AMETEK®
ULTRA PRECISION TECHNOLOGIES

Solartron Metrology
Precision Driven

Application Story

Civil Engineering

Aggregates and asphalts Testing

http://www.colas.co.uk/

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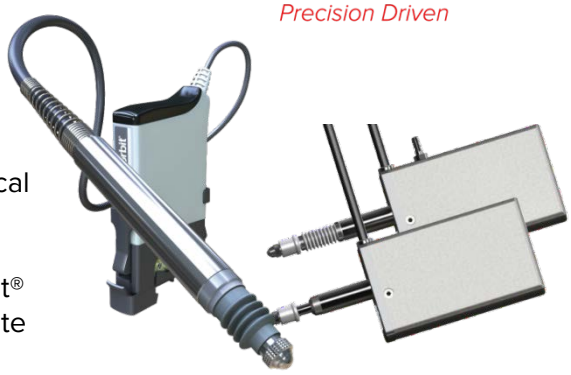


The Product

The Orbit® 3 Network can be used to correlate many physical quantities such as force, pressure and displacement.
The application demands a combination of accurate linear displacement and a current loop data. The flexibility of Orbit® 3 network allows the integration of numerous highly accurate Digital Probes and the Analogue Input Modules

Range: up to 22 mm – Accuracy: between 0.2 µm and 4 µm – Repeatability: Below 0.15 µm – Resolution: Below 0.1 µm

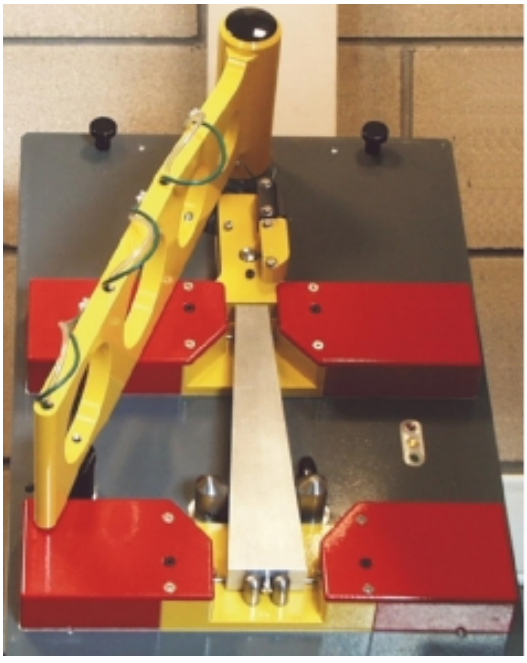
The Challenge

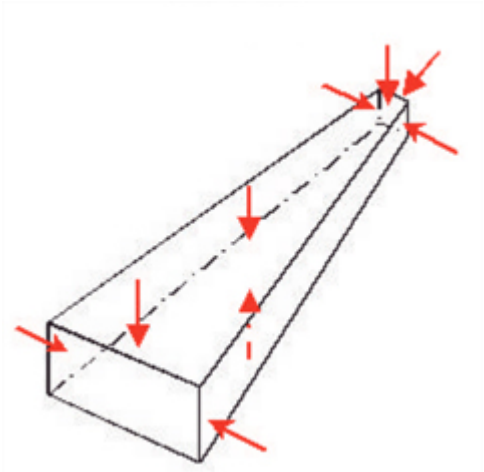
The concrete or aggregate tests involve small displacement under force applications. The behaviour of the sample is then analysed accurately and characterised.

Depending on the composite elements in it, the distortions are different. A lot of research and development are engaged in road composition, such as auto-clean properties or autonomous energised road with inductive films etc.

Every news need to be verified and the engineer must look at the specifications in respect.

The test is performed on trapezoidal samples taken from the road surface or cut out of laboratory produced slabs using the BBPAC plate compactor.





