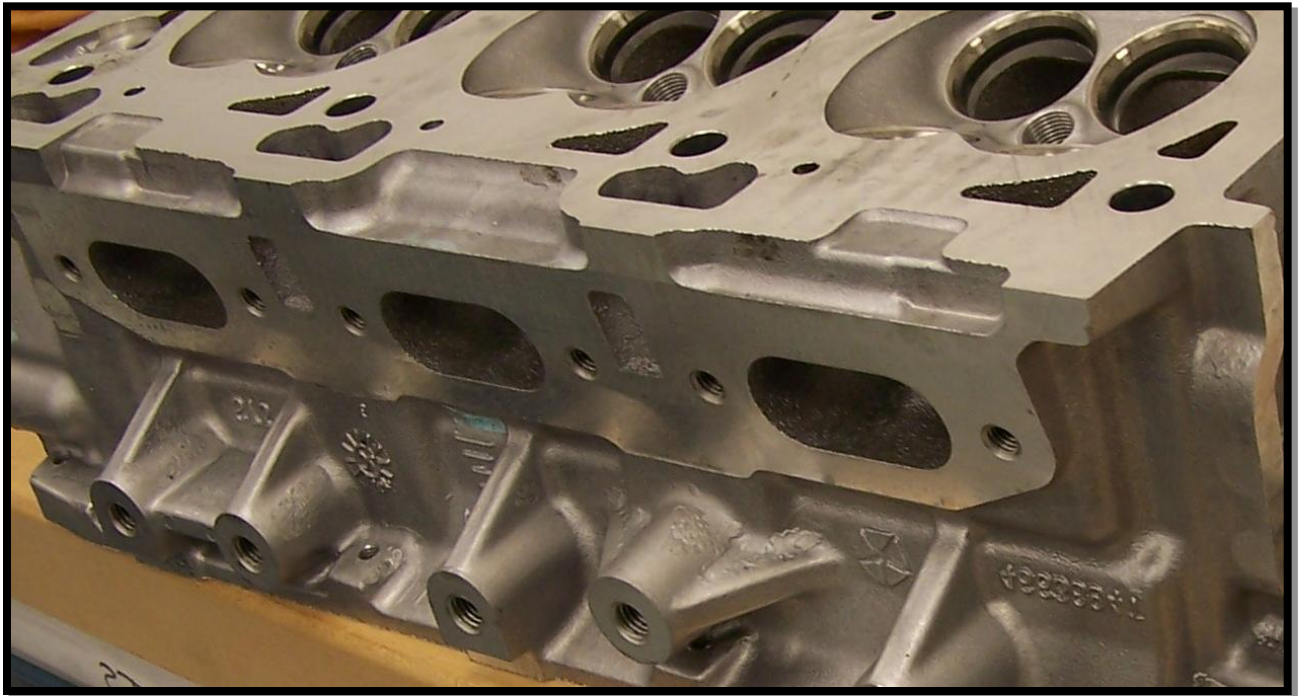


## Application Story

*Automotive*

# Cylinder head and cam shaft measurement using Flexures and Gauging Probes



Precision. Quality. Reliability

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## The Products

Solartron's Digital Flexures are ideal for very high volume and high precision applications such as component gauging. They are often the best solution for measuring moving material, using the Orbit® 3 Network for fast data transmission.

The Spring Push Gauging Probe has justifiably become the work horse of the gauging industry, with very high resolution, excellent linearity and high data speed. Long life precision bearings and an IP65 rating ensure that probes maintain their performance for millions of cycles.

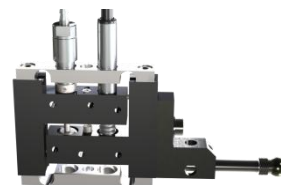
## The Challenge

Most automotive manufacturers are moving towards complete automation in manufacturing processes as the need to take accurate measurements, reduce cycle times and enable traceability has never been more important.

During manufacture, it is required that both the journal and the cradle on the cam shaft are concentric, as these control the valves for inlets and exhausts. In this particular application the cam shafts are graded as per the specified tolerances, similar to bearing grading applications. The grading process is carried out to match journals sizes' with corresponding cylinder head cradles. Manufacturers struggle to find accurate solutions which can take readings of high speeds to ensure of a cost saving.

## The Solution

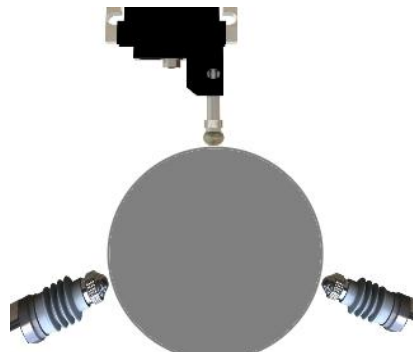
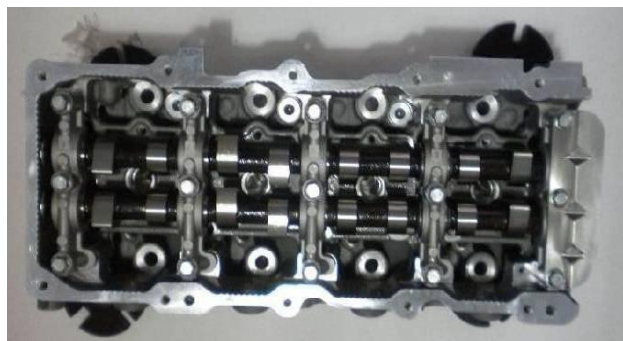
With measurements being taken at 3 points per journal and cradle, both Gauging Probes and Flexures were used to achieve optimum results, with the diameter and centre point being calculated from these figures. In total, 12 Solartron sensors were used in the one fixture, communicating with one another using the Orbit® 3 Network, a fully formed digital measurement system. To further reduce costs, readings are taken using Dynamic mode at very fast rates of 2,000 readings per second, speeding up the manufacturing process (which can be doubled by reducing the probes per fixture to 8).



Range:	1 or 2 mm
Accuracy:	Up to 0.1% of reading
Resolution:	Up to 0.1 µm
Repeatability:	Up to 0.01 µm



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



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