Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70
Казахстан +7(7172)727-132
Киргизия +996(312)96-26-47

https://elcometer.nt-rt.ru/ || erj@nt-rt.ru

elcometer®
inspection equipment

Elcometer 456

coating thickness gauge

Elcometer 456 Separate Coating Thickness Gauge

The **Elcometer 456** coating thickness gauge is available with a wide range of interchangeable probes; providing greater coating thickness measurement flexibility on metal substrates.

- Measure coatings up to 31mm (1,220mils) on metal substrates
- Easy to read, user definable display with automatic screen brightness
- Ergonomic design, ideal for continuous use
- Dust and waterproof rugged design equivalent to IP64
- Temperature stable measurements

Measure DFT – Fast · Repeatable · Ferrous & Non-Ferrous Substrates · Accurate · Durable

Bluetooth® wireless technology

compatible with ElcoMaster

Separate Coating Thickness Gauge

Elcometer 456

Fast

Helping you become more efficient

70+ readings per minute and 140+ per minute with Scan Probe, multiple calibration memories and alphanumeric batch identification.

Large easy to read measurements in Metric and Imperial units

Accurate

Accurate measurements on smooth, rough, thin and curved surfaces

Measures on smooth, rough, thin and curved surfaces to ±1% in accordance with National & International Standards.

Halve the inspection time using the scan probe

Easy

Large buttons and colour screen

LCD screen with auto rotate; factory calibrated with high and low reading limit indicators in multiple languages.

View up to 8 user selectable statistics on screen

Reliable

Designed to last

Heavy duty, impact resistant and supplied with fully traceable test certificates and our 2 year gauge warranty*.

Rugged and reliable, ideal for harsh environments

Powerful

Store up to 150,000 readings in 2,500 batches

Measures up to 31mm (1,220mils) of coating on metal substrates with USB and Bluetooth® data output making it compatible with ElcoMaster® software.

For a wide range of probes to meet your specific application, see page 8

*

Elcometer 456 Separate Coating Thickness Gauge

Scan and Auto Repeat Modes

Using the Scan Probe in Scan Mode

Using the Elcometer 456 in Scan Mode with the Scan Probe enables users to significantly reduce dry film thickness inspection times without affecting accuracy:

- Slide the Scan Probe over the entire surface area, as the probe is lifted off the surface the gauge displays the average coating thickness value, the highest thickness and the lowest thickness values.
- Each set of three readings (average, high and low) can be displayed on the run graph and stored into the memory.
- During each scan the Elcometer 456 displays the live thickness reading together with an analogue bar graph which graphically indicates the thickness relative to both the nominal thickness and any user-defined limits.

Using the Scan Probe in Auto Repeat Mode

When the Scan Probe is slid over the coated surface in Auto Repeat Mode*, a coating thickness reading is taken approximately every half a second. Each individual dry film thickness reading is stored into the memory.

With a reading rate in excess of 140 readings per minute, the Auto Repeat Mode can significantly speed up the dry film thickness inspection of large coated areas.

* Scan and Auto Repeat Modes require an Elcometer 456 Model T gauge with Scan Probe.

Separate Coating Thickness Gauge

Elcometer 456

Scan Probes

The Scan Probes further enhance the speed and accuracy of field based dry film coating thickness measurement:

- Featuring a highly durable 'snap on' replaceable probe cap
- A revolutionary design which allows users to take individual readings or rapidly scan large surface areas - without damaging the probe or coating
- Uses the Elcometer 456's patented offset feature[1], ensuring that any cap wear during use[2] is incorporated within the calibration process - the gauge even informs the user when to replace the cap.
- Standard Scan Probe or larger Roller Bearing Scan Probe available
- Roller Bearing Scan Probe is ideal for large coated structures, abrasive coatings and pre-construction primers.

Counted Average and Fixed Batch Modes

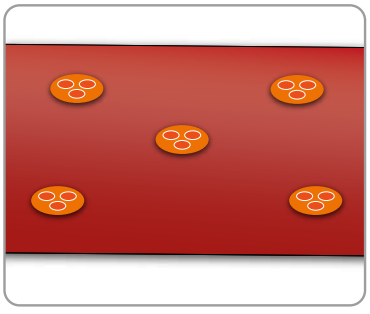
Counted Average Mode

- The Elcometer 456 Model S and Model T are supplied with the Counted Average Mode
- Once the user has defined the number of individual gauge readings to be taken within a spot measurement, the gauge stores the average of the individual gauge readings into the memory.

Fixed Batch Sizes

- The Fixed Batch Size feature within the Elcometer 456 Model T allows users to define the maximum number of readings in each batch.
- Once the maximum number of readings has been reached the gauge automatically opens up a new batch which is linked to the previous batch (name-1, name-2, etc.).

Working with Standards and Test Methods



- International Standards and test methods often describe the number of individual gauge readings to be taken in a spot measurement and/or the number of spot measurements required over a defined surface area.
- SSPC PA2 requires a minimum of three gauge readings to be taken per spot measurement and five spot measurements over 10m^2 (~100ft^2).
- The Elcometer 456 Model S or Model T can be set with a counted average of three and a fixed batch size of five to meet these requirements. Each batch defines an area of measurement.
- When the Scan Probe is connected to the Elcometer 456 Model T with Auto Repeat Mode selected, SSPC PA2 (or similar test methods) can be completed more than 40% faster.

[1] Patent Number US6243661

[2] When tested on smooth surfaces probe end caps have been scanned in excess of 50km (30 miles)

Elcometer 456 Separate Coating Thickness Gauge

Product Features	■ Standard □ Optional		
	Model B	Model S	Model T
Fast, accurate reading rate; *70+ readings per minute*	■	■	■
Repeatable & reproducible measurements	■	■	■
Easy to use menu structure; *in 30+ languages*	■	■	■
Tough, impact, waterproof & dust resistant; *equivalent to IP64*	■	■	■
Bright colour screen; *with permanent backlight*	■	■	■
Scratch & solvent resistant display; *2.4" (6cm) TFT*	■	■	■
Large positive feedback buttons	■	■	■
USB power supply; *via PC*	■	■	■
Test certificate	■	■	■
2 year gauge warranty[1]	■	■	■
Automatic rotating display; *0°, 90°, 180° & 270°*	■	■	■
Ambient light sensor; *with adjustable auto brightness*	■	■	■
Emergency light	■	■	■
Tap awake from sleep	■	■	■
Gauge software updates[2]; *via ElcoMaster® software*	■	■	■
Data output	■	■	■
USB; *to computer*	■	■	■
Bluetooth®; *to computer, Android™ & iOS[3] devices*		■	■
On screen statistics	■	■	■
Number of readings; *η* Mean (average); $\bar{x}$ Standard deviation; σ Highest reading; *Hi* Lowest reading; *Lo* Coefficient of variation; *CV%,* Elcometer index value[4]; *EIV*	■	■	■
Nominal dry film thickness; *NDFT*		■	■
IMO PSPC; *%>NDFT, %>90<NDFT, 90:10 pass/fail*		■	■
High & low limits; *definable audible & visual alarms*		■	■
Number of readings above high limit;		■	■
Number of readings below low limit;		■	■
Live reading trend graph; *in Batch Mode*		■	■
ElcoMaster® software & USB cable	□	■	■
Replaceable screen protectors	□	■	■
Protective case	■	■	■
Plastic transit case	□	□	■
Separate models; *with automatic probe recognition*	■	■	■
Probe type; *Ferrous (F), Non-Ferrous (N), Dual (FNF)*	F, N, FNF	F, N, FNF	F, N, FNF
Measurement range; *see page 8 for probe selection*	0-31mm 0-1,220mils	0-31mm 0-1,220mils	0-31mm 0-1,220mils
On screen calibration instructions; *in 30+ languages*	■	■	■
Multiple calibration methods	■	■	■
Factory; *resets to the factory calibration*	■	■	■
2-point; *for smooth and rough surfaces*	■	■	■
1-point; *zero calibration*	■	■	■
Zero offset; *for calibration according to ISO19840*	■	■	■
Predefined calibration & measurement methods		■	■
ISO, SSPC PA2, Swedish, Australian		■	■

[1] The Elcometer 456 is supplied with a 1 year warranty against manufacturing defects. The warranty can be extended free of charge to 2 years within 60 days of purchase via

Separate Coating Thickness Gauge

Elcometer 456

Product Features

■ Standard □ Optional

	Model B	Model S	Model T
Automatic calibration; *for rapid calibration*		■	■
Calibration memory type; *gauge (g) or gauge & batch (gb)*	g	gb	gb
Number of batches; *with unique calibrations*		1	2,500
Calibration memories; *3 user-programmable memories*			■
Measurement outside calibration warning			■
Calibration lock; *with optional PIN code unlock*	■	■	■
Delete last reading	■	■	■
Gauge memory; *number of readings*	Last 5	1,500	150,000
Individual batch calibrations; *sent to PC via ElcoMaster® software*		■	■
Limits; *user definable audible & visual pass/fail warnings*		■	■
Gauge (g) or gauge & batch specific (gb) limits		g	gb
Date and time stamp		■	■
Review, clear & delete batches		■	■
Batch types; *normal, counted average, IMO PSPC*		■	■
Navsea Mode			■
Batch review graph			■
Copy batches and calibration settings			■
Alpha-numeric batch names; *user definable on the gauge*			■
Scan & Auto Repeat Modes; *with Scan Probe connected*			■
Fixed Batch Size Mode; *with batch linking*			■

Technical Specification

Model	Model B	Model S	Model T	Certificate
Elcometer 456 Ferrous Separate	A456CFBS	A456CFSS	A456CFTS	●
Elcometer 456 Non-Ferrous Separate	A456CNBS	A456CNSS	A456CNTS	●
Elcometer 456 Dual FNF Separate	A456CFNFBS	A456CFNFSS	A456CFNFTS	●
Display Information	2.4” (6cm) QVGA colour TFT display, 320 x 240 pixels			
Battery Type	2 x AA batteries, rechargeable batteries can also be used			
Battery Life	approximately 24 hours of continuous use at 1 reading per second*			
Gauge Dimensions (h x w x d)	141 x 73 x 37mm (5.55 x 2.87 x 1.46”)			
Gauge Weight (including batteries supplied)	161g (5.68oz)			
Operating Temperature	-10 to 50°C (14 to 122°F)			
Packing List	Elcometer 456 gauge, wrist harness, transit case (T), protective case (B, S, T), 1 x screen protector (S, T), 2 x AA batteries, operating instructions, USB cable (S, T), ElcoMaster® software (S, T) For separate gauge probe options see page 8			

STANDARDS:

AS 2331.1.4, AS 3894.3-B, AS/NZS 1580.108.1, ASTM B 499, ASTM D 1186-B, ASTM D 1400, ASTM D 7091, ASTM E 376, ASTM G 12, BS 3900-C5-6B, BS 3900-C5-6A, BS 5411-11, BS 5411-3, BS 5599, DIN 50981, DIN 50984, ECCA T1, EN 13523-1, IMO MSC.215(82), IMO MSC.244 (83), ISO 1461, ISO 19840, ISO 2063, ISO 2178, ISO 2360, ISO 2808-6A, ISO 2808-6B, ISO 2808-7C, ISO 2808-7D, ISO 2808-12, JIS K 5600-1-7, NF T30-124, SS 184159, SSPC PA 2, US Navy PPI 63101-000, US Navy NSI 009-32

* Using default settings & lithium batteries, alkaline or rechargeable batteries may differ

● Certificate supplied as standard

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

All **Elcometer 456 probes** are fully interchangeable and are available in a number of designs and scale ranges to meet your specific application.

Fully interchangeable and available in a number of designs and scale ranges

Supplied with a Test Certificate and a set of calibration foils

Ferrous, non-ferrous and dual FNF probes available

Ergonomic design, ideal for continuous use

Temperature stable measurements

Probe Range for Separate Coating Thickness Gauge

Elcometer 456

Choosing the correct probe for your coating thickness gauge:

Ferrous Probes (F)

- Ferrous probes measure non-magnetic coatings on ferromagnetic substrates.
- Elcometer 456 ferrous gauges accept any ferrous probe.

