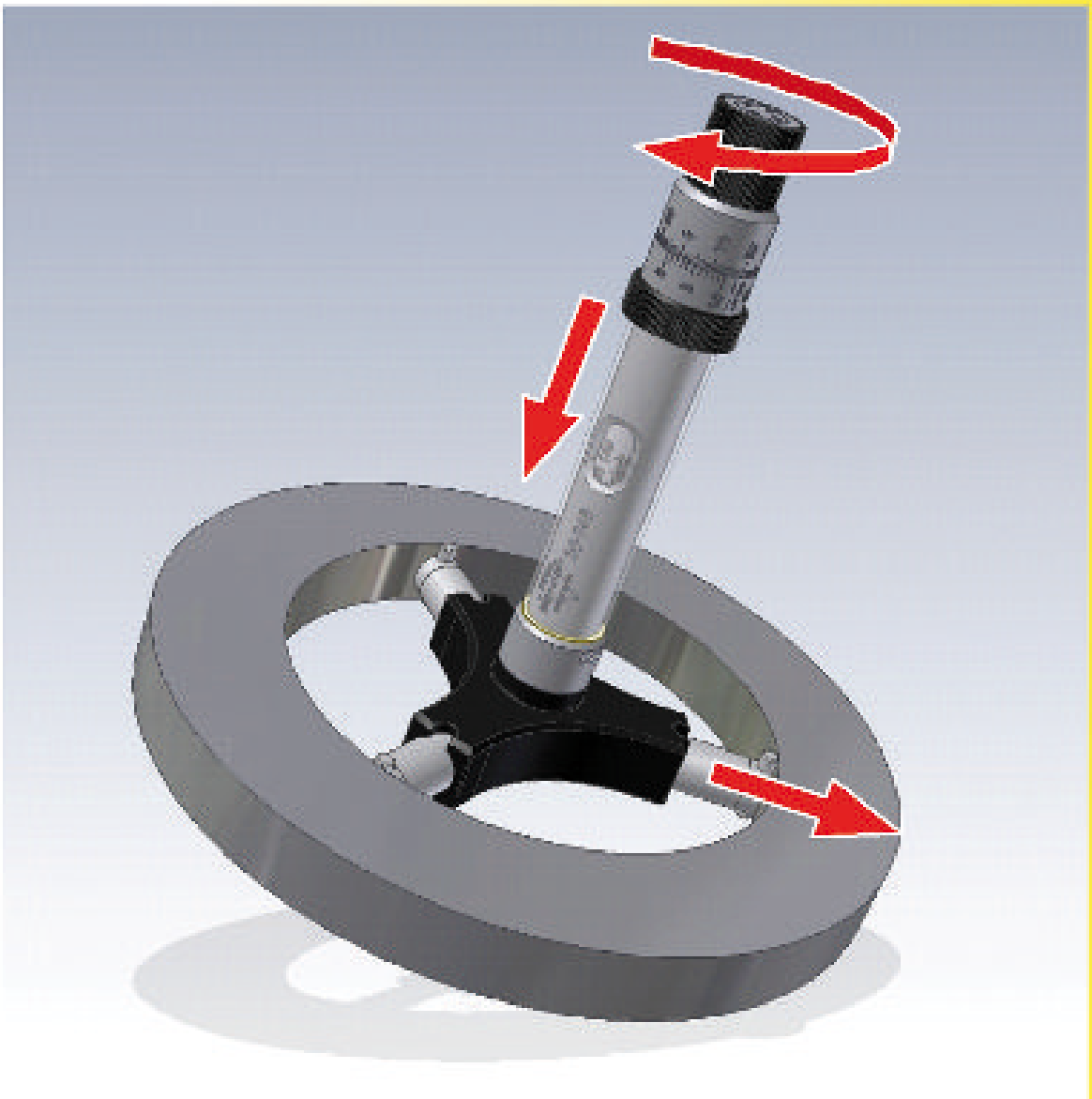
Instruction Manual
MICROTEST
Internal Micrometer

MICROTEST
SWISS MADE

MICROTEST®
Your Partner for Precision Measuring Instruments

Please observe 20°C ambient temperature!

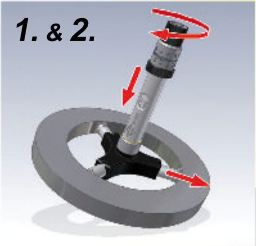


Measuring with the Internal Micrometer:

Insert the MICROTEST Internal Micrometer in the hole, screw out feelers until they are in contact with the side of the hole. Then turn ratchet half a revolution 5 to 6 times.

