pizzi instruments

Penetrometro per malte PNT-G2

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Instruments and Systems for Geotechnical and Structural

PNT-G2
Penetrometer

Description

Professor Natale Gucci of the University of Pisa, conceived and supervised the design of an instrument for measuring the strength of mortars.

SIGMA Laboratories in Florence were responsible for the calibration aspects, with accurate and professionally perfect laboratory tests; our company was responsible for the design and production.

This instrument, of simple design and easy to use, is today produced and marketed in a new version PNT-G2 , which replaces the previous PNT-G model.

Originality and simplicity of method, quality and reliability of calibration, care and precision in production, combine to provide the best guarantee of “quality”, allowing users to operate with professionalism and confidence, thus promoting a professional image.

Applications

In the field of materials testing, especially materials used in old brick and mortar constructions, measuring and establishing the strength of lime mortar is essential. The method we use for measuring is one of the cornerstones for this type of monitoring; comparison with tests using the flat jack method have unequivocally confirmed its validity and reliability.

This instrument is for measuring the strength of mortar in structures with brick or stone masonry using lime mortar.

Features and benefits

- Robust
- Reliable
- Easy to use
- Easy to maintain
- Proven performance in comparison tests with flat jack method

Measurement principle

Lime mortar is essentially constituted by lime and an aggregate of sand.

Professor Gucci concluded that in part its mechanical strength depended on the strength of the bonds that constitute it; it should therefore follow that lime mortar strength would be correlated with the energy required to reduce it to sand.

This was achieved by drilling a blind hole with a WIDIA drill bit; this operation had the effect of completely reducing the lime and sand mortar in the hole.

If the energy required for such an operation is measured, a very important parameter for the mortar's mechanical properties, specifically its strength, is obtained.

To examine and determine the relationship between the drilling power and the strength of lime mortar, Sigma Laboratories Florence constructed twelve brick walls with twelve different types of mortar of known composition and strength, as verified in accurate laboratory tests on specimens prepared for the purpose. Drilling tests of different diameters and depths were perfomed on the walls.

The best result was obtained for holes of 4 mm diameter and 5 mm depth and so we optimized the sensitivity of measurement to confirm that the result does not depend on the distribution of the grains of sand.

This instrument is produced by us, using top quality materials and components, both for the mechanics and the electronics.

A specific drill, made by us with a mechanical definition group and a stroke guide is equipped with a Bluetooth card with relevant power supply, a rechargeable battery and a new application for smartphones running Android 4.3 or above and Bluetooth 4.0 or above and equipped with MicroSD (if needed).

This application allows use of a smartphone as a measuring unit and for data storage.

With our new penetrometer, as well as the storing of measured data, its automatic validation is also now possible.

Processing and validation of data requires prior selection by the user of operating modes and validation criteria.

It is possible to take single measurements and collect data individually or to measure in a semi-automatic form with processing and validation of collected data.

It is also possible to record measurements and to link them with audio files, photographic images and any text annotations.

The instrument is equipped as standard with a smartphone with suitable operating system, rechargeable battery and accessory for wearing the smartphone on the arm. Data return is stored in "csv"format.

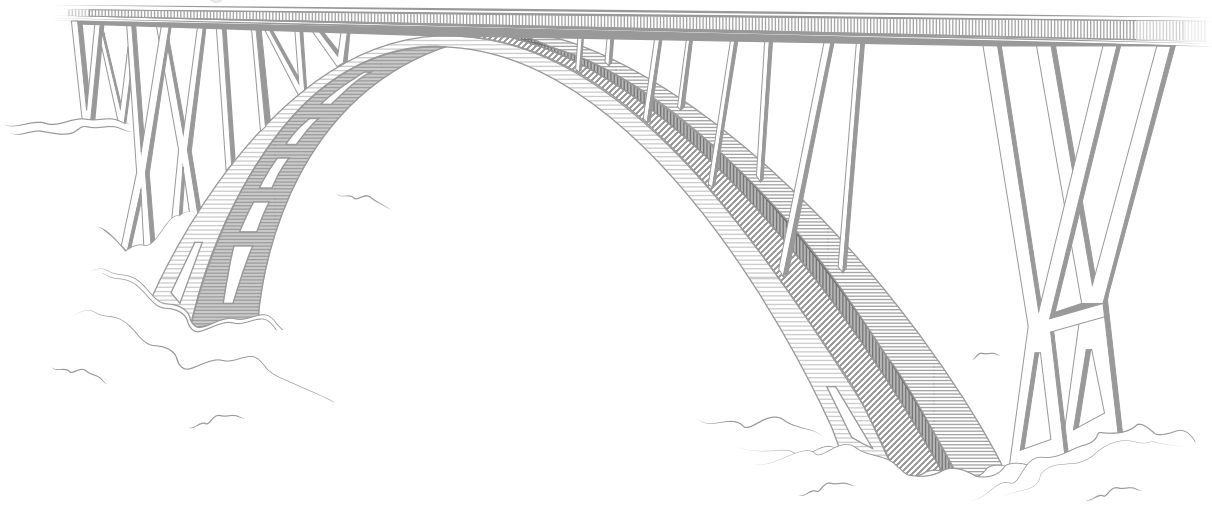
Technical specifications

Drill	
Dimensions	28 x 17 cm
Weight	1,3 Kg
Drill Bit	Ø 4 mm con testa in VIDIA
Material	- Handle : PVC - Body : anodized aluminum
Power supply	
Power Supply	Rechargeable Battery 6 V, 4,5 Ah
Dimensions Battery	70 x 46 x 98 h mm
Weight Battery	700 gr (housing excluded)
Smartphone	
O.S.	Android V. 4.3 o superiore
Bluetooth	V. 4.0 low energy
Accessories	- Smartphone arm holder - Battery Charger 200 Vc
Application	App PNT-G2
Data transmission	SIM card not included

The Company

For over 40 years we have been producing precision and large facility monitoring instruments sold throughout the world.

Accuracy in design, efficiency in construction, reliability in management; these are the prerogatives that every major work must have and that Structural Monitoring Systems must guarantee.



Technical assitance

If you have any requests or questions about our instruments or if you have special needs that require different solutions from the standard, please contact us. Our team will provide all the necessary information and will be very happy to work with you to study, develop and customize instruments and solutions suitable for your specific needs.

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