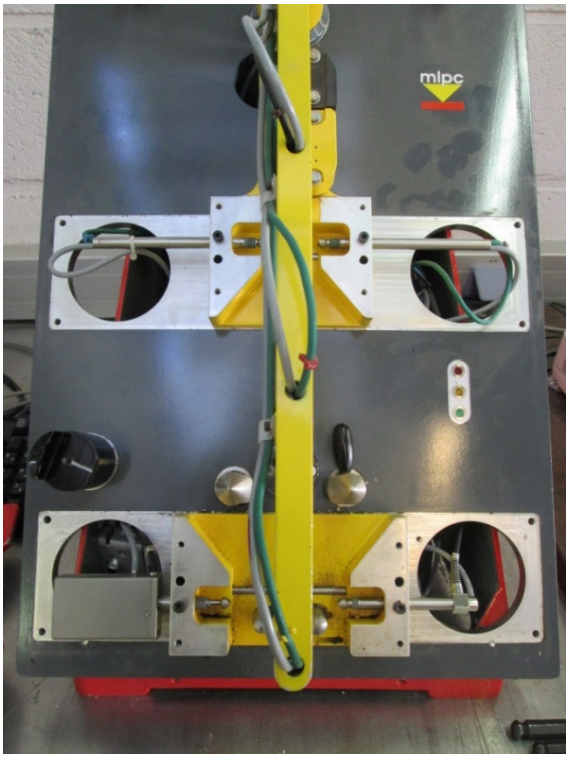
The device provides automatic monitoring of size characteristics and aggregate trapezoidal sample weight (base 56 or 70mm).

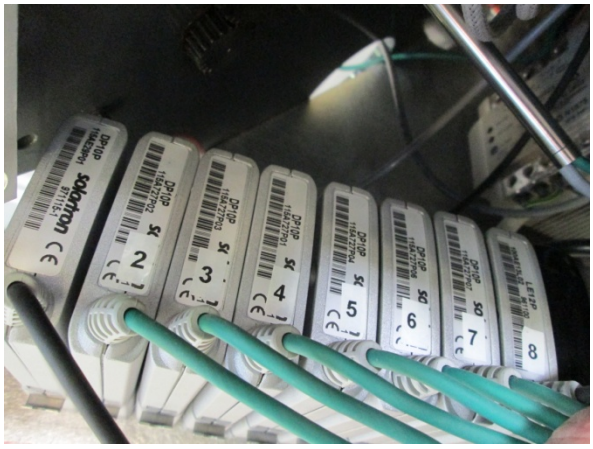
The samples are cut from aggregate slabs (NFP 98-250-3) and are used for two-point bending complex module tests (2PB-TR) (NF EN 12697-26 Appendix A) as well as for fatigue tests in two point bending compliant by universal normative

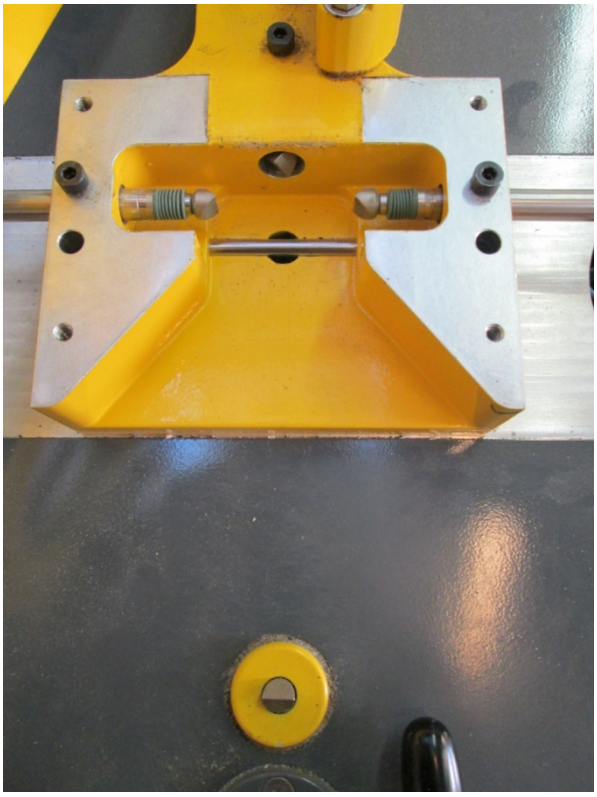
The Solution

DP Pneumatic push (10 mm) and Linear encoder (12 mm) has been selected.
A dedicated software has been designed for specific supervision link with 9 pneumatic sensors measure the sample sizes; these sizes are used in calculating samples' complex module values on 3MC, but also for determining the ε6 fatigue value on M2F

With 150 available channels and a fast USB connection to the industrial computer, the users can connect or disconnect the number of modules corresponding to the application he have.







