Advancing with Technology ElektroPhysik

High-precision Wall Thickness Gauges

MiniTest 7200 FH/ MiniTest 7400 FH

High-precision 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
- Context-oriented online help
- SPC
- Extremely accurate through digital signal processing

Extended measuring range up to 24 mm

MiniTest 7200 FH/MiniTest 7400 FH

High-Accuracy Wall Thickness Measurement

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.

Two Sensors to Choose From

In order to maximize the accuracy of readings, two easily interchangeable sensors with a hardened tip and a variety of ball sizes are available to cover the various thickness ranges. The FH 4 sensor uses steel balls to measure from 0 to 6 mm and magnetic balls to measure up to 9 mm. The FH 10 sensor uses steel balls to measure from 0 to 13 mm and magnetic balls to measure up to 24 mm. The two sensor models are interchangeable and can be connected to any of the two gauge models.

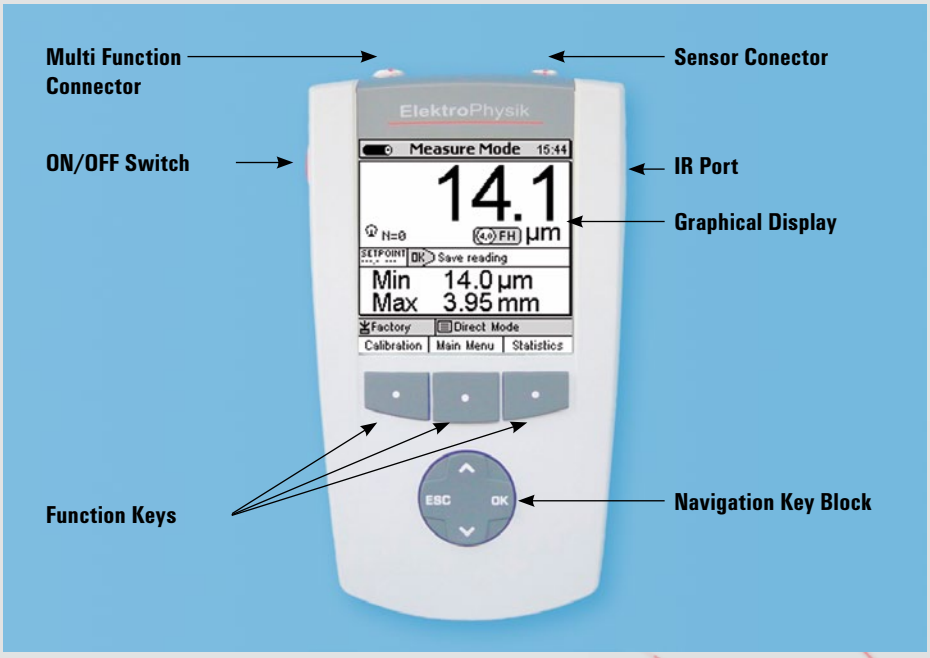
Reference balls with a specially coated finish and dimensional precision to obtain maximum reproducibility of readings.

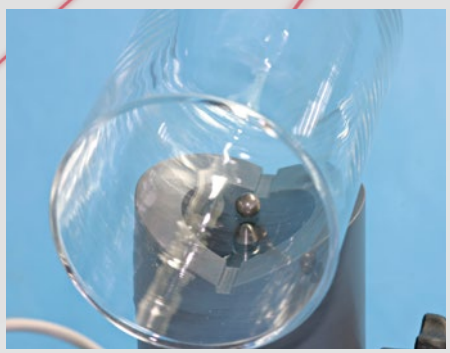
Advanced Reference Ball Design

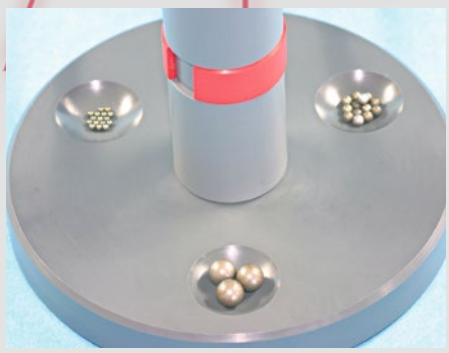
The MiniTest 7400 FH/MiniTest 7200 FH utilize specially treated reference balls. Balls of this design result in improved measurement reproducibility of up to 0.5%. Reference balls are available in 1 mm, 1.5 mm, 2.5 mm, 4.0 mm (FH 4), and 2.5 mm, 4 mm, 6 mm and 9 mm sizes (FH 10). The measuring range has been 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 thick-walled plastic containers.

