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Protective Coatings Inspection Equipment

protective coatings inspection equipment

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Divisions of Elcometer

Blast Equipment

The Elcometer range of high performance abrasive blast machines, media valves, air handling, blast hose, blast nozzles, personal protective equipment and blast inspection & test equipment is engineered to be tough, safe and incredibly durable.

Spray Equipment

To meet the needs of the automotive refinishing, industrial finishing and refinishing markets+ the Elcometer Spray Equipment range of spray guns, fluid application & filtration systems and personal protective equipment ensures a fast and efficient high quality finish.

Coatings Inspection

Ever since our first coating thickness gauge in 1947, Elcometer has been a world leader in the design, manufacture & supply of inspection equipment to the coatings inspection industry, building a global network in 170 countries to meet the needs of the protective & industrial finishings industries.

Elcometer's **Coatings Inspection Equipment** division is divided into two distinct sectors:

Protective coatings inspection equipment

this product catalogue provides a full range of inspection equipment for the protective coatings industry, from offshore platforms to shipyards, bridges to wind farms, mining to reservoirs, for more information visit our website protective.elcometer.com

Industrial finishing & physical test equipment

a full range of inspection equipment designed for the industrial finishing, powder coating and general manufacturing industry, whether you are on a production line or in a paint laboratory, in quality assurance or an academic institution.

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With a range of products specifically developed to meet the needs of the protective coatings industry, **Elcometer** is well positioned to provide you with **the solution to your inspection requirements,** whatever and wherever they might be.

For more than seventy years Elcometer has been a world leader in the design, manufacture and supply of inspection equipment to the coatings industry.

Ever since the first Elcometer gauge was manufactured in 1947, our philosophy has been to provide industry leading, innovative, high quality products; supported by a best-in-class customer experience; at a competitive price. By concentrating on these core values, Elcometer has grown into a global network with representation in over 170 countries.

In 2018 Elcometer expanded its product range to include the design and manufacture of high performance abrasive blast equipment, including portable abrasive blast machines, media valves, air handling, personal protective equipment, hoses and a full range of accessories.

For more information on Elcometer's range of blast equipment, visit www.elcometer.com.

Our Values

Pride;	We are proud of where we work and the work we do
Ownership;	We take responsibility for what we do and how we do it
Ethics;	We treat our customers, suppliers and colleagues fairly and with respect
Achievement;	We believe that just enough is not enough
Focus;	We know that if it is not acceptable to us it is not acceptable to our customers
Initiative;	We are encouraged to identify opportunities for improvement and offer solutions

Quality is part of our culture

Elcometer's commitment to quality is reflected in our ISO 9001 and ISO 14001 Quality and Environmental certifications.

It is the Company philosophy to integrate quality into all aspects of the product - whether it be the initial product design, the manufacture or our commitment to our customers.

We are committed to meet or exceed the expectations of our customers and stakeholders by aligning our quality objectives for product, sales and service performance and delivery.

Elcometer is committed to reducing its impact on the environment, including product manufacture, packaging, catalogue production and our zero to landfill waste management. All our products are lead and mercury free and, where required, CE and RoHS compliant.

To view all our Company Policies and ISO certifications, visit www.elcometer.com

Service and Support

Elcometer has Distributor representation in over 170 countries around the world, all comprehensively trained on our coating inspection products, providing a full after sales service and support within your region.

Our aim is to provide you with a complete solution to all your coating inspection requirements.

Training

Elcometer offers first class training on all its products to all our customers either at your facility or at our state of the art training facilities in England, Germany, United Arab Emirates or the USA. For more information please contact Elcometer.

Fit for Purpose

All Elcometer products are designed to be used in accordance with National and International Standards. We have a team of experts working with Standards bodies around the world, ensuring we have products fit for purpose, exceeding the demands of our customers.

In this catalogue, we have identified the latest National and International Standards - those in Orange are current and those in Grey have been superseded but are still recognised in some industries.

We continuously review our products against current and new Standards. For the most up to date list of Standards, visit our online catalogue which provides the latest information on all new, current and superseded Standards which our products can be used in accordance with.

Product Innovation

Elcometer continues to be a leader in product innovation for the coating inspection in both hardware and software design and has a team of specialists dedicated to product development.

We are committed to continuously push the boundaries through our new product development programmes.

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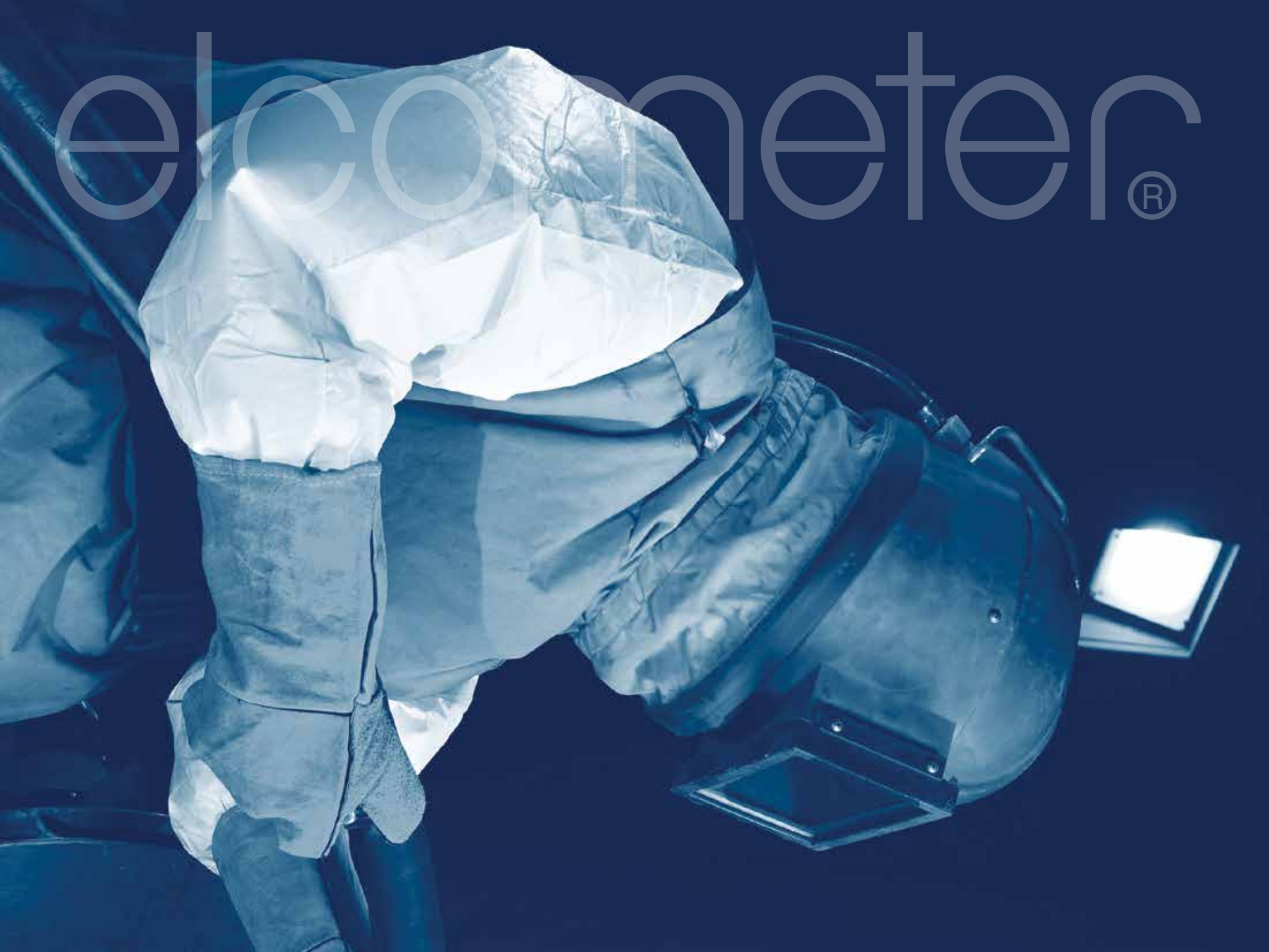
Whether you're looking to **find out more** about an Elcometer product, its **application** or learn more about **optimal use** of an instrument, **Elcometer's videos** provide a quick and simple guide.

