

Ultrasonic Thickness Measurement

MiniTest 400 series

Wall thickness gauges

- Portable hand-held precision gauges
- Suitable for stainless steel, aluminium, glass, plastics etc.
- Interchangeable transducers
- Automatic transducer identification
- Automatic zero adjustment and high speed scan
- Pulse-echo mode from 0.65...500 mm (in steel)

Echo-echo mode 3...25 mm to measure through coatings



Ultrasonic Thickness Measurement

MiniTest 420/430/440/450

The MiniTest 400 series is a range of robust ultrasonic thickness gauges, specially developed for use in harsh industrial environments. Thanks to their compact pocket size and intuitive operation, they are ideal for mobile use on site – whether in quality assurance or corrosion testing.

MiniTest 420

The basic model comes with all the essential functions for fast and reliable wall thickness measurement. The integrated calibration block enables convenient zero-point calibration, while the quick calibration button guarantees fast commissioning and easy handling.

MiniTest 430

More comfort, more control, more performance: The MiniTest 430 is equipped with automatic zero-point calibration, making it particularly user-friendly. An integrated data memory and a USB interface enable complete and convenient documentation of all measurement results. Whether minimum, differential or

alarm mode – with its versatile measuring functions, the MiniTest 430 offers all the important tools for reliable quality control. The integrated high-speed scan with a measuring rate of 10 measurements per second ensures precise and fast corrosion tests – including display of the minimum value. Thanks to its compatibility with special transducers, it can also be used for high-temperature measurements without any problems.

MiniTest 440

The MiniTest 440 combines all performance features of the reliable MiniTest 430 model – and offers even more: in combination with the U5.0E transducer, it can precisely measure the wall thickness of steel – even through paint coatings.



Technical data

		420	430	440	450
On display	Measuring value, sound velocity, transducer type, battery charge status, batch	●	●	●	●
Measuring range	Echo-echo: 3...25 mm Impuls-echo: 0.65...500 mm (depending on transducer and material)	●	●	●	●
Display/Resolution	128x64 px backlit display / 0.01 mm (0..99.9 mm); 0.1 mm (>100 mm)	●	●	●	●
Measuring units	metric/mils at choice	●	●	●	●
Sound velocity	1,000 m/s to 9,999 m/s; presetting of 9 sound velocities Sound velocities freely assignable	●	●	●	●
Gain setting	Automatic and manual setting possible	●	●	●	●
Transducer identification	Automatic	●	●	●	●
Transducer calibration	Automatic	○	●	●	●
Measuring accuracy	.065 mm ... 9.99 mm: +/- 0.04 mm 10.00 mm ... 99.99 mm: +/- (0.1 % of reading + 0.04 mm) 100.00 mm ... 500.00 mm: +/- (0.3 % of reading)	●	●	●	●
Pulse-echo mode	Standard, Minimum (detection of the smallest wall thickness)	●	●	●	●
Pulse-echo mode	Difference, Alarm, High-Speed Scan	○	●	●	●
Echo-echo mode	Thickness measurement through a coating	○	○	●	●
Visualisation of the sound curve	A scan & B scan	○	○	○	●
Data storage/Output	10 batches with max 500 readings each / USB interface	○	●	●	●
Automatic shut-off	2 minutes, 5 minutes or disable	●	●	●	●
Dimensions/Weight	130 x 73 x 24 mm / approx. 190 g	●	●	●	●
Ambiant temperature	-20...50 °C	●	●	●	●
Power supply	2 x AA batteries, approx 64 h in continuous mode	●	●	●	●

MiniTest 450

The high end model of the series can visualize the waveform in the form of an A-scan and B-scan on the display. This offers the user numerous additional advantages in wall thickness measurement thanks to the A-scan evaluation:

1. Measurement reliability & echo verification

- Clear visualisation of the actual echoes
- Identification of the correct interface
- Avoid incorrect measurements due to incorrect echo assignment