Non-Ferrous Probes (N)

- Non-ferrous probes measure non-conductive coatings on non-ferrous metal substrates.
- Elcometer 456 non-ferrous gauges accept any non-ferrous probe.

Dual Probes (FNF)

- Dual FNF probes measure both ferrous and non-ferrous applications with automatic substrate detection.
- Elcometer 456 FNF gauges accept all ferrous, non-ferrous and dual FNF probes.

High Temperature

- Elcometer probes have a maximum operating temperature of 80°C (176°F)*.
- Separate ferrous probes have a maximum operating temperature of 150°C (300°F)*.
- Hi-Temperature PINIP™ has a maximum operating temperature of 250°C (480°F)*.

*The stated temperature is the substrate temperature, and the duty cycle of the probe must be reduced to ensure a minimal temperature build-up within the probe.

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

Choosing the correct probe for your coating thickness gauge:

Straight Probes

Standard Straight Probe

Standard probes measure coatings on both flat and curved surfaces.

Anodising Probe

Chemical resistant & washable - ideal for the anodising environment.

Mini Probe

Mini probes are ideal for harder to reach areas and edges.

Waterproof Probe

Sealed for use underwater at depth, even in diving gloves.

Soft Coating Probe

Large surface area probes are for soft materials (HVCA approved).

Thick Coatings Probe

Ideal for measuring coatings up to 31mm thick.

Scan Probes

Standard Scan Probe

Rapidly scan large surface areas without damaging the probe or the coating.

Ball Bearing Scan Probe

Clip on adaptors for large coated structures, abrasive coatings and pre-construction primers.

Probe Range for Separate Coating Thickness Gauge

Elcometer 456

Choosing the correct probe for your coating thickness gauge:

Angled Probes

Right Angle Probe

Take readings in areas with restricted clearance.

Mini Right Angle Probe

For measuring coatings on edges, narrow pipes or small surface areas.

Telescopic Probe

Extending probes for hard to reach areas.

45° Angle Probe

Measure difficult to access or complex areas.

Plug In Integral Probes (PINIP™)

PINIP™ Integral Probe

Transforms a separate gauge into an integral gauge, ideal for single handed use.

Hi-Temperature PINIP™

Measure coatings on ferrous substrates up to 250°C (480°F).

Armoured Cable Probes

Reinforced heavy duty cables reduce the risk of cable damage.

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

Scale 0.5 Probe Range 0-500µm / 0-20mils

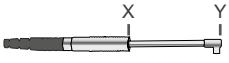
Accuracy[a]:	±1-3% or ±2.5µm	±1-3% or ±0.1mil
Range:	0-500µm	0-20mils
Resolution:	0.1µm: 0-100µm 1µm: 100-500µm	0.01mil: 0-5mils 0.1mil: 5-20mils
Certificate:	●	

See '#' on the probes table on the opposite page for comparison.

a. Whichever is the greater
b. FNF (F): FNF probe in F Mode FNF (N): FNF probe in N Mode

● Certificate supplied as standard.

c. Probe length is measured from X to Y



d. Excluding Scan Probe end cap
e. Scan Probe calibrated using a sample of the uncoated substrate
Elcometer 456 probes are covered by a 1 year warranty

Probe Range for Separate Coating Thickness Gauge

Elcometer 456

Scale 0.5 Probe Range — 0-500µm / 0-20mils

Ferrous (F) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
2	45° Angle Mini Probe	300mm (11.80”)	T456CFM3R45D	18mm (0.71”)	3mm (0.12”)
3	Right Angle Mini Probe	300mm (11.80”)	T456CFM3R90D	16mm (0.63”)	3mm (0.12”)
4	Right Angle Mini Probe	150mm (5.90”)	T456CFM3R90C	16mm (0.63”)	3mm (0.12”)
5	Straight Mini Probe	150mm (5.90”)	T456CFM3---C	6mm (0.24”)	3mm (0.12”)
6	45° Angle Mini Probe	45mm (1.77”)	T456CFM3R45A	16mm (0.63”)	3mm (0.12”)
7	Right Angle Mini Probe	45mm (1.77”)	T456CFM3R90A	16mm (0.63”)	3mm (0.12”)
8	Straight Mini Probe	45mm (1.77”)	T456CFM3---A	6mm (0.24”)	3mm (0.12”)

Non-Ferrous (N) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Right Angle Mini Probe	400mm (15.70”)	T456CNM3R90E	16mm (0.63”)	4mm (0.16”)
4	Right Angle Mini Probe	150mm (5.90”)	T456CNM3R90C	16mm (0.63”)	4mm (0.16”)
5	Straight Mini Probe	150mm (5.90”)	T456CNM3---C	6mm (0.24”)	4mm (0.16”)
7	Right Angle Mini Probe	45mm (1.77”)	T456CNM3R90A	16mm (0.63”)	4mm (0.16”)
8	Straight Mini Probe	45mm (1.77”)	T456CNM3---A	6mm (0.24”)	4mm (0.16”)

Non-Ferrous - Graphite (N)

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Right Angle Mini Probe	400mm (15.70”)	T456CNMG3R90E	16mm (0.63”)	4mm (0.16”)
4	Right Angle Mini Probe	150mm (5.90”)	T456CNMG3R90C	16mm (0.63”)	4mm (0.16”)
7	Right Angle Mini Probe	45mm (1.77”)	T456CNMG3R90A	16mm (0.63”)	4mm (0.16”)

Scale FM7 Probe Range — 0.6-3.8mm / 25-150mils

Accuracy[a]:	±7.5% or ±114µm	±7.5% or ±4.5mils
Range[d]:	0.60-3.8mm	25-150mils
Resolution:	1µm: 0-1mm 10µm: 1-3.8mm	0.1mil: 0-139.3mils 1.0mil: 39.4-150mils
Certificate:	•	

Ferrous (F) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
6	45° Angle Mini Probe	45mm (1.77”)	T456CFM7R45A	20mm (0.79”)	6.5 mm (0.26”)

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

Scale 1 Probe Range 0-1500µm / 0-60mils

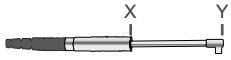
Accuracy[ae]:	±1-3% or ±2.5µm	±1-3% or ±0.1mil
Range[d]:	0-1,500µm	0-60mils
Resolution:	0.1µm: 0-100µm 1µm: 100-1,500µm	0.01mil: 0-5mils 0.1mil: 5-60mils
Certificate:	•	

See '#' on the probes table on the opposite page for comparison.

a. Whichever is the greater
b. FNF (F): FNF probe in F Mode FNF (N): FNF probe in N Mode

• Certificate supplied as standard.

c. Probe length is measured from X to Y



d. Excluding Scan Probe end cap
e. Scan Probe calibrated using a sample of the uncoated substrate
Elcometer 456 probes are covered by a 1 year warranty

Probe Range for Separate Coating Thickness Gauge

Elcometer 456

Ferrous (F) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CF1S	85mm (3.35”)	4mm (0.16”)
2	Scan Probe	45mm (1.77”)	T456CF1U	86mm (3.38”)	15mm (0.59”)
3	Scan Probe armoured	45mm (1.77”)	T456CF1UARM	140mm (5.51”)	15mm (0.59”)
4	90° Probe	45mm (1.77”)	T456CF1R	28mm (1.10”)	4mm (0.16”)
5	90° Mini Probe	45mm (1.77”)	T456CFM5R90A	16mm (0.63”)	4mm (0.16”)
5	90° Mini Probe sealed	45mm (1.77”)	T456CFME5R90A	16mm (0.63”)	4mm (0.16”)
5	90° Mini Probe sealed, 2m cable	45mm (1.77”)	T456CFME5R90A-2	16mm (0.63”)	4mm (0.16”)
6	PINIP™ Integral Probe		T456CF1P	170mm (6.69”)	4mm (0.16”)
8	Straight Probe sealed	45mm (1.77”)	T456CF1E	85mm (3.35”)	4mm (0.16”)

Non-Ferrous (N) Probes

#	Description	Probe Length[c]	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CN1S	85mm (3.35”)	4mm (0.16”)
4	90°Probe	45mm (1.77”)	T456CN1R	28mm (1.10”)	4mm (0.16”)
5	Mini 90°Probe	45mm (1.77”)	T456CNM5R90A	16mm (0.63”)	4mm (0.16”)
5	Mini 90°Probe	150mm (5.90")	T456CNM5R90C	16mm (0.63”)	4mm (0.16”)
5	Mini 90°Probe	400mm (15.7”)	T456CNM5R90E	16mm (0.63”)	4mm (0.16”)
6	PINIP™ Integral Probe		T456CN1P	180mm (7.09”)	4mm (0.16”)
7	Anodiser Probe	45mm (1.77”)	T456CN1AS	100mm (3.94”)	4mm (0.16”)

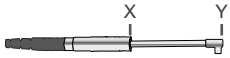
Ferrous & Non-Ferrous (FNF) Probes

#	Description	Probe Length[c]	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CFNF1S	88mm (3.46”)	F: 4mm (0.16”) N: 6mm (0.24”)
2	Scan Probe	45mm (1.77”)	T456CFNF1U	89mm (3.50”)	15mm (0.59”)
4	Right Angle Probe	45mm (1.77”)	T456CFNF1R	38mm (1.50”)	F: 4mm (0.16”) N: 6mm (0.24”)
6	PINIP™ Integral Probe		T456CFNF1P	180mm (7.09”)	F: 4mm (0.16”) N: 6mm (0.24”)
8	Straight Probe armoured cable	45mm (1.77”)	T456CFNF1ARM	185mm (7.28")	F: 4mm (0.16”) N: 6mm (0.24”)

a. Whichever is the greater
b. FNF (F): FNF probe in F Mode FNF (N): FNF probe in N Mode

- Certificate supplied as standard.

c. Probe length is measured from X to Y
d. Excluding Scan probe end cap
e. Scan Probe calibrated using a sample of the uncoated substrate
Elcometer 456 probes are covered by a 1 year warranty



Elcometer 456 Probe Range for Separate Coating Thickness Gauge

Scale 2 Probe Range 0-5mm / 0-200mils

Accuracy[a]:	±1-3% or ±20µm	±1-3% or ±1.0mil
Range[d]:	0-5mm	0-200mils
Resolution:	1µm: 0-1mm 10µm: 1-5mm	0.1mil: 0-50mils 1.0mil: 50-200mils
Certificate:	●	

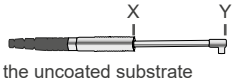
See '#' on the probes table on the opposite page for comparison.

