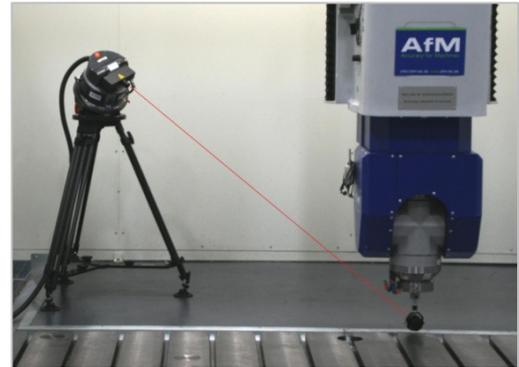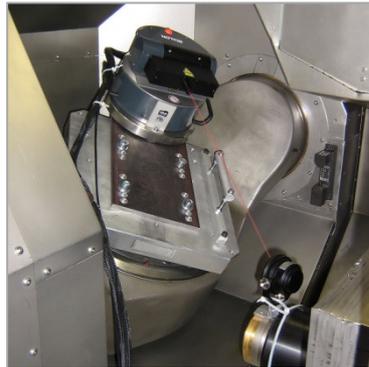![AfM - Accuracy for Machines logo]

TRAC-CAL
Software for volumetric calibration and compensation of coordinate measuring machines (CMM) and machine tools (MT)

Don´t be satisfied with less!

Target group

Our customers are machine-, device- and controller manufacturers, retrofit providers and users of machine tools and coordinate measuring machines.

Innovation

TRAC-CAL is a process for the spatial calibration and monitoring of coordinate measuring machines, machine tools or other multi-axis measurement machines and machine tools of all sizes and precision classes.

The process can be carried out either using conventional laser trackers (Leica, Faro) or using the **LaserTRACER** developed specifically for this procedure. It is based on the exclusive use of laser wavelength. Carrying out the procedure does not require fine adjustment or alignment. Even experienced machine operators can be trained in the process in just a short space of time.

This process is also suitable for monitoring machines which have already undergone numerical correction.

Measurement prinziple

The laser tracker or **LaserTRACER** is set up in various positions on the measuring machine or machine tool. The laser interferometer on the laser tracker or **LaserTRACER** is automatically repositioned relative to a reflector clamped in the sensor head or tool holder of the machine.
While the machine describes a spatial pattern, the interferometer automatically records length measurements for each support point in the grid.

A range of length measurements from at least four different positions allows a specially developed mathematical system to **analyse all 21 systematic deviations in the linear machine axis.**

These are the **position deviations, the straightness deviations, the pitch-, yaw-, roll- and the right angle deviation of the axis to one another.**
For horizontal arm measuring machines, the stator / column flex (bending and rolling) can also be determined based on the horizontal arm behaviour. (in total 23 deviations)