2. Calibration control & adjustment

- Checking the couplant using the first echo
- Adjustment of the gate windows (measuring ranges)
- Assessment of signal quality and amplification

3. Documentation & Verifiability

- A-scan as visual proof of measurement for reports, audits, certifications

The B-scan, on the other hand, enables a visual representation of the wall thickness over a distance and thus provides a sectional view of the material over a line in which the course and contour of the back wall or substrate boundary are clearly recognizable. Material changes, such as gradual loss of wall thickness due to corrosion, become visible and unevenness, corrosion attacks & cavitation can be detected. Furthermore, the B-scan is ideal for detecting internal damage that could be overlooked with a single-shot A-scan.

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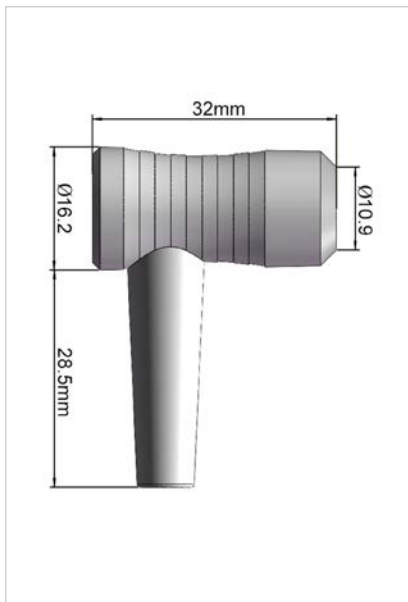
MiniTest 420/430/440/450

Transducers for a wide range of applications

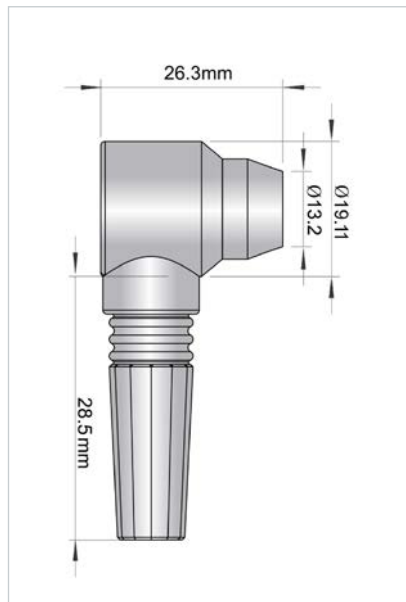
All MiniTest 400 models are supplied with a powerful 5 MHz transducer as standard, which covers a wide range of typical measurement tasks. An extensive selection of optional transducers for special applications is available – compatible with all models (not MiniTest 420) in the series. Thanks to automatic probe recognition, switching between different measurement tasks is quick, safe and uncomplicated.



