

Elcometer Ultrasonic Transducer Options

Elcometer has a wide range of transducers available for use with the Elcometer 205, 206 & 208 range of Ultrasonic Thickness Gauges.

When selecting a transducer, it is important to choose one which will meet the application, taking the following into consideration:

- The type of material to be tested
- The design of the transducer probe
- The measurement range
- Whether the shape of the substrate is flat or curved or hard to reach
- A range of frequencies and sizes are available to meet specific needs
- Straight and right angle transducers available as potted or microdot

Definitions:

- **Microdot Transducer:**

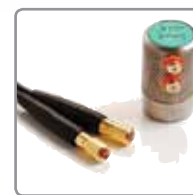
The cable can be unplugged from the transducer and easily replaced on site should it become damaged

- **Potted Transducer:**

Unlike the microdot transducers, the cables are hard wired into the transducer head



Potted Transducers



Microdot Transducer



Dual Element

- **Exxon Specification:**

The gauge and transducer combination must hit specified standards without missing the first cycle

- **High Temperature Transducers:** temperature up to 340°C (650°F)

Speed of Sound Through Materials

Elcometer Ultrasonic Thickness Gauges can be calibrated by the user for the appropriate material in two ways:

- Set the calibration to the thickness of the known standard of the same material
- Set the frequency calibration to the appropriate value using the velocity chart below

Material	km/sec	in/msec	Material	km/sec	in/msec
Air	0.33	0.013	Neoprene	1.60	0.063
Aluminium (2024-T4)	6.38	0.251	Nickel	5.64	0.222
Beryllium	12.88	0.507	Nylon	2.69	0.106
Boron Carbide	10.92	0.430	Platinum	3.69	0.156
Brass	4.39	0.173	Plexiglass	2.69	0.106
Cadmium	2.77	0.109	Polystyrene	2.34	0.092
Copper	4.65	0.183	Polyurethane	1.78	0.070
Glass (Plate)	5.77	0.227	PVC	2.39	0.094
Glycerine	1.93	0.076	Quartz	5.74	0.226
Gold	3.25	0.128	Silver	3.61	0.142
Inconel	5.82	0.229	Steel (4340)	5.84	0.230
Iron	5.89	0.232	Steel (303 Stainless)	5.66	0.223
Iron, Cast	4.55	0.179	Teflon	1.52	0.060
Lead	2.16	0.085	Tin	3.33	0.131
Magnesium	5.84	0.230	Titanium	6.10	0.240
Mercury	1.45	0.057	Tungsten	5.18	0.204
Molybdenum	6.25	0.246	Uranium	3.38	0.133
Monel	5.36	0.211	Water	1.47	0.058
Motor Oil (SAE 30)	1.75	0.069	Zinc	4.32	0.170

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Technical Specification

Part Number	Material								Probe Type					Frequency (MHz) (Colour Code)	Crystal Diameter	Wearface Diameter	
	Cast Iron	Plastic	Glass Fibre	Thin Glass	Steel	Glass	Thin Plastic	Aluminium	Potted	Straight Probe	Right Angle	Microdot	Extra Res				Exxon Spec
T92015620	▪	▪	▪						▪	▪					1.0 brown/ yellow	12.7mm 0.50"	15.9mm 0.625"
T92015621	▪	▪	▪						▪						1.0 brown/ yellow	12.7mm 0.50"	15.9mm 0.625"
T92015627	▪	▪		▪					▪	▪					2.25 red	6.4mm 0.25"	9.5mm 0.375"
T92015634	▪	▪		▪					▪	▪					2.25 red	12.7mm 0.50"	15.9mm 0.625"
T92015641					▪	▪	▪		▪	▪					5.0 green	4.8mm 0.19"	6.4mm 0.250"
T92015642					▪	▪	▪		▪	▪					5.0 green	4.8mm 0.19"	6.4mm 0.250"
T92015645					▪	▪	▪		▪	▪					5.0 green	6.4mm 0.25"	9.5mm 0.375"
T92015646					▪	▪	▪		▪	▪					5.0 green	6.4mm 0.25"	9.5mm 0.375"
T92015648					▪	▪	▪				▪	▪			5.0 green	6.4mm 0.25"	9.5mm 0.375"
T92015657					▪	▪	▪		▪	▪					5.0 green	12.7mm 0.50"	15.9mm 0.625"
T92015658					▪	▪	▪		▪	▪					5.0 green	12.7mm 0.50"	15.9mm 0.625"
T92015663					▪	▪	▪	▪	▪	▪				▪	7.5 grey	6.40mm 0.25"	9.5mm 0.375"
T92015664					▪	▪	▪	▪	▪	▪				▪	7.5 grey	6.40mm 0.25"	9.5mm 0.375"
T92015667					▪	▪	▪	▪	▪	▪		▪			7.5 blue	6.40mm 0.25"	9.5mm 0.375"
T92015668					▪	▪	▪	▪	▪		▪		▪		7.5 blue	6.40mm 0.25"	9.5mm 0.375"
T92015670					▪	▪	▪	▪		▪	▪	▪			7.5 blue	6.40mm 0.25"	9.5mm 0.375"
T92016526	▪			▪	▪	▪	▪	▪				▪			15.0 green	6.35mm 0.25"	7.42mm 0.3125"