Important! MICROTEST Internal Micrometers 400–1100mm turn ratchet 8 to10 times to obtain exact centering.

- Note: Always read at the measuring stop. Do not turn back!
- When measuring blind holes it should be ensured that at least half the feeler is positioned in the hole.
- Before very accurate measurements the instruments have to be checked and eventually regulated in the setting device, as due to external and other influences it might have been disregulated.
- If extremely accurate measurements are required, it is recommended to perform a second and third measurement with the MICROTEST Internal Micrometer displaced by approx. 60° (or 30°), in order to detect any polygon shaping of the hole.



KONTROLLZEUGNIS

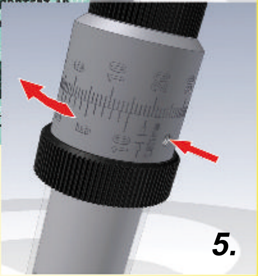
CERTIFICAT DE CONTROLE TEST CERTIFICATE CERTIFICATO DI CONTROLLO

INNEN-MICROMETER

No. 12345

TEST-Ø	90	100	110	120
ERROR- µm	-2	-1	0	0
ERROR-TOTAL	µm 4			

ZÜRICH, 15.03.2000 VISA:



Adjustment of the Internal Micrometer:

1. Leave unit in measuring stop in test gauge for about 1 hour beforehand. Please ensure that the unit and ring gauge or triangular test gauge are at the same temperature (20°C).

2. The MICROTEST Internal Micrometer is set in the measuring stop (as described by measuring) in the ring gauge or in the triangular test gauge.

3. Now **loosen** and vernier scale set to the standard measure.

4. During calibration take account of measuring error according to test certificate without fail.
The error marked on the certificate has to be set at instrument in order to share error half in plus tolerance and half in minus tolerance.

5. Finally lock the venier ring with the slotted screw.

Maintenance of the Internal Micrometer:

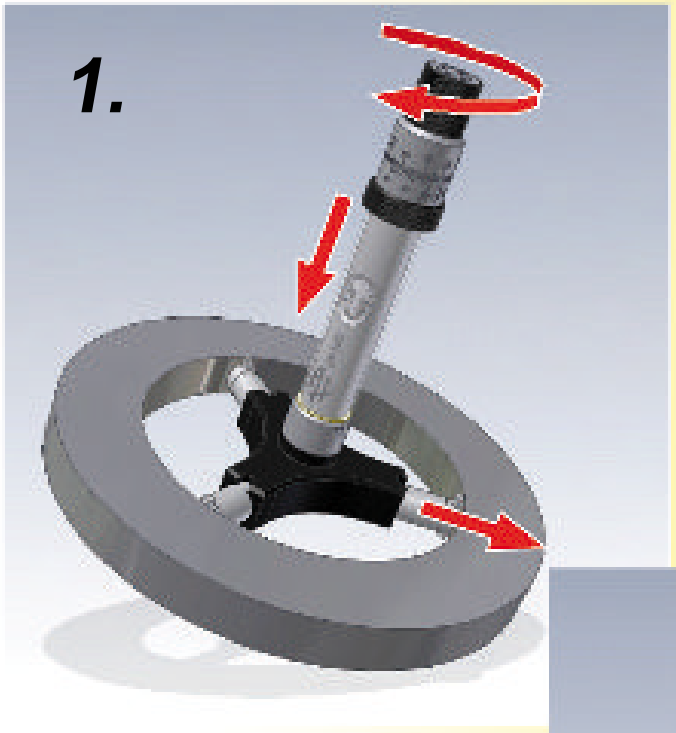
If treated carefully, the MICROTEST Internal Micrometer requires no attention for a long time, but the unit should be cleaned externally with petrol occasionally.
Important! Do not allow the plastic parts to come into contact with solvent.

Preventive measures:

- Do not let the Internal Micrometer get in contact with coolant. Clean the bore hole befor measuring!
- Do not let the Internal Micrometer unattended installed in the maschine!
- Do not open the Internal Micrometer!
- If the Internal Micrometer **jam** do not tear it out of the measuring position by force, gently sway the tool while you turn the ratchet backwards.
- Do not drop the Internal Micrometer!
- Do not allow the Internal Micrometer to stay in a warm workpiece! Risk of shrink wrapping!

Guarantee:

2 year's by appropriate usage and provided the guarantee seal remains undamaged!


1.


2.


3.

Mounting extensions:

To mount the extension piece of the MICROTEST Internal Micrometer it is requiered to insert the tool in a setting ring or gauge.

