

MeasumaX

Measuring tools for now and the future

MX-3DT UNIVERSAL 3D TESTER



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Instruction Manual

Edition: 1.1

Item Code: Q530



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Introduction

The 3D Tester is a measuring instrument which has exclusively be used for the probing of work pieces in machining centres and milling machines.

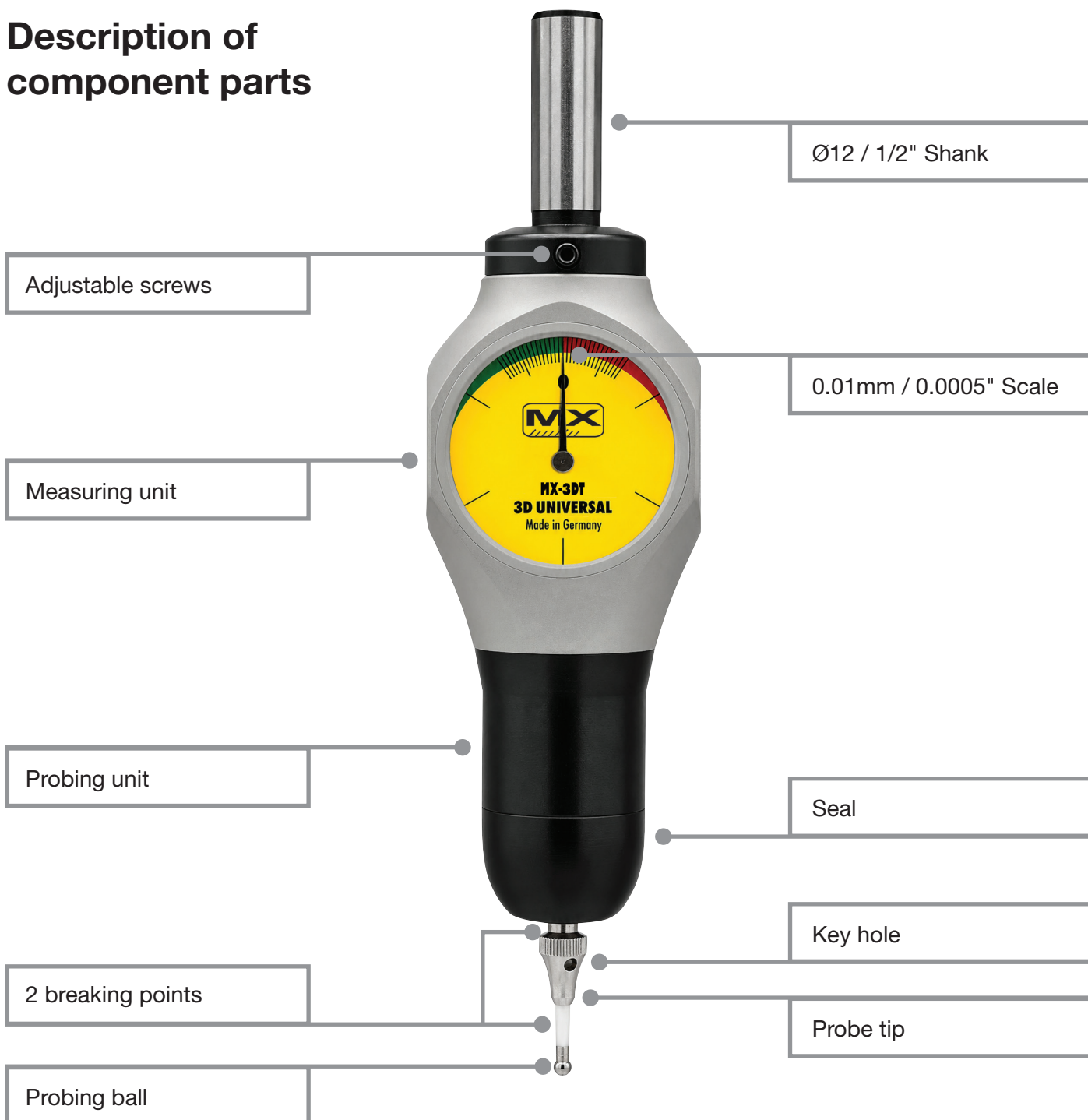
IMPORTANT:

You can find the latest version of this operating instructions on our website www.machineryhouse.com.au or scan the QR-code.

