MT150

Digital Ultrasonic Thickness Gauge

Product Overview

The model MT150 is a digital ultrasonic thickness gauge. Based on the ultrasonic principle, the instrument is capable of measuring the thickness of various materials, such as metal, plastics, ceramic, glass and many other good ultrasonic conductors. It can also measure the velocity of all kinds of materials. Compared with the traditional measurement methods, the advantages of ultrasonic thickness gauge is exposed to one side of the workpiece to complete the measurement. Its unique non-destructive testing performance provide the perfect solution for the thickness testing of closed Pipes, containers, etc. It is widely used in petroleum, chemical, metallurgy, shipbuilding, aviation, aerospace and other fields because of monitoring corrosion thinning degree of various pipes and pressure vessels. It can also be used for precise measurement of sheet metal and machined parts.

For pricing or any further information, please contact Omni Instruments Ltd.

Measurement and data acquisition solutions

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Features

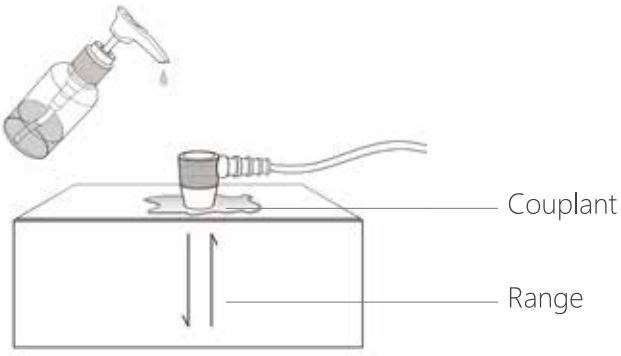
- Suitable for measuring various materials such as metals (steel, cast iron, aluminum, copper, etc.), plastics, ceramics, glass, and other good ultrasonic conductors.
- Dual straight beam probes with different frequencies and crystal sizes are available.
- Features zero calibration, two-point calibration, and an automatic error correction system.
- Can measure known thickness and sound speed to improve measurement accuracy.
- Includes a coupling status indicator showing the coupling status.
- Equipped with an EL backlight for easy use in dimly lit environments.
- A remaining battery indicator displays the remaining power in real time.
- Has auto sleep and auto power off functions to conserve battery life.
- It is small, portable, has high reliability for harsh operating environments, and features anti-vibration, anti-shock, and anti-electromagnetic interference.

Measuring Principle

The digital ultrasonic thickness gauge determines the thickness of a part or structure by accurately measuring the time required for a short ultrasonic pulse generated by a transducer to travel through the thickness of the material, reflect from the back or inside surface, and be returned to the transducer. The measured two-way transit time is divided by two to account for the down-and-back travel path, and then multiplied by the velocity of sound in the material. The result is expressed in the well-known relationship

$$H = \frac{v \times t}{2}$$

Where:
H - Thickness of the test piece.
v - Sound Velocity in the material.
t - The measured round-trip transit time.



To make sure the probe working properly, it needs to use couplant to isolate the air between the probe surface and the measured workpiece surface. The liquid used for the coupling between the probe and workpiece is called as couplant.

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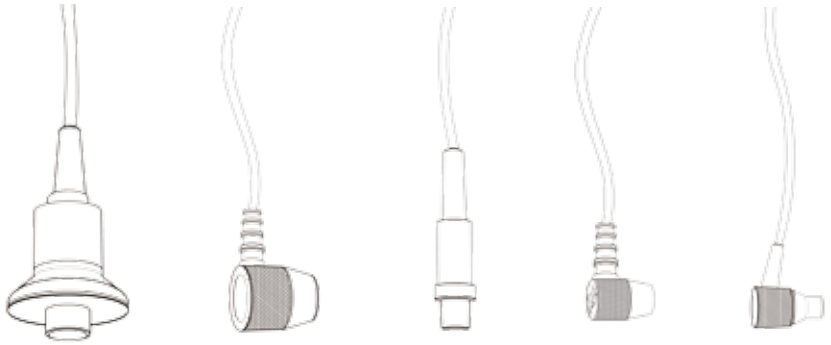
Technical Specifications

Technical Specifications	Technical Parameters
Display	4.5 digits LCD with EL backlight
Measuring Range	(0.75 ~ 300)mm (in Steel)
Units of Measurement	Metric / Imperial (free to switch)
Sound Velocity Range	(1000~9999) m/s
Resolution	0.1mm
Accuracy	± (0.5%Thickness+0.04) mm, depends on materials and conditions
Measurement Frequency	4 times per second for single point measurement, 10 times per second for scan mode measurement.
Storage	Memory for up to 20 files (up to 99 values for each file) of stored values.
Thickness Measurement Modes	Single point measurement and scanning measurement.
Power Source	Two "AA" size, 1.5 Volt alkaline batteries.
Operating Time	More than 100 hours (EL backlight off).
Communication	No
Outline Dimension	150mm×74mm×32 mm.
Weight	245g

Transducer Selection

Model	Freq	Diam	Measuring Range	Lower limit	Description
N05	5MHz	10mm	1.2mm-230mm (In Steel)	Φ20mm×3.0mm	Normal Measurement
N05/90°	5MHz	10mm	1.2mm-230mm (In Steel)	Φ20mm×3.0mm	Normal Measurement
N07	7MHz	6mm	0.75mm ~ 80.0mm (In Steel)	Φ15mm×2.0mm	For thin pipe wall or small curvature pipe wall measurement
HT5	5MHz	12mm	3.0 ~ 200mm (In Steel)	30mm	For high temperature (lower than 300°C) measurement.
N02	2.5MHz	14mm	3.0mm ~ 300.0mm (In Steel) Under 40mm (HT200)	20mm	For thick, highly attenuating, or highly scattering materials



HT5 N02 N05 N05 90° N07

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Configuration

	No.	Type	Sketch	Remarks
Standard Configuration	1	Main body	1	
	2	Transducer No5/90°	1	
	3	Couplant	1	
	4	Instrument Case	1	
	5	Operating Manual	1	
	6	Alkaline battery	2	
Optional Configuration	1	Transducer: N05		
	2	Transducer: N07		
	3	Transducer: N02		
	4	Transducer: HT5		
	5	High temperature couplant		

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