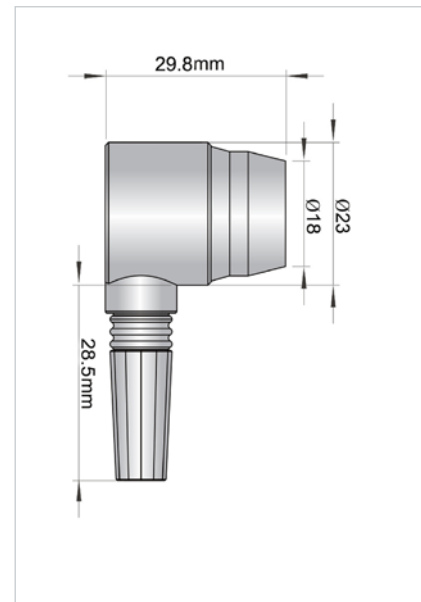
U5.0



U5.0E



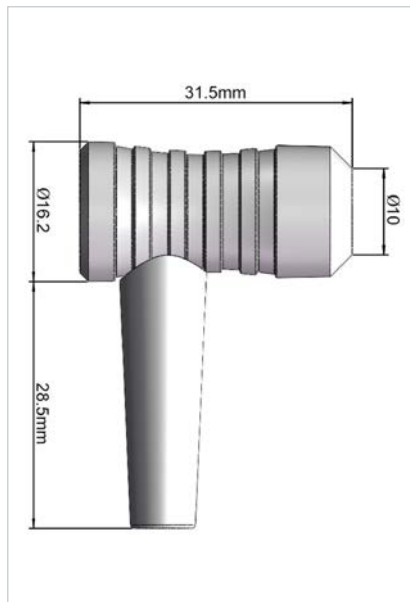
U2.0



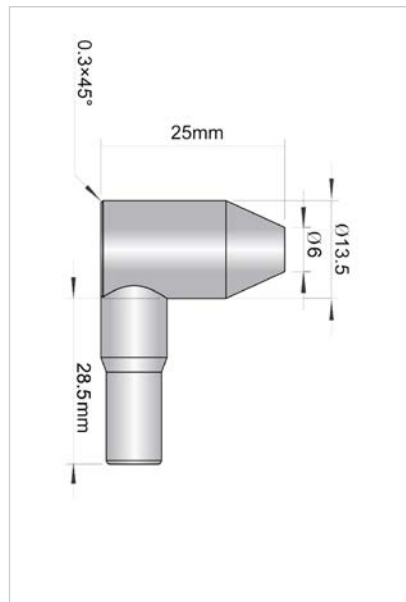
Technical data transducers

Type	U5.0	U5.0E	U2.0	U7.5	U10.0	U5.0HT
Ø of the ultrasonic transducer = Contact surface	8 mm	8 mm	12 mm	6 mm	4 mm	13 mm
Frequency	5.0 MHz	5.0 MHz	2.0 MHz	7.5 MHz	10.0 MHz	5.0 MHz
Measuring range in steel	0.8...300 mm (P-E)	3...25 mm (E-E) 0.8...300 mm (P-E)	2.0...500 mm (P-E)	0.65...50 mm (P-E)	0.65...20 mm (P-E)	3.0...200 mm (P-E)
Temperature range	-20...+50 °C	-20...+50 °C	-20...+50 °C	-20...+50 °C	-20...+50 °C	-20...+350 °C
Smallest pipe diameter to be measured	Ø 20 mm	Ø 25 mm	Ø 30 mm	Ø 15 mm	Ø 10 mm	Ø 25 mm
Application	Standard transducer for flat surfaces and large curvatures	Additionally features echo-echo mode to enable measurement through a paint coating	Recommended for measurements on rough surfaces	For measuring small radii and thin wall thicknesses.	Suitable for measuring small geometries	Resistant to high surface temperatures

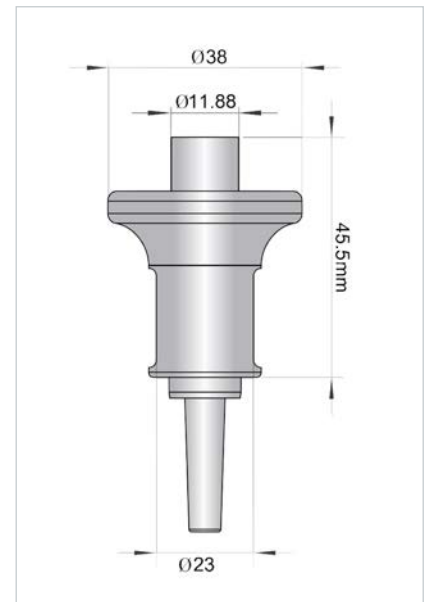
U7.5



U10.0



U5.0HT



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Standard supply

- MiniTest 420 including transducer U5.0
- MiniTest 430 including transducer U5.0
- MiniTest 440 including transducer U5.0E
- MiniTest 450 including transducer U5.0E
- Protective rubber case
- Coupling gel 200 ml
- 2 batteries 1.5V (AA)
- USB connection cable
- Zero standard (accessory)

ElektroPhysik

FOR MORE INFORMATION PLEASE CONTACT:



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