MT660

Multi-Mode Ultrasonic Thickness Gauge

Product Overview

The MT600 multi-mode ultrasonic thickness gauge is the latest upgraded model, designed with a focus on user experience and innovative features. Equipped with a 320 x 240 colorful LCD display, it performs effectively in dim light and strong sunlight conditions. Its sealed aluminum-magnesium alloy casing ensures durability while maintaining a compact size. With intelligent warning functions, it facilitates easy operation and enhances measurement accuracy for multiple workpieces. The gauge supports a resolution of 0.001 inch and features Bluetooth connectivity. Its unique capability to measure thickness through coatings provides an effective solution for testing coated surfaces or corrosion-prone materials, enabling users to assess thickness without needing to remove the surface layer. This device is widely used for monitoring corrosion in various pipelines and pressure vessels in industries such as petroleum, chemical, and metallurgy, shipbuilding, aviation, aerospace and so on. It can also be used for making accurate measurements of various plates and machined parts. It is an essential precision instrument for enhancing production efficiency and reducing costs.

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

Measurement and data acquisition solutions

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Technical Specifications

Technical Specifications	Technical Parameters
Measuring Range	Support two working modes：Pulse-echo mode，(0.65～600)mm Echo-echo mode, (2.5～100)mm
Accuracy	±0.04mm（≤10mm）；±0.4%Hmm(>10mm)；H refer to the thickness of workpiece
Measurement Speed	7 times per second for single point measurement, 16 times per second for scan mode measurement
Display	Colorful 320X240 TFT LCD display with adjustable backlight
Resolution	0.1mm/0.01mm/0.001mm selectable
Sound Velocity Range	(1000~9999) m/s(Capable for measuring the sound velocity of the object with known thickness)
Probe Calibration	Zero-point calibration, two pint calibration
Thickness Measurement Mode	Single Point measurement, min/max measurement, differential measurement
Units	Metric/Imperial unit selectable
Working Language	Chinese/English Selectable
Data Storage	Capable for saving and managing 100 groups of thickness data (up to 100 values for each group)
Communication Interface	Support for Bluetooth and USB 2.0 communication, the main unit procedure can be updated online.
Data Printing	Capable for using portable Bluetooth thermal printer to print the measurement report.
Power Source	With two "AA" size alkaline batteries, it can work above 30 hours continuously with default brightness.
Auto Power Saving	It has auto screen standby, auto sleep, auto shutdown and other power saving functions.
Appearance	Material: Aluminum-magnesium Alloy
Size	120mm×67mm×31mm

Features

- Capable of performing thickness measurements on a wide range of materials including metals (such steel, cast iron, aluminum, copper and so on), plastics, ceramics, composites, epoxies, glass and other ultrasonic well-conductive materials.
- Sealed metal case delicate design, special design for defense against site environments, including anti-vibration, shock and electromagnetic interference.
- With HD colourful LCD display and intelligent operation interface, it can display the measurements under dim light and strong sunlight environment.
- With two thickness measurement modes: Pulse-Echo mode and Echo-Echo mode, it can measure the thickness through the coating without calculating the coating thickness.
- With large storage capacity and lower power design, it can sit on standby for months.
- Attach with USB data processing software, it can connect with PC for data's analysis, storage and printing.
- Capable for compatible with a variety of probes with different frequency and size.
- With high accuracy and high resolution display, it can support 0.001 display resolution.
- With probe-zero calibration and two point calibration functions, it can correct the system errors automatically.
- Equipped with narrow impulse composite crystal high accuracy probe, it has small dead zone and accurate measurement.
- With high brightness EL backlight display, it is convenient for using in dim light environment.
- Support communication with Bluetooth printer on site, more conveniently for use.
- Auto alarm when exceeding the measuring range.
- Also equipped with auto sleep, auto shutdown and other power saving functions as well as battery rest capacity indicating function.

