



MT15

Measuring Straightness
Measuring Spindle
Measuring Coaxiality
Measuring Squareness

www.meax.com



acoem

MT15

Machine Tool Measurement



MEAX MT15 is a designed measuring system for performing machine tool calibration in short time and with high accuracy. It measures the geometry of the machine's movements in several steps using the various programs in the display unit.

Meax MT15 contains sensors and an angular prism connected wirelessly to the display unit, in which all measurement results are calculated and presented immediately to the user. The measuring results are presented graphically and numerically and can be stored in the memory on the display unit. A measurement report can be created directly on site or being exported by using a USB stick for further documentation. Meax MT15 comes in a robust trolley case that make it convenient to transport and to carry.

The future of machine measurement

As ever-increasing demands are being placed on machine tools, we have arrived at the conclusion that an optimally functional machine forms the basis for better business. Modern machine tools must maintain a high level of flexibility, a high degree of utilization and a minimum downtime which calls for the correct geometry in all the machine's movements.

So we created MEAX and started to sketch solutions for machine tool measurements that, in our opinion, are so self-evident that they should have been developed a long time ago. By performing fast measurements, possessing a logical user interface, smart applications and fewer complicated functions, we can now build a future for machine tool measurement.



MEAX SM/SR - Measuring sensors

MEAX SR201 and SM201 serve as multifunctional sensors.

They both have an integrated laser transmitter, a 2-axis PSD detector and a high-resolution inclinometer to record the angle of rotation. The sensors are used for a variety of types of measurements such as straightness, squareness, spindle direction, and coaxiality. The SR unit (marked R) is fitted to the part of the machine which forms a reference, and the SM sensor (marked M) is fitted to the machine axis that is to be measured.



MEAX SQ201 - Angle prisme

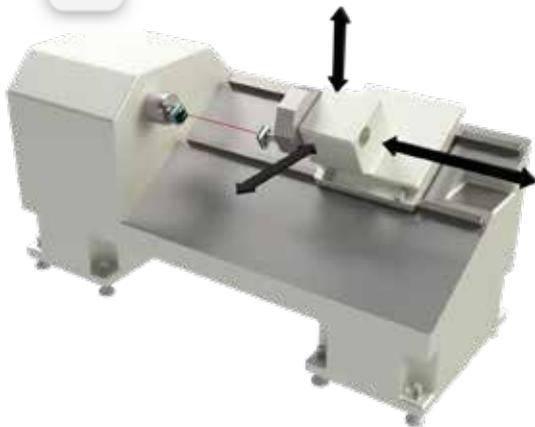
When measuring squareness, use the SQ201 angle prisme that is fitted to the SR sensors and angles the output laser beam at 90° with an accuracy within 0,005 mm/m. The angle prism has built in mechanical device that allows you to alter the direction of the laser beam at anytime during the measurement process with a simple manual operation. As the SQ201 has small installation dimensions, this means that it can be installed in machines where there are on short distances and where you want to maximise the distance between measurement points. Its light weight minimises the risk of sag.



- Integrated Bluetooth for wireless communication between display unit and smart sensors
- IP65 sealed rubberized frame
- Instant battery check – in both on and off mode
- Live values during adjustment
- 6.5" industrial-strength touchscreen
- Icon-based and color-coded user interface ⇨ language-free user interface



Measuring Straightness and Level



Measuring straightness

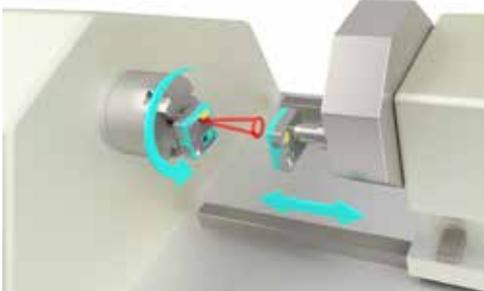
To check that the machine's movements run straight without any pitch and roll, a solution with multiple sensors is required.

The MEAX LR sensor is positioned on the machine bed and the LM sensor is fitted to the tool holder using the attachment supplied. The SR sensor is mounted in the main spindle and the MEAX SM sensor in the tool holder. The result is displayed as a set of measured points along the length of the movement.

In this way MEAX MT30 checks the straightness of the machine's movement, at the same time as measuring the angular deviation of the movement in relation to the machine bed. The result is displayed in both graphic and text form, and can easily be exported via USB.



Measuring Spindle



Measuring spindle alignment

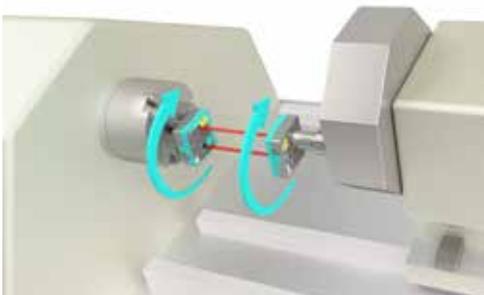
Because deviations in spindle alignment impact on the machined part, it is important that this can be easily measured.