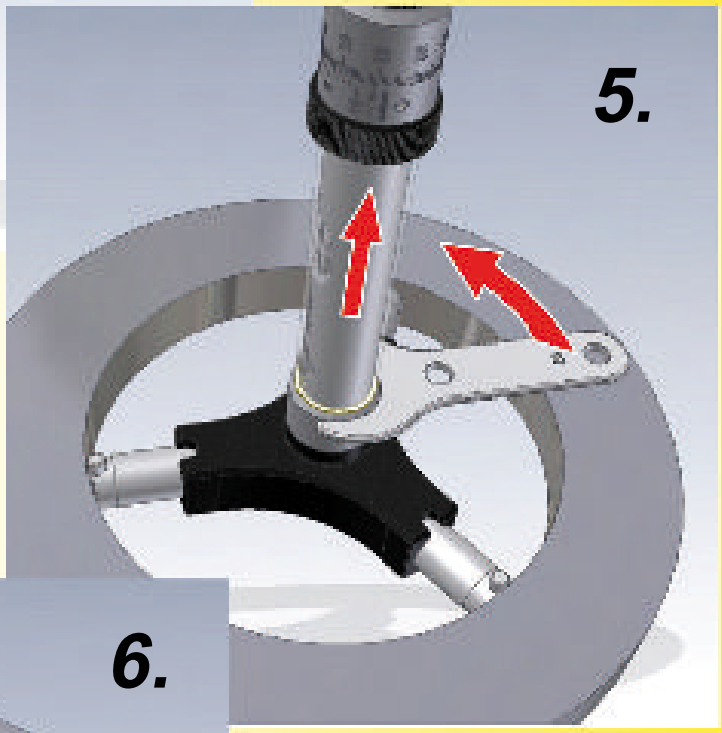
1. Bring the MICROTEST Internal Micrometer in contact with the side of the hole.

2. Now turn ratchet half a revolution 5 to 6 times to obtain exact centring of the tool.

3. Loosen the slotted screw at Nonius, unscrew and take out Allen screw at scale drum opposite of scale 75 with annexed special Allen key 1,27.

Important!
The two screws have to be removed!
Please keep them safe!


4.
-2 mm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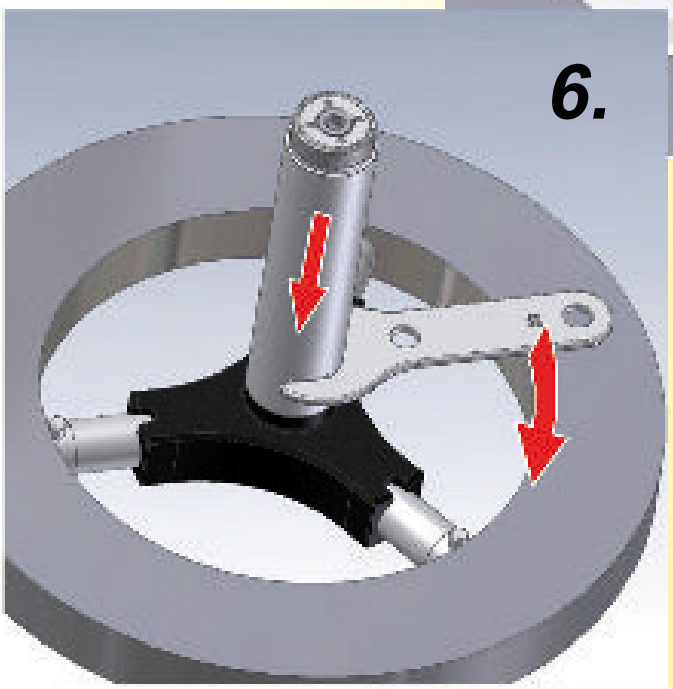
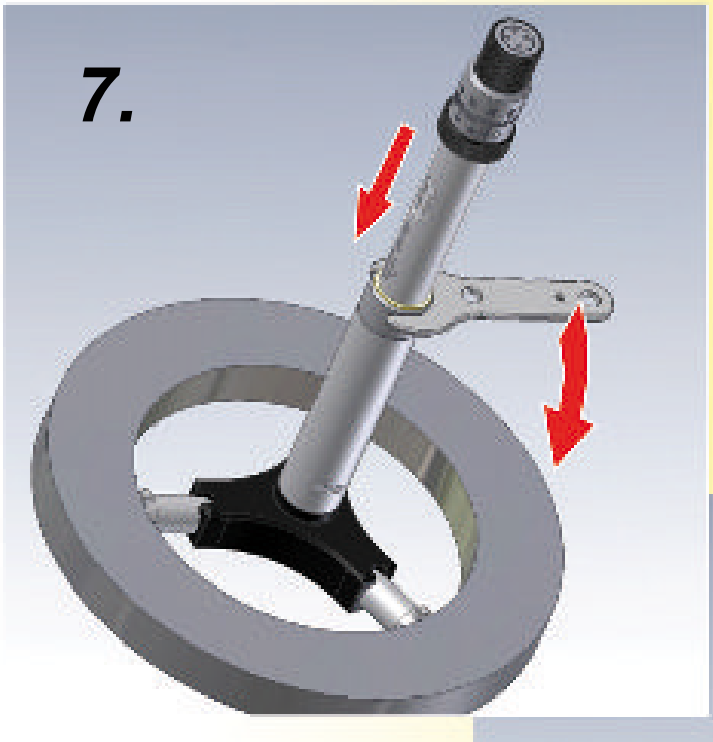

