

# MT160

## Ultrasonic Thickness Gauge



### Product Overview

The model MT601 is a digital ultrasonic thickness gauge. Based on the principle of ultrasonic principle, the instrument is capable of measuring the thickness of various materials, such as metal, plastic, ceramic, glass and many other good ultrasonic conductors. It is used for all kinds of materials. Compared with the traditional measurement methods, the advantages of ultrasonic thickness gauge is exposed to one side of the workplace 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.

## Technical Specifications

Technical Specifications	Technical Parameters
Display	4.5 digits LCD with EL backlight
Measuring Range	(0.75 ~ 300)mm (in Steel)
Units	Metric/Imperial unit selectable
Sound Velocity Range	(1000~9999) m/s
Resolution	0.1mm/0.01mm
Accuracy	± ( 0.5%Thickness+0.04 ) mm, depends on materials and conditions
Measuring Frequency	Four measurements readings per second for single point measurement, and ten per second for Scan Mode.
Memory	Memory for up to 20 files (up to 99 values for each file) of stored values
Thickness Mode	Single point thickness measurement and scanning thickness measurement
Voltage	3V,Two "AA" size, 1.5 Volt alkaline batteries
Standby Time	More than 100 hours .(EL background-light off)
Communication	USB1.1(Can communicate with PC )
Outline Dimension	150mm×74mm×32 mm
Weight	245g

## Features

- Capable of performing measurements on a wide range of material, including metals, plastic, ceramics, composites, epoxies, glass and other ultrasonic wave well-conductive materials.
- Can both have a variety of different frequency, chip size joint double probe is used.
- Probe-Zero function, Two-Point Calibration function. System error can be automatically corrected.
- Sound-Velocity-Calibration function. To improve the measurement precision.
- Coupling status indicator showing the coupling status.
- E.L. back light display, convenient to use in the dark.
- Battery information indicates the rest capacity of the battery.
- Auto sleep and auto shutdown functions.
- Compact, portable, high reliability, suitable for bad operating conditions, resistance to vibration, shock, and 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

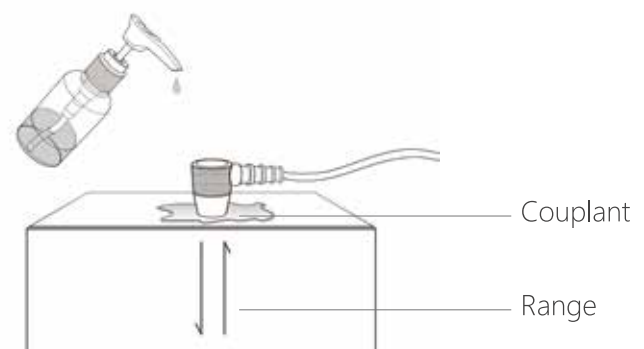
$$H = \frac{v \times t}{2}$$

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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## 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 For thin pipe wall or small curvature pipe wall measurement
N07	7MHz	6mm	0.75mm ~ 80.0mm ( In Steel )	Φ15mm×2.0mm	For high temperature (lower than 300°C) measurement.
HT5	5MHz	12mm	3.0 ~ 200mm ( In Steel ) 3.0mm ~ 300.0mm ( In Steel )	30mm	for thick, highly attenuating, or highly scattering materials
N02	2.5MHz	14mm	Under 40mm (HT200)	20mm	



HT5



N02



N05



N05/90°



N07

## Configuration

	No.	Item	Quantity	Note
Standard Configuration	1	Main body	1	
	2	Probe N05/90°	1	
	3	Couplant	1	
	4	ABS Instrument Case	1	
	5	Operating Manual	1	
	6	Alkaline battery	2	
Optional Configuration	1	Probe: N05(5MHz)		
	2	Probe: N07(7MHz)		
	3	Probe: N02(2.5MHz)		
	4	High temperature coupling		
	5	USB Cable		
	6	DataPro Software		
	7	Transducer: HT5 (5MHz)		



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