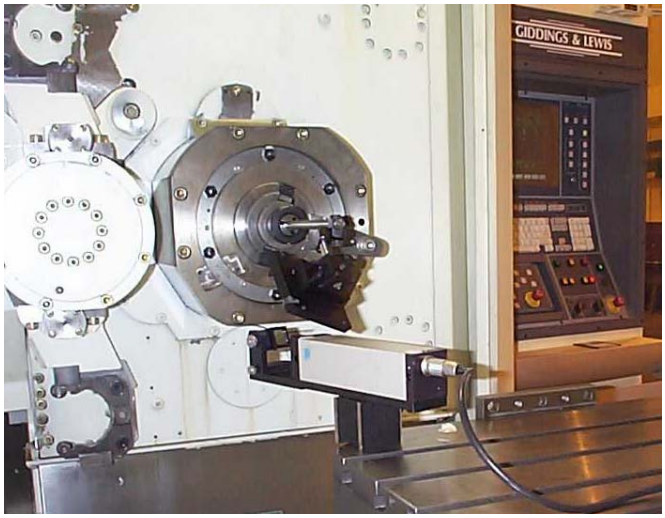
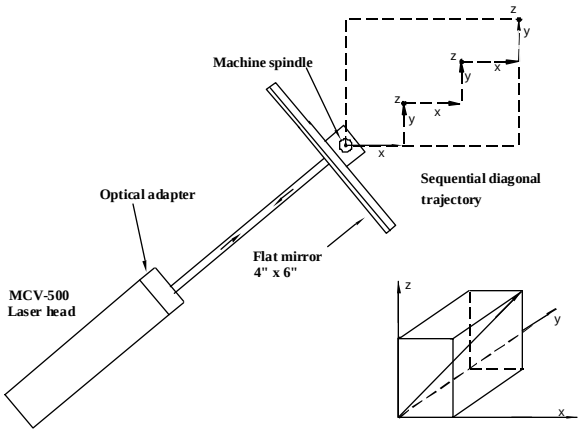
Laser Doppler Displacement Meter

SD-500





Volumetric Calibration

OPTODYNE's SD-500 Volumetric Calibration Package, (Patent Pending) is an add-on package to OPTODYNE's MCV-500, Linear-Machine Calibration System. The combined system provides a rapid and efficient way of measuring a machine's volumetric accuracy over the working volume. The system can be used to calibrate CNC machine tools, and CMM's (Coordinate Measuring Machines). Based on the Laser Doppler Displacement Meter (LDDM™) technology, and the "Vector" measurement technique, the volumetric errors including three displacement errors, six straightness errors, and three squareness errors can be measured in hours instead of in days required using conventional techniques.

The performance of a machine tool is determined by the volumetric accuracy. With many of the CNC controls available today, the measured volumetric errors can be used to improve the machine accuracy by volumetric compensation (straightness compensation, cross compensation or sag compensation etc). The Windows™ software, running on any notebook PC, is user friendly and designed to collect and analyze data.

MAJOR FEATURES AND BENEFITS

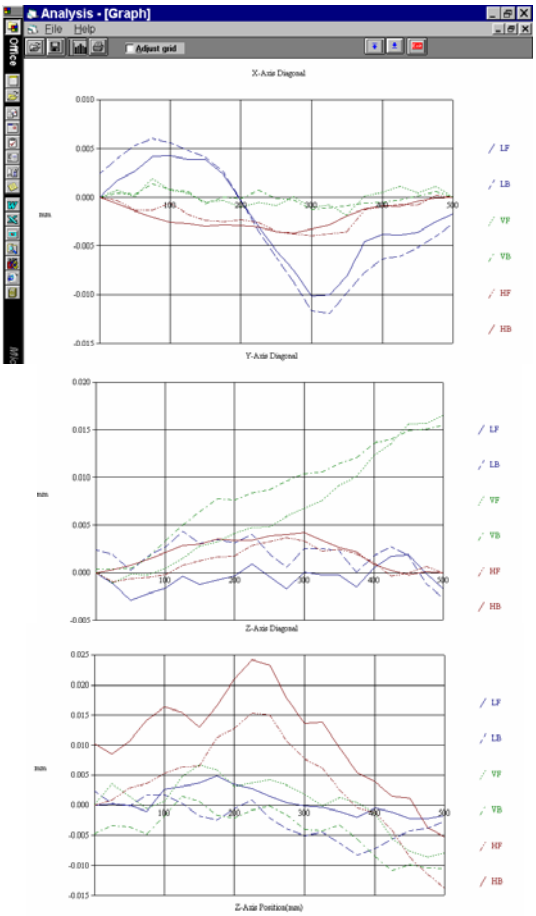
- Easy to setup and operate.
- Measure volumetric errors including linear, straightness, and squareness.
- Quick and efficient measurement.
- High accuracy and repeatability.
- N.I.S.T. traceable laser accuracy.
- Windows™ software and Notebook PC.
- Automatic environmental compensation.
- Compact and portable.