1 2 3 4 5 6 7 8

a. Whichever is the greater
b. FNF (F): FNF probe in F Mode FNF (N): FNF probe in N Mode

● Certificate supplied as standard.

c. Probe length is measured from X to Y



d. Excluding Scan Probe end cap
e. Scan Probe calibrated using a sample of the uncoated substrate
Elcometer 456 probes are covered by a 1 year warranty

Probe Range for Separate Coating Thickness Gauge

Elcometer 456

Ferrous (F) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CF2S	89mm (3.50”)	8mm (0.32”)
2	Straight Probe armoured cable	45mm (1.77”)	T456CF2ARM	138mm (5.43”)	8mm (0.32”)
3	Scan Probe	45mm (1.77”)	T456CF2U	90mm (3.54”)	15mm (0.59”)
4	90° Probe	45mm (1.77”)	T456CF2R	32mm (1.26”)	8mm (0.32”)
5	Telescopic Probe	56-122cm (22-48”)	T456CF2T	36mm (1.42”)	8mm (0.32”)
6	Soft Coating Probe	45mm (1.77”)	T456CF2B	89mm (3.50”)	8mm (0.32”)
7	Waterproof Probe 1m (3’) cable	45mm (1.77”)	T456CF2SW	138mm (5.43”)	8mm (0.32”)
7	Waterproof Probe 5m (15’) cable	45mm (1.77”)	T456CF2SW-5	138mm (5.43”)	8mm (0.32”)
7	Waterproof Probe 15m (45’) cable	45mm (1.77”)	T456CF2SW-15	138mm (5.43”)	8mm (0.32”)
7	Waterproof Probe 30m (98’) cable	45mm (1.77”)	T456CF2SW-30	138mm (5.43”)	8mm (0.32”)
7	Waterproof Probe 50m (164’) cable	45mm (1.77”)	T456CF2SW-50	138mm (5.43”)	8mm (0.32”)
7	Waterproof Probe 75m (250’) cable	45mm (1.77”)	T456CF2SW-75	138mm (5.43”)	8mm (0.32”)
8	PINIP™ Integral Probe		T456CF2P	174mm (6.85”)	8mm (0.32”)
8	Hi-Temperature PINIP™		T456CF2PHT	174mm (6.85”)	8mm (0.32”)

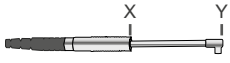
Non-Ferrous (N) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CN2S	88mm (3.46”)	14mm (0.55”)
8	PINIP™ Integral Probe		T456CN2P	185mm (7.28”)	14mm (0.55”)

a. Whichever is the greater
b. FNF (F): FNF probe in F Mode FNF (N): FNF probe in N Mode

- Certificate supplied as standard.

c. Probe length is measured from X to Y
d. Excluding Scan probe end cap
e. Scan Probe calibrated using a sample of the uncoated substrate
Elcometer 456 probes are covered by a 1 year warranty



Elcometer 456 Probe Range for Separate Coating Thickness Gauge

Scale 3 Probe Range 0-13mm / 0-500mils

Accuracy[a]:	±1-3% or ±50µm	±1-3% or ±2.0mils
Range[d]:	0-13mm	0-500mils
Resolution:	1µm: 0-2mm 10µm: 2-13mm	0.1mil: 0-100mils 1.0mil: 100-500mils
Certificate:	●	

See '#' on the probes table on the opposite page for comparison.

1 

2 

3 

Ferrous (F) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CF3S	102mm (4.02”)	14mm (0.55”)
2	PINIP™ Integral Probe		T456CF3P	184mm (7.24”)	14mm (0.55”)

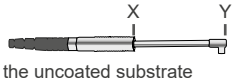
Non-Ferrous (N) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
3	Straight Probe	45mm (1.77”)	T456CN3S	170mm (6.69”)	35mm (1.38”)

a. Whichever is the greater
b. FNF (F): FNF probe in F Mode FNF (N): FNF probe in N Mode

● Certificate supplied as standard.

c. Probe length is measured from X to Y
d. Excluding Scan Probe end cap
e. Scan Probe calibrated using a sample of the uncoated substrate
Elcometer 456 probes are covered by a 1 year warranty



Probe Range for Separate Coating Thickness Gauge

Elcometer 456

Scale 6 Probe Range — F: 0-25mm / 0-980mils — N: 0-30mm / 0-1,200mils

Accuracy[a]:	±1-3% or ±100µm	±1-3% or ±4.0mils
Range[d]:	F: 0-25mm N: 0-30mm	F: 0-980mils N: 0-1,200mils
Resolution:	10µm: 0-2mm 100µm: 2-30mm	1mil: 0-100mils 10mils: 100-1,200mils
Certificate:	•	

See '#' on the probes table below for comparison.

1 

2 

Ferrous (F) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CF6S	150mm (5.90”)	51 x 51mm² (2 x 2 inch²)
2	Straight Probe armoured cable	45mm (1.77”)	T456CF6ARM	190mm (7.48”)	51 x 51mm² (2 x 2 inch²)

Non-Ferrous (N) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CN6S	160mm (6.30”)	58mm (2.29”)
2	Straight Probe armoured cable	45mm (1.77”)	T456CN6ARM	200mm (7.87")	58mm (2.29”)

Scale 7 Probe Range — 0-31mm / 0-1,220mils

Accuracy[a]:	±1-3% or ±100µm	±1-3% or ±4.0mils
Range[d]:	0-31mm	0-1220mils
Resolution:	10µm: 0-2mm 100µm: 2-31mm	1.0mil: 0-100mils 10mils:100-1220mils
Certificate:	•	

Ferrous (F) Probes

#	Description[c]	Probe Length	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
2	Straight Probe armoured cable	45mm (1.77”)	T456CF7ARM	200mm (7.87”)	55 x 55mm² (2.17 x 2.17 inch²)

Elcometer 456 & 355 Probe Placement Jig

The **Elcometer Probe Placement Jig** is the ideal accessory for measuring coatings on small or complex components when the highest levels of repeatability and accuracy are required.

Increases the gauge's repeatability and reproducibility

Housings to suit other probes are available as optional accessories

Compatible with Elcometer 456 probes and Elcometer 355 probes

Ideal for small and large components alike

Probe Placement Jig

Elcometer 456 & 355

The Elcometer Probe Placement Jig is the ideal accessory for measuring coatings on small or complex components when the highest levels of repeatability and accuracy are required.

The Probe Placement Jig makes the gauge score highly in repeatability and reproducibility studies by placing the probe accurately, at the same angle and in the same place on the substrate each time.

Ideal for small and large components alike, the Probe Placement Jig is supplied with a probe housing and a component holder to suit straight Scale 1 or Scale 2 Elcometer 456 probes and standard F1, F2, F4, F5 and N1 Elcometer 355 probes. Housings to suit other probes are available as optional accessories.

Technical Specification

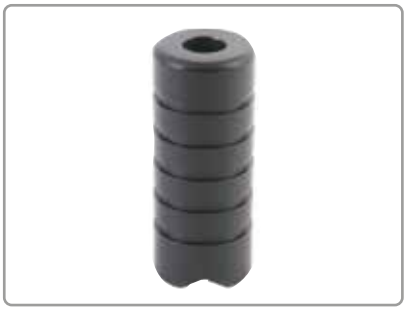
Part Number	Description
T95012880	Probe Placement Jig

Each Probe Placement jig is supplied with a probe housing and a component holder to suit straight Scale 1 or Scale 2 Elcometer 456 probes and standard F1, F2, F4, F5 and N1 Elcometer 355 probes.

T95013028	Component Hand Vice
T95012888	Cable Release Assembly - ideal for remote measurements
T95015961	Dual FNF Probe Housing Adaptor
T95016896	Mini Probe Housing Adaptor

For a wide range of probes to meet your specific application,
see page 8

Elcometer 456 Accessories



Jumbo Hand Grip
Ideal for precision placement for the most accurate results on flat and curved surfaces. Place the probe inside the Jumbo Hand Grip and take measurements - ideal when wearing gloves. Suitable for any Elcometer 456 Scale 1 or Scale 2 straight probes.

F and N Probes	Dual FNF Probes	
T9997766-	T99913225	Jumbo Hand Grip

V-Probe Adaptor
Ideal for precision placement for the most accurate results on medium and large diameter curved surfaces such as pipes and cylinders. Suitable for any Elcometer 456 Scale 1 or Scale 2 straight probes.

F and N Probes	Dual FNF Probes	
T9997381-	T99913133	V-Probe Adaptor

Scan Probe Replacement End Caps
Highly durable - when tested on smooth surfaces probe end caps have been scanned in excess of 50km (30 miles) - each end cap snaps on to the end of the Scan probe significantly enhancing the lifetime of the probe.

F & Dual FNF Probes	
T456C23956	Replacement Scan Probe End Caps (3 per pack)

Accessories

Elcometer 456

Data Output Controller
Enables data to be output from the Elcometer 456 via RS232 ports for the purposes of controlling automated production lines.

The Elcometer Software Support Team or users can produce their own customised software to utilise the data output from the Elcometer 456 gauge in order to remotely trigger pass/fail criteria for their processes.

Part Number	Description
T99925387	Elcometer Data Output Controller
Operating Temperature	0 to 50°C (32°F to 122°F)
Data Input	USB
Data Output	One RS232 serial output via 9 way D-Type connector
Power Supply	Requires 5V 1A(min) DC supply via mini USB. External plug-in mains adaptor with interchangeable UK/EU/US/AUS pins supplied.
Packing List	Elcometer Data Output Controller, USB to RS232 converter lead, power supply (with 4 sets of interchangeable pins)

Using the Data Output Controller

The Elcometer 456 coating thickness gauge probe is attached to a robot arm, to automatically measure dry film thickness on the production line.

The Elcometer 456 connects to the data output controller to transfer live dry film thickness readings via RS232 ports to the automated production line.

Customised software for the data output controller can be produced, using high/low limits to trigger a pass or fail on the automated production line, helping to improve quality.

For a full range of calibration standards and foil sets see page 28

Elcometer 456 Integral Coating Thickness Gauge

The **Elcometer 456** coating thickness gauge is available with an **integral probe**; ideal for single handed operation for consistent, repeatable and accurate results.

Measure DFT
FAST · REPEATABLE
Ferrous & Non-Ferrous Substrates
ACCURATE · DURABLE

- Easy to read, user definable display with automatic screen brightness
- Reading rate of 70+ per minute
- Ergonomic design, ideal for continuous use
- Measure coatings up to 13mm (500mils) on metal substrates
- Stores up to 150,000 readings in alphanumeric batches
- Scratch and solvent resistant screen
- Bigfoot™ integral probe

Bluetooth® wireless technology

compatible with ElcoMaster®

Integral Coating Thickness Gauge

Elcometer 456

Easy

Calibrated and ready for immediate use

Easy to use menus, large buttons and colour LCD screen with auto rotate; factory calibrated and ready to use, straight from the box.

Large easy to read measurements in Metric and Imperial units

Accurate

Accurate measurements on smooth, rough, thin and curved surfaces

With a thickness measurement capability to ±1% and increased reading resolution, the Elcometer 456 produces accurate, temperature stable measurements every time.

Bigfoot™ integral probe for accurate measurements

Reliable

Peace of mind

Repeatable and reproducible and available with a 2 year[1] manufacturer's warranty; giving you peace of mind.

Easy to use and minimum set up required

Rugged

Durable and suitable for use in harsh environments

Suitable for use in harsh environments, the Elcometer 456 is sealed, heavy duty and impact resistant with dust and waterproof equivalent to IP64.

Powerful

Store up to 150,000 readings in 2,500 batches

Measures up to 13mm (500mils) of coating on metal substrates with USB and Bluetooth® data output making it compatible with ElcoMaster® software.

