

WT-1 Ultrasonic thickness gauge



Description

1. Ultrasonic sensor plug (2)
2. Coupling indicator
3. Ultrasonic sensor
4. Calibration key
5. Material selection key
6. Unit of measure key
7. Up (+) key
8. Down (-) key
9. Velocity key
10. Power key
11. Calibration key

Calibration

- Place a BB-sized drop of couplant on calibration block.
- Press the calibration key 'CAL' will show on the display
- Position ultrasonic sensor on the calibration block. When reading on coupling indicator ((●)) is steady at 5,0 mm (0.197 inch) and 'CAL' is shown on the display simultaneously, press calibration key to confirm. Unit will return to state of measurement.
- The calibration result will be auto saved to the unit once confirmed. It is unnecessary to calibrate often unless you suspect the accuracy of measurement.

Features

- Micro-computer circuit and crystal time base high accuracy measurements.
- With high power transmission and sensitive reception, the WT-1 can be utilized on a wide range of applications including pipes with rough surfaces.
- Ability to measure the thickness of many pipe materials; including steel, cast iron, aluminium, red copper, brass, zinc, quartz, glass, polyethylene, ductile cast iron and PVC/CPVC.
- Automatic power shut off.

Material selection chart

Nº	Code	Material
1	Cd01	Steel
2	Cd02	Cast iron
3	Cd03	Aluminium
4	Cd04	Copper
5	Cd05	Brass
6	Cd06	Zinc
7	Cd07	Quartz glass
8	Cd08	Polyethylene
9	Cd09	PVC
10	Cd10	Gray cast iron
11	Cd11	Ductile cast iron
12	xxxx	Sound velocity

Material selection notes

If you select a material code but do not confirm the selection, the code will automatically change to '0' after several seconds. In such a case, the meter will still reserve the material code before exiting.

A 4-digit custom sound speed velocity value (meters/second) will be shown on the display if item 12 on the material selection chart is selected.

To view the material code selected, press the material selection key. To exit, press the material selection key again or wait until the code automatically changes to '0' after several seconds

Technical data

Display	LCD
Range	1,0 - 200 mm (45# steel)
Resolution	0,1 mm / 0.001 inch
Accuracy	$\pm 0,5 \% n + 0,1 \text{ mm}$
Sound velocity	500 - 9000 m/s
With	Bluetooth interface
Power supply	Four AAA cells
Operating conditions	Temp: 0 - 40 °C (0 - 104 °F) Humidity: < 80 %
Size (H x W x D)	120 mm x 62 mm x 30 mm (4,7" x 2,4" x 1,2")
Accessories	Carrying case, ultrasonic sensor, manual and grease couplant

Battery replacement

- When battery symbol appears on the display, it is time to replace the batteries.
- Slide battery cover away from instrument and remove batteries.
- Install batteries paying carefull attention to polarity

Measuring procedure

- Press the power key to turn on the unit.
- Press the material selection key. Display will show the code 'Cdxx' or 'xxxx'. 'Cd' is abbreviation for 'code' and 'xx' is one number among 01-11. 'xxxx' is a 4-digit number which is the sound velocity of material defined by the user (refer to material selection chart).
- Press the up (+) key or down (-) key to select the material code to measure. Then press material selection key to confirm. Display will show '0'.
- Press the unit of measure key to select the right measurement unit.
- Place a BB-sized drop of couplant on the material to measure and lightly press ultrasonic sensor onto the material surface. Be sure the sensor is secure and the coupling indicator ((●)) is on. The reading on display is the measurement value.
- The reading is held until a new measurement value is measured. The last value is held on the display until the power is off.
- Two modes to turn off the power: Manual off at any time by pressing the power key or auto power off after 1 minute from last key operation.

Measuring non-standard materials

If the pipe wall material is not listed in the "material selection chart", the sound speed velocity can be entered manually in m/s.

- 1) Press velocity key and display will show one of the material codes shown in the "material selection chart" or a 4-digit number (selection 12 in chart) which is a user adjustable sound speed velocity value.
- 2) How to measure pipe wall thickness by the velocity known? The velocity can be changed by pressing the up (+) key or down(-) key to the value of known velocity. The increment is 10m/s every short up (+) key or down (-) key press. Faster increments will occur in the up (+) or down (-) key is pressed and held for more than 4 seconds.
- 3) Place a BB-sized drop of couplant on the material to measure and lightly press ultrasonic sensor onto the material surface. Be sure the sensor is secure and the coupling indicator ((●)) is on. The reading on display is the measurement value.
- 4) If the sound speed velocity of the pipe material is unknown and a sample of the material is available, the sample can be utilized to configure the WT-1. Measure the thickness of the sample piece and repeat steps 2 and 3 above (higher sounds speed velocity inputs will result in greater thickness measurements - lower sound speed inputs in thinner measurements) until the WT-1 indicates the correct thickness. Record the velocity for future use. Just get a sample of known thickness. Then repeat step 2 and 3 until the measurement value is same as the known thickness. In such a case, the set value is the velocity of the material to measure, by which you can measure any unknown thickness of same material.
- 5) To view the present configured sound velocity, press the velocity key. To quit browsing, press the velocity key again or wait until the meter automatically shows '0'