

Advancing with Technology

ElektroPhysik

Messgeräte für Oberflächentechnik • Surface Testing Instruments

Thickness Measurement of Refractory Bricks in Industrial Furnaces, Kilns and Ovens

StratoTest 4500 C

Measures all kinds of refractory linings of industrial furnaces

- suitable for cement, Dolomite, Magnesite and other refractory bricks
- non-destructive measurement through eddy currents principle
- 10 times faster than the drill core method
- immediate display of brick thickness
- measuring range 0 ... 30 cm
- special measuring technique to eliminate influences of metal inclusions or microstructural change
- easy data transfer via USB and Bluetooth

**Quick and easy brick measurement
without time-consuming preparations!**



Precision gauges »Made in Germany« since 1947

StratoTest 4500 C

Application

Refractory bricks undergo premature degradation through thermal cycling with a significant decrease in mechanical properties. Designed to measure the thickness of such bricks, StratoTest 4500 C proved to be a most useful tool to determine the state of lining in industrial furnaces, rotary kilns etc. Unlike the destructive, time-consuming and expensive coring method, StratoTest measures brick thickness quick, easy and non-destructively. Down times of industrial furnaces and ovens are considerably reduced.

StratoTest guarantees a high degree of accuracy, a prerequisite for statistical investigations of wear-related brick thickness differences of the refractory lining. In contrast to the destructive, time-consuming and costly measurement of residual brick thickness, StratoTest works non-destructively, accurate and fast. Furnace downtimes can be significantly reduced. The measuring device allows the thickness measurement of all bricks installed in industri-

al furnaces, e.g. in rotary kilns. It can also be used for measuring the thickness of refractory concrete (without steel anchors).

Measuring principle

Working on the eddy currents principle, StratoTest measures all kinds of bricks used for linings of industrial ovens, kilns and furnaces. It is also suitable for unreinforced refractory concrete. The disc-shaped eddy currents probe of the gauge measures against the metal furnace shell. When approaching the furnace shell, the magnetic field changes according to the brick thickness and thickness is digitally displayed in cm.

Measuring procedure

Before measurement, a trial drilling is performed in the furnace section to be measured in order to determine the actual brick thickness. At the same spot, the StratoTest 4500 C probe is placed down and the gauge is calibrated to the brick thickness as determined through the trial drilling. This calibration procedure serves to eliminate influences through the na-



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ture of lining, metal inclusions etc. and the brick thickness of the whole area lined with this brick type can now be determined non-destructively, quickly and precisely without the need of further drilling. Thanks to this individual calibration procedure, the brick lining of cement rotary kilns can be measured with as few as 10 drill holes (according to size) whereas the mechanical measuring procedure would need as much as 200 drill holes!

Data transfer

The StratoTest 4500 C allows an easy data transfer via USB or Bluetooth. When connected to a PC the StratoTest behaves like a USB mass storage device. The stored measurement and statistical values are stored as CSV files and can be read by programmes such as Microsoft Excel.

Supply schedule

- StratoTest 4500 C gauge with probe
- connecting cable
- anti-dust cover
- carrying case
- plastic case
- instruction manual

Technical specifications

Measuring principle	eddy currents principle
Material to be tested	electrically non-conducting refractory bricks (not suitable for sheet metal construction or reinforced refractory concrete)
Measuring range	0 ... 30 cm
Resolution	0.1 cm
Measuring uncertainty	0.5 cm + 3 % of reading
Display	digital, 4-digits display 53 x 46 mm
Power supply	3 x AA (LR05) batteries
Battery life	approx. 150 hours (without backlight)
Ambient temperature	Gauge: 0...60°C/32...140°F, probe 0...70°C/32...158°F
Dimension	Gauge: 153 mm x 89 mm x 36 mm Probe: Ø 335 mm x 40 mm/Ø 13.2" x 1.6"
Probe	Ø 335 mm x 40 mm
Weight	Gauge: 320 g/11.29 oz, probe with handle 1860 g/65.6 ozs