For our full video library visit **elcometer.tv**

Elcometer products with a video will show the '**video available**' symbol

etv video available elcometer.tv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Abrasive & Blast Inspection

1

Surface preparation is one of the most important factors in the successful application of a coating or surface treatment and is critical to the effective lifetime of the coating. For any coating to perform it is essential that the substrate is prepared properly.

A number of important parameters need to be monitored during the blasting or water jetting process, these include: air pressure (at the nozzle), nozzle diameter, blast media contamination & pH values in order to avoid recontamination of the substrate during blasting.

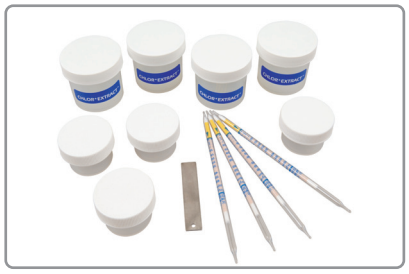
Abrasives used for blast cleaning surfaces can be contaminated with soluble salts due to the source or the re-use of the blasting media. This contamination can be transferred to the blast cleaned surface and result in accelerated corrosion conditions and also cause premature coating failure if this contamination is not removed prior to applying the coating.

Measuring the level of contaminants on a surface prior to application of the coating is essential to ensure the quality of the coating and that its optimum lifetime is achieved.

If the coating is applied to a contaminated surface, which is not properly prepared, it could fail prematurely resulting in costly recoating and high maintenance costs.

Elcometer 134A

Chloride Ion Test Kit for Abrasives



Chlorides deposited on a surface by contaminated abrasives during blasting can cause a coating to fail prematurely.

Contamination can build up, particularly if the blast media is recycled several times. Using the Elcometer 134A Chloride Ion Test in the field will accurately identify contamination and prevent costly surface-related failures.

Technical Specification

Part Number	Description		
E134----2	Elcometer 134A Chloride Ion Test Kit for Abrasives (4 Tests per Kit)		
Measuring Range	1 - 60µg/cm² (1 - 60ppm)	Resolution	1µg/cm² (1ppm)
Sample Time	1.5 minutes (approx)		
Storage Conditions	Not exceeding 25°C (77°F)		
Dimensions	185 x 125 x 110mm (7 x 5 x 4.5”)	Weight	367g (13oz)
Packing List	4 x test kits, containing: abrasive sample container, mixing container with a pre-measured quantity of solution, titration tube, titration tube snapper, strap and operating instructions		

Elcometer 134W

Chloride Ion Test Kit for Water

The Elcometer 134W is used to monitor recycled water (after it has been applied) to establish effectiveness of salt removal, this test is ideal for testing the salt contamination in wash water and blast water.

If the chloride levels in the wash water are too high, this will promote premature corrosion, shortening the life of both steel and concrete structures.

This test can also be used when mixing concrete.

Technical Specification

Part Number	Description		
E134----3	Elcometer 134W Chloride Ion Test Kit for Liquids (5 Tests per Kit)		
Measuring Range	10 - 2000µg/cm² (10 - 2000ppm)	Resolution	10µg/cm² (10ppm)
Sample Time	1.5 - 4 minutes (approx)		
Storage Conditions	Not exceeding 25°C (77°F)		
Dimensions	185 x 125 x 110mm (7 x 5 x 4.5”)	Weight	208g (7oz)
Packing List	5 x test kits each containing: sample container bottle with dropper in lid, titration tube, titration tube snapper and operating instructions		

For Chloride Ion Test Kits for surfaces see page 4-19

Elcometer 138

Abrasive Soluble Salt Test Kit

STANDARDS:
ASTM D4940

Abrasives used for blast cleaning surfaces can be contaminated with soluble salts due to the source or the re-use of the blasting media. This contamination can be transferred to the blast cleaned surface and result in accelerated corrosion conditions which may cause premature coating failure, if this contamination is not removed prior to applying the coating.

Testing abrasives on site for soluble salt contamination can be carried out quickly and easily using the Elcometer 138 Abrasive Soluble Salt Test Kit, according to the ASTM D4940 method. A measured volume of the abrasive is mixed with the same volume of water and agitated to allow any soluble salts to dissolve in the water. The resulting slurry is allowed to settle and the filtered water can then be tested using a conductivity meter. The Elcometer 138 Abrasive Soluble Salt Test Kit provides all that is needed to carry out the test in the field or in the laboratory.

Technical Specification

Part Number	Description
E138-A-CM	Elcometer 138 Abrasive Soluble Salt Test Kit with Elcometer 138 Conductivity Meter
Measurement Range	0 - 19.99mS/cm (see Elcometer 138 Conductivity Meter for full specification)
Accuracy	±2% of full scale (see Elcometer 138 Conductivity Meter for full specification)
Dimensions	456 x 384 x 127mm (18 x 15.1 x 5") Weight 2.2kg (4lb 14oz)
Packing List	Elcometer 138 Conductivity Meter, 1000ml (33.8 fl oz) bottle of pure distilled water, 100ml & 600ml (3.4 & 20.3 fl oz) glass beakers, 500ml (16.9fl oz) plastic measuring beaker, funnel, stirring rod, box of 100 filter papers, 1 x 14ml (0.47fl oz) standard 1413 µS/cm (1.413 mS/cm) calibration solution, 1 x 14ml (0.47fl oz) conditioning solution, 2 x CR2032 batteries, transit case and user guide

Accessories

E138-CM	Elcometer 138 Conductivity Meter
T13833402	Replacement Sensor for Conductivity Meter
T13830629-2	Standard 1413µS/cm Calibration Solution; 250ml (8.45fl oz) Bottle
T13827494	Pure Distilled Water 1000ml (33.8fl oz) Bottle
T13827495	Glass Beaker 100ml (3.4fl oz)
T13827496	Glass Beaker 600ml (20.3fl oz)
T13827498	Plastic Measuring Beaker 500ml (16.9fl oz)
T13827497	Funnel
T13827499	Stirring Rod
T13827500	Box of 100 Filter Papers (Grade 413)

Elcometer 138/2

Surface Contamination Kit

STANDARDS:
AS 3894.6-A, AS 3894.6-D,
SSPC Guide 15

Measuring the level of contaminants on a surface prior to application of the coating is essential to ensure the quality of the coating and that its optimum lifetime is achieved.