6.

4. When Nonius screw is loosen and Allen screw is completely removed, screw knurled black ring underneath the Nonius counter-clock-wise exactly 2 mm upward according to the mm-scale.

5. With the annexed special flat wrench loosen scaled shaft tube from housing and unscrew it counter-clock-wise by hand.

6. Screw the extension tube clock-wise onto the star-housing and fix well with special flat wrench.

Important!
It is required to use the provided special flat wrench.
Do not extend the provided special flat wrench, it could brake the shaft!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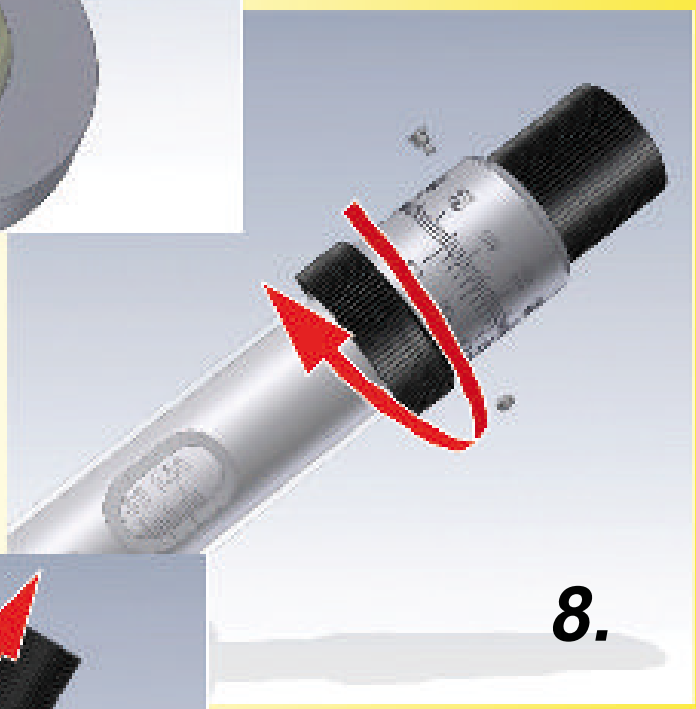

8.


9.

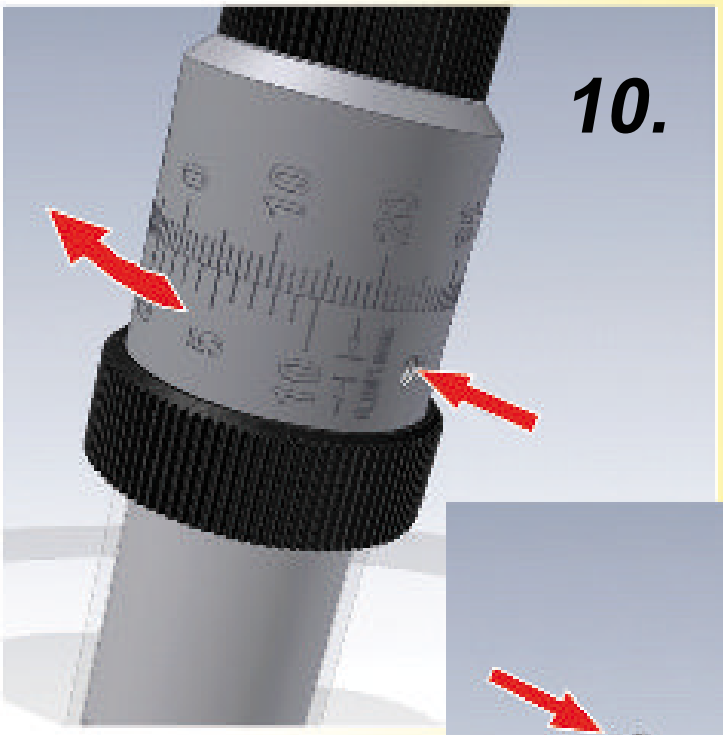
7. Afterwards screw shaft tube with scale on extension and tighten it well with the provided special flat wrench.

