

LASERTRACER-MT

▶ HIGHEST ACCURACY FOR SMALL AND MEDIUM-SIZED MACHINES



The use of the LaserTRACER-MT improves the calibration of small to medium-sized machine tools dramatically.

In combination with the software TRAC-CAL machines of highest accuracy can be calibrated extremely fast, simple and accurate. All kinematic parameters for the full compensation of the TCP in the whole machine volume can be determined with sub-micrometer accuracy.

The LaserTRACER-MT relies on a patented tracking interferometer system to obtain ultra-high precision length measurements in space just like the active LaserTRACER system, but optimized for smaller volumes, with less weight and lower price.

- ▶ THE LASERTRACER-MT IS THE IDEAL INSTRUMENT FOR THE CALIBRATION AND MONITORING OF SMALL TO MEDIUM-SIZED MEASURING MACHINES AND MACHINES TOOLS IN COMBINATION WITH OUR SOFTWARE SOLUTIONS TRAC-CAL AND TRAC-CHECK.

Order number 1121

As of May 2013. Subject to change!

eTALON

APPLIED TRACEABILITY

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FUNCTIONAL PRINCIPLE

The LaserTRACER-MT is attached to the machine via highly accurate spherical joints while a very smooth and damped multi-stage telescopic system is responsible for the tracking of the interferometer. Inside each sphere, special reflectors are mounted, protected from dirt and damage. Just like the active LaserTRACER system, it yields highly accurate displacement measurements; therefore, all the software options from Etalon are promptly available to the LaserTRACER-MT as well.



The influence of the environmental conditions is compensated using temperature and pressure sensors included in the system. The He-Ne laser unit is located in the external control box and transmitted to the LaserTRACER-MT by an optical fibre. Therefore the thermal load is greatly reduced and a compact design can be realized. The LaserTRACER-MT100 is easily transportable and with a range of 260 mm – 940 mm optimized to machines with small to middle-sized volumes. The system includes three temperature measurement channels with magnetic PT100 material sensors as well as a high speed trigger port for synchronisation with the machine control.

APPLICATION AREAS

- ▶ Volumetric calibration of 3 axis machines (all parameters for a full compensation of the TCP)
- ▶ Calibration of rotary axes (all 6 component deviations and squareness)
- ▶ Machine checking according to ISO 230-2, -6 (parallel to the axes and diagonal lines)
- ▶ Circular test according to ISO 230-4

SPECIFICATION LASERTRACER-MT 100

Operating range	
Angular range elevation axis	- 30° to + 80 °
Angular range azimuth axis (restricted only by the interferometer cable)	± 270°
Radial measuring range	260 mm to 940 mm
Cable length	5 m
Accuracy	
Frequency stability laser 24 h	$2 \cdot 10^{-8}$
Resolution interferometer	0.001 μm
System accuracy over the full working range	2 μm
Temperature measurement accuracy / 3 Channels	0.1 K
Mass and dimensions	
Weight measuring unit	2.8 kg
Weight controller box	8 kg
Minimal height above machine table	120 mm
Transportation box (water and dust-proof)	63 cm x 60 cm x 33 cm (11 kg)