If the coating is applied to a contaminated surface, which is not properly prepared, it could fail prematurely resulting in costly recoating and high maintenance costs.

The Elcometer 138/2 Surface Contamination Kit provides the user with a means for testing invisible surface contaminants including:

- pH
- chloride ions
- iron
- salts

Technical Specification

Part Number	Description		Certificate
E138----2	Elcometer 138/2 Surface Contamination Kit		●
Measuring Range	Iron: 3,10, 25, 50, 100, 250, 500mg/l Fe^2 Chloride: 30 - 600µg/cm^2 (30 - 600ppm) Cl	pH: 0pH to 14pH	
Dimensions	300 x 220 x 75mm (11 x 8.6 x 3”)	Weight 2.1kg (4.62lb)	
Packing List	100 x pH test strips, 100 x iron test strips, 40 x chloride test strips, 50 x Elcometer 135C Bresle test patches, 3 x 5ml (0.17fl oz) syringes, 3 x needles, 30ml (1fl oz) plastic beaker, carry case and operating instructions		

Accessories

E135----C25	Elcometer 135C Bresle Test Patch (Pack of 25)	T13827259	Pure Distilled Water, 250ml (8.5fl oz) Bottle
E135----C100	Elcometer 135C Bresle Test Patch (Box of 100)	T13820562	100 x pH Test Strips
T13818517	3 x 5ml (0.17fl oz) Syringes	T13820563	100 x Iron Test Strips
T13818518	3 x Needles	T13820564	40 x Chloride Test Strips
T13818519	Plastic Beaker, 30ml (1fl oz)		

Elcometer 138/2

pH Test Strips

The Elcometer 138/2 pH Test Strips provide the user with a means for testing acidic or alkaline contaminants.

Day to day air particulate contaminants generated by modern industry generate particulates of hydrocarbons such as sulphur. Agricultural fertilizers generate nitrates. When they combine with moisture in the atmosphere they create sulphuric and nitrate acids, which if present on the substrate, breaks down the surface of any coating. Furthermore, any water used to clean the surface containing levels of pH will have a similar effect.

Technical Specification

Part Number	Description
T13820562	100 x pH Test Strips

● Certificate of Cleanliness & Test Area available at www.elcometer.com/cert

Elcometer 138

Bresle Salt Meter

Incorporating a flat sensor, the Elcometer 138 Bresle Salt Meter measures the conductivity of a sample, then automatically converts this to show the density of salts, negating the need for the user to do a manual calculation when working in accordance with ISO 8502-6 or ISO 8502-9.

Features:

- Highly precise measurements can be obtained from a single drop
- Out of range and low battery alarms
- Visual indication when ambient temperature is outside the operating range

Technical Specification

Part Number	Description	
E138-BSM	Elcometer 138 Bresle Salt Meter	
Measurement Principle	2 Electrode Bipolar AC	
Measurement Mode	ISO, IMO, Temperature	
Minimum Sample Volume	0.12ml	
	ISO Mode	IMO Mode
Measuring Range	0 - 2399µg/cm²	0 - 2199µg/cm²
Conversion Factor	µS/cm to µg/cm² : 0.12 µS/cm to mg/m² : 1.2	µS/cm to µg/cm² : 0.11 µS/cm to mg/m² : 1.1
Resolution	0 - 239.9µg/cm² : 0.1µg/cm² 240 - 2399µg/cm² : 1µg/cm²	0 - 219.9µg/cm² : 0.1µg/cm² 220 - 2199µg/cm² : 1µg/cm²
Accuracy	±2% full scale (for each range)	
Operating Temperature	5°C to 40°C (41°F to 104°F)	
Operating Humidity	85% or less relative humidity (no condensation)	
Battery Type	2 x CR2032 lithium batteries	
Battery Life	approx. 200 hours of continuous use without backlight	
Weight	50g (1.76oz) - including sensor and batteries	
Dimensions	164 x 29 x 20mm (6.5 x 1.1 x 0.79”)	
Packing List	Elcometer 138 Bresle Salt Meter, 14ml (0.5fl oz) bottle of conditioning solution, 2 x CR2032 lithium batteries and operating instructions	

Accessories

T13833402	Replacement Sensor
T13830629-1	Standard 84µS/cm Calibration Solution, 250ml (8.45fl oz) Bottle

Elcometer 138

Conductivity Meter

Incorporating a flat sensor, the Elcometer 138 Conductivity Meter can measure the conductivity of a solution from a single drop of a sample.

Users can either place a sample on the meter's flat sensor or immerse the meter's sensor directly into the solution under test. The Elcometer 138 can be used for a broad range of applications, including: soluble salt concentrations, the electric conductivity (EC) of solutions used in agricultural operations and measuring rainwater pollution levels.

Features:

- Highly precise measurements can be obtained from a single drop
- Automatic range switching gives a wide measurement range of 1µS/cm to 19.99mS/cm
- Out of range and low battery alarms
- Visual indication when ambient temperature is outside the operating range

Technical Specification

Part Number	Description
E138-CM	Elcometer 138 Conductivity Meter
Measurement Principle	2 Electrode Bipolar AC
Measurement Mode	Conductivity, Temperature
Minimum Sample Volume	0.12ml
Measuring Range	0 - 19.99mS/cm
Resolution	0 - 1999µS/cm: 1µS/cm 2.00 - 19.99mS/cm: 0.01mS/cm
Accuracy	±2% full scale (for each range)
Operating Temperature	5°C to 40°C (41°F to 104°F)
Operating Humidity	85% or less relative humidity (no condensation)
Battery Type	2 x CR2032 lithium batteries
Battery Life	approx. 200 hours of continuous use without backlight
Weight	50g (1.76oz) - including sensor and batteries
Dimensions	164 x 29 x 20mm (6.5 x 1.1 x 0.79")
Packing List	Elcometer 138 Conductivity Meter, 14ml (0.5fl oz) bottle of conditioning solution, 14ml (0.5fl oz) bottle of standard 1413µS/cm calibration solution, 2 x CR2032 lithium batteries and operating instructions

Accessories

T13833402	Replacement Conductivity Sensor
T13830629-2	Standard 1413µS/cm Calibration Solution, 250ml (8.45fl oz) Bottle

Elcometer 102 Needle Pressure Gauge

The Elcometer 102 Needle Pressure Gauge is designed to measure air pressure in blast and air hoses. Pressure drop is responsible for decreased production rates, increased abrasive consumption and reduced anchor profile in abrasive blasting systems.

