

## Wall Thickness Gauges

# MiniTest 7200/7400 FH

### Reliable Wall Thickness Measurement

- Of non-ferrous materials
- Up to 24 mm thickness
- For packaging materials such as bottles, glass or plastics containers
- For composite materials, aluminium or titanium parts of complex shapes in the aviation or automotive industry
- Menu-guided user interface
- Extremely accurate through digital signal processing

**Extended measuring range up to 24 mm**



# MiniTest 7200/7400 FH

## Maximum Accuracy

The MiniTest 7200 FH/MiniTest 7400 FH is a portable thickness measuring device that offers the capability to precisely measure materials up to 24 mm thickness. The small size and portability of the device enables it to be operated in production areas and quality laboratories. The two models ensure easy, non-destructive and highly accurate wall thickness measurement on all types of non-ferrous products, regardless of their size, shape, and material.

They are ideal for applications where accurate measurement of sharp corners, small radii and/or complex shapes are required.

### Two Models

MiniTest 7200 FH offers measurement capabilities including real-time thickness measurement, display of minimum and maximum readings, an offset mode, and automatic storage of up to 100,000 values. MiniTest 7400 FH offers the same capabilities as the MiniTest 7200 FH plus statistical graphing, real time trend, data base with up to 200 batches and a larger

memory for automatic storage of up to 240,000 readings, e. g. 1,200 readings per batch.

### SIDSP® Provides Higher Accuracy

The MiniTest 7200 FH/MiniTest 7400 FH Gauging Systems incorporate sensor-integrated digital signal processing (SIDSP®). All measuring signals are digitally created and completely digitally processed inside the sensor itself. Only completely processed digital readings are transferred to the base unit for display, statistical analysis, and storage.

### Five Sensors to Choose From

In order to maximize the accuracy of readings, easily interchangeable sensors with a hardened tip and a variety of ball sizes are available to cover the various thickness ranges. The FH 4 type sensors use steel balls to measure from 0 to 6 mm and magnetic balls to measure up to 9 mm. A special FH 4 sensor allows to work with a 1mm steel ball which can be introduced in small cavities. The FH 10 type sensors use steel balls to measure from 0 to 13 mm and magnetic balls to

measure up to 24 mm. All sensor models are interchangeable and can be connected to any of the two gauge models.

### Advanced Reference Ball Design

The MiniTest 7400 FH/MiniTest 7200 FH utilize specially treated reference balls. Balls of this design result in improved measurement reproducibility of up to 0.5%. Reference balls are available in 1 mm, 1.5 mm, 2.5 mm, 4.0 mm (FH 4), and 2.5 mm, 4 mm, 6 mm and 9 mm sizes (FH 10). The measuring range can be extended by magnetic reference balls so that also very thick walls can be measured such as engine parts made of aluminium or titanium or very thickwalled plastic containers.

### Innovative Menu Control and Data Filing System

The MiniTest 7200 FH/MiniTest 7400 FH feature an easy to understand, menu-driven operator interface and data filing system, similar to common PC applications. Operational assistance is always available via context-sensitive help topics.

### Standard Delivery Schedule

- MiniTest 7200 FH or
- MiniTest 7400 FH
- Operating instructions in German/English/French/Spanish/Portuguese/Italian on CD Rom
- Short instructions
- 4 AA cells, type LR06
- Plastic carrying case
- Rubber protection case with positioning device and belt
- MSoft 7 data transfer software for creation and management of batches



## Sensor Models

### Sensor type FH 4 (0 to 6 mm)

- 3 precision standards approx. 0.25 mm, 1 mm, 3 mm
- Set of target balls 1.5 mm and 2.5 mm dia. (comprising 100 balls of each size)
- Set of target balls 4 mm diameter (50 balls)
- Set of Zero calibration standards for 1.5 mm, 2.5 mm and 4 mm dia. balls (1 pc per ball size)

### Sensor type FH 4+1 (0 to 6 mm)

- additional set of target balls 1.0 mm (100 pieces)
- additional precision standard approx. 0.150 mm
- additional zero calibration standard for 1.0 mm