USB and Bluetooth® data output to iPhone[2] or Android™ devices

STANDARDS:

AS 2331.1.4, AS 3894.3-B, AS/NZS 1580.108.1, ASTM B 499, ASTM D 1186-B, ASTM D 1400, ASTM D 7091, ASTM E 376, ASTM G 12, BS 3900-C5-6B, BS 3900-C5-6A, BS 5411-11, BS 5411-3, BS 5599, DIN 50981, DIN 50984, ECCA T1, EN 13523-1, IMO MSC.215(82), IMO MSC.244 (83), ISO 1461, ISO 19840, ISO 2063, ISO 2178, ISO 2360, ISO 2808-6A, ISO 2808-6B, ISO 2808-7C, ISO 2808-7D, ISO 2808-12, JIS K 5600-1-7, NF T30-124, SS 184159, SSPC PA 2, US Navy PPI 63101-000, US Navy NSI 009-32

Elcometer 456 Integral Coating Thickness Gauge for Metal Substrates

Product Features	■ Standard	□ Optional	
	Model B	Model S	Model T
Fast, accurate reading rate; *70+ readings per minute*	■	■	■
Repeatable & reproducible measurements	■	■	■
Easy to use menu structure; *in 30+ languages*	■	■	■
Tough, impact, waterproof & dust resistant; *equivalent to IP64*	■	■	■
Bright colour screen; *with permanent backlight*	■	■	■
Scratch & solvent resistant display; *2.4" (6cm) TFT*	■	■	■
Large positive feedback buttons	■	■	■
USB power supply; *via PC*	■	■	■
Test certificate	■	■	■
2 year gauge warranty[1]	■	■	■
Automatic rotating display; *0°, 90°, 180° & 270°*	■	■	■
Ambient light sensor; *with adjustable auto brightness*	■	■	■
Emergency light	■	■	■
Tap awake from sleep	■	■	■
Gauge software updates[2]; *via ElcoMaster® software*	■	■	■
Data output	■	■	■
USB; *to computer*	■	■	■
Bluetooth®; *to computer, Android™ & iOS[3] devices*		■	■
On screen statistics	■	■	■
Number of readings; *η,* Mean (average); *$\bar{x}$,* Standard deviation; *σ* Highest reading; *Hi,* Lowest reading; *Lo,* Coefficient of variation; *CV%,* Elcometer index value[4]; *EIV*	■	■	■
Nominal dry film thickness; *NDFT*		■	■
IMO PSPC; *%>NDFT, %>90<NDFT, 90:10 pass/fail*		■	■
High & low limits; *definable audible & visual alarms*		■	■
Number of readings above high limit;		■	■
Number of readings below low limit;		■	■
Live reading trend graph; *in Batch Mode*		■	■
ElcoMaster® software & USB cable	□	■	■
Replaceable screen protectors	□	■	■
Protective case	■	■	■
Plastic transit case	□	□	■
Integral models; *with automatic gauge switch on*	■	■	■
Probe type; *Ferrous (F), Non-Ferrous (N), Dual (FNF)[5]*	F, N, FNF	F, N, FNF	F, N, FNF
Measurement range	0-13mm 0-500mils	0-1500µm 0-60mils	0-1500µm 0-60mils
On screen calibration instructions; *in 30+ languages*			
Multiple calibration methods	■	■	■
Factory; *resets to the factory calibration*	■	■	■
2-point; *for smooth and rough surfaces*	■	■	■
1-point; *zero calibration*	■	■	■
Zero offset[6]*; for calibration according to ISO19840*		■	■
Predefined calibration & measurement methods		■	■
ISO, SSPC PA2, Swedish, Australian		■	■

Integral Coating Thickness Gauge for Metal Substrates

Elcometer 456

Product Features

■ Standard □ Optional

	Model B	Model S	Model T
Automatic calibration; *for rapid calibration*		■	■
Calibration memory type; *gauge (g) or gauge & batch (gb)*	g	gb	gb
Number of batches; *with unique calibrations*		1	2,500
Calibration memories; *3 user-programmable memories*			■
Measurement outside calibration warning			■
Calibration lock; *with optional PIN code unlock*	■	■	■
Delete last reading	■	■	■
Gauge memory; *number of readings*	Last 5	1,500	150,000
Individual batch calibrations; *sent to PC via ElcoMaster® software*		■	■
Limits; *user definable audible & visual pass/fail warnings*		■	■
Gauge (g) or gauge & batch specific (gb) limits		g	gb
Date and time stamp		■	■
Review, clear & delete batches		■	■
Batch types; *normal, counted average, IMO PSPC*		■	■
Navsea Mode			■
Batch review graph			■
Copy batches and calibration settings			■
Alpha-numeric batch names; *user definable on the gauge*			■
Scan & Auto Repeat Modes; *with Scan probe connected*			■
Fixed Batch Size Mode; *with batch linking*			■

Technical Specification

Scale 1

Range: 0-1,500µm (0-60mils) Accuracy[7]: ±1-3% or ±2.5µm (±0.1mil)
Resolution: 0.1µm: 0-100µm; 1µm: 100-1,500µm (0.01mil: 0-5mils; 0.1mil: 5-60mils)

Model	Model B	Model S	Model T	Certificate
Elcometer 456 Ferrous Integral	A456CFBI1	A456CFSI1	A456CFTI1	●
Elcometer 456 Non-Ferrous Integral	A456CNBI1	See separate gauges with N2 PINIP™ Probe	See separate gauges with N2 PINIP™ Probe	●
Elcometer 456 Dual FNF Integral	A456CFNFBI1	A456CFNFSI1	A456CFNFTI1	●

Scale 2

Range: 0-5mm (0-200mils) Accuracy[7]: ±1-3% or ±20µm (±1.0mil)
Resolution: 1µm: 0-1mm; 10µm: 1-5mm (0.1mil: 0-50mils; 1mil: 50-200mils)

Model	Model B	Model S	Model T	Certificate
Elcometer 456 Ferrous Integral	A456CFBI2	See separate gauges with F2 PINIP™ Probe	See separate gauges with F2 PINIP™ Probe	●

For higher resolution & accuracy on thin coatings Scale 2 gauges can be switched to the Scale 1 mode measurement performance

Scale 3

Range: 0-13mm (0-500mils) Accuracy[7]: ±1-3% or ±50µm (±2.0mils)
Resolution: 1µm: 0-2mm; 10µm: 2-13mm (0.1mil: 0-100mils; 1mil: 100-500mils)

Model	Model B	Model S	Model T	Certificate
Elcometer 456 Ferrous Integral	A456CFBI3	See separate gauges with F3 PINIP™ Probe	See separate gauges with F3 PINIP™ Probe	●

Display Information	2.4” (6cm) QVGA colour TFT display, 320 x 240 pixels
Battery Type	2 x AA batteries, rechargeable batteries can also be used
Battery Life	approximately 24 hours of continuous use at 1 reading per second[8]
Gauge Dimensions (h x w x d)	141 x 73 x 37mm (5.55 x 2.87 x 1.46”)
Gauge Weight (including batteries supplied)	156g (5.50oz)
Operating Temperature	-10 to 50°C (14 to 122°F)
Packing List	Elcometer 456 gauge, calibration foils, wrist harness, transit case (T), protective case (B, S, T), 1 x screen protectors (S, T), 2 x AA batteries, operating instructions, USB cable (S, T), ElcoMaster® software (S, T)

[7] Whichever is the greater [8] Using default settings & lithium batteries, alkaline or rechargeable batteries may differ ● Certificate supplied as standard.

Elcometer 990

Individual Precision Foils

Calibration foils or 'shims' are the most convenient way of creating a coating thickness standard on the substrate material, surface finish or form. This is the ideal method for adjusting the calibration of the coating thickness gauge to ensure the greatest possible accuracy.

Technical Specification

Part Number	Colour	Dimensions		Values[1]		Certificate[2]
T99022570-1A	Silver	50 x 25mm	(1.97 x 0.98")	12.5µm	(0.5mil)	○
T99022570-2A	Purple	50 x 25mm	(1.97 x 0.98")	25µm	(1.0mil)	○
T99022570-2B	Purple	75 x 50mm	(2.95 x 1.97")	25µm	(1.0mil)	○
T99022570-4A	Dark Blue	50 x 25mm	(1.97 x 0.98")	50µm	(2.0mils)	○
T99022570-4B	Dark Blue	75 x 50mm	(2.95 x 1.97")	50µm	(2.0mils)	○
T99022570-6A	Green	50 x 25mm	(1.97 x 0.98")	75µm	(3.0mils)	○
T99022570-7A	Brown	50 x 25mm	(1.97 x 0.98")	125µm	(5.0mils)	○
T99022570-7B	Brown	75 x 50mm	(2.95 x 1.97")	125µm	(5.0mils)	○
T99022570-9A	Peacock Blue	50 x 25mm	(1.97 x 0.98")	175µm	(7.0mils)	○
T99022570-10A	White	50 x 25mm	(1.97 x 0.98")	250µm	(10mils)	○
T99022570-10B	White	75 x 50mm	(2.95 x 1.97")	250µm	(10mils)	○
T99022570-12A	Black	50 x 25mm	(1.97 x 0.98")	500µm	(20mils)	○
T99022570-12B	Black	75 x 50mm	(2.95 x 1.97")	500µm	(20mils)	○
T99022570-14A	Grey-Blue	50 x 25mm	(1.97 x 0.98")	1,000µm	(40mils)	○
T99022570-14B	Grey-Blue	75 x 50mm	(2.95 x 1.97")	1,000µm	(40mils)	○
T99022570-16A	Clear	50 x 25mm	(1.97 x 0.98")	1mm	(40mils)	○
T99022570-17A	Off White	50 x 25mm	(1.97 x 0.98")	1,500µm	(60mils)	○
T99022570-18A	Clear	50 x 25mm	(1.97 x 0.98")	2mm	(80mils)	○
T99022570-18B	Clear	75 x 50mm	(2.95 x 1.97")	2mm	(80mils)	○
T99022570-20A	Clear	50 x 25mm	(1.97 x 0.98")	3mm	(120mils)	○
T99022570-21A	Clear	50 x 25mm	(1.97 x 0.98")	4mm	(160mils)	○
T99022570-23A	Clear	50 x 25mm	(1.97 x 0.98")	8mm	(310mils)	○
T99022570-24B	Clear	75 x 50mm	(2.95 x 1.97")	9.5mm	(370mils)	○
T99022570-25B	Grey	75 x 50mm	(2.95 x 1.97")	15mm	(590mils)	○
T99022570-26B	Grey	75 x 50mm	(2.95 x 1.97")	25mm	(980mils)	○
T45618978-2[3]	Grey	n/a		1,500µm	(60mils)	○
T45618978-[3]	Grey	n/a		5,000µm	(197mils)	○

[1] Actual foil values may vary, but are accurately labelled

[2] A Certificate can be supplied with any combination of up to 8 Foils

[3] For use with the high temperature PINIP™ probes only due to the potential high temperature of the sample. Foils supplied in a cap which fits over the PINIP™ probe.

○ Optional Calibration Certificate available.

Calibration Foils Sets

Elcometer 990

The Elcometer 990 Calibration Foils are ideal for use in the laboratory, on the production line or on site. Calibration foils or 'shims' are the most convenient way of creating a coating thickness standard on the substrate material, surface finish or form. This is the ideal method for adjusting the calibration of the coating thickness gauge to ensure the greatest possible accuracy.

Features:

- Metric and Imperial values displayed on each foil
- Available individually or in foil sets
- Precision foils with ±1% accuracy
- Each foil has a unique serial number for traceability
- Available in thicknesses from 12.5µm to 20mm (0.5 to 790mils)

Technical Specification

Description	Foil Values (µm)	Foil Values (mils)	Un-Certified	Certified
Scale 1 Foil Set; 0-1500µm (0-60mils)	25, 50, 125, 250, 500, 1,000	1.0, 2.0, 5.0, 10, 20, 40	T99022255-1	T99022255-1C
Scale 2 Foil Set; 0-5mm (0-200mils)	25, 50, 125, 250, 500, 1,000, 2,000, 3,000	1.0, 2.0, 5.0, 10, 20, 40, 80, 120	T99022255-2	T99022255-2C
Scale 3 Foil Set; 0-13mm (0-500mils)	250, 500, 1,000, 2,000, 4,000, 8,000	10, 20, 40, 80, 160, 315	T99022255-3	T99022255-3C
Scale 4 Foil Set; 0-250µm (0-10mils)	12.5, 25, 50, 125, 250	0.5, 1.0, 2.0, 5.0, 10	T99022255-4	T99022255-4C
Scale 5 Foil Set; 0-500µm (0-20mils)	12.5, 25, 50, 125, 250, 500	0.5, 1.0, 2.0, 5.0, 10, 20	T99022255-5	T99022255-5C
Scale 6 Foil Set; 0-30mm (0-1200mils)	1,000, 2,000, 5,000, 9,500, 15mm, 25mm	40, 80, 200, 375, 590, 980	T99022255-6	T99022255-6C
Scale M3 Foil Set; 0-500µm (0-20mils)	12.5, 25, 50, 125, 250, 500	0.5, 1.0, 2.0, 5.0, 10, 20	T99022255-7	T99022255-7C
Scale 2B Foil Set*; 0-5mm (0-200mils)	25, 50, 125, 250, 500, 1,000, 2,000, 2,000	1.0, 2.0, 5.0, 10, 20, 40, 80, 80	T99022255-8	T99022255-8C

Using Calibration Foils

Each foil has been independently measured at the centre point.