Technical Specification

Part Number	Description		
E102-A	Elcometer 102 Needle Pressure Gauge		
T10229425	Replacement Needle (Pack of 2)		
Measuring Range	0-300psi (0-20bar)		
Dimensions	133 x 58 x 28.5mm (5.24 x 2.28 x 1.12")	Weight	110g (3.88oz)
Packing List	Elcometer 102 Needle Pressure Gauge, pressure gauge guard, spare hypodermic needle, protective pouch and operating instructions		

Elcometer 103 Blast Nozzle Gauge

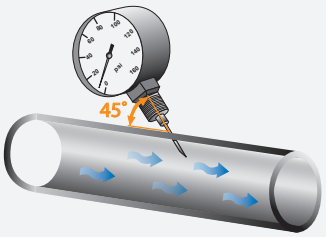
The Elcometer 103 Blast Nozzle Gauge measures the orifice size of an abrasive blasting nozzle. This gauge is used to determine the nozzle orifice wear which leads to low nozzle pressure and decreased efficiency in its performance. Nozzle orifice wear results in decreased productivity and increased abrasive media consumption.

To ensure your nozzle provides continuous high production, as a general rule, replace your nozzle when the orifice wears by 1 nozzle size.

Technical Specification

Part Number	Description		
E103-A	Elcometer 103 Blast Nozzle Gauge		
T10329146	Black Wax Pencil (Pack of 12)		
Measuring Range	6.4 - 16mm, ¼ - ⅝" (81 - 548cfm)		
Dimensions	200 x 19mm (7.87 x 0.75")	Weight	150g (5.29oz)
Packing List	Elcometer 103 Blast Nozzle Gauge, wax/grease pencil (inside gauge), protective pouch and operating instructions		

Using a Needle Pressure Gauge



Using a Blast Nozzle Gauge

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For abrasive blast machines, blast hose, blast nozzles & protective equipment

visit blast.elcometer.com

Abrasive Blast Machines

Elcometer 24200
200 litre
7.06cu ft

The Elcometer 24200 Abrasive Blast Machine is ideal for continuous high production blasting as its large capacity reduces down time refilling the hopper.

- Ideal for high volume work, easy to fill with large capacity
- Choice of static or twin wheeled portable machines that are safe and easy to manoeuvre
- Available with a range of media valves to suit your application
- Heavy duty 6mm (¼") construction
- Easy & quick to service

794mm (31")

1380mm (54")

For a full range of lids & sieves see page 4-2

1-16

elcometer

Abrasive Blast Machines

Kit Selection — **Part Numbers**

Elcometer Blast Machine Kits are available with:

Flat Valve (F) | General Media Valve (G) | Automatic General Valve (A)

	Portable Kit 1	Portable Kit 2	Static Kit 1	Static Kit 2
24" (610mm) 200 litre (7.06cu ft) Abrasive Blast Machine	•	•	•	•
Pressure Test Certificate	•	•	•	•
RCV4000+ Remote Control Valve with Air Manifold, Exhaust & Silencer	•	•	•	•
20m (65.6ft) Pneumatic Control Hose & Deadman's Handle (DMHII)	•	•	•	•
Choke Valve and Pusher Line	•	•	•	•
Abrasive Metering Valve with Mixer T* and Metal Pot Coupling	F G A	F G A	F G A	F G A
Moisture Separator	•	•	•	•
20m (65.6ft) 1¼" (32mm) ID Blast Hose with Cast Iron Hose Couplings & Nylon Nozzle Holder		•		•
Externally Mounted Sieve and Lid		•		•

Elcometer 24200 Abrasive Blast Machine Technical Specification

Capacity[a] Volume	200 litres	7.06cu ft
Aluminium Grit	468kg	1031lbs
Steel Shot/Garnet	880kg	1942lbs
Pot Diameter	610mm	24"
Height	1380mm	54"
Width	794mm	31"
Depth	1109mm	44"
Weight	205kg	452lbs
Pipework Diameter	38mm	1½"
Maximum Working Pressure (WP)[b]	12bar	174psi
Operating Temperature Range	0 to 60°C	32 to 140°F

12 Bar WP

Additional Items

For a complete range of operator safety equipment see page 8-0

Blast Helmets see page 8-4

Blast Nozzles see page 6-7

Protective Clothing see page 8-20

Blast Hoses see page 5-4

* Y Mixer for Flat Valve versions.

[a] Aluminium & steel shot capacity figures based on typical media bulk density. Note that bulk density varies according to media size and grade.

[b] Do not operate this abrasive blast machine unless there is an appropriate safety pressure relief valve within the pressurised system as a whole.