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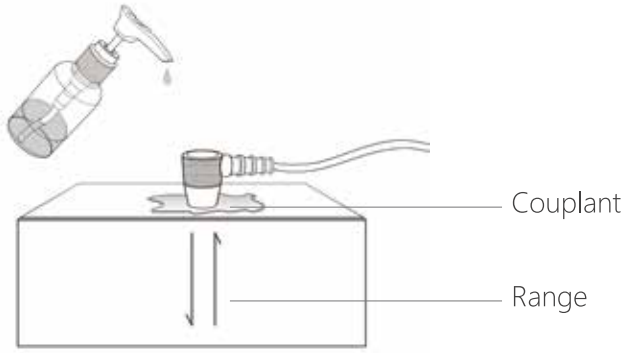
Measuring Principle

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

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

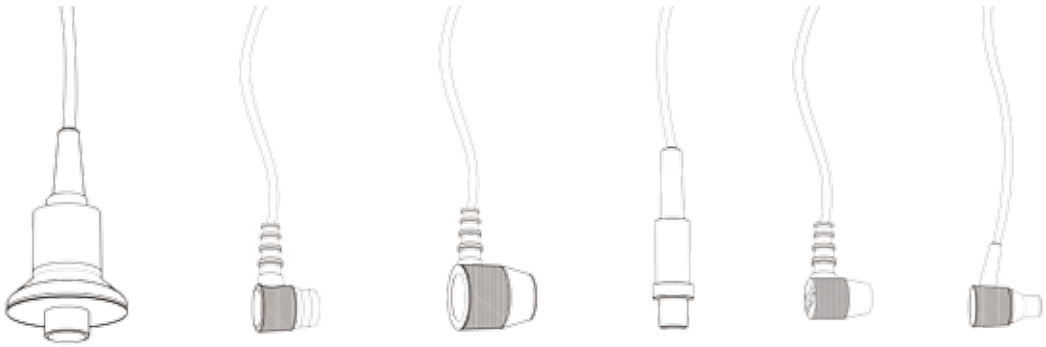
Where:
H - Thickness of the test piece.
v - Sound Velocity in the material.
t - The measured round-trip transit time.



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.

Probe Selection

Model	Freq	Probe Dia	Measuring Range	Lower Limit	Description
N05	5MHz	10mm	1.0mm ~ 600mm (in steel)	Φ20mm×3.0mm	Normal Measurement
N05/90°	5MHz	10mm	1.0mm ~ 600mm (in steel)	Φ20mm×3.0mm	Normal Measurement
N07	7MHz	6mm	0.65mm ~ 200mm (in steel)	Φ15mm×2.0mm	For thin pipe wall or small curvature pipe wall measurement
HT5	5MHz	12mm	1.0mm ~ 600mm (in steel)	30mm	For high temperature (lower than 300°C) measurement.
N02	2.5MHz	14mm	3.0mm ~ 600mm (in steel)	20mm	For thick, highly attenuating, or highly scattering materials
P5EE	5MHz	10mm	Pulse-Echo : 2.0mm ~ 600mm (in steel) Echo-Echo : 3.0mm ~ 100mm (in steel)	Φ20mm×3.0mm	Trough-coating thickness testing



HT5 P5EE N02 N05 N05/90° N07

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Configuration

	NO.	Type	Sketch	Remarks
	1	Main Unit	1	
Standard Config	2	Narrow Impulse Thickness Probe P5EE	1	
	3	Micro Diameter Probe N07 (7MHz)	1	
	4	Couplant	1	
	5	ABS Instrument Case	1	
	6	Documents with Instrument	1	
	7	two "AA" size alkaline batteries	2	
	8	USB Communication Cable	1	
	9	Data Proceeding Software	1	
	10	Portable Bluetooh Thermal Printer	1	
Optional Config	1	Normal Thickness Probe N05(5MHz)		
	2	High Temperature Probe HT5 (5MHz)		
	3	Coarse Grain Probe N02 (2.5MHz)		
	4	High Temperature Couplant		
	5	Normal Thickness Probe No5/90°(5MHz)		

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