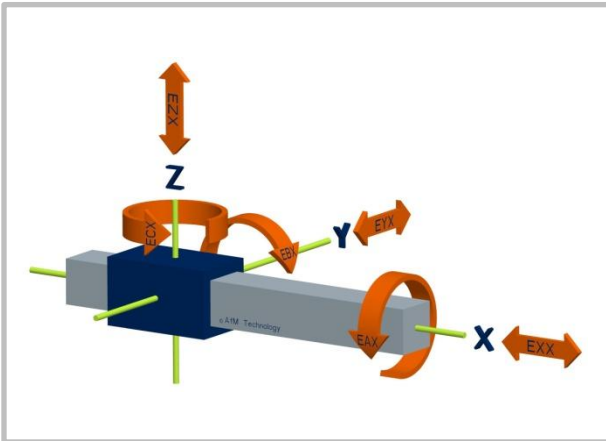


Volumetric Compensation of machine tools with VCS A3, A5, A5 plus and VCS Rotary for SIEMENS Sinumerik 840 D sl

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 protocol with diagrams for each of the systematic deviations. Positioning, straightness, squareness, yaw pitch and roll errors will be completely measured, as well as the 22nd and 23rd error (bending and rolling of the column at moving column machine tools)

The software-Option **VCS (Volumetric Compensation System)** from the company SIEMENS allows a process correctionfile created by AfM to be entered directly into the **Sinumerik 840D** 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.

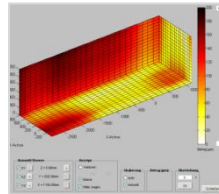
Your Advantages

- Faster error mapping reduces down time and therefore costs.
- An increase of volumetric accuracy up to 85% through VCS Compensation in the 840D control unit.
- Compensation of 23 errors for moving column machine tools
- Usually no mechanical correction is necessary, also after collisions.
- Interchangeable CNC programs between machines
- Higher machine availability by Condition Monitoring

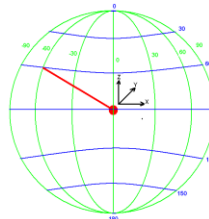
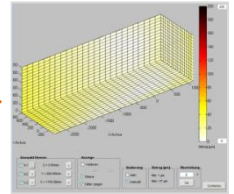
Volumetric Compensation of machine tools



3D deviation without Compensation



3D deviation with Compensation



tool orientation grid
 — 2nd rotary axis
 — 1st rotary axis
 — orientated tool
 Note: $C = 0^\circ$ and $A = 0^\circ$ are the reference positions for the tool orientation grid.



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 μm
- Accuracy: 0,2 μm + 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
- VCS Service Package for VCS A3, A5, A5 plus
- VCS Rotary Service for rotary axes / Forkheads
- Mechanical service and adjustment
- Training for LaserTRACER systems
- Sale of LaserTRACER systems and accessories

AfM
 Accuracy for Machines

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.de
info@afm-tec.de

Solution
 Partner

SIEMENS

Automation