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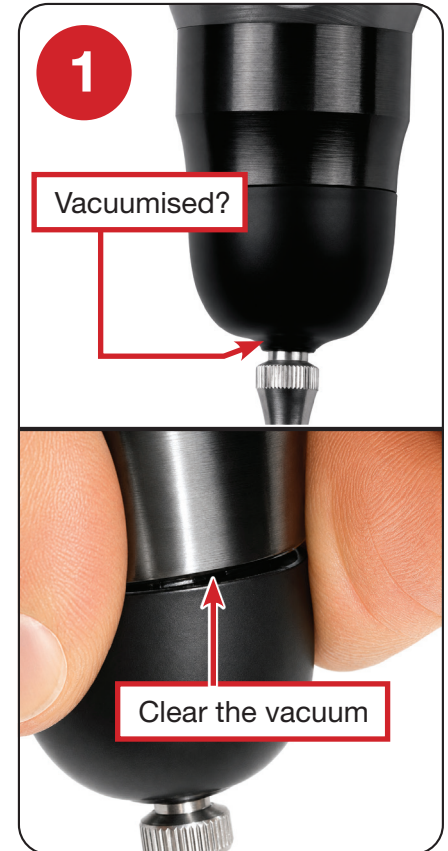


Description of component parts



Before use

1. Check if the seal has got any existing vacuum and remove it if necessary.



2. Check the position of the indicator:
Should be at 0

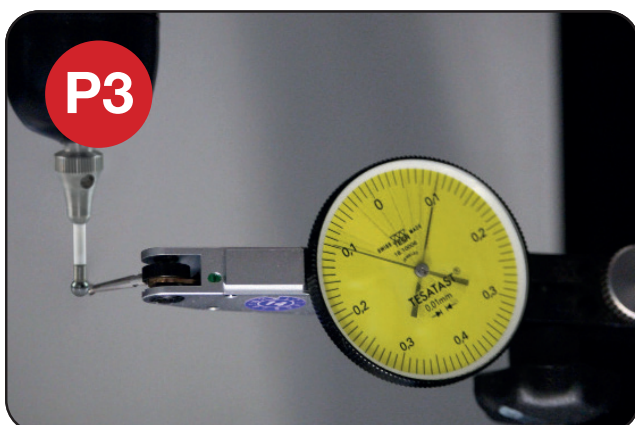
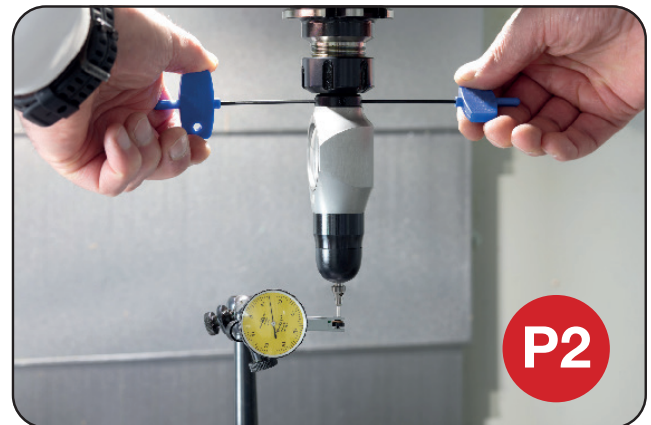


3. Check if the probe tip is fastened securely.
Check the run-out in the spindle of the machine.
4. (See page 3)
5. Determine the reference length of the 3D-Tester. (See page 5)