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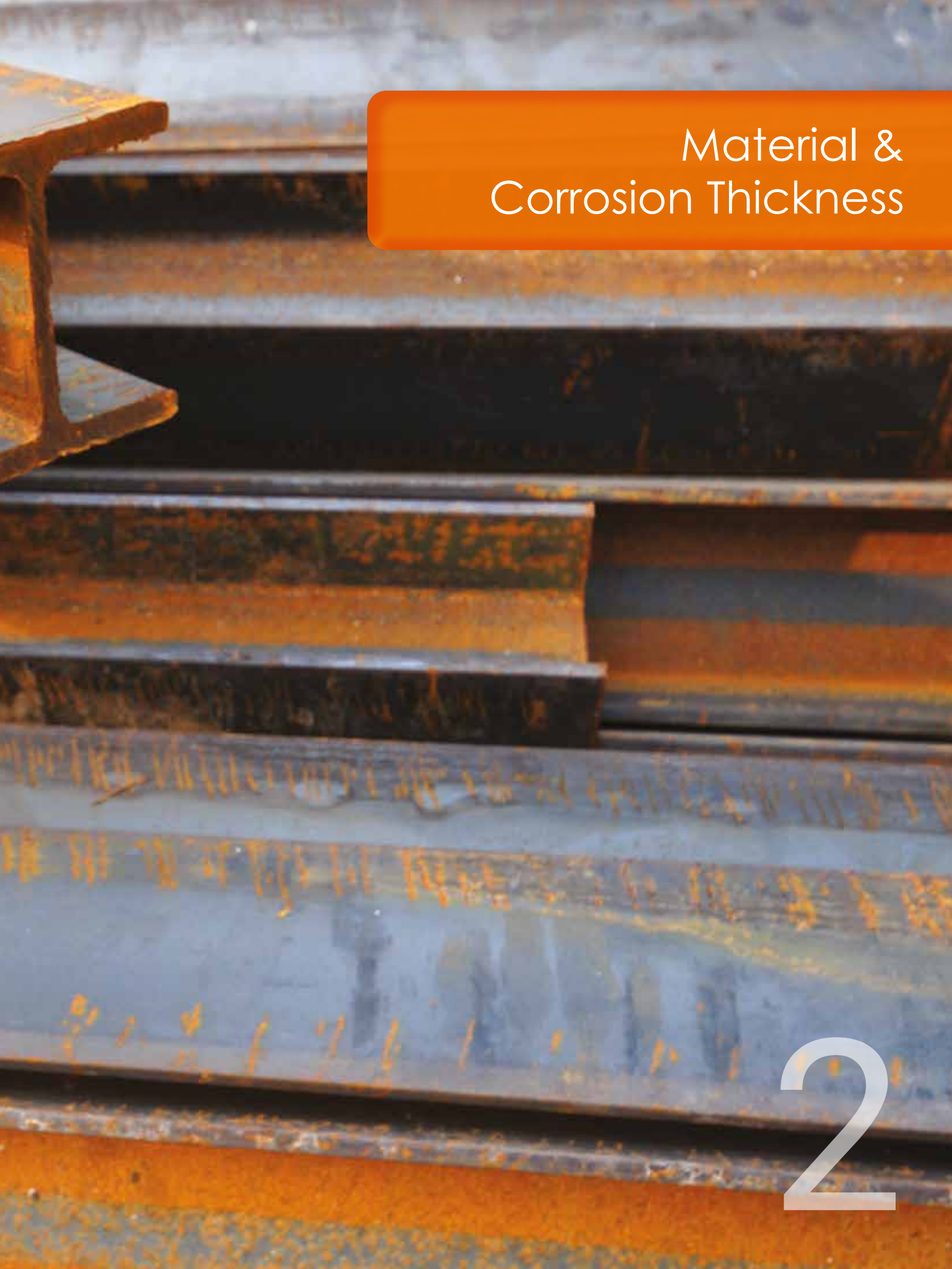
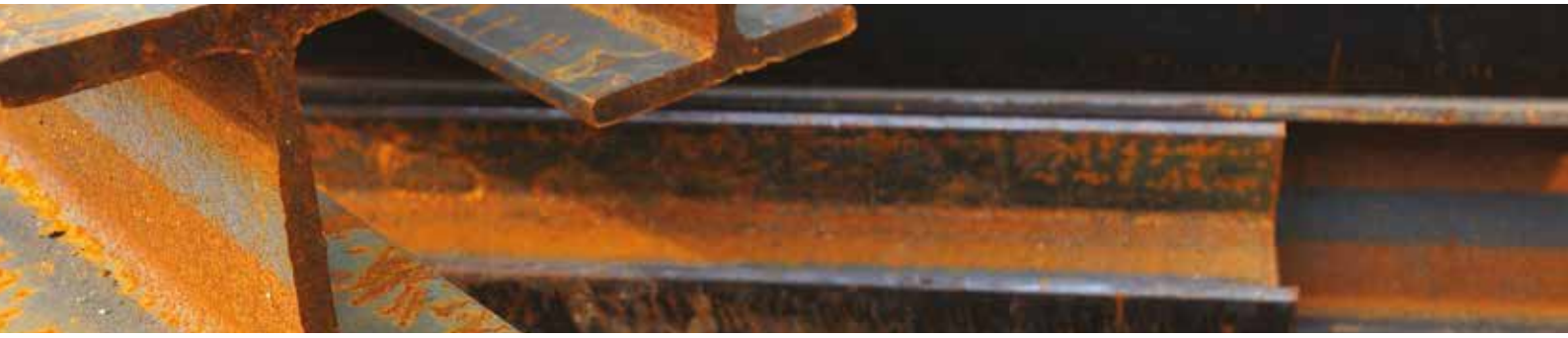


Material & Corrosion Thickness

2



The Elcometer range of ultrasonic material thickness gauges has been designed specifically to be easy to use, calibrate, take readings and create inspection reports.

With a wide range of measurement modes including: Pulsed Echo (PE), Echo Echo ThruPaint™ (EE) and Velocity Mode (VM), and a wide range of intelligent dual element transducers, the new ultrasonic non destructive thickness gauges can measure the material thickness of virtually any material such as metals, plastics, glass, epoxies and ceramics.

Ideal for measuring material thickness when only one side of the material is accessible, the ultrasonic thickness gauges can measure the material thickness and sound velocity of coated and uncoated surfaces.

From a steel thickness gauge to a gauge which ignores the thickness of the coating, Elcometer has a complete range of ultrasonic thickness gauges to meet your specific requirements.

Elcometer MTG Ultrasonic Material Thickness Gauge

The **Elcometer MTG range** has all the features and functionality necessary for measuring material thickness and velocity on virtually any material - for a wide range of applications.

Auto recognition, ensures correct probe is identified when transducer is changed

Scan Mode at 16Hz, ideal for measuring a large surface area

User selectable reading resolution; 0.1mm (0.01") or 0.01mm (0.001")

Pulse Echo (PE), Echo Echo ThruPaint™ & Velocity (VM) measurement modes

Hi & Lo limit indicators provides indication of problem areas

Some MTG gauges are supplied as a gauge only, without transducer. Transducers must be ordered separately.

(Wide range of transducers available - see page 2-11)

Integrated zero disc, ensures maximum accuracy

Stores up to 100,000 readings in up to 1,000 sequential batches

Selectable reading rate of 4, 8, 16Hz (4, 8, 16 readings per second)

STANDARDS:
ASTM E 797, EN 14127, EN 15317

Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

Elcometer MTG

Ultrasonic Material Thickness Gauge

Easy to use and minimum set up required

Coatings up to 1mm (40mils) can be ignored

Customisable reading display

Set user definable limits for audible and visual pass/fail warnings

Connect the gauge via Bluetooth® or USB to a mobile device

Accurate

A range of calibration options for accuracy and efficiency

The MTG gauges have a range of calibration options including the 1-Point calibration method. Users can also select one of 39 pre-set materials stored within the gauge or store up to three calibrations into the memory.

Versatile

Measures uncoated & coated surfaces

Flexible & easy to use, the Elcometer MTG range doesn't just measure uncoated surfaces but can also measure coated surfaces. Using Echo Echo ThruPaint™ Mode (EE), coatings up to 1mm (40mils) are ignored.

Customisable

Choose & customise the reading display

The Elcometer MTG range has a choice of display modes allowing the user to select the most appropriate for their needs; Readings, Selected Statistics, Bar Graph, Run Chart, B-Scan & Differential Mode.

Intelligent

User definable limits for pass/fail indication

Users are able to set upper and lower limits with audible and visual pass/fail warnings. Limits can be set for individual readings or for each batch.

Wireless Connectivity

Seamlessly connect to any PC, Android™ or iOS mobile device

Compatible with both ElcoMaster® and ElcoMaster® Mobile App, readings can be downloaded via USB or Bluetooth® to PC, iOS or Android™ devices for further analysis and reporting.

Elcometer MTG Ultrasonic Material Thickness Gauge

User Definable Upper and Lower Limits

The MTG gauges have user definable upper and lower limits with audible and visual pass/fail warnings allowing the user to compare readings to pre-defined values. The MTG8 can store up to 40 pre-programmed limits which can be set for individual readings or for each batch.

If a measurement is taken which falls outside set limits, the reading value and the limit icon turn red, the red LED flashes and the alarm beeps providing immediate indication of problem areas.

A Range of Calibration Methods

1 Point; after setting the zero point a reading is taken and adjusted on an uncoated sample piece of test material of a known thickness. Once the thickness has been entered and confirmed, the derived sound velocity is displayed.