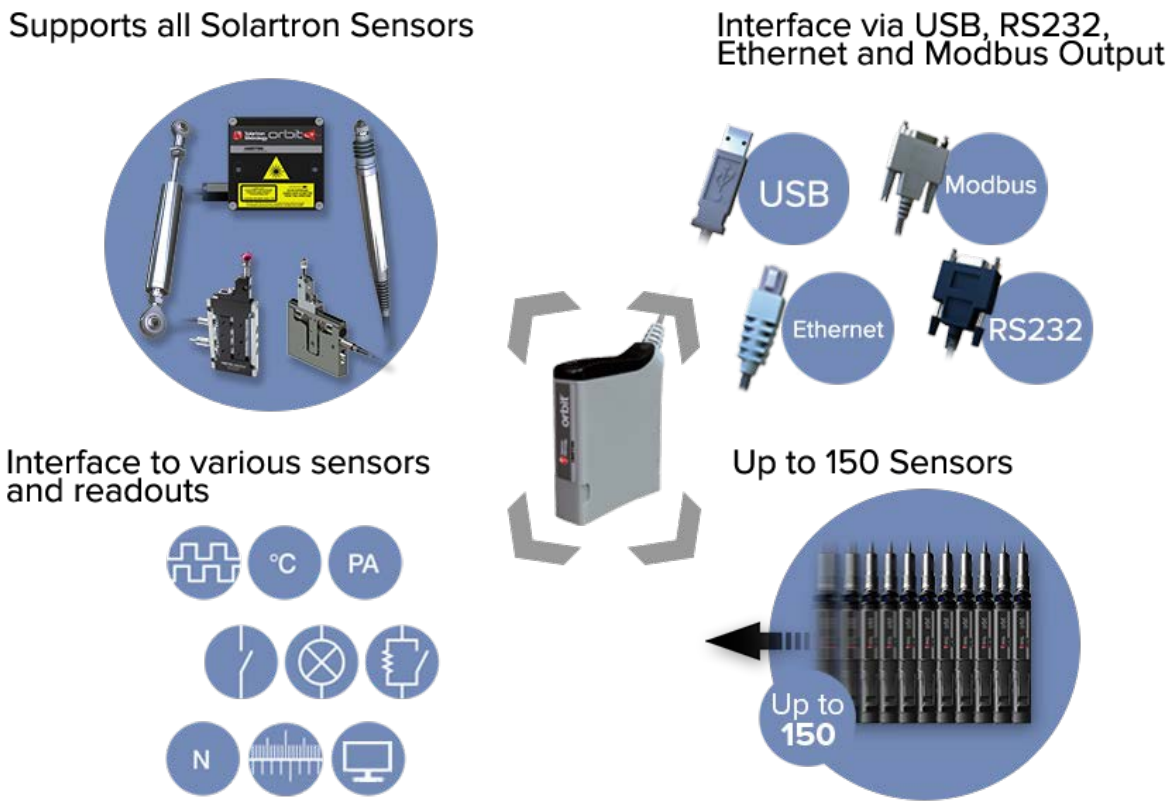
Photos : Vectra - http://vectrafrance.com

The combination of software and measurement tools dedicated to this particular application meets the user's objectives of safety of a complete tool and ensures that the ease of use and maintenance is perfectly optimised. The traceability is perfectly addressed in the software and all the analysis and the reports could be saved or loaded as required.

The Asphalts could then be modified and reanalysed for more tests to get the perfect behaviour on the road.

Orbit® 3 – The Total Measurement System from Solartron Metrology

The Solartron Orbit® 3 Digital Measurement System, in conjunction with Solartron's wide range of transducers, including both contact and non-contact linear measuring transducers (gauging probes), specialist transducers and third party transducer interfaces, provides a limitless set of measuring system solutions, with numerous different interfaces to computers and PLC's, making Orbit® 3 completely flexible.



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

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