

Application Story

Test & Measurement

Hardness testing of materials using Miniature Displacement Transducers



Precision. Quality. Reliability

www.solartronmetrology.com • sales.solartronmetrology@ametek.com

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

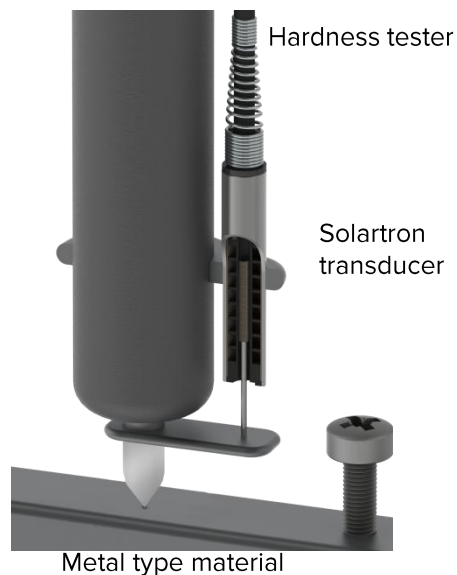
Manufacturers producing mechanical testing instruments and welding machines must gather data in order to measure physical displacement. Solartron Metrology's products are suitable for this type of application due to their rugged construction and high accuracy.

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.



United Kingdom - Head Office

Solartron Metrology
Steyning Way
Bognor Regis
West Sussex
PO22 9ST
Tel: +44 (0) 1243 833333
Fax: +44 (0) 1243 833322
Sales.solartronmetrology@ametek.com

France

Solartron Metrology
Rond-point de l'Espine des Champs
Buroplus - Bat. D
Elancourt 78990
Tel: +33 (0)1 30 68 89 50
Fax: +33 (0)1 30 68 89 59
france.solartronmetrology@ametek.com

Germany

Ametek GmbH
Solartron Metrology Division
Rudolf-Diesel-Strasse 16
40670 Meerbusch
Tel: +49 (0) 2159 9136 500
Fax: +49 (0) 2159 9136 505
vertrieb.solartron@ametek.de

Brazil

Ametek do Brasil, Ltda
Rod. Eng Ermenio de Oliveira Penteado, Km 57, SP75
Bairro Tombadouro
13337-300, Indaiatuba, SP, Brazil
Tel: +55 19 2107 4126

India

Ametek Instruments India Private Limited
1st Floor, Left Wing
Prestige Featherlite Tech Park
Plot #148, EPIP II Phase
Whitefield, Bengaluru 560 066
Karnataka, India
Tel: +91 80 6782 3200
Fax: +91 80 6782 3232

USA

Solartron Metrology
USA Central Sales Office
915 N. New Hope Road, Suite C
Gastonia, NC 28054
Tel: +1 800 873 5838
Fax: +1 704 868 8466
usasales.solartronmetrology@ametek.com

China

AMETEK Commercial Enterprise (Shanghai) Co. Ltd
No. 155 Puhui Road
Ju Ting Economic Development Zone
Shanghai 200131, China
Tel: +86 21 5763 2509
Fax: +86 21 5866 0969 Ext. 261/262
china.solartronmetrology@ametek.com



Solartron Metrology

Precision Driven

Offices worldwide
Agent and distributor details
available at
www.solartronmetrology.com



Q09540

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

AMETEK®
ULTRA PRECISION TECHNOLOGIES

Precision. Quality. Reliability

www.solartronmetrology.com • sales.solartronmetrology@ametek.com