CMM and machine tools calibration
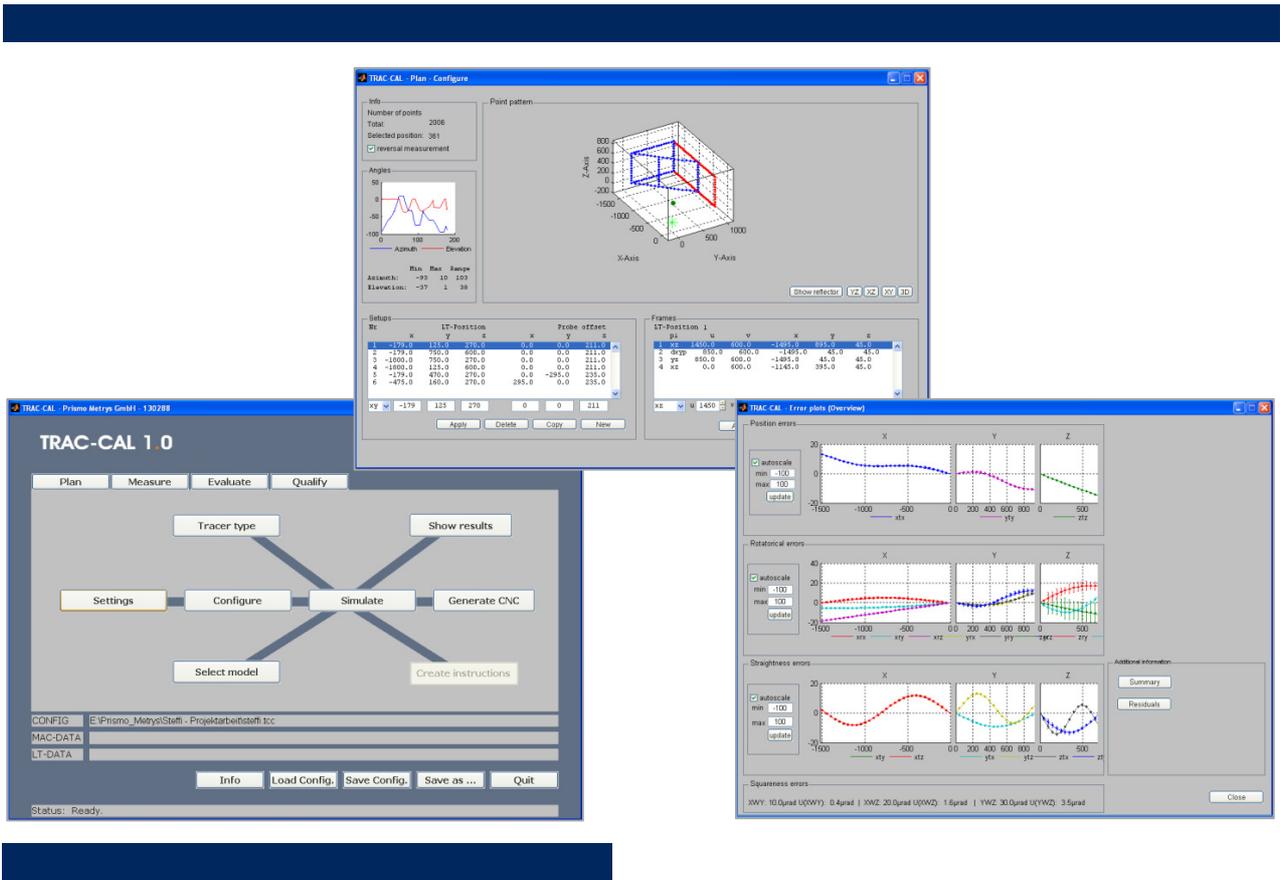
Software Features

- High-precision determination of translational deviations, rotary deviations, right-angle deviations and elastic deviations for horizontal arm CMMs
- Flexible and adjustable to different machine types
- Interfaces to the LaserTRACER and conventional laser trackers (Leica, Faro)
- Determination of achievable precision levels (in simulation mode)
- Automatic generation of the control code required for measurement.
- Interface enables machine control during measurement (e.g. I++)
- Direct information about repeat functionality of machine and quality of data recorded during the measurement
- Automatic evaluation of measurements and graphical display at the click of a mouse
- Qualitative evaluation of results by means of simulated length tests
- **Output of complete correction / compensation dataset for different CNC – Controllers (SIEMENS, FANUC, FIDIA, FAGOR, HEIDENHAIN)**

System requirments

- Pentium IV, 1 GHz processor
- At least 512 MB RAM
- 250 MB free hard drive space
- Graphics card resolution 1024 x 768
- Operating system: Windows XP or VISTA

AfM Technology GmbH
Gartenstraße 133
73430 Aalen
Germany

Fon +49 (0) 73 61 88 96 08-0
Fax +49 (0) 73 61 88 96 08-99

www.afm-tec.com
info@afm-tec.com