Automated Precision Inc.
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Telescopic Ballbar System

The API Ballbar System may well be the single best all-around device to evaluate and diagnose CNC machines and robots. Easy operation and automatic error identification combine with a unique parallel spring suspension that renders extremely accurate and frictionless measurement. The design allows extensions up to 1.5 meters in radius for large machines.

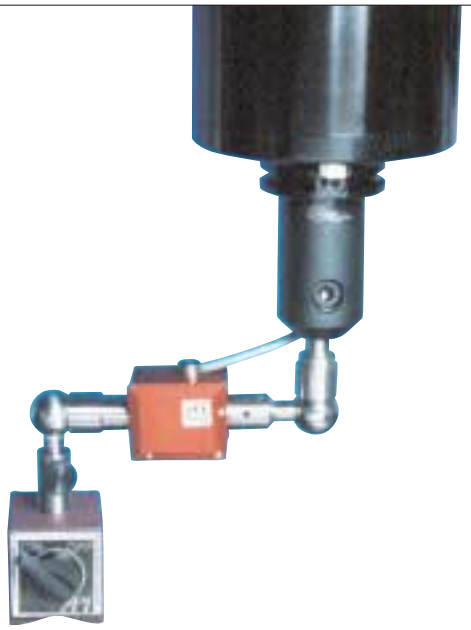
The Ballbar test shows how two axes work together to move the machine in a circular path. Two axes would make perfect circles in a perfect machine, but the API Ballbar measures any deviation from perfection and displays the data in a polar format. Analysis software automatically identifies the types and sources of errors, which is particularly useful where compound errors are present. Error parameters in the analysis software include backlash, backlash components, servo error, periodic error, scale mismatch and squareness. A companion simulation package allows the user to experiment with multiple variables and to learn how various errors influence the contouring performance of a CNC machining center and determine which error correction will lead to the greatest improvement.

Applications:

- Rapid health check of CNC machine axis
- Quick picture of servo system tuning
- Check horizontal and vertical CNC mills
- Test turning centers
- Use on flame, laser and water jet cutters

Features:

- 90 mm (3.55 1n.) telescopic ballbar
- Extensions available to 1.5 meters
- Ballbar length calibration fixture
- WINNER 2.01 software
- RS-232 control interface unit
- Magnetic mounting fixture
- Right angle fixture
- System carrying case



Specifications:

- Resolution: 0.25 µm (10 µinch)
- Accuracy: 0.5 µm (20 µinch)

Options:

- Analysis software provides automatic identification and reporting of error type and magnitude.
- Simulation program to duplicate and experiment with machine setup and error parameters
- Turning center (lathe) fixture, includes spindle arm and turret arm with multiple mounting options and accessories including carrying case.

Error Parameters Measured:

- Backlash
- Squareness
- Stick-slip
- Servo lag
- Straightness
- Scale mismatch
- Machine and servo vibration