Aerospace

Application Story

Gauging of turbine mount

The Challenge

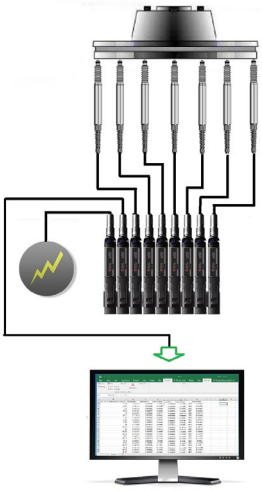
Gauging probes checking a turbine blade

In the aerospace industry, an engine component such as a turbine blade is often cast, and then machined to the proper dimensions, via a CNC. To check specifications after the initial setup, the operator removes the blade from the CNC, then has it checked by a CMM in a Quality Lab. Depending on the workload for the CMM, the operator can wait for hours or in some cases a day to perform a check. This is costly, as the blades cannot be re-machined until the specifications are verified.

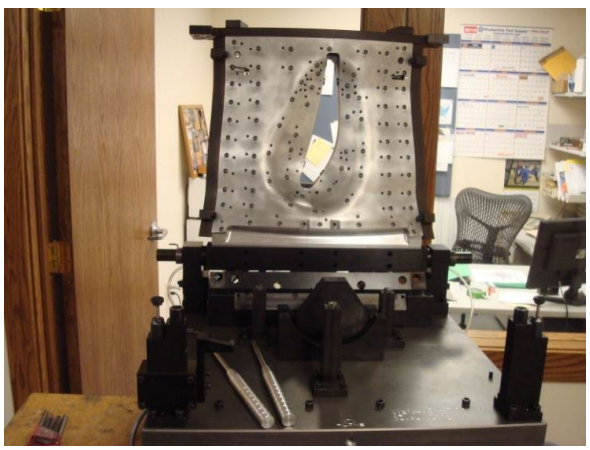
The Solution

Aerospace suppliers will use custom gauges mounted with high precision Solartron Digital Sensors. **Aero Foil International** in Muskegon, MI, USA, is one such example, building a custom Turbine Mount gauge below.

- **Quicker throughput:** With a gauge, all critical dimensions for the turbine blade are measured and displayed instantly, right by the CNC. Adjustments can be made to the process before a scrap part is produced.
- **Lower Labor Cost:** The CNC and the operator will not be idle while waiting for the CMM inspection report, thus you are producing parts immediately after set-up with no lost time. You also free up the bottleneck of the CMM department so the department can perform other critical inspections.
- **Data Collection:** With Solartron's Orbit Network, up to 200 sensors can be networked together, and then the measured results can be outputted as a CSV file which can be imported into Microsoft Excel or a company's SPC software. In this application, probes check 90 different points instantaneously. The recorded data would be critical for organizations looking to adopt Industry 4.0 standards.
- **Rugged Probe Design:** A Solartron digital probe is built for tough environments, with a stainless steel casing, high precision bearings, and excellent sideload strength. Each probe is calibrated throughout its mechanical range in our State of the Art factory. The Digital probes have endured a harsh "Cam" test for up to 13 million cycles. With low maintenance, Solartron Digital probes can last for years on a factory floor.