8. Turn backward black knurled ring clock-wise until it stop.

Importent!
Do not tighten back the Nonius screw or the Allen screw at scale drum yet!

9. By lifting up flexible scale drum you can adjust all scales to proper position.

After adjustment let scale drum slip back slightly in order to snap in the axis.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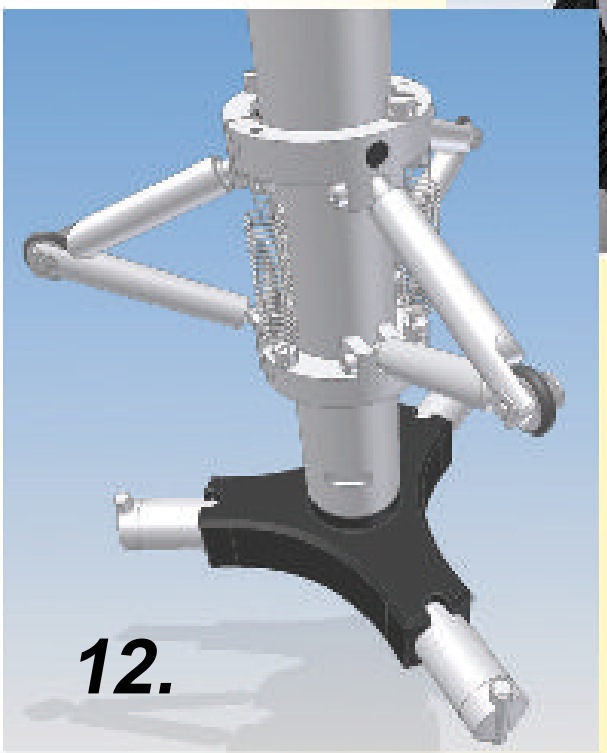
11.

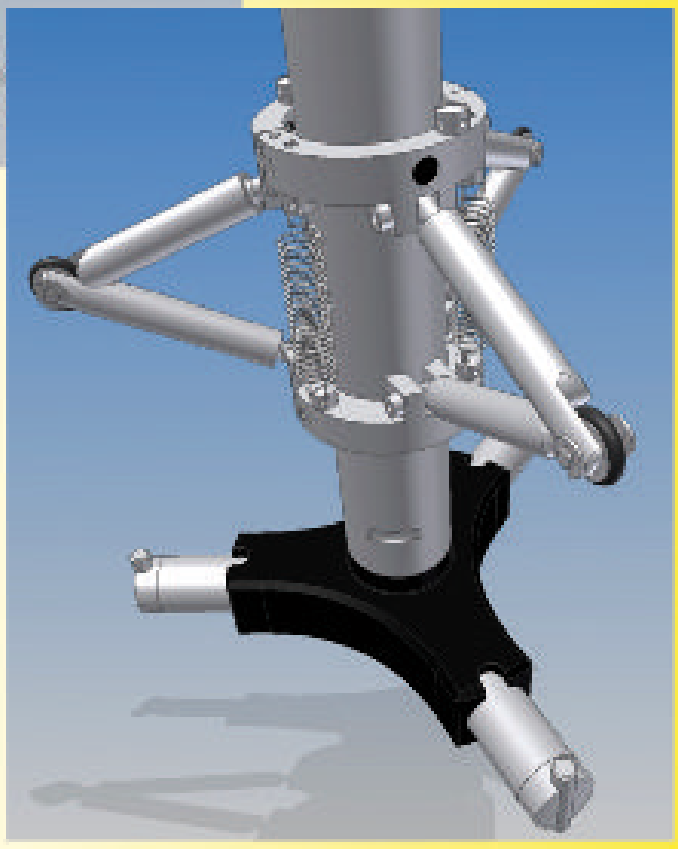

12.

10. Set and adjust Nonius, considering ring gauge measurement ± linearity error according control certificate. Finally fix Nonius slotted screw slightly.
Check again measurement in setting device. If necessary adjust again until your measurement is perfect.

Importent!
To secure the mechanics screw the Allen screw into scale drum at scale drum opposite of scale 75 with annexed special Allen key 1,27.

