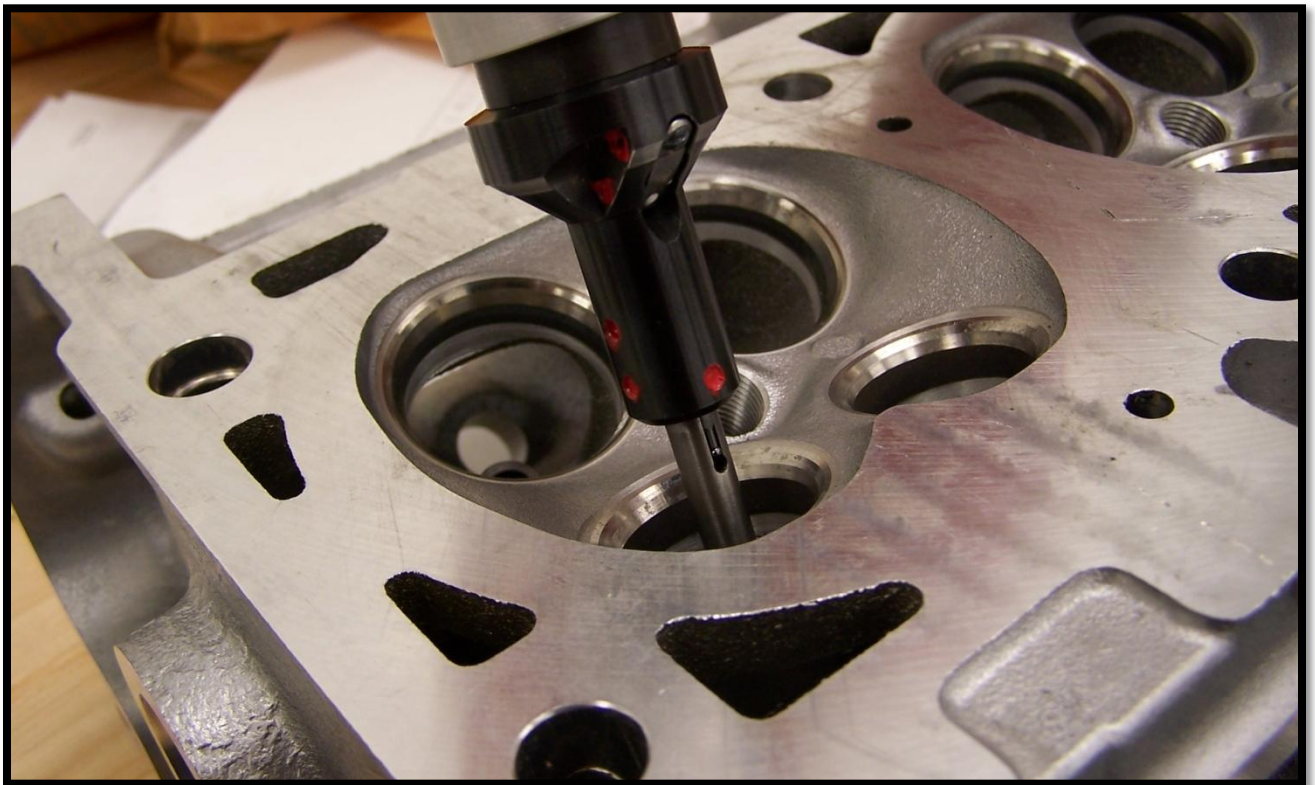


Application Story

Automotive

Precision measurements of automotive components using Miniature Probes



Precision. Quality. Reliability

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The Product

The Digital Mini Probe is a very robust miniature flexure with all the attributes of the larger flexure gauging products. It's particularly useful in all aspects of bore gauging where high accuracy and durability are required. A range of customer-fit contact tips are available to suit most gauging applications.



Range:	0.5 and 1 mm
Accuracy:	Up to 0.2% of reading
Resolution:	Up to 0.01 μm
Repeatability:	Up to 0.1 μm

The Challenge

As technologies have progressed, car manufacturers have had to ensure the precision production of parts and casing to ensure the smooth running and ultimate performance they strive to achieve, whilst keeping production costs down.

Using 120 probes integrated using the Orbit® 3 Network, the interior geometry of the two main cases of a transfer/differential system could be measured at one time in an off-gauge station.

The casings of the transducer/differential system need to be as precise as possible to ensure the system functions efficiently once the gears, shafts and seals are assembled within the system. A lack of efficiency can lead to lash, vibration and wear, resulting in poor performance, including power loss, lower fuel efficiency, noise and premature failure.

Two parts were required to be measured at one time by one PLC and one software package with as fast a cycle time as possible. Measurements to be taken included flatness, roundness, concentricity and perpendicularity, alongside various other geometric requirements.

The Solution

Solartron Metrology's Orbit® 3 Network was perfectly suited to this application, enabling the use and integration of up to 150 probes, with one gauging software through one Interface Module to one PC. 120 Digital Probes (DP) were in direct contact with the cases, which allowed the use of just one mean master; the AX system.

An alternative option would be to use LVDT or Half-Bridge analogue gauging probes alongside several multi-channel signal conditioning electronics boxes. However the high number of conditioning units needed to support 120 analogue probes would lead to cost inefficiencies, elevating the cost of production.

Using Solartron's Orbit® 3 Network and Digital Probes provided a reduced cost of production alongside a faster cycle time, mastering sequence and gauge set-up.

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Q09540

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

Datasheet 52624
Issue 61
EDCR20423

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