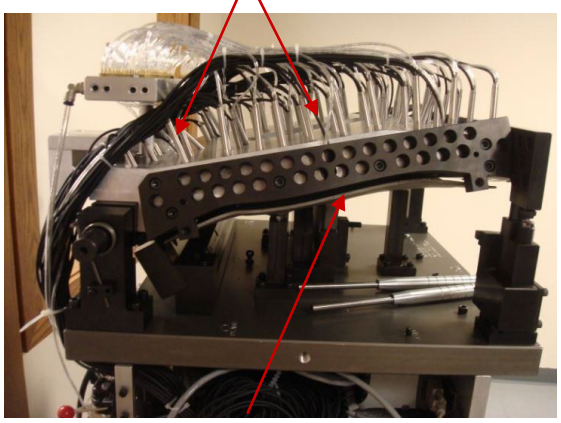


Orbit Network



Turbine Mount Gauge Open

Solartron Pneumatic Probes

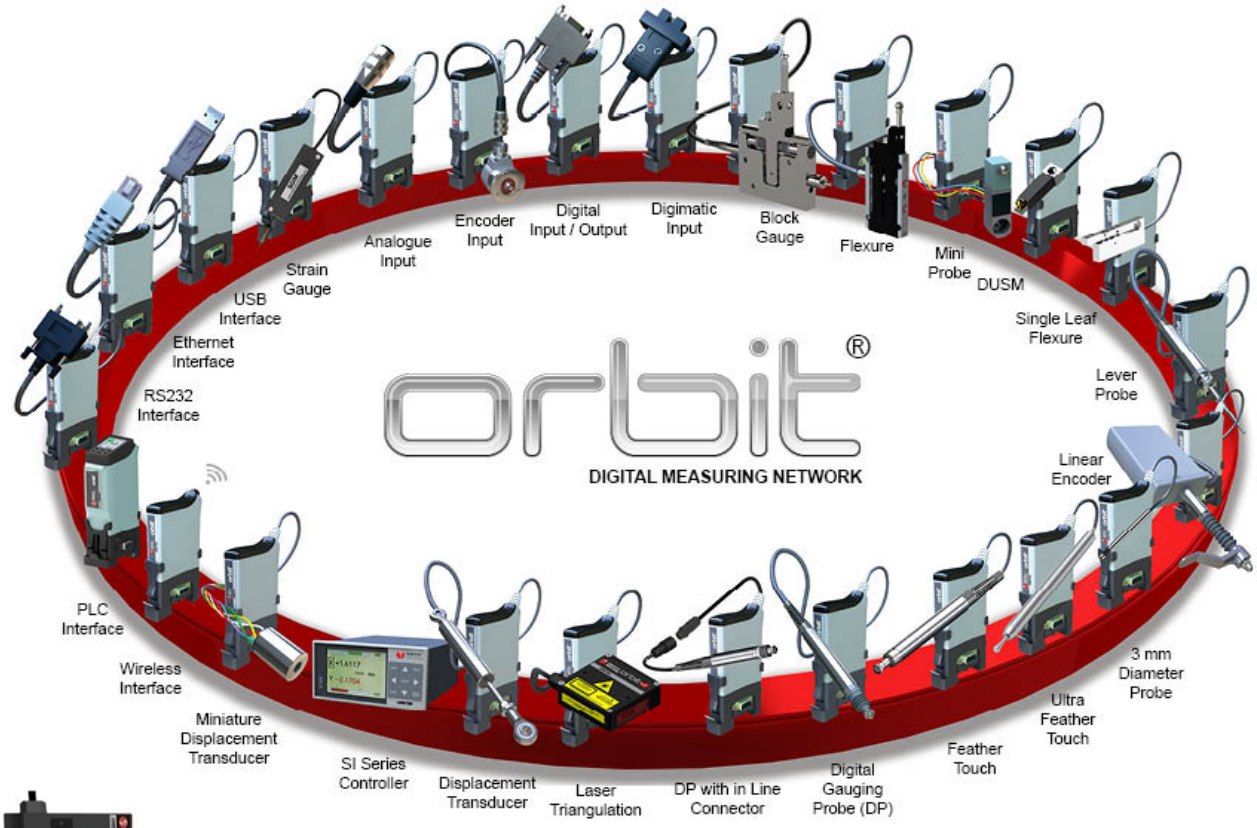


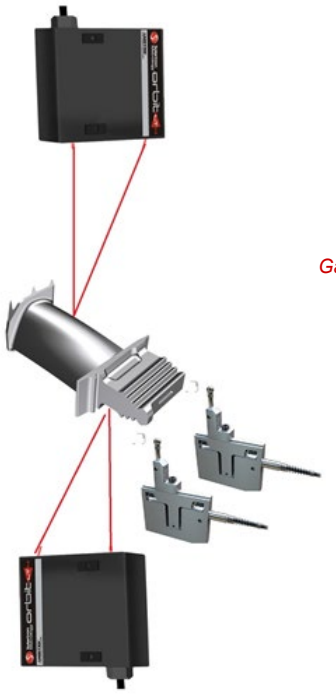
Gauge Closed with part mounted

Solartron Metrology

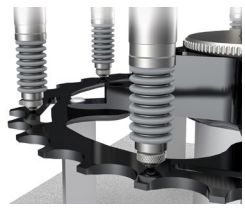
Orbit® – The Total Measurement System from Solartron Metrology

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

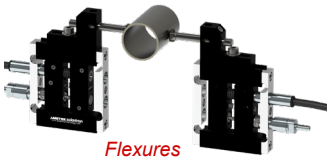




Specialized sensors such as Lasers and Block Gauges can also be used to check aerospace components



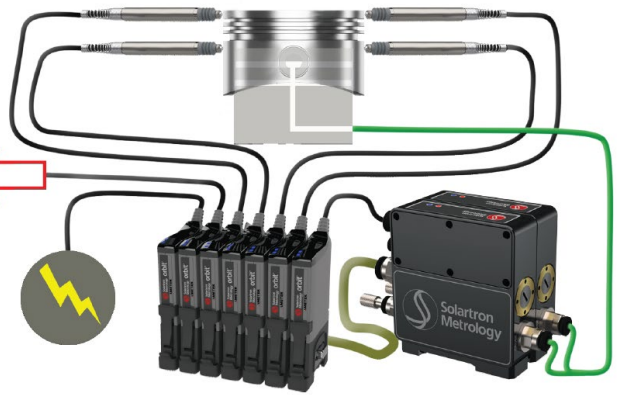
Gauging Probes checking a bicycle gear



Flexures

Orbit GCS Software

Multi Channel Wireless Gauge



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