

# Elcometer Material Thickness Gauge MTG Transducers

Elcometer NDT offer a state-of-the-art range of Ultrasonic Gauge transducers

When selecting a transducer, it is important to choose one which will meet the specific application's needs. The type of material to be tested, the measurement range, the shape of the substrate (curved or flat) and the size of the material should be considered when selecting the appropriate transducer. Velocity chart for the preset choice of 39 materials in the MTG4, MTG6 and MTG8.



## Single Element

Single element transducers feature a single crystal that sends and receives the pulse and are made for high frequency use.



## Dual Element

A dual element transducer consists of two crystal elements housed in the same case, separated by an acoustic barrier.

## Choosing the right frequency and diameter

Different materials have different acoustic properties. In some a sound wave can travel easily, in others it is absorbed so achieving an accurate measurement can be difficult. To overcome this it is essential to choose the right frequency and diameter for your material.

High frequency transducers are ideal for precision measurement because the pulse they emit is highly focused, reducing the risk of return echoes outside of the measurement area. The high frequency and shorter wavelength also lends itself to measuring thin materials.

Low frequency transducers are designed for materials that absorb sound like plastics or composites. The pulse penetrates deeply into the material ensuring a strong return echo and therefore a measurement.

This high penetration also means that they are suitable for high material thicknesses.

Larger diameter probes feature larger crystals which transmit and receive the sound wave. A large crystal transmitter will produce a larger sound wave and a larger receiving crystal will be more sensitive.

As a result, larger transducers tend to have better penetration characteristics than the smaller ones.

If this extended range is not required, the smaller transducers can be placed more precisely and in hard to reach areas such as narrow grooves in a material.

## Frequency & Diameter Disks

Each transducer can be easily identified by the disk on the top.



## What connection does it have?

**Potted:** The transducer is strongly secured to the cable at the factory.

**Microdot:** The transducer is attached using two small screw type connectors, enabling replacement of the cable in case of accidental damage or wear.

All transducers are intelligent; when connected to the MTG range, the gauge instantly recognises what transducer has been attached.

## Selecting the right transducer

Selecting the right transducer for your application is essential to maximise performance.

# Dual Element Transducers

Part Number	Probe Diameter	Probe Configuration	Damping	ThruPaint™	Connector Type		Suitable for measuring											
					Potted right angle	Microdot	Cast Iron	Plastics	Thin Plastics	Fibreglass	Thin Fibreglass	Steel	Glass	Aluminium	Titanium	MTG4	MTG6	MTG8
<b>1.00 MHz Dual Element Thickness Transducer</b>																		
TXC1M00EP-2	1/2"	Right Angle	S		•		•	•		•						•	•	•
<b>2.25MHz Dual Element Thickness Transducer</b>																		
TXC2M25CP-2	1/4"	Right Angle	S		•		•	•		•						•	•	•
TXC2M25EP-2	1/2"	Right Angle	S		•		•	•		•						•	•	•
<b>3.50MHz Dual Element Thickness Transducer</b>																		
TXC3M50EP-1	1/2"	Right Angle	S		•		•	•		•						•	•	•
<b>5.00MHz Dual Element Thickness Transducer</b>																		
TXC5M00BP-4	3/16"	Right Angle	S		•				•			•	•			•	•	•
TXC5M00CP-4	1/4"	Right Angle	S		•				•			•	•			•	•	•
TXC5M00CP-10 <sup>2</sup>	1/4"	Right Angle	H	•	•				•			•	•			•	•	•
TXC5M00CP-8	1/4"	Potted Top Entry	H		•				•			•	•			•	•	•
TXC5M00EP-3	1/2"	Right Angle	S		•				•			•	•			•	•	•
<b>7.50MHz Dual Element Thickness Transducer</b>																		
TXC7M50BP-3	3/16"	Right Angle	S		•				•			•	•	•		•	•	•
TXC7M50CP-4	1/4"	Right Angle	S		•				•			•	•	•		•	•	•
TXC7M50CP-6 <sup>2</sup>	1/4"	Right Angle	H	•	•				•			•	•	•		•	•	•
<b>10.0MHz Dual Element Thickness Transducer</b>																		
TXC10M0BP-1	3/16"	Right Angle	S		•							•		•	•	•	•	•
TXC10M0CP-4	1/4"	Right Angle	S		•							•		•	•	•	•	•

All transducers are supplied with a calibration certificate.

<sup>2</sup>To be used for coatings with a thickness of up to 1mm

H = High Damping

S = Standard

