

TG-5700 High-Precision Ultrasonic Thickness Gauge

Product Overview



TG-5700 is a new type of handheld high-precision digital ultrasonic thickness gauge with A/B scanning. It adopts the principle of ultrasonic thickness measurement based on pulse reflection. It is suitable for the measurement of material thickness that can make ultrasonic wave propagate in it at a constant speed and get the reflection from its back. The measurement resolution is 0.001mm and the measurement range is as thin as 0.15mm (steel).

This product can accurately measure plates and processed parts. On the other hand, it can monitor the thinning degree of pipes and pressure vessels in production equipment after corrosion during use. It can be used in petroleum, chemical industry, metallurgy, shipbuilding, aerospace, energy and other fields.

This product complies with the following standards: Calibration Specification for ultrasonic thickness gauge (JJF 1126-2004).

Main Function Characteristics

- This product has A-scan mode, B-scan mode and numerical display mode;
- The measurement range is wide, and the unique "multiple echo" technology is adopted to realize the measurement of ultra-thin parts, with a minimum measurement thickness of 0.15mm (steel);
- This product can measure the thickness with high precision, and the maximum measurement resolution can reach 0.001mm; The repetition resolution can reach ± 0.002 mm;
- It has the functions of penetrating coating and echo to echo measurement, which is used to measure materials with paint layer and coating on the surface;
- Multiple measurement modes: mb-e, E-E and me-e modes meet the measurement of conventional thick workpieces; Thin mode realizes the measurement of thin parts;
- Numerical modes include: conventional thickness value mode, difference / reduction rate mode and maximum value mode;
- Two gain modes: automatic gain / manual gain;
- Manual shutdown and automatic shutdown can be set, with energy-saving function;
- It supports a variety of probes, including double crystal probe and single crystal probe, and supports up to 20MHz high-frequency probe;

- It supports mass storage and can store 100000 thickness values, 500 groups of A-scan waveforms and 500 groups of B-scan waveforms at the same time;
- Large 3.5-inch color TFT-LCD display with 320x240 high definition (QVGA) resolution;
- It has a variety of calibration methods, supports one-point calibration, multi-point calibration and manual calibration modes, and can calibrate sound velocity and probe zero position at the same time; It supports v-path correction of double crystal probe.
- It supports the conversion of metric and British system; It can switch between millimeter and inch units;
- It supports English display.

Applicable Materials

It is suitable for measuring the thickness of metals (such as steel, cast iron, aluminum, copper, etc.), plastics, ceramics, glass, resin, glass fiber and other good ultrasonic conductors.

Basic Principles

The principle of ultrasonic thickness measurement is similar to that of light wave measurement. The ultrasonic pulse emitted by the probe reaches the measured object and propagates in the object. When it reaches the material interface, it is reflected back to the probe. The thickness of the measured material is determined by accurately measuring the time of ultrasonic propagation in the material.

Specification Parameters

* Note: the company reserves the right to make technical modifications without prior notice.

Item	TG-5700
Probe type	Single crystal probe / double crystal probe
Measuring range (45# steel)	0.15mm – 1800mm
Indication stability	Zero crossing and multiple echo technology are adopted to ensure that the thickness measurement value is not affected by echo strength, material attenuation coefficient, gain and gate height, and has high measurement stability and reliability.
Measurement frequency	4Hz、8Hz、16Hz
Resolution	0.1mm、0.01mm、0.001mm (0.01inch、0.001inch、0.0001inch)
Accuracy	0.001mm
Pulse generator	Negative square wave emission is adopted, and the pulse width and voltage are automatically matched with the probe.
Sound velocity range	400-19999m/s
Calibration block	4mm (steel)
Automatic shutdown	One can choose 5 minutes, 10 minutes, 20 minutes and manual shutdown.
Probe calibration	One point calibration, multi-point calibration
gain	Automatic gain control, Manual gain control
Gain range	0~70dB
Detection mode	Radio frequency (RF), positive half wave (POS), negative half wave (NEG), full wave (FULL)
Measurement mode	(1) MB-E: the measurement mode based on the transit time

	from the initial echo to the first bottom echo; (2) E-E: penetration coating measurement mode, the arbitrary Em-En echo is optional; (3) ME-E: multiple echo measurement mode; (4) THIN: thin wall measurement mode;
Numerical mode	Thickness value mode, difference / reduction rate mode, maximum / minimum value mode
A-scan mode	Available
B-scan mode	Available
Coupling indication	Available
Battery Indication	Available
Language	English
Unit	mm/inch
Menu operation	Available
Software function	Dynamic gate setting, blanking setting (Blank), echo blanking setting (E-blank), echo freezing, echo translation and scaling
Storage function	It can store 100,000 thicknesses (100 groups, 1000 in each group), 500 groups of A-scan waveforms and 500 groups of B-scan waveforms at the same time.
Host program upgrade	Available
Display	3.5 "QVGA (320 × 240) color TFT-LCD screen
Data transmission	It supports RS-232 serial communication and USB to transmit data to the computer.
Working temperature	-10°C ~ +50°C; With special requirements, it can reach -20 °C;
Working voltage	Four No. 5 AA batteries are required. When the power is insufficient, there is a low voltage prompt.
Overall dimension	204 x 100 x 36 (mm)
Total Weight	310 g (Without battery)
Battery	4pcs AA dry battery

Standard Delivery

Main unit TG-5700	1pc
2.5M Φ20 single element transducer, testing range 4-1800mm	1pc
Couplant bottle	1pc
Carrying case	1pc
Instruction manual	1pc
Calibration certificate	1pc

Optional Accessories

Various probe with different frequency, single probe 8mm/10mm/12mm, and TR ultrasonic thickness probes
 Various step wedge blocks
 PC Data software

Packaging

Packaging: Standard export package, canton

Optional probe:

TS400 probe	Double crystal	10Mhz	5mm	0.5-50mm
TS500 probe	Double crystal	5Mhz	5mm	1.0-65mm
TS510 probe	Double crystal	5Mhz	10mm	1.0-500mm
DTM15 probe	Single crystal	15 MHz	6mm	0.15-22.5mm
DTM7.5 probe	Single crystal	7.5Mhz	6mm	0.5-22.5mm
DTM10 probe	Single crystal	10Mh	6mm	0.3-22.5mm
DTM5 probe	Single crystal	5M	6mm	1.0-22.5mm
BD510 probe	Single crystal	10Mh	10mm	1-1000mm
BD212 probe	Single crystal	2MHz	12mm	4-1800mm
Double crystal probe cable				
Single crystal probe cable				



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