2 Point; readings are taken and adjusted on two uncoated sample pieces of test material with known thicknesses. Once the second thickness has been entered and confirmed, the derived sound velocity is displayed.

Material; calibration using the sound velocity of a material, selected from a pre-defined list of materials stored in the gauge.

Velocity; calibration using the known sound velocity of the material under test.

Thickness Set; calibration is performed using the known thickness of the material under test. Up to three calibrations can also be saved in the gauge memory. Once saved, the user can select the calibration memory - without the need to re-calibrate the gauge.

Scan Mode

When enabled, users can slide the transducer over a large surface area whilst the gauge takes readings at a rate of 16Hz (16 readings per second). During each scan, the live thickness is displayed together with an analogue bar graph showing the thickness relative to the set nominal value and any user defined limits, with audible and visual warnings if any readings fall outside the set limits.

When the transducer is lifted off the surface, the average, lowest and highest thickness value is displayed making scan mode ideal for checking a sample's overall uniformity.

Elcometer MTG — Ultrasonic Material Thickness Gauge

Sequential or Grid Batching

Individual readings can be stored in up to 1,000 sequential or grid type, alpha-numeric batches, together with date and time stamp and reading location*. Users have the option to view batch readings, statistics and a graph of all readings stored within the batch.

The obstruction feature (Obst), allows the user to record areas of obstruction on the grid where measurements could not be taken.

B-Scan Reading

A time based, cross sectional 2 dimensional B-Scan provides a graphical view of the material under test, ideal for relative depth analysis.

The zoom of the B-Scan reading can either be set to automatic or can be defined by the user to focus on areas of interest.

Differential Mode

Once a user defined nominal thickness value has been set, the gauge displays the measured thickness together with the variation from the set nominal value thus indicating areas of the material which are thinner or thicker than expected.

Velocity Mode

Velocity mode measures the speed of sound of materials and is ideal for determining the homogeneity of a material/alloy and the correct velocity of a material for calibration.

* Grid batches only

Elcometer MTG Ultrasonic Material Thickness Gauge

A choice of display and measurement modes

Readings

The reading value is displayed.

Selected Statistics

Up to 8 statistical values can be displayed as defined by the user.

Run Chart

A line trend graph of the last 20 measurements which is updated after each reading.

Bar Graph

An analogue representation of the current measurement value together with the highest (Hi), lowest (Lo) and average (x̄) reading.

Readings & Differential

The last reading is displayed together with the variation from the nominal value (if set).

B-Scan

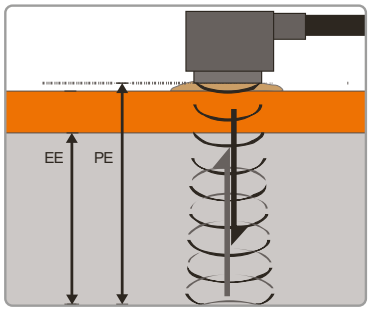
A cross-sectional view of the material being tested is displayed along with readings taken, saved readings, highest (Hi), lowest (Lo) and average (x̄) reading and upper/lower limit values (if set).

Measurement Modes

Pulse Echo (PE); the total thickness from the base of the transducer to the material density boundary (typically the back-wall) is measured. Suitable for measurement of materials between 0.63mm and 500mm (0.025” to 20”) thick.

Echo Echo ThruPaint™ (EE); a coating of up to 1.0mm (0.04”) thick is ignored and the material thickness from the top surface of the material to the material density boundary (typically the back-wall) is measured. Suitable for measurement of materials between 2.54mm and 25.4mm (0.1” to 1.0”) thick.

Velocity Mode (VM); measures the speed of sound of the material. Ideal for measuring the homogeneity of a material/alloy.



Elcometer MTG — Ultrasonic Material Thickness Gauge

Product Features

Model Number	MTG2	MTG4	MTG6	MTG8
Easy to use menu structure in multiple languages	■	■	■	■
Tough, impact, waterproof and dust resistant equivalent to IP54	■	■	■	■
Bright colour screen with permanent backlight	■	■	■	■
Ambient light sensor, with adjustable brightness	■	■	■	■
Scratch and solvent resistant display; 2.4" (6cm) TFT	■	■	■	■
Large positive feedback buttons	■	■	■	■
USB power supply via PC	■	■	■	■
Gauge software updates[1] via ElcoMaster® Software	■	■	■	■
2 year gauge warranty[2]	■	■	■	■
Limits: 40 definable audible & visual pass/fail warnings				■
Measurement Mode				
Pulse Echo (PE)	■	■	■	■
Echo Echo ThruPaint™ (EE)[3]		■	■	■
Velocity Mode (VM)			■	■
Measurement Rate				
4, 8, 16Hz	4Hz	4Hz	4, 8, 16Hz[4]	4, 8, 16Hz[4]
Thickness Range[5]				
PE 0.63-500mm (0.025-19.999")	■	■	■	■
EE 2.54 - 20.00mm (0.100-0.787”)		■	■	■
Measurement Units				
mm or inches	■	■	■	■
m/s, inch/µs			■	■
Repeatability / Stability Indicator	■	■	■	■
Display Mode				
Reading	■	■	■	■
Selected statistics			■	■
Scan thickness bar graph			■	■
Run Chart			■	■
Readings and Differential				■
B-Scan cross sectional display				■
Selectable Reading Resolution				
Lo; 0.1mm, 0.01 Inch, 10m/s, or 0.001 in/µs	■	■	■	■
Hi; 0.01mm, 0.001 Inch, 1m/s, or 0.0001 in/µs			■	■

[1] Internet connection required

[2] The Elcometer MTG range 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 www.elcometer.com.

[3] HD Transducer required

[4] User selectable default setting in Scan Mode is 16Hz

[5] Dependent on the material being measured and the transducer being used

Elcometer MTG Ultrasonic Material Thickness Gauge

Product Features

Model Number	MTG2	MTG4	MTG6	MTG8
Statistics				
Number of readings,n; Mean average, $\bar{x}$; Standard deviation, σ.			■	■
Lowest reading, Lo; Highest reading, Hi			■	■
Low / high limit value				■
Reading Range Value ⌶				■
Nominal Value				■
Number of readings below the low limit				■
Number of readings above the high limit				■
Calibration Options				
Zero (using the integral zero disc)	■	■	■	■
1 - point		■	■	■
2 - point			■	■
Material selection; 39 preset materials*		■	■	■
Factory; resets to the factory calibration		■	■	■
Velocity (speed of sound)			■	■
Known thickness value			■	■
Calibration Features				
Calibration lock; with optional PIN Lock			■	■
Test calibration feature			■	■
Calibration memories: 3 programmable memories				■
Measurement outside calibration warning				■
Data Logging				
Number of readings			1,500	100,000
Number of batches			1	1,000
Sequential batching			■	■
Grid batching				■
Fixed Batch Size Mode; with batch linking				■
Obstruct entry; add 'obst' into grid location				■
Delete last reading			■	■
Date & time stamp			■	■
Review, clear & delete batches			■	■
Alpha numeric batch names; user definable				■
Batch review graph				■
Data Output				
USB to PC	■	■	■	■
Bluetooth® to PC, Android™ & iOS devices			■	■
ElcoMaster® software			■	■
Transducer Probe Type				
Dual Element	■	■	■	■
Auto probe recognition	■	■	■	■
Auto V-path correction	■	■	■	■

