

Hardness testing of materials using Miniature Displacement Transducers



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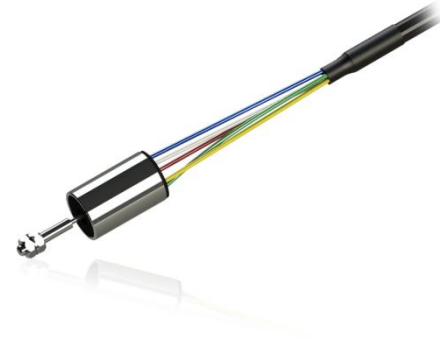
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The Product

SM transducers cover two standard linear ranges from ± 1 mm to ± 3 mm. They are designed for measuring displacement in applications where infinite resolution and repeatability are required in a very small size.

The core and push rod assembly moves friction-free within the sensor, an alternative design is available where only the core, threaded at both ends, is provided. Recommended push rod material is titanium; other materials can be used, but with varying effects on the electrical characteristics.

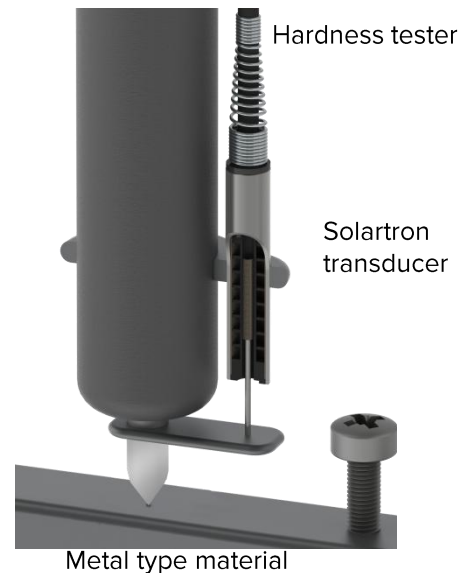
Range: 1 or 3 mm – Linearity: Up to 0.25% of reading – Body diameter: 9.5 mm



The Challenge

Manufacturers producing mechanical testing instruments and welding machines must gather data in order to measure physical displacement. Solartron Metrology's products are suitable for this type of application due to their rugged construction and high accuracy.

Hardness testers are used to measure the density of hard alloy, carbon steel, alloy steel and non-ferrous metals. Compact dimensions of sensors were needed for ease when incorporating the sensors into the machine.



The Solution

SM probes were used to measure the physical displacement of the tool tip as it produces an indentation in the surface of the item under test. Data from the SM probe and the force sensor is then used by the CPU to calculate the hardness of the material under test. The calculated hardness reading is then displayed on the testing machine's integrated read-out.

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