MAJOR APPLICATIONS

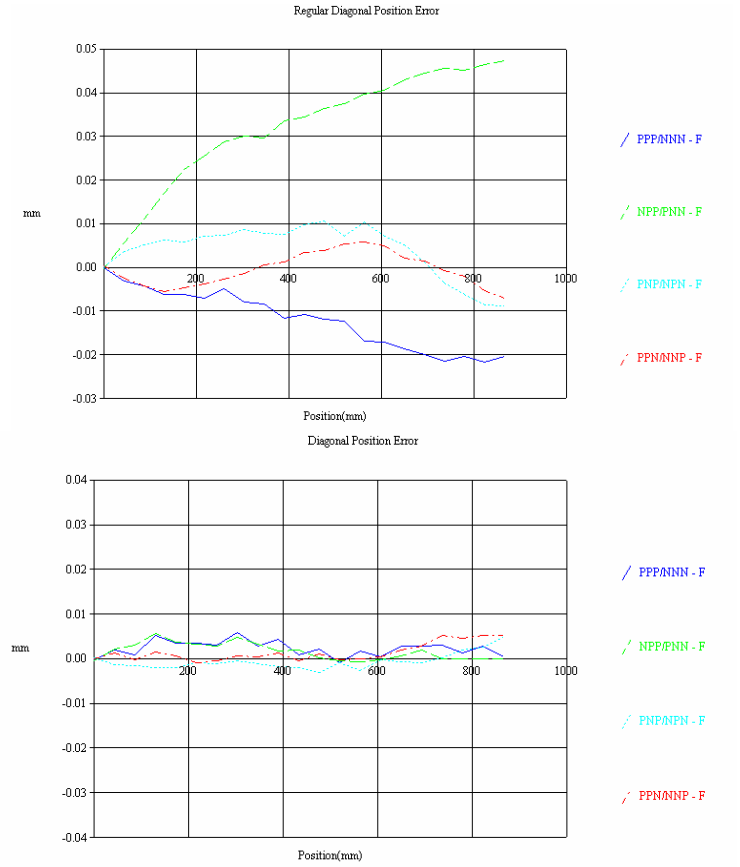
- Calibration of CNC machine tools and CMM's.
- Squareness of machine axes.
- Quality Control Maintenance.
- Quick check of volumetric accuracy.
- Identify error sources

Specifications

The unique property of the **MCV-500 Laser Calibration System** is the single aperture optical arrangement. With the "Vector" measurement method the laser beam direction is not parallel to the direction of movement, hence all linear error components can be measured. The lateral displacement tolerance of a conventional interferometer is too small to perform the "Vector" measurement. But with Optodyne's MCV-500 and a flat-mirror as the target, large lateral displacements of the "Vector" measurement are possible.



Measured
Volumetric Errors



4 Diagonal without and with Volumetric Compensation

SD-500

Configuration

Laser Calibration System (not included)	MCV-500
Flat Mirror Target 3” x 4”(150 x 200mm)	LD-71S
Optical Adapter	LD-69
Magnetic Base & Post	LD-03P
Windows™ Software	W-500SD
Steering Mirror	LD-37S

Capability (Volumetric Calibration)

Laser Stability	0.1 PPM
Linear Accuracy	1 PPM
Resolution	1 microinch (0.01μm)
Measuring Range	40”x40”x40” (1 cubic meter)*

*NOTE: Larger measuring ranges available