Innovative Menu Control and Data Filing System

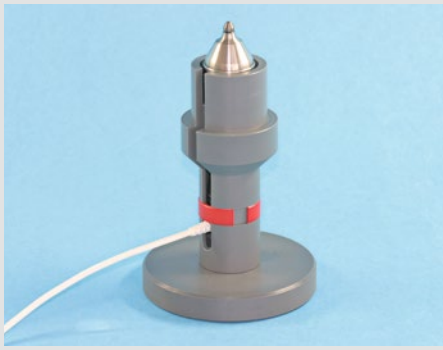
The MiniTest 7200 FH/MiniTest 7400 FH feature an easy to understand, menu-driven operator interface and data filing system, similar to common PC applications. Operational assistance is always available via context-sensitive help topics.







Sensor stand with grooves to hold steel balls in place



Measuring stand for FH 10 sensor

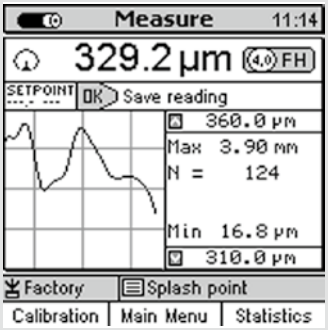
Standard Delivery Schedule

- 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
- Plastics carrying case
- Rubber protection case with positioning device and belt
- MSoft 7 Professional Edition on USB stick (data transfer software for creation and management of batches for MiniTest 7200 FH and MiniTest 7400 FH)
- Magnetic screwdriver

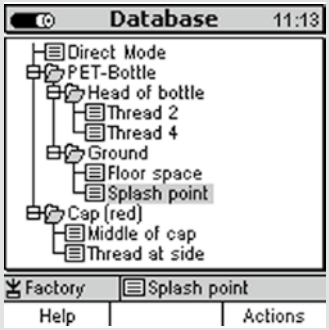
Sensor Models

- **Sensor type FH 4** (0 to 4 mm) incl. protection cap for shielding the magnetic field of sensor
  - 3 precision standards approx. 0.25 mm, 1 mm, 3 mm
  - Sensor stand for FH 4 sensor, spring mounted
  - 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)

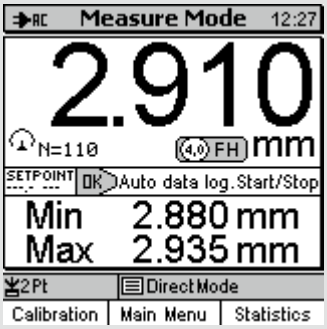
- **Sensor type FH 10** (0 to 10 mm) incl. protection cap for shielding the magnetic field of sensor and
  - 3 precision standards approx. 1 mm, 3 mm, 8 mm
  - 1 sensor stand for FH 10 sensor, spring mounted
  - Set of target balls 2.5 mm (100 pcs)
  - Set of target balls 4 mm (50 pcs)
  - Set of target 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)



