



Application Story

Gauging of Bearings

The Challenge

The manufacturing of Ball and Pin Bearings require processes to extreme tolerances, with quality checks that must be quick, repeatable, and precise. Linear Encoders or Non-Contact sensors might not be viable, because of repeatability or measurement rate issues.

The Solution

Solartron Metrology, a world leader in Precise Linear Measurement, provides multiple solutions for the gauging of Bearings.

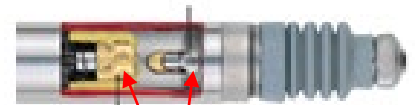
- **Ultra High Resolution and Repeatability:** Solartron sensors have resolution as high as **0.01 μm** and repeatability as high as **0.05 μm** , even under a sideload.
- **Robust Design:** Solartron has probe designs for better repeatability, including a sideload pin and an additional sleeve around the bearings.
- **Endurance:** Solartron sensors have been tested to 13 million cycles under a harsh “cam” test. In the field, they have lasted for hundreds of millions of cycles without no loss of repeatability.
- **IP 68 Option:** For environments where grease and oil are present, probes can be fully sealed to IP 68. Special gaters and materials are available for harsher oils and liquids
- **Quick Readings:** Gauging with Solartron means multiple, quick reliable measurements of any free form shape using a custom gauge or stand. All readings can instantaneously be output to a PC or PLC.
 - Digital Orbit® products with Min/Max outputs
 - Specialized sensors for tougher measurements
- **Lower costs:** The quick cycle times and repeatable measurements means cost savings in labor as well as higher quality standards



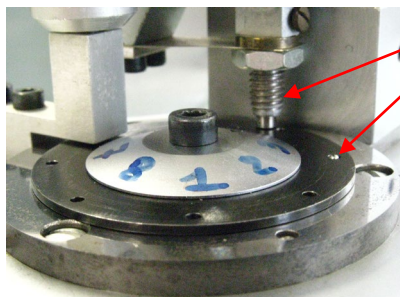
Flexures may also be used for diameter checks in tougher environments. Tips are easier to replace.



Solartron probes endure a rugged “stepped cam” test that can simulate roller bearings actuating a probe.



Tight tolerance carbon ball bearings and an anti rotation device lead to excellent repeatability and endurance



Solartron probe checking a high tolerance bearing diameter. Bearing is loaded into rotating shuttle.



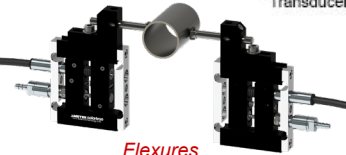
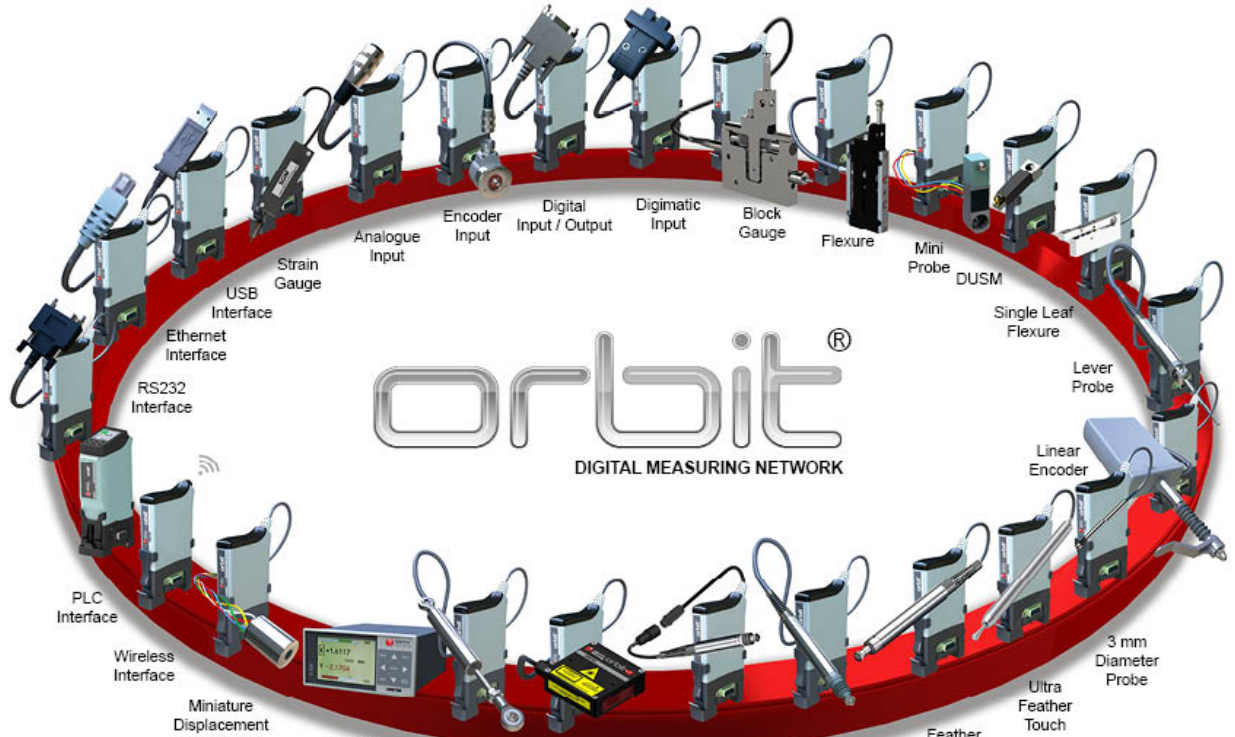
Solartron Mini Probes can be used to check the ID of roller bearings



Gauging probes with SI 200 system performing a simple diameter check

Orbit® – The Total Measurement System from Solartron Metrology

The Solartron Orbit® Digital Measurement System, provides a limitless set of measuring system solutions, with numerous different interfaces to computers and PLC's.



Flexures



Block Gauges



Displacement

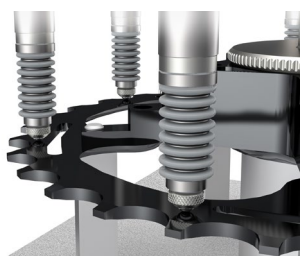


Multi Channel Wireless Gauge



Bore Gauging

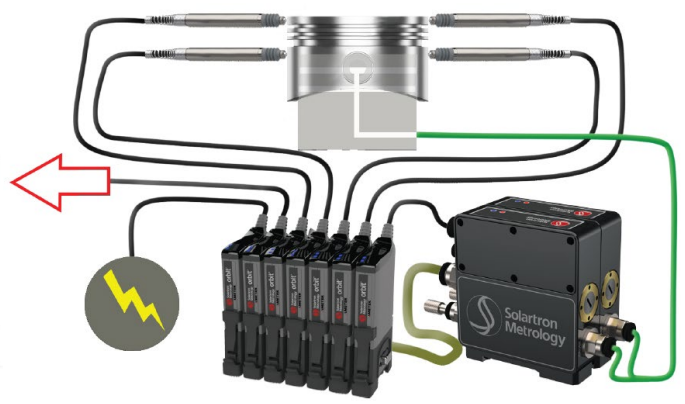
G-Type (With signal conditioning mounted at the end)



Gauging Flatness of a Bicycle Gear



Orbit GCS Software



Measurement of Piston with Air Gauging checking ID, and connected to Orbit with the Air Gauge Module. OD Checked with Digital Probes.