For the greatest accuracy, place the probe in the centre of the foil.

Up to 4 foils can be combined to create a wider range of thickness values.

* The Scale 2B foil sets are designed for soft coating probes and have a larger foil surface area.

Elcometer 990 Zero Test Plates

Elcometer provides a range of Zero Test Plates. When used in conjunction with a set of foils, Test Plates are ideal to test a coating thickness gauge's functionality and calibration, ideal for when it may be difficult or impractical to obtain an uncoated substrate.

For a list of standards, foils and foil sets, (see page 28).

Technical Specification

Description	Size	Size	Ferrous	Non-Ferrous	Certificate
Precision Zero Test Plate (±1%)	50.8 x 25.4mm	2.0 x 1.0”	T9994910-	T9994911-	
Zero Test Plate	76.2 x 50.8mm	3.0 x 2.0”	T9999529-	T9999530-	
Zero Test Plate (large)	76.2 x 101.6mm	3.0 x 4.0”	T9994054-	T9994055-	○
Steel (F) Checkpiece*	50.8 x 88.9mm	2.0 x 3.5”	T99916925	-	
Aluminium (N) Checkpiece*	50.8 x 88.9mm	2.0 x 3.5”	-	T99916901	

* To be used only with the Elcometer 311 or Elcometer 415

○ Optional Calibration Certificate available.

elcometer®
inspection equipment

Elcometer 415

Industrial Paint & Powder
Thickness Gauge

Elcometer 415

STANDARDS:
AS2331.1.4, AS/NZS 1580.108.1, ASTM B 499, ASTM D 1186, ASTM D 1400, ASTM D 7091, ASTM E 376, BS 3900-C5-6A, BS 3900-C5-6B, BS 5411-11, BS 5411-3, BS 5599, DIN 50981, DIN 50984, ECCA T1, EN 13523-1, ISO 2360, ISO 2808-12, ISO 2808-6A, ISO 2808-6B, ISO 2808-7C, ISO 2808-7D, JIS K 5600-1-7, NF T30-124

new

- Large easy to read values in microns or mils
- 1 point & 2 point calibration ensures accuracy on smooth & thin coated substrates
- Easy to use, ergonomic design provides maximum comfort for continuous use
- Incredibly fast (60+ readings per minute), reducing inspection times, increasing productivity
- Measures cured paint & powder coatings up to 1000µm (40mils)

2 YEAR* WARRANTY

Paint & Powder Coating Thickness Gauge

The Elcometer 415 Industrial Paint & Powder Thickness Gauge provides simple, fast and accurate coating thickness measurements on smooth & thin industrial paint and powder coated surfaces.

- Auto rotating large colour display provides clear visibility whatever the angle of measurement
- Scratch, solvent & powder resistant display
- Transfer live data via USB or Bluetooth® to ElcoMaster® for instant report generation
- Rugged & resistant to powder coatings ingress equivalent to IP64
- Automatically switches between ferrous & non-ferrous substrates[1]

Ideal for measuring dry film thickness on thin coated substrates.

360° auto rotating display for a clear reading at any measurement angle, on the production line or QA station.

Transfer live data via Bluetooth® to PC, Android™ or iOS mobile devices.[2]

Made for iPod iPhone iPad

Android™

available with Bluetooth® wireless technology

compatible with ElcoMaster®

Elcometer 415 Model T: Made for iPhone 6 Plus, iPhone 6, iPhone 5s, iPhone 5c, iPhone 5, iPhone 4s, iPhone 4, iPad Air 2, iPad mini 3, iPad Air, iPad mini 2, iPad (3rd and 4th generation), iPad mini, iPad 2, and iPod touch (4th and 5th generation). "Made for iPod," "Made for iPhone," and "Made for iPad" mean that an electronic accessory has been designed to connect specifically to iPod touch, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod touch, iPhone, or iPad may affect wireless performance.

Paint & Powder Coating Thickness Gauge

Elcometer 415

In addition to the coating thickness, the Elcometer 415 displays the key statistical values required to assess overall industrial finishing; number of readings (n), average coating thickness (x̄), the lowest (Lo) and the highest (Hi) paint thickness.

The Elcometer 415 is easy to use and has 1 point & 2 point calibration, ensuring accurate measurements on smooth & thin industrial paint & powder coated surfaces.

Robust, durable & powder resistant, the Elcometer 415 is available with a 2 year* manufacturer's warranty; giving you peace of mind.

As each measurement is taken, the Elcometer 415 instantly transmits the thickness values via Bluetooth®[2] or USB straight into an inspection application or into ElcoMaster®, Elcometer's Mobile App, for instant report generation.

Technical Specification

Model	Model B	Model B	Model T	Model T	Certificate
Part Number	A415CFBI	A415CFNFBI	A415CFTI	A415CFNFTI	●
Built in Probe Type	Ferrous	Ferrous/ Non Ferrous	Ferrous	Ferrous/ Non Ferrous	
Live Data Output	USB	USB	Bluetooth® & USB	Bluetooth® & USB	
On Screen Statistics	Number of readings (n), Average/Mean (x̄), Lowest reading (Lo), Highest reading (Hi)				
Fast Accurate Reading Rate	60+ readings per minute		Measurement Range: 0 - 1000µm (0 - 40mils)		
Accuracy[3]	±1-3% or ±2.5µm (±0.1mil)				
Resolution	0.1µm: 0 -100µm; 1µm: 100 - 1000µm (0.01mil: 0 - 5mils; 0.1mil: 5 - 40mils)				
Minimum Substrate Thickness	Steel: 300µm (12mils)		Aluminium: 100µm (4mils) - FNF gauges only		
Operating Temperature	-10 to 50°C (14 to 122°F)		Relative Humidity (RH): 0 to 95%		
Power Supply	2 x AA Batteries or via USB Cable *(rechargable batteries can also be used)*				
Battery Life[4]	Alkaline: Approximately 16 hours Lithium: Approximately 24 hours				
Gauge Dimensions *(h x w x d)*	14.1 x 7.30 x 3.70cm (5.55 x 2.87 x 1.46")				
Gauge Weight	156g (5.5oz) *(including batteries)*				
Packing List	Elcometer 415 gauge, 2 x AA batteries, steel & aluminium check pieces[5], foil set, wrist strap, impact resistant carry case, screen protector[2], calibration test certificate, operating instructions, USB cable[2], ElcoMaster® CD[2] & 2 year warranty extension card				

Accessories

T99916925	Calibration Check Piece; Steel (Ferrous)
T99916901	Calibration Check Piece; Aluminum (Non-Ferrous)
T99022255-1	Foil Set; 0-1000µm (0 - 40mils)
T99022255-1C	Certified Foil Set; 0 - 1000µm (0 - 40 mils)
T99921325	USB Cable
T99922341	Self Adhesive Screen Protectors (Pack of 10)

[1] Elcometer 415 FNF models [2] Elcometer 415 Model T

[3] When subject to a 2-point calibration: ±1% when calibrated close to the required thickness, ±3% across the range

[4] Rechargable batteries may differ

[5] F models: steel check piece; FNF models: steel & aluminium check pieces

* Elcometer 415 gauges are supplied with a one year warranty against manufacturing defects.

● Calibration test certificate supplied as standard

elcometer®
inspection equipment

Elcometer 355
Coating Thickness Gauge

Elcometer 355

Coating Thickness Gauge

compatible with ElcoMaster®

The Elcometer 355's watchwords are accuracy, simplicity, versatility and durability making this a true state of the art hand-held measuring system packed with time-saving and cost-cutting features.

Available as a standard and top model, the unit's large memory stores up to 10,000 readings in batches and data can be output to a PC, datalogger or printer as required.

With a comprehensive range of Probe Modules available, just select the most appropriate for the application. All modules are supplied with calibration foils.

- ±1% or 1µm accuracy, whichever is greater
- Rugged aluminium case designed for the toughest environments
- ElcoMaster® software supplied
- Full statistical analysis - mean standard deviation, number of readings, highest and lowest value
- RS232 output
- Date and time stamp

STANDARDS:

AS 2331.1.4, AS 3894.3-B, AS/NZS 1580.108.1, ASTM B 244, ASTM B 499, ASTM D 1186-B, ASTM D 1400, ASTM D 7091, ASTM E 376, ASTM G 12, BS 3900-C5-6A, BS 3900-C5-6B, BS 5411-3, BS 5411-11, BS 5599, DIN 50981, DIN 50984, ECCA T1, EN 13523-1, IMO MSC.215(82), IMO MSC.244 (83), ISO 1461, ISO 19840, ISO 2063, ISO 2360, ISO 2808-6A, ISO 2808-6B, ISO 2808-7C, ISO 2808-7D, ISO 2808-12, JIS K 5600-1-7, NF A49-211, NF T30-124, SS 184159, SSPC PA 2, US Navy PPI 63101-000, US Navy NSI 009-32

Product Features C

Part Number	Description	Certificate
A355----T	Elcometer 355 Top Coating Thickness Gauge	○
Operating Temperature	0°C to 50°C (32°F to 120°F)	
Storage Temperature	-10°C to 60°C (14°F to 140°F)	
Dimensions	175 x 83 x 42mm (6.9 x 3.3 x 1.6")	
Weight	650g (1.43lb)	
Reading Speed	40 readings per minute Auto Repeat Mode 130/140 readings per minute	
Data Output	RS232C Serial or Parallel Output via D25 Type Connector (Female)	
Memory	Standard: 5,000 reading memory in 25 pre-set batches Top: 10,000 reading memory in up to 200 batches (individually calibrated)	
Battery Type	3 x 1.5V AA Cells (Alkaline) or 3 x 1.5V Nickel Metal Hydride rechargeable cells	
Battery Life	Minimum: 40 hours with alkaline batteries, 20 hours with rechargeable batteries	
Packing List	Elcometer 355 Top or Standard Gauge, leather carry case, precision hand grip, 3 x AA batteries, ElcoMaster® software, PC cable and operating instructions	

○ Optional Calibration Certificate available.

Coating Thickness Gauge

Elcometer 355

Unique probe modules allow the Elcometer 355 Coating Thickness Gauges to be versatile and flexible for any measurement application.

Probe modules can be freely interchanged as required for both ferrous (F) and non-ferrous (N) metal substrates.

Most probe modules are capable of an accuracy of ±1% of the reading on a variety of coatings and surfaces.

Telescopic probes extend from 410mm (16”) to 1100mm (43”).

Probe Range C

Scale 1

Range: 0-1500µm (0-60mils) Accuracy*: ±1% or ±1µm (±0.04mil)

Resolution: 0.1µm: 0-200µm; 0.5µm: 200-500µm; 1µm: 500-1500µm (0.005mil: 0-8mils; 0.02mil: 8-20mils; 0.05mil: 20-60mils)

Probe Design	Part Number	Minimum Headroom	Minimum Sample Diameter	Certificate
F1 Standard	T35511952	85mm (3.35”)	6mm (0.24”)	●
F1 Telescopic	T35511959	30mm (1.18”)	6mm (0.24”)	●
N1 Standard	T35511982	85mm (3.35”)	8mm (0.31”)	●

Scale 2

Range: 0-5mm (0-200mils) Accuracy*: ±1% or ±5µm (±0.2mil)

Resolution: 2µm: 0-500µm; 5µm: 500-5000µm (0.1mil: 0-20mils; 0.2mil: 20-200mils)

Probe Design	Part Number	Minimum Headroom	Minimum Sample Diameter	Certificate
F2 Telescopic	T35511960	36mm (1.42”)	10mm (0.39”)	●
N2 Standard	T35511984	88mm (3.46”)	18mm (0.71”)	●

Scale 4

Range: 0-250µm (0-10mils) Accuracy*: ±1% or ±1µm (±0.04mil)

Resolution: 0.1µm: 0-250µm (0.005mil: 0-10mils)

Probe Design	Part Number	Minimum Headroom	Minimum Sample Diameter	Certificate
F4 Standard	T35511950	85mm (3.35”)	4mm (0.16”)	●
F4 Right Angle (long)	T35511951	18mm (0.71”)	3mm (0.12”)	●
N4 Standard	T35511980	90mm (3.54”)	8mm (0.31”)	●

Scale 5

Range: 0-800µm (0-32mils) Accuracy*: ±1% or ±2µm (±0.08mil)

Resolution: 1µm: 0-800µm (0.1mil: 0-32mils)

Probe Design	Part Number	Minimum Headroom	Minimum Sample Diameter	Certificate
F5 (Rebar)	T35511962	85mm (3.35”)	4mm (0.16”)	●

* Whichever is greater

● Test certificate supplied as standard.

