

QC-500



One-day Quick Check Laser Calibration system

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Optodyne's QC-500 compact one-day quick-check laser calibration system is designed to perform machine tool calibration and compensation based on the ASME B5.54 standard. The one-day quick-check laser system provides a full comprehensive measurement of linear, volumetric and contouring performance in accordance with the standard and the ISO 9000 requirements. The measured volumetric errors can be used to compensate the volumetric positioning errors.

The one-day quick-check system, based on the patented Laser Doppler Displacement Meter (LDDM™) technology, the Vector measurement technique (patent pending) and the Laser/ballbar technique (patent pending), is designed for easy setup and operation. The basic system, including Windows™ software, automatic environment compensation, accessories for Vector and Laser/ballbar measurement. The system is very compact and fits in one small carrying case.

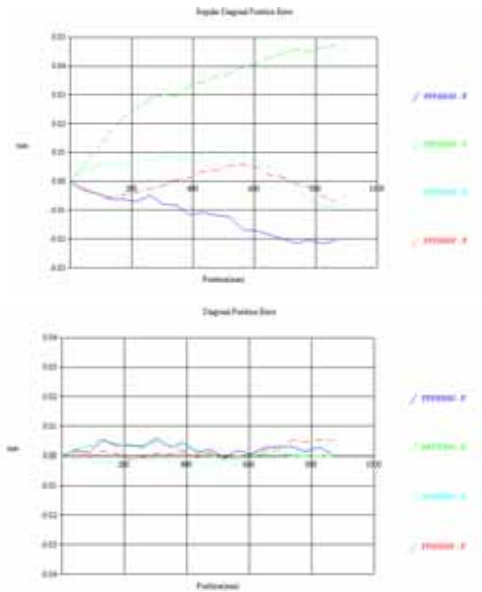
MAJOR FEATURES AND BENEFITS

- Compact and light-weight
- Easy to setup and operate
- Automatic data collection
- NIST traceable laser accuracy
- No tripod and no interferometer
- Windows™ software and RS-232 interface
- Supports VDI, ISO and ASME B5.54 standards
- Measures displacement, straightness and squareness errors in 4 easy setups
- Contouring measurements are non-contact and the radius may vary continuously

MAJOR APPLICATIONS

- Automatically generates pitch error compensation files
- Automatically generates straightness or volumetric positioning error compensation files
- Measures the absolute radius, feed-rate and acceleration of a circular contour

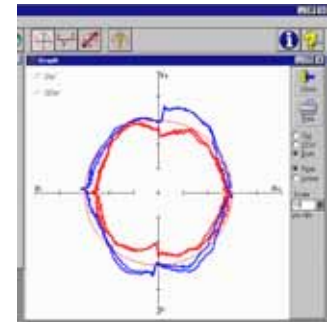
The QC-500 One-day Quick-check Calibration System features single aperture optical arrangement. Using a flat-mirror as the target, it can perform the "Vector" measurement to obtain the volumetric positioning errors. Using a high data-rate PCMCIA card, it can perform the non-contact circular contouring measurement to obtain the dynamic positioning errors. For a CNC machine with a working volume of 1 cubic meter, both the static volumetric positioning errors and the dynamic circular contouring errors can be measured in one-day.



4 diagonal without and with Volumetric Compensation



A diagnosis of Circular contour



A polar plot of Circular contour

QC-500

Configuration

| | |
|--|-----------|
| Single aperture laser head | L-109 |
| 25mm diameter retro-reflector | R-102 |
| Magnetic base | LD-03 |
| 4m. cable set | LD-21L |
| Flat-mirror target 3"x4" (75 x 100 mm) | LD-71S |
| Optical adapter | LD-69 |
| Steering mirror | LD-37S |
| Processor module w/RS-232 interface | P-108 |
| Windows™ software (SD and LB) | W-500 |
| Adapter platform | LD-14A |
| Automatic temperature compensation | IATCP |
| Flat-mirror target 6" (150 mm) | LD-71 |
| Magnetic base and post | LD-03P |
| PC interface card & cable | IPC5-1000 |
| Notebook computer (not included) | LTC |

Capability

| | |
|-----------------|-----------------------|
| Laser stability | 0.1 ppm |
| System accuracy | 1.0 ppm |
| Resolution | 1 microinch (0.01 μm) |
| Range | 50 ft. (15 meters) |
| Slew rate | 144 ips (3.6 m/s) |

Volumetric calibration

| | |
|-------------|--|
| Range | 40"x40"x40" (1 cubic meter) Longer range available |
| Measurement | 3 displacement errors, 6 straightness errors and 3 squareness errors |
| Accuracy | Limited by machine repeatability |

Circular contouring test

| | |
|-----------------|-------------------|
| Data rate | 1-10 000 data/sec |
| Max data points | 10,000 points |
| Radius | 0.2mm to 75mm |

Power: 90 to 230 VAC, 50 to 60 Hz