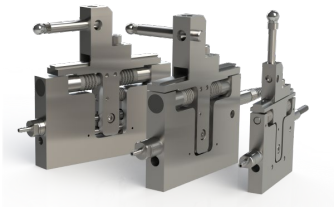
Solartron Metrology

AMETEK

Application Story

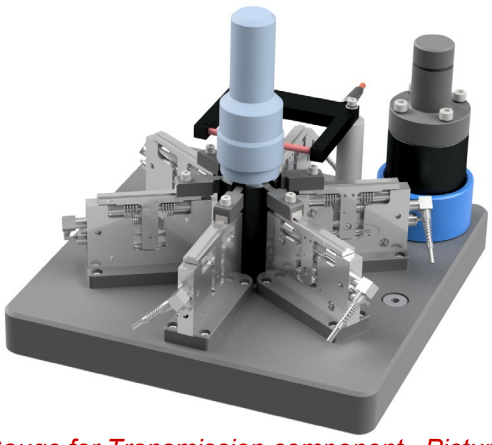
Checking a groove inside a bore



The Challenge

Manufacturing a piston or an engine component often involves awkward geometric features, such as inner groves inside a bore or cavity.

Because they are part of a high tolerance system, the inner groove must still be gauged with a precise instrument. But non-contact sensors or pencil probes are impractical and space is limited.



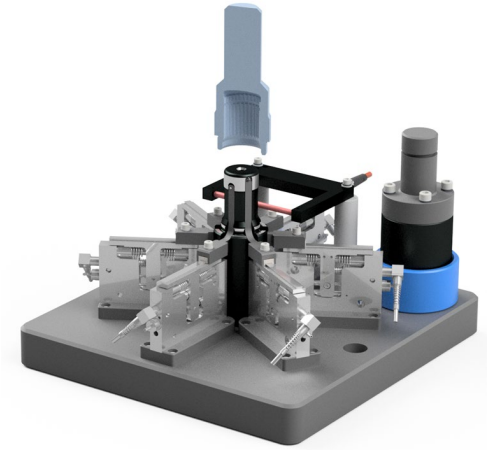
*Gauge for Transmission component. Pictures courtest of **Arnold Gauge** in West Chester Township, Ohio, USA. **www.arnoldgauge.com***

The Solution

Solartron specialty sensors such as Block Gauges provide the ability to check awkward dimensions accurately and repeatably, and with a lower cost than non contact offerings.

Block Gauges have the probe mounted on the side of the base, and is connected to a sliding top piece with robust, precision linear bearings. A top tool, tip holder, and tip can then be used to measure up inside a bore. Custom tools can also be created. (Right) With the optional pneumatic cylinder, the tip can then shuffle into a groove, and a measurement is taken.

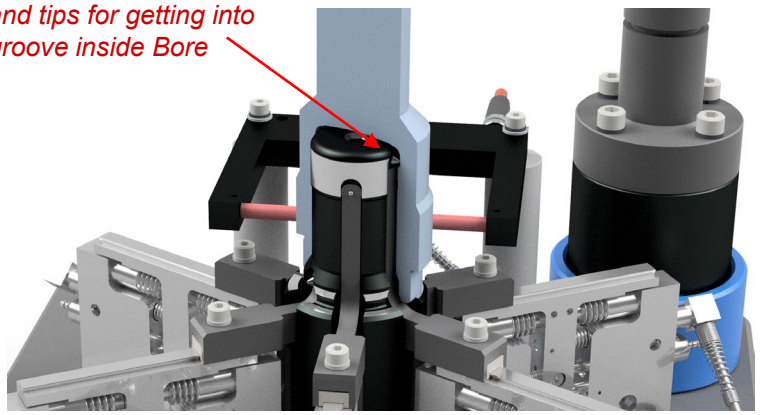
- 2, 5, and 10mm ranges
- Up to 0.05% of reading accuracy, 0.25 micron repeatability
- Tip Holders with 20mm to 50mm length



Gauge with cutaway of part

Actual Arnold Gauge on Factory Floor

Custom Tool Holders and tips for getting into groove inside Bore



AMETEK®
ULTRA PRECISION TECHNOLOGIES

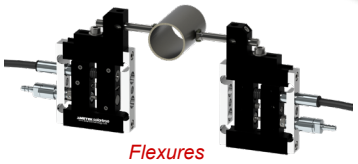
Digital Probes & Orbit® Network

Solartron Metrology

AMETEK

Orbit® – The Total Measurement System from Solartron Metrology

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



Flexures

Block Gauges

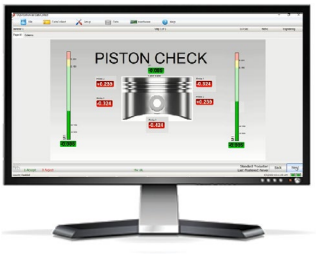
Displacement

Multi Channel Wireless Gauge

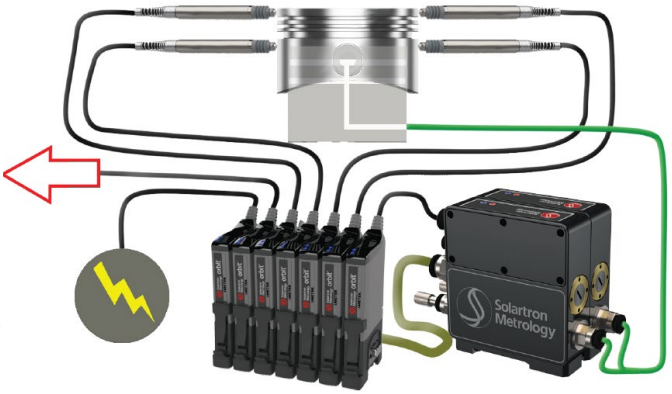
G-Type (With signal conditioning mounted at the end)

Bore Gauging

Orbit LT Lasers and Digital probes gauging a Battery Cell



Orbit Gauge Software 4.0



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