Elcometer 355 Coating Thickness Gauge

Accessories

Precision Hand Grip
The grip is designed to help control the placement of the probe on surfaces in a repeatable way so that the optimum accuracy capability can be achieved.

Jumbo Hand Grip
Ideal for precision placement for the most accurate results on flat and curved surfaces. Place the probe inside the Jumbo Hand Grip and take measurements - ideal when wearing gloves.

V-Probe Adaptor
Ideal for precision placement for the most accurate results on medium and large diameter curved surfaces such as pipes and cylinders.

Part Number	Description
T35512026	Precision Hand Grip
T9997766-	Jumbo Hand Grip - F and N Probes
	For use with the following Elcometer 355 probes: F1 Standard, F2 Standard, F4 Standard, F5 Rebar, N1 Standard
T9997381-	V-Probe Adaptor - F and N Probes
	For use with the following Elcometer 355 probes: F1 Standard, F2 Standard, F4 Standard, F5 Rebar, N1 Standard

Probe Placement Jig
For the most reliable and repeatable coating thickness measurements, making the gauge score highly in repeatability and reproducibility studies. Ideal for small and large components alike. The probe placement jig is supplied with a probe housing to suit standard F1, F2, F4, F5 and N1 probes. Housings to suit other probes are available as optional accessories.

Part Number	Description
T95012880	Probe Placement Jig
T95013028	Component Hand Vice
T95012888	Cable Release Assembly - ideal for remote measurements
T95015589	N4 Probe Adaptor - must be purchased for use with N4 Probes

NEW

elcometer®
inspection equipment

Elcometer 500
Coating Thickness Gauge

Reliably measure up to 9mm of **coating thickness** on **concrete** & other similar substrates

- **Fast, accurate & repeatable readings**
- **Robust, ergonomic design; inspect all day, every day**
- **Can be used in accordance with ASTM D6132, SSPC PA9 & ISO 2808**
- **Field replaceable probe tips; maximise your productivity**

Download on the App Store

GET IT ON Google Play

available with Bluetooth® wireless technology

Elcometer 500

Coating Thickness Gauge

The Elcometer 500 coating thickness gauge **accurately measures the thickness of coatings on concrete** and other similar substrates* - **non destructively**.

- Accurately measure up to 9mm (355mils) of coatings on concrete or other similar substrates‡
- Easy to read, user definable display with automatic screen brightness
- Store up to 100,000 readings in up to 1,000 alpha-numeric batches
- Rugged, intelligent probes with field replaceable tips, measure up to 9mm (355mils)

  C1 150 - 2,500µm (6 - 98mils)
  C2 750 - 9,000µm (30 - 355mils)

- Measure more than 60 readings per minute in standard mode and over 140 readings per minute in scan mode
- Rugged, dust & waterproof design equivalent to IP54, ideal for almost all environments
- USB & Bluetooth® data output to PC and Android™ or iOS mobile devices
- Ergonomic design, ideal for continuous use

STANDARDS:
ASTM D6132, SSPC-PA 9,
ISO 2808 Method 10

compatible with ElcoMaster®

available with Bluetooth® wireless technology

Made for iPod iPhone iPad

Android™

* Similar substrates include plasterboard, drywall, concrete block, brick, etc.

‡ Epoxy coatings, thickness on other materials may vary

Coating Thickness Gauge

Elcometer 500

Fast

Measuring over 60 readings per minute in standard mode and over 140 readings per minute in scan mode, the Elcometer 500 coating thickness gauge can significantly reduce your inspection times.

Reliable

The Elcometer 500 will only display the coating thickness reading if the signal strength indicator turns green, preventing false or incorrect readings.

If the coating thickness is outside the measurement range, the Elcometer 500 tells you on the display.

Intelligent

The Elcometer 500 measurement probes are supplied with user replaceable probe tips. If the tip is damaged or wears during use you can replace it and carry on.

The gauge even informs you when you need to change the probe tip, maximising inspection time.

Easy to Use

There is no need to set up gates, range values or know the thickness of the coating, simply select the coating material from the gauge library and start measuring.

Ergonomic

The Elcometer 500 gauge and intelligent probes have all been ergonomically designed for continuous use. No force is required to take a reading.

Rugged

Robust, ergonomic and sealed against dirt and water, equivalent to a rating of IP54, the Elcometer 500 has been designed to work in harsh environments, making it the ideal gauge for the laboratory or the job site.

Powerful

The Elcometer 500 wirelessly transmits readings, statistics and batches via Bluetooth® or via USB straight into your inspection application or into Elcometer's Mobile App ElcoMaster®, for instant report generation either at your desk or in the field, using your mobile.

Large easy to read display
and signal strength indicator

Ergonomic probes
with replaceable probe tips

Easy to use and minimum
set up required

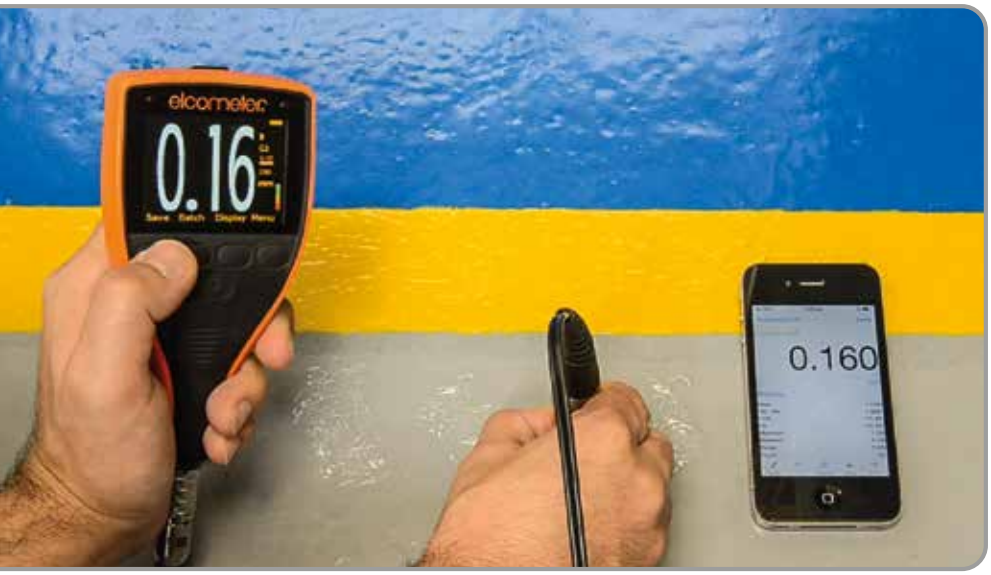
Rugged and reliable,
ideal for harsh environments

Elcometer 500

Coating Thickness Gauge

Create instant reports with ElcoMaster®

What you do with the collected data is just as important as taking the readings themselves.



ElcoMaster® is a fast, easy to use software solution for all your data management and quality assurance needs, preparing professional inspection reports at the click of a button.

Data transferred to ElcoMaster® includes:

- Date and time stamped readings
- Statistical values
- Limit values
- Readings above high limit
- Run charts & histograms
- Batch and gauge information
- Calibration information

ElcoMaster® Mobile App users can;

- Store live readings directly on to a mobile device and save them into batches
- View graphs in real-time whilst carrying out the inspection
- Add notes to individual batch reading
- Add photographs of the test surface to each individual batch reading at the click of a button
- Plot individual readings on to a location map, photograph or diagram via the mobile device's internal GPS
- Inspection data can be transferred from mobile to PC for further analysis and reporting
- Generate instant .pdf[2] report for submission

Download on the App Store

GET IT ON Google Play

Connect
Connect gauge via Bluetooth® to see live readings directly on the phone and save them into batches.

Review
Review average, maximum and minimum readings instantly.

Manage & Print
Store all data; surface cleanliness, surface profile, climate or manual reports in easy to manage folders.

Photos & Notes
Add photos, notes and comments.

Image Collection
Use measurement location points on images to indicate the position for the next reading.[1]

Combine
Combine different inspection parameters (such as surface profile, climate, dry film thickness) together with images, notes and other project specific information into reports.

Collaborate
Share inspection data securely via the Cloud and collaborate on projects using the instant messaging feature in ElcoMaster®.

Send
Email inspection data from a mobile device to a PC for further analysis and reporting or transfer data via the Cloud.

Consistency
Stored material calibrations can be transferred to ElcoMaster® These can be sent to any Elcometer 500 gauge, anywhere in the world.

[1] Android™ devices [2] Available on iOS devices

The different modes of calibration

The Elcometer 500's user calibration adjustment procedures are fully traceable to National and International Standards.

1. Coating Material Library

The Elcometer 500's advanced measurement technology means that you no longer need to know how thick the coating should be or to set up measurement gates before taking a reading. Simply switch on the gauge, select the coating from the calibration library and take a reading - it is that easy.

2. Material Thickness Calibration

To obtain the greatest measurement accuracy, the Elcometer 500 can be calibrated using the known thickness of the coating to be measured.

If a sample of known thickness is not available, the Elcometer 500 Coating Calibration Mould (CCM) can be used to create a coating of known thickness which is traceable to both National and International Standards.

3. Sound Velocity Calibration

The Elcometer 500 can be calibrated by entering the speed of sound from the Product Datasheet available from the coating manufacturer.

Display Modes

Readings

Readings & Statistics


Readings & Run Charts


Readings & Bar Graphs

Readings & Differential

How to create a coating sample using the Elcometer 500 Coating Calibration Mould (CCM)

1. Place the Coating Calibration Mould (CCM) on a flat surface and completely fill the sample chamber with the test coating.

2. Using the plastic scraper, scrape over the coating allowing the excess to fall into the overflow chamber. Allow the coating to cure.

3. When fully cured, calibrate a ferrous coating thickness gauge on the side of the CCM then measure and record the dry film thickness at the centre of the coating.

4. Measure the same point using the Elcometer 500.

Enter the dry film thickness measurement and save it in the Elcometer 500's Coating Materials list.