11. As the internal measurement is detected directly in the measuring head, measuring accuracy remains perfect even after long or combined extensions.

12. Using long extensions it is recommended to use our MICROTEST Tripod centring device.



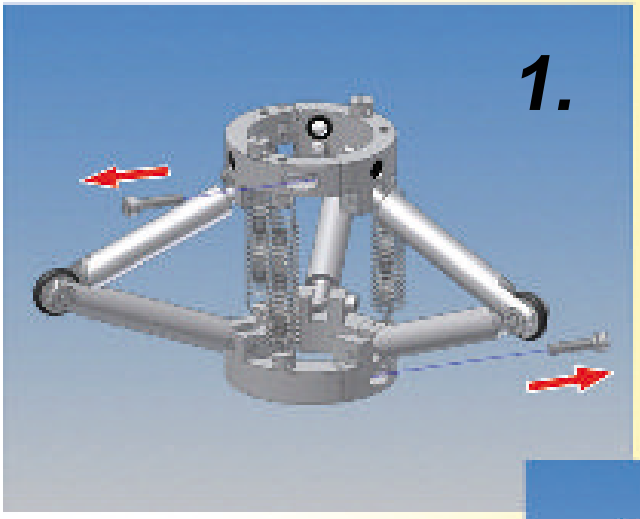
Characteristics of the Tripod:

The MICROTEST Tripod will support the Internal Micrometer with extension, by pre-centring the instrument shaft in a deep bore.

Using a extension with a length of 2 meter it is recommended to use our new MICROTEST Tripod centring device after 2/3 of length, similar to Bessel's rule.

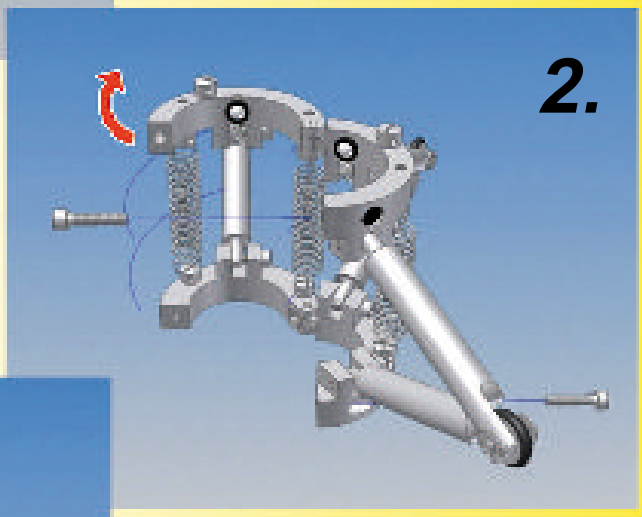
Example:
Using a extension of 4 meter, we recommend 2 to 3 Tripod and so on.

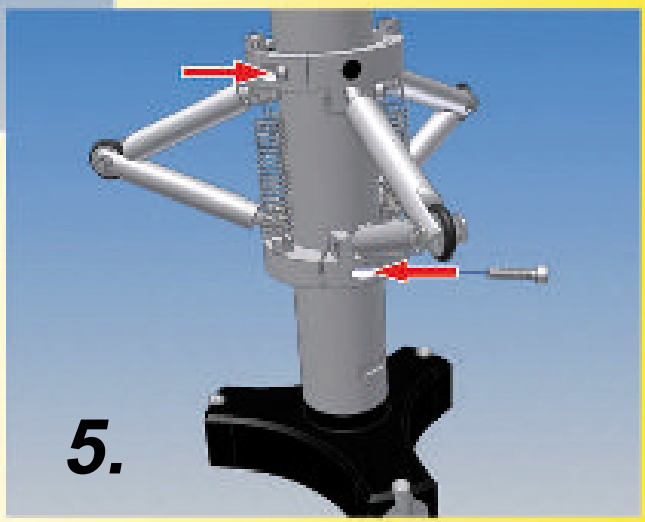
Available Tripod sizes:
Ø60-90, Ø90-140, Ø140-240
and Ø240-400mm



Attention! Keep the screws safe!

Lock out for gliding ring alignement!





