

Application Story

Check rotor runout for EV Motor

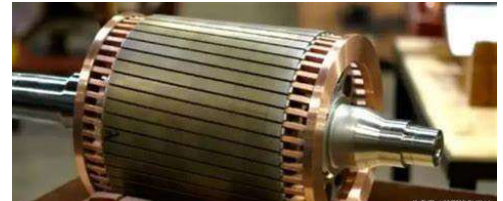
The Challenge

For Electric Vehicle motors, two key components are the rotor, and the stator housing. The rotor spins inside the stator using a magnetic field. The rotor and “rotor blades” must meet a tight specification so that it spins freely inside the housing, and performs at full efficiency.

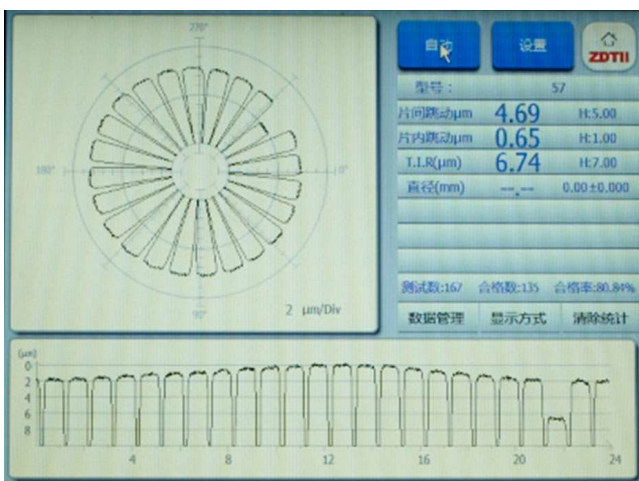
The Solution

Solartron’s precise, yet robust gauging probes have been used to check the runout of the rotor for an electric motor, as well as the height and runout of the rotor blades. There are multiple reasons Solartron’s probes were chosen:

- **High Accuracy, even with a sideload:** Solartron Digital probes have stated accuracy of up to 0.05% of reading. This accuracy is maintained even when the probe incurs a sideload due to TIR or a moving surface.
- **High Resolution:** Solartron probes provide a resolution as low as 0.01 microns, meaning even the slightest variation for TIR measurements can be recorded.
- **Robust, long lasting build:** All Solartron probes are crafted in a UK factory. The designs easily last over 100 million cycles with no sideload, and are tested to over 10 million cycles in an abusive “sidecam” test with no loss of repeatability.
- **Compact Size:** Solartron’s gauging sensors are much more compact than competing sensors, such as Linear Encoders or other glass scales. The 2mm range DZ probe is just 29 mm in length.
- **Multiple signal outputs:** Solartron provides a full array of outputs, which include analog DC & 4-20mA, as well as digital outputs to PC and PLCs. Partial and fully automated software packages are also available.



A Solartron gauging probe checking a rotor. The probe can withstand the friction and sideload thanks to a robust bearing construction and a sideload pin



The AXR/1/S is connected to SZ’s software to check runout and TIR of each rotor blade



Shenzhen Zhuidian (SZ) in China uses an AXR/1/S to check the runout and TIR of rotor blades.

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



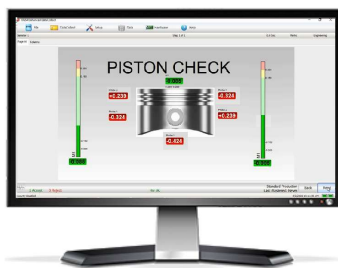
G-Type (With signal conditioning mounted at the end)



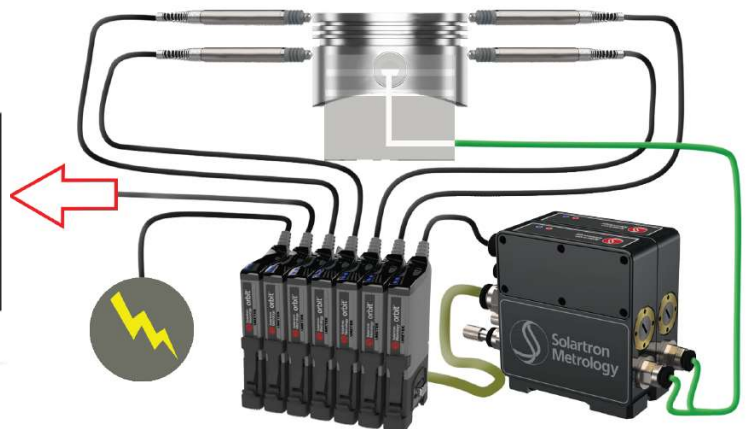
Bore Gauging



Gauging Flatness of a Bicycle Gear



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.