You check the deviation via four measured points in two positions along the Z axis.

By rotating the laser in the spindle and moving the MEAX SM sensor along the Z axis, you obtain result for parallel alignment between the rotational axis of the spindle to the 2-axis movement. The results are displayed in graphic form in two directions: at square and parallel to the machine bed and in parallel with it.



Measuring Coaxiality



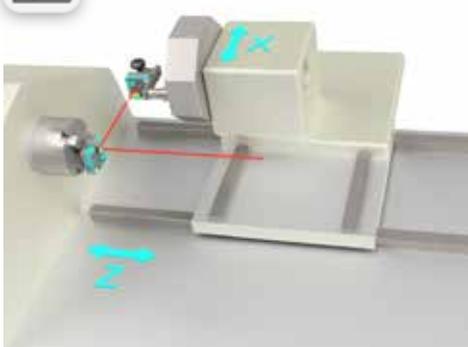
Measuring and adjusting the tool holder

Using the MEAX SR and SM sensors, you can measure alignment between the main spindle and the tool holder to quickly set a zero point in the tool holder.

The measuring instrument guides you through the entire measuring process. The software shows you how to take measurements in four rotation positions and then calculates a result that shows the angular error and centre deviation between spindle and tool holder. Adjustments can then be made in the live function unique to MEAX.



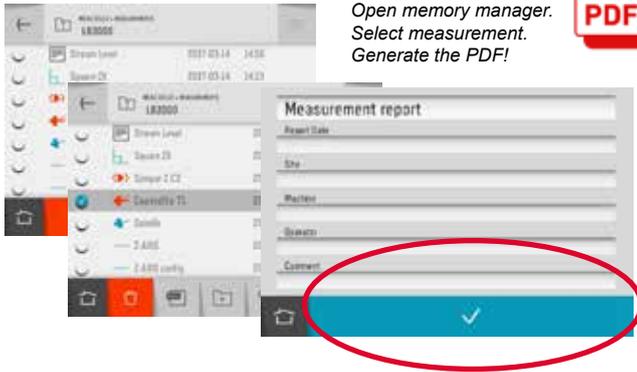
Measuring Squareness



Measuring Squareness

By fitting a prism to MEAX SR, you can measure whether the machine's movements are square with each other. The measurement is performed in two steps: first by measuring the X axis and then the Z axis. The software helps you perform the measurement; you will see the angle deviation directly. The customized fixture makes it easy to fit the sensors, thus ensuring a correct result.

MT15 ON-SITE REPORT



Open memory manager.
Select measurement.
Generate the PDF!



- Meax DU
- Meax SM 201
- Meax SR 201
- Meax SQ 201
- Power cable 2pcs.
- USB-cable A-mini 0,5 m 2pcs.
- Meax Bracket 90 degr
- Collet C25-16 2pcs
- Allen key 2 pcs
- Power supply 4 USB-ports 5VDC
- Meax tape measure
- Meax USB

MEAX SM/SR

| | |
|--|--|
| Housing material: | Anodized Aluminum and ABS plastic |
| Operating Temp: | 15 to 30°C (59 to 86°F) |
| Weight: | 306 g (10.9 oz) |
| Dimensions: | 82mm x 86mm x 33mm (3.2 in x 3.4 in x 1.3 in) |
| Environmental protection: | IP 65 |
| Laser: | 650 nm class II diode laser |
| Laser power: | < 1mW |
| Measure distance | Up to 5 m |
| Detector: | 2-axis PSD |
| Detector size: | 16mm x16mm (0.6in x 0.6in) |
| Detector resolution: | 1µm |
| Measurement accuracy: | 1% ± 3 µm |
| Inclinometer resolution: | 0.01° |
| Inclinometer accuracy: | ± 0.1° |
| Communication range: | 10 m (33 ft) |
| Power supply: | High performance Lithium Ion battery or external power |
| Battery charging time (system off, room temp): | 8 h |
| Battery LED indicators: | Unit state, laser transmission, battery status and Bluetooth |

DISPLAY UNIT

| | |
|--|---|
| Measurement accuracy: | 1% ± 3 µm |
| Dimensions: | 124 mm x 158 mm x 49 mm (4,9 in x 6,2 in x 1,9 in) |
| Environmental protection: | IP 65 (Dust tight and protected against water jets) |
| Display size: | 6,5" (165 mm) diagonal (133 x 100 mm) |
| Operating time | 10 hours continuous use (with 50% LCD backlight) |
| Battery charging time (system off, room temperature): | 1 hour charge – 6 hours operating time |

ACOEM AB is a global player and leader of innovation in monitoring, maintenance and engineering. By helping industries worldwide to become perfectly measured and eliminating anything that might not be, we minimize unnecessary wear and production stoppages. This will ultimately make our customers more profitable and our environment more sustainable.



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