

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



StratoTest 4100 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
- immediate display of brick thickness
- measuring range 0...30 cm
- special measuring technique to eliminate influences of metal inclusions or microstructural changes

Quick and easy brick measurement without time-consuming preparations!

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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 4100 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.

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 4100 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 nature 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



StratoTest 4100 C

size) whereas the mechanical measuring procedure would need as much as 200 drill holes!

Increasing productivity and saving cost

Using StratoTest for measuring brick thickness helps to reduce down-times of industrial furnaces to a minimum and thus to increase their productivity. Thanks to the non-destructive method, the lifetime of brickwork will increase considerably. As drilling is not necessary any more, dust and noise pollution as involved with the coring method will be completely avoided. In addition, there is no need for expensive drilling equipment.

Supply schedule

- StratoTest 4100 C gauge with probe
- connecting cable
- anti-dust cover
- carrying case
- plastic case
- instruction manual

Technical specifications

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| 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 | 4-digits display |
| Power supply | 1 x 9 V AA alkaline battery |
| Battery life | 20 hours |
| Ambient temperature | Gauge: 0...50°C/32...123°F, probe 0...70°C/32...158°F |
| Dimension | Gauge: 150 mm x 82 mm x 35 mm/5.9" x 3.2" x 1.4" Probe: Ø 335 mm x 40 mm/Ø 13.2" x 1.6" |
| Weight | Gauge: 270 g/9.5 ozx, probe with handle 1860 g/65.6 ozs |

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