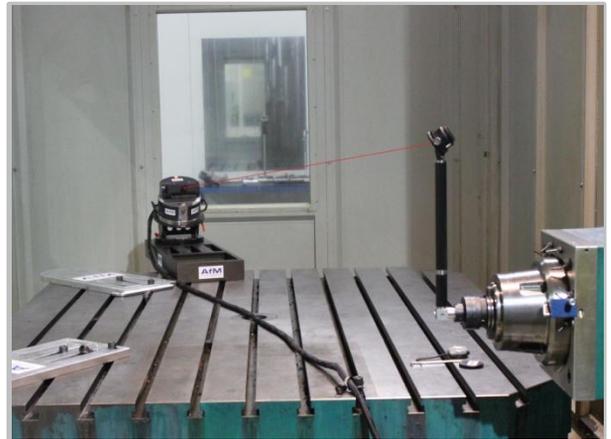
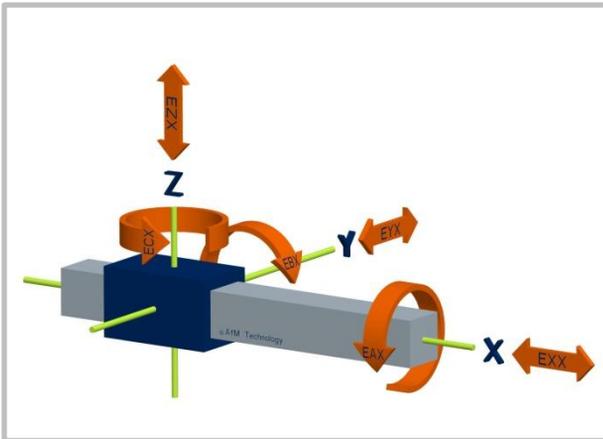


## Volumetric Compensation VCP of machine tools with BOSCH REXROTH IndraMotion MTX

Don't be satisfied with less!



### Customers

Our customers are machine tool builders, CNC control producers, retrofit companies as well as users incorporating machine tooling in their production line.

### State-of-the-art

The accuracy of parts being produced is governed by the accuracy of the cartesian axes (X, Y, Z) of the machine tool.

The conventional methods used to establish machine tool deviations result in lengthy down time and therefore high costs. In most cases an additionally mechanical correction of the machine tool axes is necessary to resolve any deviations.

### Innovation

With LaserTRACER Systems we are measuring the volumetric deviation in the whole workspace of the machine tool. The evaluation will be given as a detailed protocol with diagrams for each of the systematic deviations.

Positioning, straightness, squareness, pitch, yaw and roll errors (**21 error parameters**), as well as the **22nd** and **23rd error**, column bending / -pitch at moving column machining centers, will be completely measured.

The software option **VCP** from company **BOSCH REXROTH**, allows a process correctionfile created by AfM, to be entered directly into the **IndraMotion MTX** and from there it can be worked on online.

This results in a noticeable improvement of the volumetric accuracy in the entire workspace of the machine tool. Hereby the complicated mechanical correction of the machine tool can often be avoided.

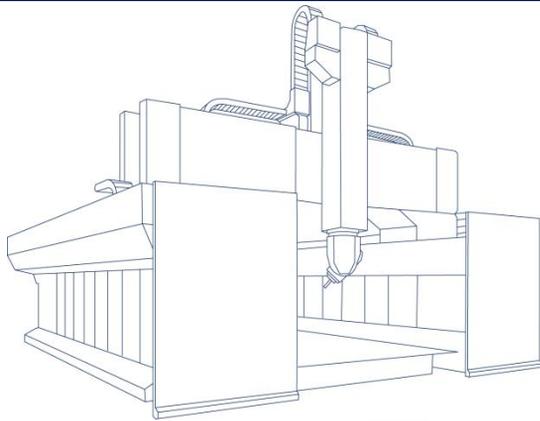
The compensation of column bending / -rolling at moving column machines is also possible with **VCP** from **BOSCH REXROTH** in **IndraMotion MTX systems**.

The possible increase of volumetric accuracy is up to 85%!

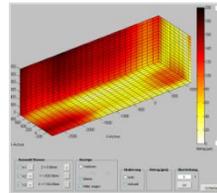
### Your advantages

- Faster error mapping reduces down time and costs
- An increase of volumetric accuracy up to 85% through VCP in the BOSCH REXROTH IndraMotion MTX control
- Usually no mechanical correction is necessary, also after collisions
- Higher machine availability by Condition Monitoring

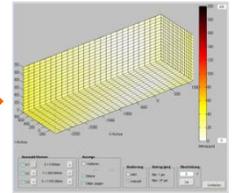
# Volumetric Compensation of machine tools



3D deviation  
without Compensation



3D deviation  
with Compensation



## Use of the most up-to-date laser technology

- Automated self-tracking laser interferometer with temperature stable construction.
- Highest accuracy through patented reference sphere.
- No complicated fine alignment on the machine tool.
- 4 – 6 measuring positions in the workspace of the machine tool for the evaluation of the complete volumetric deviation are required.
- Total time: approx. 4 - 6 hours
- Resolution: 0,001  $\mu\text{m}$
- Accuracy: 0,2  $\mu\text{m}$  + 0,3  $\mu\text{m}/\text{m}$
- Range: 0,2 m – 15 m  
(extendable by mathematical superposition)
- Principle: Multilateration

## Our Services

- Fast, cost-effective, volumetric machine tool analysis
- Documentation of actual conditions
- Creation of Compensation files
- Verification of the compensated machine tool
- Standard machine calibrations
- Calibration of rotary axes
- Mechanical service and adjustment
- Training for LaserTRACER systems
- Sale of LaserTRACER systems and accessories