Mounting the Tripod:

1. Untighten the two screws and make sure you keep them safe.

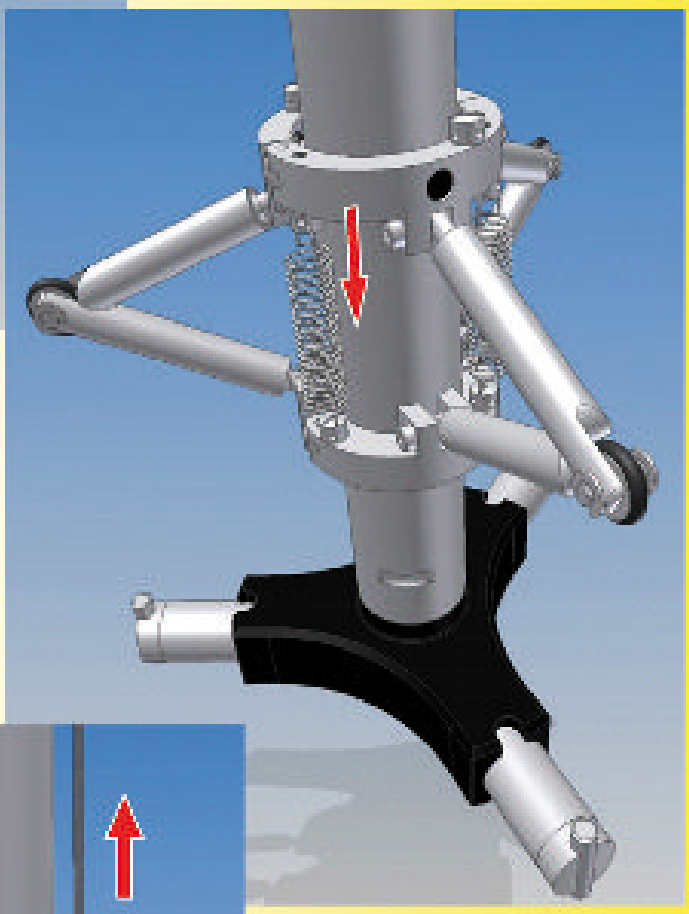
2. Open the Tripod.

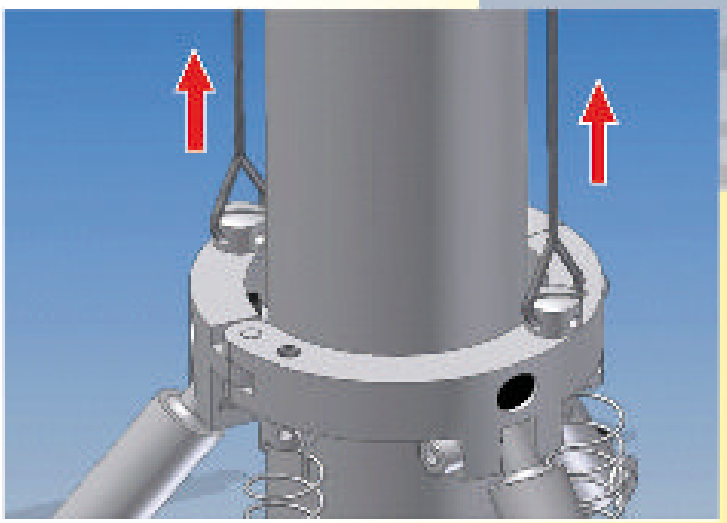
3. Make sure the gliding ring is aligned towards the ratchet of the Internal Micrometer.

4. Clamp the Tripod around the shaft 2/3 of length, similar to Bessel's rule.

5. Close the Tripod and tighten the two screws.

Attention!
Optional a cable pull is available.
Recommended in case of wide grooves in a bore hole.





Usage of the Tripod:

- Pull the Tripod gliding ring towards the ratchet and insert the instrument into the bore hole.

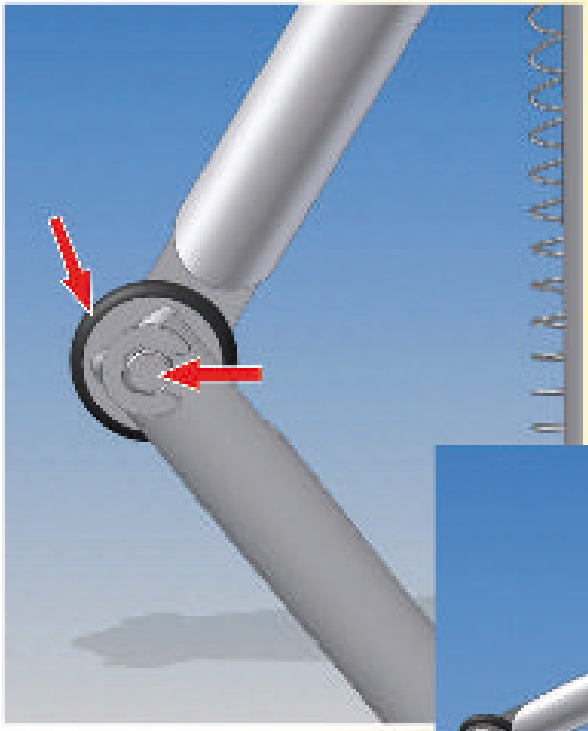
- Let the glide ring of the Tripod go once it is inside the bore hole.