Measuring Value combined with Real-Time Trend Diagram

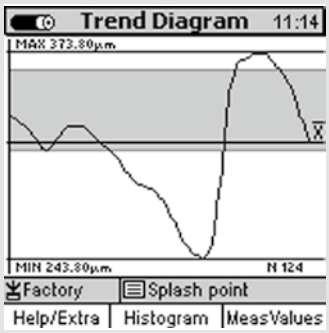


Convenient Data Filing System

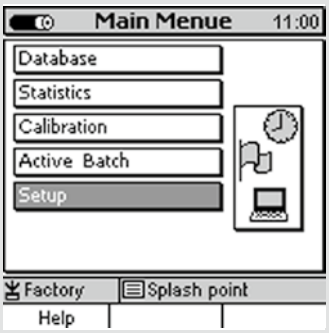


Measure Screen of MiniTest 7200 FH

Histogram with MiniTest 7400 FH



Trend Diagram with MiniTest 7400 FH



Menu System

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)
- Basic calibration set for FH 4 sensor, for 1.0 mm dia. balls: zero calibration standard and 1 set of 1.0 mm dia. steel balls (100 pcs)
- Calibration set to extend the FH 4 sensor measuring range: zero calibration standards for the magnetic balls 1.5 mm and 3 mm dia.; precision standard for approx. 8mm; set of magnetic balls 1.5 mm dia. (25 pcs); set of magnetic balls 3 mm dia. (20 pcs)
- Calibration set to extend the FH 10 sensor measuring range: precision standard for approx. 18 mm; 1 set of magnetic balls 4 mm dia. (20 pcs); 1 set of magnetic balls 6 mm dia. (20 pcs)
- 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 connecting
  - power supply unit
  - footswitch
  - alarm device
  - headphones
  - PC
  - USB adapter cable
  - RS232 adapter cable

Zero calibration standard

MiniPrint 7000 data printer

Technical Data

	Measuring Ranges	Measuring Tolerance*
FH 4 sensor	0…1.3 mm with 1.0 mm steel ball 0…2.0 mm with 1.5 mm steel ball 0…3.5 mm with 2.5 mm steel ball 0…6.0 mm with 4 mm steel ball 0…5.0 mm with 1.5 mm magnetic ball 0…9.0 mm with 3.0 mm magnetic ball	0…1.3 mm: ± (3 µm + 1% of reading) 0…2.0 mm: ± (3 µm + 1% of reading) 0…3.5 mm: ± (5 µm + 1% of reading) 0…6.0 mm: ± (10 µm + 1% of reading) 0…5.0 mm: ± (20 µm + 2% of reading) 0…9.0 mm: ± (40 µm + 2% of reading)
FH10 sensor	0…4.0 mm with 2.5 mm steel ball 0…7.0 mm with 4.0 mm steel ball 0…10.0 mm with 6.0 mm steel ball 0…13.0 mm with 9.0 mm steel ball 0…16.0 mm with 4.0 mm magnetic ball 0…24.0 mm with 6.0 mm magnetic ball	0…4.0 mm: ± (5 µm + 1% of reading) 0…7.0 mm: ± (10 µm + 1% of reading) 0…10.0 mm: ± (20 µm + 1% of reading) 0…13.0 mm: ± (20 µm + 1% of reading) 0…16.0 mm: ± (40 µm + 2% of reading) 0…24.0 mm: ± (60 µm + 2% of reading)
Low range resolution	0.1 µm (FH 4) / 0.2 µm (FH 10)	
Repeatability	Better than ± (1 µm + 0.5 % of reading)	
Measuring principle	Magnetostatic	
Logging rate	1, 2, 5, 10, 20 readings per second (selectable)	
Data memory	240.000 values (limited to 100,000 values on MiniTest 7200 FH)	
Calibration modes	Factory, Zero, Zero + up to 4 points	
Measuring units	metric (µm, mm), imperial (mils, inch)	
Statistical charting	Numeric, trend, and histogram (with MiniTest 7400 FH only)	
Interfaces	RS232 TTL + IrDA 1.0 + USB (via connection box)	
Operating temperature	–10 °C to +60 °C (Storage temperature: –20°C to +80°C)	
Dimension/Weight	153 mm x 89 mm x 32 mm/310 g 6 in. x 3.5 in. x 1.3 in./11 oz. (Gauge with Batteries only)	
Power supply	4 x AA (LR06) batteries, or optional power unit (90 – 240 V~/48 – 62 Hz)	

* depending on the calibration method

- IrDA/USB adpater for wireless data transfer
- Manufacturer's Test Certificate (DIN 55350M) for MiniTest 7200 FH/MiniTest 7400 FH and sensors

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

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