Elcometer 500

Coating Thickness Gauge

Product Features	■ Standard	□ Optional
	Model B	Model T
Fast, accurate reading rate; *60+ readings per minute*	■	■
Repeatable & reproducible measurements	■	■
Easy to use menu structure; *in 30+ languages*	■	■
Tough, impact, waterproof & dust resistant; *equivalent to IP54*	■	■
Bright colour screen; *with automatic rotating display (0°, 90°, 180° & 270°)*	■	■
Scratch & solvent resistant display; *2.4" (6cm) TFT*	■	■
USB power supply; *via PC*	■	■
Test certificate & 2 year gauge warranty*	■	■
Ambient light sensor; *with adjustable auto brightness*	■	■
Automatic probe recognition	■	■
Gauge software updates[1]; *via ElcoMaster® software*	■	■
Data output	■	■
USB; *to computer*	■	■
Bluetooth®; *to computer, Android™ & iOS‡ devices*		■
Measurement units; *µm, mm, mils, inch*	■	■
Signal strength indicator	■	■
User selectable reading resolution; *Low & High reading resolution*	■	■
Display modes; *user selectable*		■
Readings	■	■
Readings & differential; *reading and the offset from a set nominal difference*		■
Bar graph		■
Live reading trend graph; *in batch mode*		■
Run chart; *trend graph of last 20 readings*		■
User selectable statistics;	■	■
Number of readings; n, Mean (average); $\bar{x}$, Standard deviation; σ, Highest reading; Hi, Lowest reading; Lo, Coefficient of variation; CV%	■	■
Nominal dry film thickness; NDFT, High & low limits; definable audible & visual alarms, Number of readings above high limit; Number of readings below low limit; Range; I		■
Multiple calibration methods with on-screen instructions; *in 30+ languages*	■	■
Material selection; *preset choice of materials or create own user defined materials*	■	■
Velocity entry; *direct entry of a material's sound-velocity*	■	■
1 Point; *using a coating sample of known thickness*	■	■
Calibration lock; *with optional PIN code unlock*	■	■
Gauge memory; *number of readings*		100,000
Number of batches; *with unique batch calibrations*		1,000
Alpha-numeric batch names; *user definable on the gauge*		■
Fixed batch size mode; *with batch linking*		■
Batch review graph		■
Delete last reading	■	■
Limits; *40 user definable audible & visual pass/fail warnings*		■
Live reading mode; *transfer of individual readings to external device*	USB	USB & Bluetooth®
Reading save function	■	■
Date and time stamp		■
Scan mode		■
ElcoMaster® software & USB cable	□	■
Protective case	■	■
Plastic transit case	□	■

*

Coating Thickness Gauge

Elcometer 500

Technical Specification

Part Number	Description	Certificate
A500C-B	Elcometer 500 Coating Thickness Gauge Model B	●
A500C-T	Elcometer 500 Coating Thickness Gauge Model T	●
A500-KIT1	Elcometer 500 Coatings on Concrete Inspection Kit	●
Operating Temperature	-10 to 50°C (14 to 122°F)	
Power Supply	2 x AA batteries (rechargeable batteries can be used)	
Battery Life	Alkaline: Approximately 15 hours Lithium: Approximately 28 hours	
Gauge Weight	161g (5.68oz) including batteries, without transducer	
Gauge Dimensions	141 x 73 x 37mm (5.55 x 2.87 x 1.46") without transducer	
Packing List	**Elcometer 500 Coating Thickness Gauge Model B & T** Elcometer 500 Coating Thickness Gauge, 4ml (0.14fl oz) bottle of probe tip oil, 120ml (4fl oz) bottle of ultrasonic couplant, 2 x AA batteries, protective case, transit case (Model T), wrist harness, 3 x screen protectors, ElcoMaster® software (Model T), USB cable (Model T), test certificate **Elcometer 500 Coatings on Concrete Inspection Kit** Elcometer 500 Model T Coating Thickness Gauge, C1 & C2 coating thickness probes, C1 & C2 probe measurement foils: 1, 2, 3 & 8mm (40, 80, 120 & 310mils), Elcometer 456 Model B Ferrous Integral Gauge, Elcometer 456 calibration foils: 0.5 & 1.5mm (20 & 60mils), 2 x coating calibration moulds, 120ml (4fl oz) bottle of ultrasonic couplant, 4ml (0.14fl oz) bottle of probe tip oil, transit case, 2 x wrist harnesses, 6 x screen protectors, ElcoMaster® software & USB cable	

Probe Range

Scale C1

T500-C1 Elcometer 500 Scale C1 Probe — Certificate ●

Range[1]: 150 - 2,500µm (6 - 98mils) Accuracy[2]: ±2% or ±10µm (±2% or ±0.4mil)

Resolution: Low: 10µm, 0.01mm, 1mil or 0.001" High: 1µm, 0.001mm, 0.1mil or 0.0001"

Scale C2

T500-C2 Elcometer 500 Scale C2 Probe — Certificate ●

Range[1]: 750 - 9,000µm (30 - 355mils) Accuracy[2]: ±2% or ±10µm (±2% or ±0.4mil)

Resolution: Low: 10µm, 0.01mm, 1mil or 0.001" High: 1µm, 0.001mm, 0.1mil or 0.0001"

Accessories

Part Number	Description		
T50027602-1	C1 Replacement Probe Tip; Pack of 2	T50027602-2	C2 Replacement Probe Tip; Pack of 2
T50027604	Probe Tip Oil; 4ml (0.14fl oz) Bottle		
Part Number	Description		
T92015701	Ultrasonic Couplant; 120ml (4fl oz)	T92024034-7	Ultrasonic Couplant; 300ml (10fl oz)
T92024034-8	Ultrasonic Couplant; 500ml (17fl oz)	T92024034-3	Ultrasonic Couplant; 3.8l (1 US Gallon)
T92024034-9	Ultrasonic Couplant (High Temp); 60ml (2fl oz); *for use in high temperature environments up to 398°C (970°F)*		
Part Number	Description		
T99022255-13	C1 Foil Set: 1 & 2mm (40 & 80mils)	T99022255-13C	C1 Foil Set - Certified: 1 & 2mm (40 & 80mils)
T99022255-14	C2 Foil Set: 3 & 8mm (120 & 310mils)	T99022255-14C	C2 Foil Set - Certified: 3 & 8mm (120 & 310mils)
Part Number	Description		
T50027567-1	Elcometer 500 Coating Calibration Mould (CCM)		

● Test certificate supplied as standard

[1] Epoxy coatings, thickness on other materials may vary
[2] Whichever is greater

Elcometer 211 Mechanical Coating Thickness Gauge

The Elcometer 211, commonly referred to as the "Banana Gauge", is a Type I dry film thickness gauge which is not only ideal for use in environments where the use of electronic instruments is difficult, e.g. inflammable atmospheres in oil and gas production, but can also be used for underwater* coating inspection.

This is one of the most popular mechanical gauges in the world.

- Factory calibrated - with user calibration adjustment
- Foils supplied to check calibration on site
- Ideal for cold surfaces and underwater use
- Small and portable with an accuracy ±5%
- The "V" grooved base, ideal for pipeline inspection
- Available in either Metric or Imperial versions, the Elcometer 211 measures coatings up to 6mm (250mils).

STANDARDS:
AS 2331.1.3, AS 3894.3-A, ASTM G 12, ASTM B 499, AS/NZS 1580.108.1, BS 5411-11, BS 3900-C5-6A, DIN 50981, ISO 2178, ISO 2808-6A, ISO 2808-7A, JIS K 5600-1-7, NF T 30-124, SSPC-PA2

Technical Specification

Part Number	Description	Range	Certificate
A211F--1M	Elcometer 211 Coating Thickness Gauge	0 - 1000µm	○
A211F--8M	Elcometer 211 Coating Thickness Gauge	0.65 - 6mm	○
A211F--1E	Elcometer 211 Coating Thickness Gauge	0 - 40mils	○
A211F--8E	Elcometer 211 Coating Thickness Gauge	25 - 250mils	○
Accuracy	±5% of the reading or ±2.5µm/0.1mil (whichever is the greater)		
Substrate Thickness	0.4mm (16mils) minimum		
Measurement Area	30mm (1.18") Diameter minimum		
Measurement Diameter	20mm (0.8") minimum		
Edge Effects	Must be at least 6mm (0.24") from edge		
Dimensions	200 x 60 x 30mm (7.8 x 2.4 x 1.2")		
Packing List	Elcometer 211, calibration foil set, carry pouch, wrist strap and operating instructions		

○ Optional Calibration Certificate available.

* Underwater use voids the warranty and users should replace the gauges periodically

Elcometer 141 Paint Inspection Gauge

The Elcometer 141 Paint Inspection Gauge is a useful method to determine the thickness of both single & multiple layer coatings.

Ideal for use on metallic & non-metallic substrates such as wood, glass and plastics.

- Large easy grip handle - makes cutting thick or hard coatings easy
- Internal cutter storage compartment
- x50 magnification microscope

STANDARDS:
AS 1580.108.2, ASTM D 4138-A, BS 3900-C5-5B, DIN 50986,ISO 2808-5B, ISO 2808-6B, JIS K 5600-1-7, NF T 30-123

Technical Specification

Part Number	Description	Certificate
A141---D	Elcometer 141 Paint Inspection Gauge	○
Scale Range	0 to 1.8mm (0 to 0.07")	
Scale Resolution	0.02mm (0.001")	
Dimensions (fitted to handle)	160 x 100 x 35mm (6.3 x 4 x 1.4")	
Weight (fitted to handle)	510g (1lb 2oz)	
Packing List	Elcometer 141 P.I.G, x50 microscope, 3 cutters, marker pen, hexagonal wrench, carry case and operating instructions	

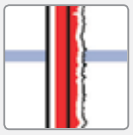
Accessories

Part Number	Description	Cutting Angle	Measurement Range	Graticule Scale Factor	Certificate
T99915761-1	Tungsten Carbide Cutter No 1	45°	20 - 2000µm (1 - 80mils)	20µm (1mil)	○
T99915761-4	Tungsten Carbide Cutter No 4	26.6°	10 - 1000µm (0.5 - 35mils)	10µm (0.5mil)	○
T99915761-6	Tungsten Carbide Cutter No 6	5.7°	2 - 200µm (0.1 - 8mils)	2µm (0.1mil)	○

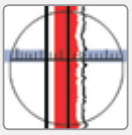
Using the Paint Inspection Gauge

1. Take the coated product.

2. Using the supplied marker, draw a line across the coating.



3. Using the P.I.G, make a cut at right angles to the marker line, all the way down to the substrate.



4. Use the supplied microscope to count the number of graticule divisions across the coating layer & calculate the thickness value using the graticule scale factor.

○ Optional Calibration Certificate available.

Elcometer 121/4 Standard & Top Paint Inspection Gauges (P.I.G)

Available in two models, the Elcometer 121 Paint Inspection Gauge is designed to measure the thickness of single or multiple layers of coatings.

Both models are supplied with illuminated integrated graticule microscopes.

The Top model has an internal carousel allowing each of the three cutters to be selected easily together with a cross hatch adhesion tester.

- Compact and convenient, ideal for use in confined areas
- Made of anodised aluminium for durability
- Bright LED light source for clear vision
- Top Model can hold one cross hatch cutter & three standard cutters which are locked tight, a simple rotation of the cutter holder changes the cutting tool.

STANDARDS:

AS 1580.108.2, AS 1580.408.4*, AS 3894.9*, ASTM D 3359-B*, ASTM D 4138-A, BS 3900-C5-5B, BS 3900-E6*, DIN 50986, ECCA T6*, EN 13523-6*, ISO 2808-5B, ISO 16276-2*, ISO 2409*, ISO 2808-6B, JIS K 5600-1-7, NF T30-038*, NF T30-123

Technical Specification

	Description		
	Elcometer 121/4 Standard P.I.G.	Elcometer 121/4 Top P.I.G.	Certificate
Part Number	A121---S	A121---T	○
Range	2 - 2000µm (0.08 - 80mils) Accuracy is dependent on tool cut angle, half a division		
Dimensions	110 x 75 x 30mm (4.3 x 3 x 1.2"), 369g (13oz)	110 x 75 x 40mm (4.3 x 3 x 1.6), 383g (13.5oz)	
Packing List	Elcometer 121/4, cutters 1, 4 and 6, x50 microscope, 4 x AG3 batteries for lamp (fitted), hexagonal wrench, black marker pen, wrist strap, carry case and operating instructions		

○ Optional Calibration Certificate available.

