

## Volumetric positioning

For the measurement or calibration of volumetric positioning accuracy, there are many models to choose from. The SD-500 is an add-on to the MCV-500 for the volumetric positioning error measurement using the vector technique. For the basic theory, experimental verification, applications, and technical details, click on the **Technical articles** and **Magazine articles**. A few applications are detailed in the **Application Notes**.

- [SD-500 Volumetric Calibration](#)
- [Ap1117](#)-- Calibration of a Coordinate Measuring Machine (CMM) by a MCV-5002 Laser Calibration System
- [Ap1113](#)-- One-day Quick-check System [Ap1110](#)-- Volumetric Compensation of CMM Machines Using Sequential Diagonal Measurement
- [Ap1109](#)-- Sequential Diagonal Measurement (determine linear position errors and straightness errors of all 3 axes with 4 diagonal measurements)
- [Tech Article #21](#)-- How to achieve higher volumetric positioning accuracy and cut more accurate parts with your existing machine tools
- [Tech Article #20](#)-- Measurement of Volumetric Positioning Accuracy of a 5-axis Machine By Laser Vector Technique
- [Tech Article #19](#)-- Volumetric positioning accuracy of a vertical machining center equipped with linear motor drives (evaluated by the laser vector method)
- [Tech Article #18](#)-- A Laser Vector Technique for the Measurement of Static Positioning Errors & Compensation
- [Tech Article #17](#)-- 3 Dimensional machine tool positioning accuracy
- [Tech Article #16](#)-- What is 3D volumetric positioning accuracy and how to define and measure it
- [Tech Article #15](#)-- A theoretical analysis of 4 body diagonal displacement measurement and sequential step diagonal measurement
- [Tech Article #14](#) -- Measurement and Compensation of Volumetric Positioning Errors for a CNC Machining center (In Chinese only)
- [Tech Article #13](#)-- A linear actuator system with 1-angstrom closed-loop control resolution and 50-milimeter travel range
- [Tech Article #10](#)-- Laser vector measurement technique for the determination and compensation of volumetric positioning errors. Part I: Basic theory.

- [Tech Article #9](#)-- Laser vector measurement technique for the determination and compensation of volumetric position errors. Part II: Experimental verification.
- [Tech Article #8](#)-- A laser Non-contact Measurement of Static Positioning and Dynamic Contouring Accuracy of a CNC Machine tool.
- [Tech Article #3](#)-- Improving the accuracy of on-machine probing by volumetric error compensation.
- [Tech Article #2](#)-- A vector method for the measurement of positioning errors and straightness errors over a machine work volume.
- [Tech Article #1](#)-- Taking Advantage of today's cnc control technology by calibrate and compensate cnc machine tools volumetrically.
- [Magazine Article #7](#)-- Method zeroes in on volumetric accuracy
- [Magazine Article #6](#)-- 3 Dimensional machine tool positioning accuracy
- [Magazine Article #5](#)-- Laser displacement measurement
- [Magazine Article #2](#)-- Checking the Volume

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