* See page 14-9 for list of preset materials

Elcometer MTG — Ultrasonic Material Thickness Gauge

Technical Specification

Part Number Gauge Only	Complete with 5MHz ¼" right angle dual element transducer	Description	Certificate
	MTG2-TXC	Elcometer MTG2 Ultrasonic Material Thickness Gauge	●
MTG4	MTG4-TXC	Elcometer MTG4 Ultrasonic Material Thickness Gauge	●
MTG6DL	MTG6DL-TXC	Elcometer MTG6DL Ultrasonic Material Thickness Gauge	●
MTG8BDL	MTG8BDL-TXC	Elcometer MTG8BDL Ultrasonic Material Thickness Gauge	●

Model Number	MTG2	MTG4	MTG6	MTG8
Measurement Range[1]				
Pulse Echo (PE)	0.63 - 500mm (0.025 - 19.999")	0.63 - 500mm (0.025 - 19.999")	0.63 - 500mm (0.025 - 19.999")	0.63 - 500mm (0.025 - 19.999")
Echo Echo ThruPaint™ (EE)		2.54 - 25.4mm (0.1 - 1.0")	2.54 - 25.4mm (0.1 - 1.0")	2.54 - 25.4mm (0.1 - 1.0")
Velocity Mode (VM)		1,250-10,000m/s (0.0492 - 0.3937in/µs)	1,250-10,000m/s (0.0492 - 0.3937in/µs)	1,250-10,000m/s (0.0492 - 0.3937in/µs)
Measurement Accuracy[2]				
Pulse Echo (PE)	±0.1mm (0.63-19.99mm) ±0.5% (20.00-500.00mm)	±0.1mm (0.63-19.99mm) ±0.5% (20.00-500.00mm)	±0.05mm (0.63-9.99mm) ±0.5% (10.00-500.00mm) ±0.004" (0.025-0.393") ±0.5% (0.394-20.00")	
Echo Echo ThruPaint™ (EE)		±0.1mm (2.54 - 25.4mm)	±0.05mm (2.54-9.99mm) ±0.5% (10.00-25.4mm) ±0.004" (0.100-0.393") ±0.5% (0.394-0.787")	

Operating Temperature	-10 to 50°C (14 to 122°F)
Power Supply	2 x AA batteries
Battery Life[3]	Alkaline: 15 hours Lithium: 28 hours
Gauge Weight	210g (7.4oz) - including batteries, without transducer
Gauge Dimensions	145 x 73 x 37mm (5.7 x 2.84 x 1.46"), without transducer
Packing Lists	Elcometer MTG2 Ultrasonic Material Thickness Gauge, 5MHz ¼" right angle dual element transducer, ultrasonic couplant, carry pouch, screen protector, wrist harness, 2 x AA batteries, operating instructions, test certificate & 2 year warranty extension card.
	Elcometer MTG4 Ultrasonic Material Thickness Gauge, 5MHz ¼" right angle dual element transducer (MTG4-TXC only), ultrasonic couplant, carry pouch, screen protector, wrist harness, 2 x AA batteries, operating instructions, test certificate & 2 year warranty extension card.
	Elcometer MTG6 Ultrasonic Material Thickness Gauge, 5MHz ¼" right angle dual element transducer (MTG6DL-TXC only), ultrasonic couplant, plastic transit case, 3 x screen protectors, wrist harness, 2 x AA batteries, operating instructions, calibration certificate, ElcoMaster® software CD & USB cable.
	Elcometer MTG8 Ultrasonic Material Thickness Gauge, 5MHz ¼" right angle dual element transducer (MTG8BDL-TXC only), ultrasonic couplant, plastic transit case, 3 x screen protectors, wrist harness, 2 x AA batteries, operating instructions, calibration certificate, ElcoMaster® software CD & USB cable.

● Calibration Certificate supplied as standard.

[1] Dependent on material being measured & transducer being used.

[2] On steel.

[3] Approximate battery life, when in Continuous Reading Mode at a reading rate of 4Hz. Rechargeable batteries may differ.

Elcometer MTG

Material Thickness Transducers

Suitable for:
MTG4
MTG6
MTG8

The **MTG Transducer range** has intelligent automatic transducer recognition ensuring correct probe identification even when the transducer is changed.

Disk	Part Number	Transducer Diameter	Transducer Configuration	Damping*	ThruPaint™	Potted Connector Type	Thin Plastics	Steel	Glass	Aluminium	Suitable for MTG4	Suitable for MTG6	Suitable for MTG8
	5.00MHz Dual Element Thickness Transducer												
●	TXC5M00BP-4	3⁄16"	Right Angle	S		●	●	●	●		●	●	●
●	TXC5M00CP-4	¼"	Right Angle	S		●	●	●	●		●	●	●
●	TXC5M00CP-10	¼"	Right Angle	H	●	●	●	●	●		●	●	●
	7.50MHz Dual Element Thickness Transducer												
●	TXC7M50CP-4	¼"	Right Angle	S		●	●	●	●	●	●	●	●
●	TXC7M50CP-6	¼"	Right Angle	H	●	●	●	●	●	●	●	●	●

Elcometer NDT

Ultrasonic Couplant

Elcometer supplies a viscous gel to work on both horizontal and vertical surfaces The temperature range for regular couplant is -15 to 104°C (5 to 220°F).

Suitable for use with the Elcometer MTG range.

Part Number	Description
T92015701	Ultrasonic Couplant; 120ml (4fl oz) bottle
T92015701-5	Ultrasonic Couplant; 120ml (4fl oz) bottle, pack of 5
T92024034-7	Ultrasonic Couplant; 300ml (10fl oz) bottle
T92024034-8	Ultrasonic Couplant; 500ml (17fl oz) bottle
T92024034-3	Ultrasonic Couplant; 3.8l (1 US Gallon)