### Sensor type FH 4 M (0 to 9 mm)

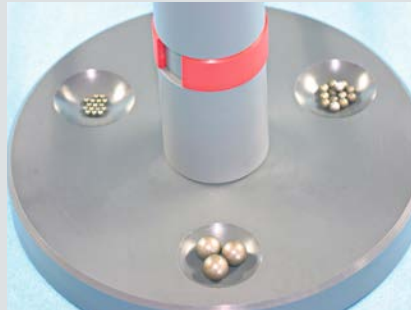
- additional set of magnetic target balls 1.5 and 3.0 mm (20 pieces each)
- additional precision standard approx. 8.0 mm
- additional zero calibration standards for magnetic steel balls

### Sensor type FH 10 (0 to 13 mm)

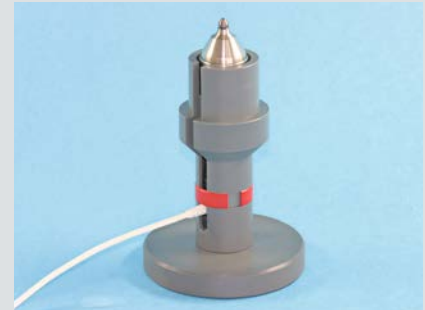
- 3 precision standards approx. 1 mm, 3 mm, 8 mm
- Set of target balls 2.5 mm (100 pcs)
- Set of target balls 4 mm (50 pcs)
- Set of target balls 6 mm (25 pcs)
- Set of Zero calibration standards for 2.5 mm, 4 mm and 6 mm dia. balls (1 pc per ball size)

### Sensor type FH 10 M (0 to 24 mm)

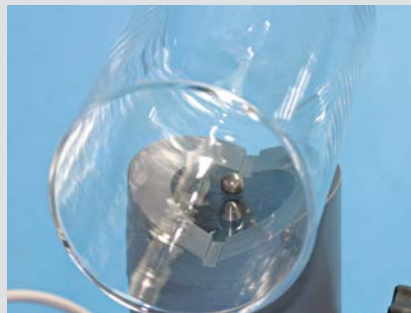
- additional set of magnetic target balls 4.0 and 6.0 mm (20 pieces each)
- additional precision standard approx. 18.0 mm
- additional zero calibration standards for magnetic steel balls



Sensor stand with grooves to hold steel balls in place

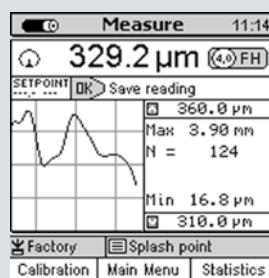


Measuring stand for FH 10 sensor

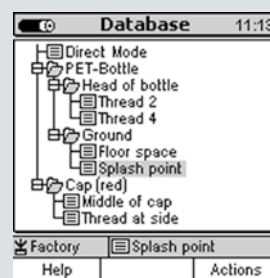


Reference balls with a specially coated finish and dimensional precision to obtain maximum reproducibility of readings.

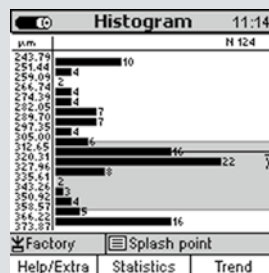
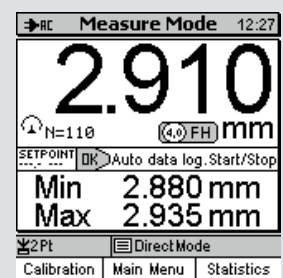
Measuring Value combined with Real-Time Trend Diagram



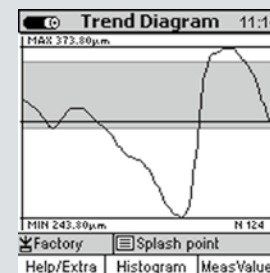
Convenient Data Filing System



Measure Screen of MiniTest 7200 FH



Histogram with MiniTest 7400 FH



Trend Diagram with MiniTest 7400 FH



Menu System

## MiniTest 7200/7400 FH

# Recommended Accessories

- MiniPrint 7000 data printer incl. charger unit
- Quick charger unit for NiMH storage batteries
- NiMH-Akku AA HR6 1.2 V baby cells (4 pcs for MiniTest FH required)
- Footswitch for data storage trigger incl. adapter unit for mains operation
- Shoulder bag with belt for MiniTest 7200 FH/MiniTest 7400 FH
- Anti-dust cover
- Multi-purpose connection box incl. USB cable for simultaneous connection of
  - power supply unit
  - footswitch
  - alarm device
  - headphones
  - PC via USB or RS232 adapter cable
- IrDA/USB adapter for wireless data transfer