Adjusting the radial run-out

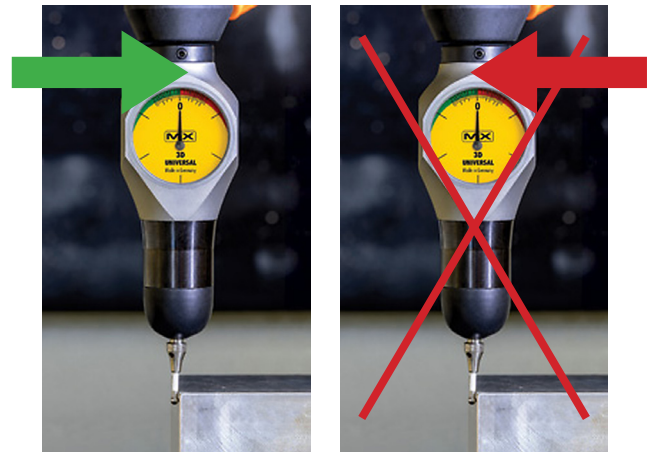
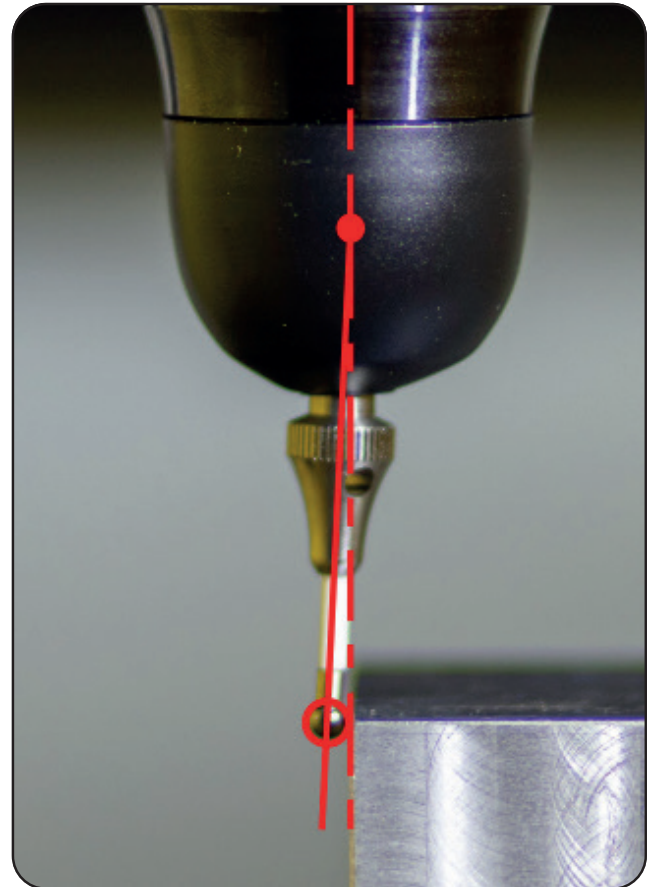
1. Clamp the 3D-Tester into a tool holder.
2. Before adjusting the run-out, move the probe tip by hand and move it in to a free resting position.
3. Move the dial gauge to the probe sphere. (See **P1**)
4. Find the highest and lowest measuring point. (See **P3**)
5. Adjust the 3D-Tester with 2 adjustment screws to the centre position. (See **P2**)
6. Repeat the procedure until the desired run-out is achieved.
7. Make sure that all 4 adjustment screws are tightened with a maximum torque of 2 Newton-meters.
8. As soon as the run-out is adjusted manually, do not move the probe tip by hand anymore.



IMPORTANT:
Use a lever gauge!
No Dial gauge!

Radial probing

1. Insert the 3D-Tester into the spindle. Cut-off the coolant supply and turn off the spindle.
2. Please make sure that probing is exactly perpendicular. Otherwise, measurement failures may occur.
3. Move the 3D-Tester carefully to the edge of the workpiece until the indicator starts moving. Continue until the indicator exactly shows "0".
4. In this position, the symmetry axis of the spindle is exactly positioned to the work piece edge.



IMPORTANT: correct measurements are only possible by probing forwards!
(Backwards = reverse fault)

Note:

It is not a problem to overpass the edge of the work piece up to 1mm (small pointer in the red area). After 1mm, there are mechanical limit stops which lead to the probe tip halting at the predetermined breaking point to protect the 3D-Tester.

Axial probing

1. Determine the 3D-Tester reference length with a pre-setting device. Please note that 1.5mm must be subtracted from this length.
2. Insert the 3D-Tester into the spindle. Cut-off the coolant supply and turn off the spindle.
3. Please make sure that the probing is exactly perpendicular. Otherwise, measurement failures may occur.
4. Move the 3D-Tester carefully towards the work piece surface until the indicator starts moving. Continue until the indicator exactly shows "0".
5. Now, the spindle is located at the height of the determined reference length above the work piece.