Elcometer 121/4 Standard & Top Paint Inspection Gauges (P.I.G)

Accessories

Part Number	Description	Angle	Measurement Range	Graticule	Certificate
T99915761-1	Tungsten Carbide Cutter No 1	45°	20 - 2000µm (1 - 80mils)	20µm (1mil)	○
T99915761-4	Tungsten Carbide Cutter No 4	26.6°	10 - 1000µm (0.5 - 35mils)	10µm (0.5mil)	○
T99915761-6	Tungsten Carbide Cutter No 6	5.7°	2 - 200µm (0.1 - 8mils)	2µm (0.1mil)	○
			Coating Thickness	Standard	
T99913700-1	X-Hatch Cutter, 6 teeth x 1mm		0 - 60µm (0 - 2.4mils)	ISO	○
T99913700-2	X-Hatch Cutter, 11 teeth x 1mm		0 - 50µm (0 - 2.0mils)	ASTM	○
T99913700-3	X-Hatch Cutter, 11 teeth x 1.5mm		0 - 60µm (0 - 2.4mils)	-	○
T99913700-4	X-Hatch Cutter, 6 teeth x 2mm		50 - 125µm (2.0 - 5.0mils)	ASTM	○
T99913700-4	X-Hatch Cutter, 6 teeth x 2mm		0 - 60µm (0 - 2.4mils)	ISO	○
T99913700-4	X-Hatch Cutter, 6 teeth x 2mm		61 - 120µm (2.4 - 4.7mils)	ISO	○
T99913700-5	X-Hatch Cutter, 6 teeth x 3mm		121 - 250µm (4.8 - 9.8mils)	ISO	○
K0001539M001	Adhesion Tape (1 roll)			ASTM	
T9998894-	Adhesion Tape (2 rolls)			ASTM	
T9999358-1	Adhesion Tape (1 roll)			ISO	
T9999358-2	Adhesion Tape (2 rolls)			ISO	

* Standards apply to Top Model only

○ Optional Calibration Certificate available.

Elcometer 990 Calibration Foils

The Elcometer 990 Calibration Foils are ideal for use in the laboratory, on the production line or on site. Calibration foils or 'shims' are the most convenient way of creating a coating thickness standard on the substrate material, surface finish or form. This is the ideal method for adjusting the calibration of the coating thickness gauge to ensure the greatest possible accuracy.

Features:

- Metric and Imperial values displayed on each foil
- Available individually or in foil sets
- Precision foils with ±1% accuracy
- Each foil has a unique serial number for traceability
- Available in thicknesses from 12.5µm to 20mm (0.5 to 790mils)

Using calibration foils

Each foil has been independently measured at the centre point.

For the greatest accuracy, place the probe in the centre of the foil.

Up to 4 foils can be combined to create a wider range of thickness values.

Elcometer 990 Calibration Foils

Technical Specification

Individual Precision Foils

Part Number	Colour	Dimensions		Values*		Certificate+
T99022570-1A	Silver	50 x 25mm	(1.97 x 0.98")	12.5µm	(0.5mil)	○
T99022570-2A#	Purple	50 x 25mm	(1.97 x 0.98")	25µm	(1.0mil)	○
T99022570-4A#	Dark Blue	50 x 25mm	(1.97 x 0.98")	50µm	(2.0mils)	○
T99022570-6A	Green	50 x 25mm	(1.97 x 0.98")	75µm	(3.0mils)	○
T99022570-7A#	Brown	50 x 25mm	(1.97 x 0.98")	125µm	(5.0mils)	○
T99022570-9A	Peacock Blue	50 x 25mm	(1.97 x 0.98")	175µm	(7.0mils)	○
T99022570-10A#	White	50 x 25mm	(1.97 x 0.98")	250µm	(10mils)	○
T99022570-12A#	Black	50 x 25mm	(1.97 x 0.98")	500µm	(20mils)	○
T99022570-14A#	Grey-Blue	50 x 25mm	(1.97 x 0.98")	1000µm	(40mils)	○
T99022570-16A	Clear	50 x 25mm	(1.97 x 0.98")	1mm	(40mils)	○
T99022570-17A	Off White	50 x 25mm	(1.97 x 0.98")	1500µm	(60mils)	○
T99022570-18A#	Clear	50 x 25mm	(1.97 x 0.98")	2mm	(80mils)	○
T99022570-20A	Clear	50 x 25mm	(1.97 x 0.98")	3mm	(120mils)	○
T99022570-21A	Clear	50 x 25mm	(1.97 x 0.98")	4mm	(160mils)	○
T99022570-23A	Clear	50 x 25mm	(1.97 x 0.98")	8mm	(310mils)	○
T45618978-2**	Grey	n/a		1500µm	(60mils)	○
T45618978-3**	Grey	n/a		5000µm	(197mils)	○

Alternative 75 x 50mm foils upon request

* Actual foil values may vary, but are accurately labelled

** For use with the high temperature PINIP™ probes only due to the potential high temperature of the sample. Foils supplied in a cap which fits over the PINIP™ probe.

+ A Certificate can be supplied with any combination of up to 8 Foils

○ Optional Calibration Certificate available.

Technical Specification

Calibration Foils Sets

Description	Foil Values (µm)	Foil Values (mils)	Un-Certified	Certified
Scale 1 Foil Set; 0-1500µm (0-60mils)	25, 50, 125, 250, 500, 1000	1.0, 2.0, 5.0, 10, 20, 40	T99022255-1	T99022255-1C
Scale 2 Foil Set; 0-5mm (0-200mils)	25, 50, 125, 250, 500, 1000, 2000, 3000	1.0, 2.0, 5.0, 10, 20, 40, 80, 120	T99022255-2	T99022255-2C
Scale 3 Foil Set; 0-13mm (0-500mils)	250, 500, 1000, 2000, 4000, 8000	10, 20, 40, 80, 160, 315	T99022255-3	T99022255-3C
Scale 4 Foil Set; 0-250µm (0-10mils)	12.5, 25, 50, 125, 250	0.5, 1.0, 2.0, 5.0, 10	T99022255-4	T99022255-4C
Scale 5 Foil Set; 0-800µm (0-32mils)	12.5, 25, 50, 125, 250, 500	0.5, 1.0, 2.0, 5.0, 10, 20	T99022255-5	T99022255-5C
Scale 6 Foil Set; 0-30mm (0-1200mils)	1000, 2000, 5000, 9500, 15mm, 25mm	40, 80, 200, 375, 590, 980	T99022255-6	T99022255-6C
Scale M3 Foil Set; 0-500µm (0-20mils)	12.5, 25, 50, 125, 250, 500	0.5, 1.0, 2.0, 5.0, 10, 20	T99022255-7	T99022255-7C
Scale 2B Foil Set[1]; 0-5mm (0-200mils)	25, 50, 125, 250, 500, 1000, 2000, 2000	1.0, 2.0, 5.0, 10, 20, 40, 80, 80	T99022255-8	T99022255-8C

[1]The Scale 2B foil sets are designed for soft coating probes and have a larger foil surface area

Elcometer 990 Calibration Foils

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Features:

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- Precision foils with ±1% accuracy
- Each foil has a unique serial number for traceability
- Available in thicknesses from 12.5µm to 20mm (0.5 to 790mils)

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Each foil has been independently measured at the centre point.

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Up to 4 foils can be combined to create a wider range of thickness values.

Elcometer 990 Calibration Foils

Technical Specification

Individual Precision Foils

Part Number	Colour	Dimensions		Values*		Certificate+
T99022570-1A	Silver	50 x 25mm	(1.97 x 0.98")	12.5µm	(0.5mil)	○
T99022570-2A#	Purple	50 x 25mm	(1.97 x 0.98")	25µm	(1.0mil)	○
T99022570-4A#	Dark Blue	50 x 25mm	(1.97 x 0.98")	50µm	(2.0mils)	○
T99022570-6A	Green	50 x 25mm	(1.97 x 0.98")	75µm	(3.0mils)	○
T99022570-7A#	Brown	50 x 25mm	(1.97 x 0.98")	125µm	(5.0mils)	○
T99022570-9A	Peacock Blue	50 x 25mm	(1.97 x 0.98")	175µm	(7.0mils)	○
T99022570-10A#	White	50 x 25mm	(1.97 x 0.98")	250µm	(10mils)	○
T99022570-12A#	Black	50 x 25mm	(1.97 x 0.98")	500µm	(20mils)	○
T99022570-14A#	Grey-Blue	50 x 25mm	(1.97 x 0.98")	1000µm	(40mils)	○
T99022570-16A	Clear	50 x 25mm	(1.97 x 0.98")	1mm	(40mils)	○
T99022570-17A	Off White	50 x 25mm	(1.97 x 0.98")	1500µm	(60mils)	○
T99022570-18A#	Clear	50 x 25mm	(1.97 x 0.98")	2mm	(80mils)	○
T99022570-20A	Clear	50 x 25mm	(1.97 x 0.98")	3mm	(120mils)	○
T99022570-21A	Clear	50 x 25mm	(1.97 x 0.98")	4mm	(160mils)	○
T99022570-23A	Clear	50 x 25mm	(1.97 x 0.98")	8mm	(310mils)	○
T45618978-2**	Grey	n/a		1500µm	(60mils)	○
T45618978-3**	Grey	n/a		5000µm	(197mils)	○

Alternative 75 x 50mm foils upon request

* Actual foil values may vary, but are accurately labelled

** For use with the high temperature PINIP™ probes only due to the potential high temperature of the sample. Foils supplied in a cap which fits over the PINIP™ probe.

+ A Certificate can be supplied with any combination of up to 8 Foils

○ Optional Calibration Certificate available.

Technical Specification

Calibration Foils Sets

Description	Foil Values (µm)	Foil Values (mils)	Un-Certified	Certified
Scale 1 Foil Set; 0-1500µm (0-60mils)	25, 50, 125, 250, 500, 1000	1.0, 2.0, 5.0, 10, 20, 40	T99022255-1	T99022255-1C
Scale 2 Foil Set; 0-5mm (0-200mils)	25, 50, 125, 250, 500, 1000, 2000, 3000	1.0, 2.0, 5.0, 10, 20, 40, 80, 120	T99022255-2	T99022255-2C
Scale 3 Foil Set; 0-13mm (0-500mils)	250, 500, 1000, 2000, 4000, 8000	10, 20, 40, 80, 160, 315	T99022255-3	T99022255-3C
Scale 4 Foil Set; 0-250µm (0-10mils)	12.5, 25, 50, 125, 250	0.5, 1.0, 2.0, 5.0, 10	T99022255-4	T99022255-4C
Scale 5 Foil Set; 0-800µm (0-32mils)	12.5, 25, 50, 125, 250, 500	0.5, 1.0, 2.0, 5.0, 10, 20	T99022255-5	T99022255-5C
Scale 6 Foil Set; 0-30mm (0-1200mils)	1000, 2000, 5000, 9500, 15mm, 25mm	40, 80, 200, 375, 590, 980	T99022255-6	T99022255-6C
Scale M3 Foil Set; 0-500µm (0-20mils)	12.5, 25, 50, 125, 250, 500	0.5, 1.0, 2.0, 5.0, 10, 20	T99022255-7	T99022255-7C
Scale 2B Foil Set[1]; 0-5mm (0-200mils)	25, 50, 125, 250, 500, 1000, 2000, 2000	1.0, 2.0, 5.0, 10, 20, 40, 80, 80	T99022255-8	T99022255-8C

Elcometer 990 Zero Test Plates

Elcometer provides a range of Zero Test Plates.

When used in conjunction with a set of foils, Test Plates are ideal to test a coating thickness gauge's functionality and calibration, ideal for when it may be difficult or impractical to obtain an uncoated substrate.

Technical Specification

Description	Size	Size	Ferrous	Non-Ferrous	Certificate
Zero Test Plate ±1%	50.8 x 25.4mm	2.0 x 1.0"	T9994910-	T9994911-	
Zero Test Plate ±2%	76.2 x 50.8mm	3.0 x 2.0"	T9999529-	T9999530-	
Zero Test Plate - large ±2%	76.2 x 101.6mm	3.0 x 4.0"	T9994054-	T9994055-	○
Steel (F) Checkpiece*	50.8 x 88.9mm	2.0 x 3.5"	T99916925	-	
Aluminium (N) Checkpiece*	50.8 x 88.9mm	2.0 x 3.5"	-	T99916901	

*To be used only with the Elcometer 311 or Elcometer 415