### Product Features at a Glance

- Wear-resistant carbide sensor tip
- High precision target balls for reproducible measurements
- Data capture up to 20 data points per second
- Sensor-integrated digital signal processing
- Multi-point calibration up to 5 points
- Large, easy-to-read display
- Display of minimum and maximum
- Menu-controlled user interface
- Context-sensitive online help
- SPC capabilities



Zero calibration standard



MiniPrint 7000 data printer

### Technical Data

|                      | Measuring Ranges                      | Measuring Tolerance*                   |
|----------------------|---------------------------------------|--|
| <b>FH 4+1 sensor</b> | 0...1.3 mm with 1.0 mm steel ball     | 0...1.3 mm: ± (3 µm + 1% of reading)   |
| <b>FH 4 sensor</b>   | 0...2.0 mm with 1.5 mm steel ball     | 0...2.0 mm: ± (3 µm + 1% of reading)   |
|                      | 0...3.5 mm with 2.5 mm steel ball     | 0...3.5 mm: ± (5 µm + 1% of reading)   |
|                      | 0...6.0 mm with 4 mm steel ball       | 0...6.0 mm: ± (10 µm + 1% of reading)  |
| <b>FH 4 M sensor</b> | 0...5.0 mm with 1.5 mm magnetic ball  | 0...5.0 mm: ± (20 µm + 2% of reading)  |
|                      | 0...9.0 mm with 3.0 mm magnetic ball  | 0...9.0 mm: ± (40 µm + 2% of reading)  |
| <b>FH10 sensor</b>   | 0...4.0 mm with 2.5 mm steel ball     | 0...4.0 mm: ± (5 µm + 1% of reading)   |
|                      | 0...7.0 mm with 4.0 mm steel ball     | 0...7.0 mm: ± (10 µm + 1% of reading)  |
|                      | 0...10.0 mm with 6.0 mm steel ball    | 0...10.0 mm: ± (20 µm + 1% of reading) |
|                      | 0...13.0 mm with 9.0 mm steel ball    | 0...13.0 mm: ± (20 µm + 1% of reading) |
| <b>FH10 M sensor</b> | 0...16.0 mm with 4.0 mm magnetic ball | 0...16.0 mm: ± (40 µm + 2% of reading) |
|                      | 0...24.0 mm with 6.0 mm magnetic ball | 0...24.0 mm: ± (60 µm + 2% of reading) |

\* depending on the calibration method

|                              |  |
|------------------------------|--|
| <b>Low range resolution</b>  | 0.1 µm (FH 4) / 0.2 µm (FH 10)   |
| <b>Repeatability</b>         | Better than ± (1 µm + 0.5 % of reading)  |
| <b>Measuring principle</b>   | Magnetostatic  |
| <b>Logging rate</b>          | 1, 2, 5, 10, 20 readings per second (selectable)   |
| <b>Data memory</b>           | 240.000 values (limited to 100,000 values on MiniTest 7200 FH)                               |
| <b>Calibration modes</b>     | Factory, Zero, Zero + up to 4 points   |
| <b>Measuring units</b>       | metric (µm, mm), imperial (mils, inch)   |
| <b>Statistical charting</b>  | Numeric, trend, and histogram (with MiniTest 7400 FH only)                                   |
| <b>Interfaces</b>            | RS232 TTL + IrDA 1.0 + USB (via connection box)  |
| <b>Operating temperature</b> | -10 °C to +60 °C (Storage temperature: -20°C to +80°C)                                       |
| <b>Dimension/Weight</b>      | 153 mm x 89 mm x 32 mm/310 g<br>6 in. x 3.5 in. x 1.3 in./11 oz. (Gauge with Batteries only) |
| <b>Power supply</b>          | 4 x AA (LR06) batteries, or optional power unit (90 – 240 V~/48 – 62 Hz)                     |



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