Note:

It is not a problem to overrun the edge of the work piece up to 1mm (small pointer in the red area). After 1mm, there are mechanical limit stops which lead to the probe tip halting at the predetermined breaking point in order to protect the 3D-Tester.

Radial probing X/Y

1. Insert the 3D-Tester into the spindle. Cut-off the coolant supply and turn off the spindle.
2. If necessary, check the run-out.
3. Move the tool carefully to conical probe tip in the direction of X or Y until the indicator starts moving. Continue until the indicator exactly shows "0".
4. In this position, the tool stands exactly to the centre of the spindle.

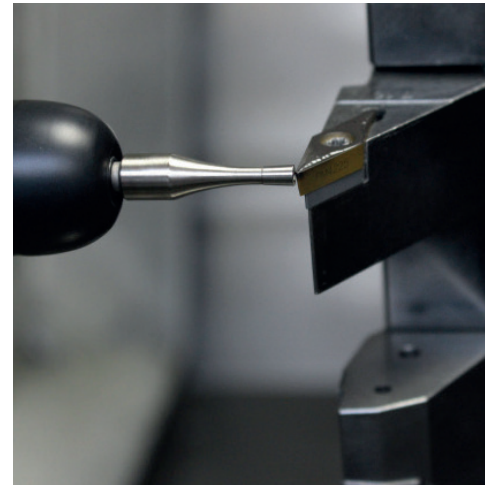


IMPORTANT: correct measurements are only possible by probing forwards!
(Backwards = reverse fault)

Note:

It is not a problem to overpass with the 3D Tester up to 1mm. After 1mm, there are mechanical limit stops which lead to the probe tip halting at the predetermined breaking point to protect the 3D-Tester.

Probing Z



1. Insert the 3D-Tester into the spindle. Cut-off the coolant supply and turn off the spindle.
2. The reference length of the 3D-Tester to the coordinate system in Z must be determined in advance. This is possible e.g. with a known tool.
3. Move the tool carefully towards the surface of the probe tip until the indicator starts moving.
4. Continue until the indicator exactly shows “0”.
5. The tool now stands on the dimension defined by you in the coordinate system.

Note:

It is not a problem to overrun with the 3D Tester up to 1mm. After 1 mm, there are mechanical limit stops which lead to the probe tip halting at the predetermined breaking point in order to protect the 3D-Tester.

Parallel running X/Y/Z



1. Insert the 3D-Tester into the spindle. Cut-off the coolant supply and turn off the spindle.
2. Move the 3D-Tester carefully to the edge of the work piece until the indicator starts moving. Continue until your requested position is reached.
3. Now you can start moving along the edge of the work piece to check parallelism in all axis X, Y or Z.

Note:

It is not a problem to overpass the edge of the work piece up to 1 mm. After 1 mm, there are mechanical limit stops which lead to the probe tip halting at the predetermined breaking point to protect the 3D-Tester.

After crash

1. Check correct function and movement of the probing unit.
2. Check correct function and movement of the measuring unit.
3. Check the position of the indicator:
Should be at 0
4. Check if the probe tip is fastened securely.
5. Check and if necessary adjust the run-out in the spindle of the machine (see page 2).

ATTENTION: if there is a fault, we offer our quick and non-bureaucratic service. If you want to, we can also make a quick-check with test certificate.



Replace probe tip / seal



1. Open the seal and remove out of the groove.
2. Move up the seal and put it off.
3. Unscrew the probe tip manually (if needed, the probe tip can be released with the delivered key).
4. Unscrew the probe tip entirely and make sure that the threaded pin is unscrewed as well.
5. Screw in the new probe tip and tighten it with the key.
6. Put the seal onto the probe tip.
7. Slip the seal over the probing unit and close it into the groove.

ATTENTION: Please check run-out!

Notifications & Service

- Protect your 3D Tester against strong shocks and keep the 3D Tester in the supplied case.
- Warranty will be lost if you open the 3D-Tester.
- For cleaning just use solvent-free detergents.
- A longer probe tip is available as accessory.

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