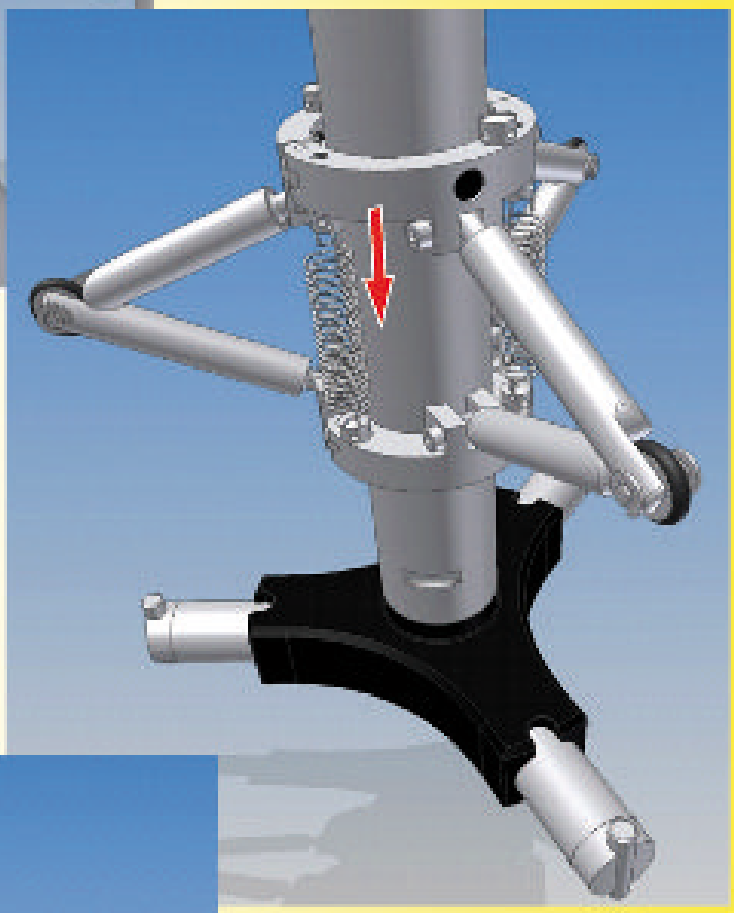
- Screw out feelers until they are in contact with the side of the bore hole. Turn ratchet half a revolution 5 to 6 times to obtain exact centring.

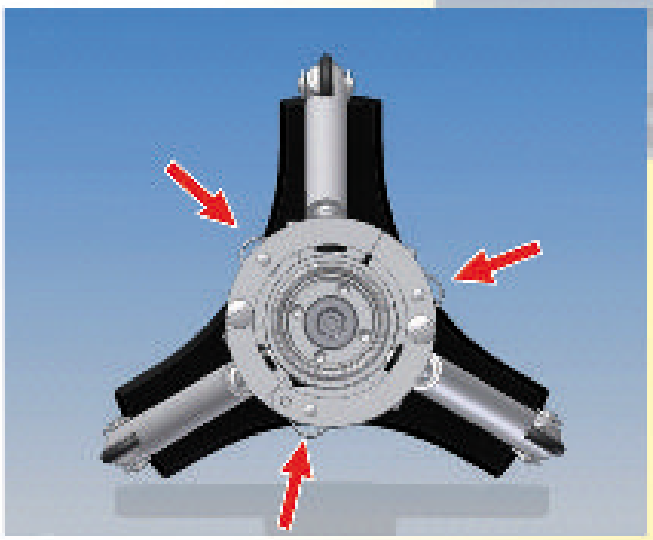
- Make sure the feelers of the Internal Micrometer dose not get jammed or splined.

- Extensions beyond 2 meters a Tripod every 2 /3 of the length is recommended.

- Optional a cable pull is available. Recommended in case of wide grooves in a bore hole.







Features of the Tripod:

- Stable and symmetric arms length with a centric turning point.

- Due to the symmetric arms a automatic adjustment of the Tripod diameter.

- Reel with a rubber ring to protect surface of the inside diameter.

- 120° alignment of the arms as well as the extension spring to guarantee a symmetric movement and force development.

If you have any questions please do not hesitate to contact us any time.

MICROTEST®