AMETEK®
ULTRA PRECISION TECHNOLOGIES

Solartron Metrology
Precision Driven

Application Story

Aerospace

Jet engine turbine blade gauging using Digital Probes

Precision. Quality. Reliability

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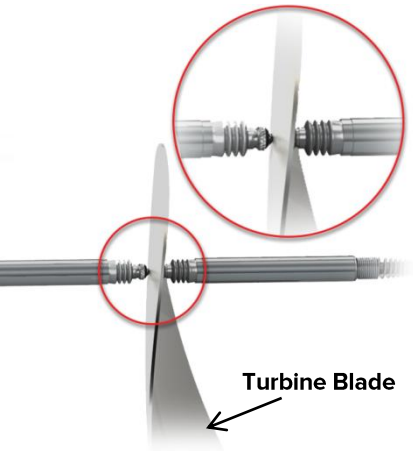
The Product

The standard DP range of Digital Spring Push Probes has justifiably become the work horse of the gauging industry. Very high resolution, excellent linearity and high data speed come as standard. Long life precision bearings, and an IP65 rating ensure that probes maintain their performance for millions of cycles.

Range: 2 to 20mm – Accuracy: Up to 0.05% of reading – Resolution: Up to 0.01 µm – Repeatability: Up to 0.15 µm



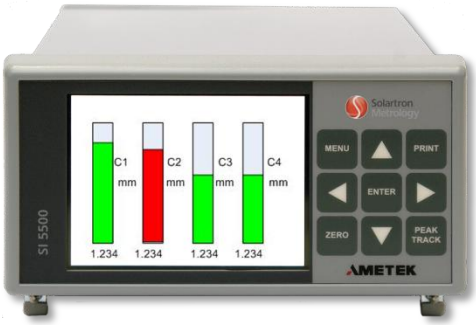
The Challenge

Specialists in the investment casting and machining of alloy metals, such as aluminium and titanium, which are primarily used for jet aircraft engines and airframes, have to measure the dimensions of the blades after surface grinding.

After casting, the turbine blades undergo surface grinding to complete the collaboration of surfaces. The dimensions of the blade post-grind then need to be accurately measured as the initial proportions from the casting will have changed slightly. A precision process application is required to conform to final specification requirements (dimensional accuracy and surface finish).

The Solution

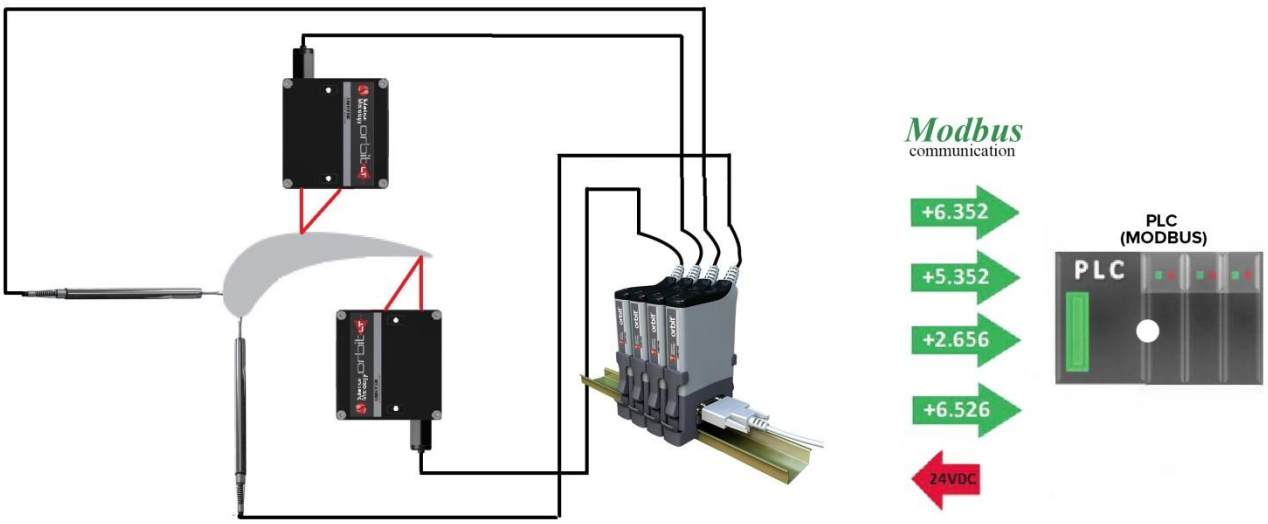
Using the Digital Spring Push Probes (DPs), the measurements from the desired locations on the turbine can be taken, and fed into the digital readout (SI5500). Measurement data from the SI5500 is transmitted via the unit's RS232 output to a PC running a statistical process control system. This data is then used to monitor the performance of the grinding process and the quality of the finished parts, providing traceability records from the start of the process to the finished part..



The SI5500 can interface up to 31 Orbit® 3 Modules and supports Digital Probes, Linear Encoders and Encoder Input Modules. It gives the user the option to select data display formats and program metrology functions.

The SI5500 features an intuitive, menu-driven multiple-channel display which can be programmed to display readings, set Limits/Alarms, Peak Hold, Track or act as a Data Logger. The screen can be set-up as single channel or multiple channel configurations. Users can construct mathematical formulae and algebraic equations to get a wide variety of results for their gauging applications.

x2 Ultra feather touch probes and x2 Orbit® LTH non-contact lasers measuring a turbine via the Orbit® Network.



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Solartron pursues a policy of continuous development. Specifications in this document may therefore be changed without notice.

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