Electronic Mould Strength Tester Type PFP

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General concept and application

The strengths of test specimens can vary widely from strengths of moulds made from the same sand because sand rammers and moulding machines do not compact with equal force. It becomes necessary, therefore, to compare the hardness or strength values obtained in the laboratory with those attained on the moulding machine in order to examine the compaction effect of moulding machines and the compaction susceptibility of moulding sands.

The aforementioned comparative measurements have for decades been made with mould hardness testers: a spring-loaded button or pin is pressed into the compacted moulding sand and the state of compaction is judged from the depth of the penetration. This method, however, has two sources of error:

- As there are no springs with linear characteristics, the higher measured values are inaccurate
- With highly compacted green sands the measurement may be erroneous due to springback of the sand.

With the Electronic Mould Strength Tester, these disadvantages are eliminated: measurement is carried out by means of a crystal oscillator sensing element. The force measured corresponds to the actual penetration resistance as a measure of the mould strength.

Battery-operated measuring instrument with digital readout for the determination mould strength of test specimens sand moulds.

Description, Function

The instrument consists of a split casing which contains a press-pin connected to a crystal oscilator sensing element, an electronic block with LCD numerical display and a multifunctional push-button key as well as two batteries of 1.5 V each. This device measures and memorizes the maximum reading in N/cm2 or PSI, automatically calibrates the zero point and is disconnected also automatically, with the last measured value remaining stored.

Impact Penetration Tester Type PEP

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Preparatory work

Connection: by depressing and releasing the push-button key. Now, the display shows the last measured result or „00.0“. When the same key is depressed once more, the instrument is calibrated. While this is effected, the press-pin must not be loaded (readout „CAL“). When the display indicates „00.0“, the device is ready. Whenever the apparatus is not used, it is disconnected automatically after about 45 seconds.

Adjustment of the unit

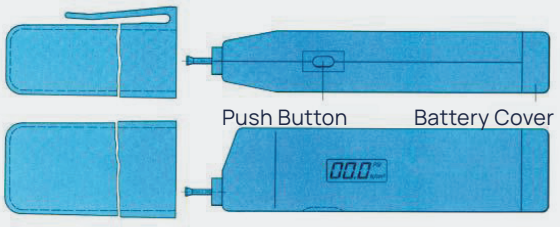
The unit of measurement is displayed to the right of the measured value, either in „PSI“ (top line) or in „N/cm2“ (bottom line). In order to change between these two units of measurement, the key must be depressed more than 6 seconds and be held until the change is made. During this changeover operation, the readout blinks.

Battery status and battery exchange

When the battery voltage is too low, the whole display will flash. But about 200 measurements can still be carried out. For battery exchange, the two screws at the back of the device must be loosened and the cover removed. Then the two batteries (Micro 1.5 V, Ø 10.5 x 44.5 mm IEC no. LR 03) can be replaced.

Technical data

Measuring ranges:	0.2-31 N/cm2 0.2-45 PSI
Resolution:	1 N (force)
Reproducibility:	+/- 1 digit
Weight:	125 g (6 oz.)
Dimensions:	22 x 30 x 130 mm (7/8“ x 11/8“ x 5“)
Battery capacity:	approx. 2500 Measurements
Overload protection	
Accessories:	Protective sheath



Operating instructions

- Place the press-pin vertically onto the sand surface and press it into the sand with constant pressure up to the positive stop.
- As soon as the stop contacts the sand surface, pull the instrument back and read the memorized value indicated in the display. Then depress the key for a moment, the apparatus will then be ready for the next measuring cycle.

Maintenance

Except for occasionally changing the batteries, no maintenance is required.