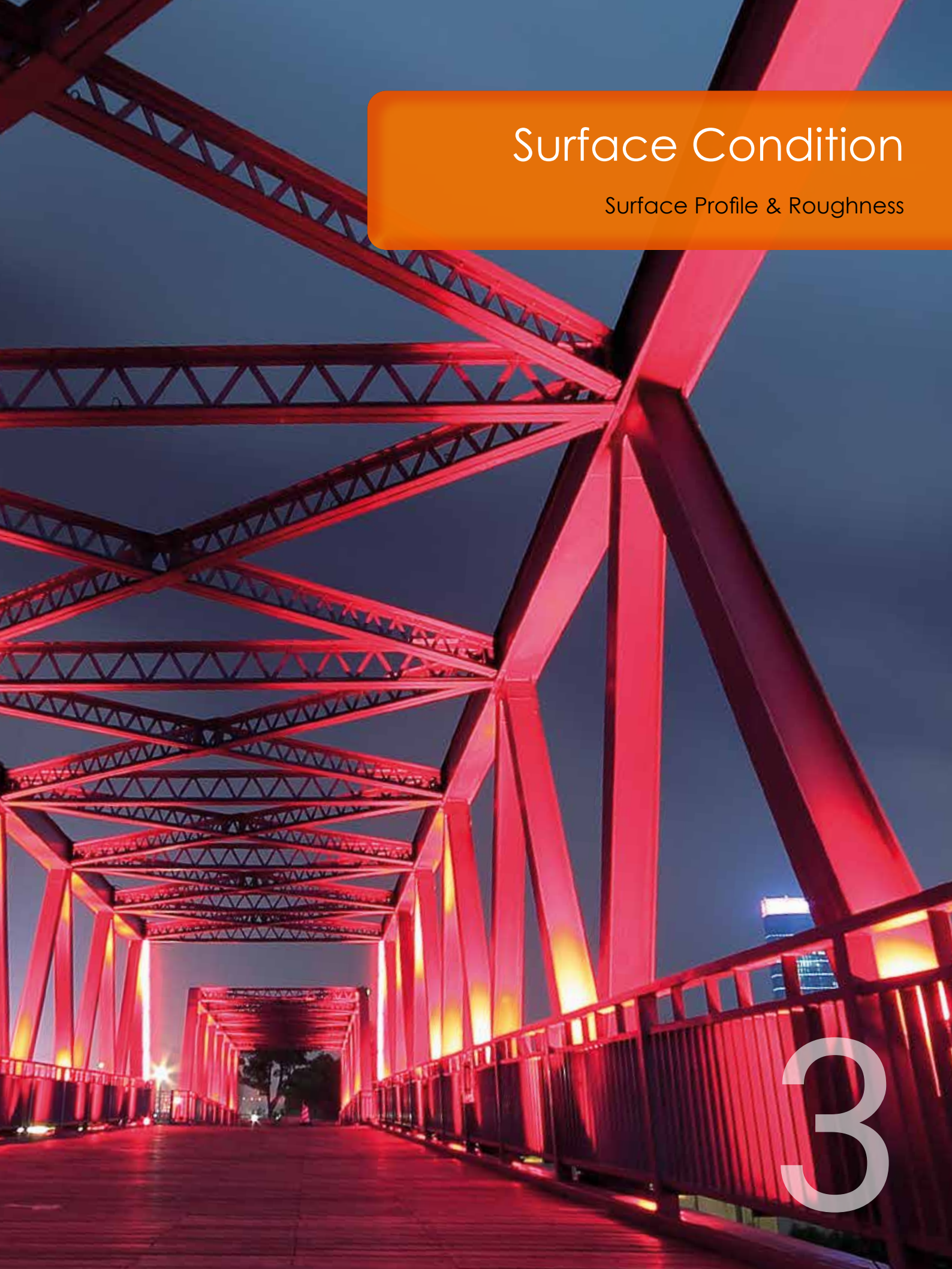
● 5MHz ● 7.5MHz

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

Visit www.elcometer.com for the full range of transducers and couplant

* Damping: **S** - Standard undamped Transducer, **H** - Highly Damped Transducer.
All transducers are supplied with a calibration certificate. To select another transducer from the one supplied with the gauge please remove TXC from the part number.

geometer®



Surface Condition

Surface Profile & Roughness

3

Surface preparation is one of the most important factors in the successful application of a coating or surface treatment and is critical to the effective lifetime of the coating. For any coating to perform it is essential that the substrate is prepared properly.

Ensuring the correct surface preparation optimises the performance of the coating and material usage. Elcometer supply a range of products to meet each of the key industry standard surface preparation inspection methods, these include;

Surface Condition: degree or percentage of rust, level of mill scale, etc., can be visibly assessed using Pictorial Surface Standards. Weld beads can be assessed using a weld comparator and weld gauges.

Surface Profile: the degree of profile on the surface affects a coating's overall performance and determines aspects such as adhesion, coverage and overall volume of coatings used.

If the profile is too large the amount of coating required increases, otherwise there is a danger that the peaks remain uncoated - allowing rust spots to occur. If the profile is too small there may be an insufficient key for adequate adhesion.

Elcometer 128

Pictorial Surface Standards

STANDARDS:
ASTM D 2200, ISO 8501-1

Pictorial Surface Standards are high quality photographs which are used for comparison purposes to assess the visual appearance of a steel surface. Elcometer's range of Surface Standards cover most of those required for surface cleanliness. These include:

Technical Specification

Part Number	Description
E128----1	BS EN ISO 8501-1:2007/SIS 055900 - the original visual standard. It shows the degree of cleanliness of different levels of rusted steel cleaned by blasting, hand and power tools and flame, specified by ASTM D2200 Method A

Elcometer 999

Weld Comparator

STANDARDS:
SP0178-2007, RP0178

The Elcometer Surface Weld Comparator provides for the first time, a means of comparing the quality of welds.

Made from durable T Grade ABS plastic, the comparator comprises 14 different examples of actual welds, allowing a thorough evaluation to be completed.

Each Weld Gauge is supplied complete with a copy of the NACE SP0178-2007 Standard, providing detailed recommendations on design, fabrication and surface finish requirements. It includes generic and graphic descriptions of various degrees of surface finishing of welds that may be specified in preparation for the lining of tanks and vessels.

Technical Specification

Part Number	Description
H99921527	Elcometer Surface Weld Comparator

The difference between Surface Profile and Surface Roughness

Surface Profile; a measure of the depth of a blasted profile.

Surface Roughness; a combination of the depth of the profile and the peak count in a given linear direction.

For any coating to perform successfully, prior to its application, it is important that the required surface profile is created on the substrate.

A digital surface profile gauge measures the peak-to-valley height in terms of the distance between the tip of the needle and the top of the profile (peaks) and the distance between the tip of the needle and the bottom of the profile (valleys). This method can accurately determine a value for average peak-to-valley profile.

Elcometer 147

Weld Gauge

The Elcometer 147 Weld Gauge measures many aspects of welds in both Metric and Imperial units and includes:

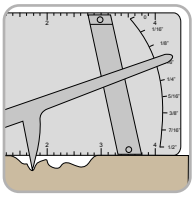
- angle of preparation 0 to 60°
- misalignment (high - low)
- fillet weld throat size
- fillet weld length
- 2mm (0.79”) edge roundness test
- excess weld metal (capping size)
- depth of undercut
- depth of pitting
- general linear measurements up to 60mm (2”)

Technical Specification

Part Number	Description
H147----1	Elcometer 147 Weld Gauge
Angle of Preparation Scale	0 - 60° in 5° divisions
Misalignment Scale	0 - 25mm in 1mm divisions and 0 - 1” in 1⁄16” divisions
Fillet Leg & Excess Weld Scale	0 - 25mm in 1mm divisions and 0 - 1” in 1⁄16” divisions
Fillet Throat Scale	0 - 20mm in 1mm divisions and 0 - ¾” in 1⁄16” divisions
Undercut Scale	0 - 4mm in 1mm divisions and 0 - ¼” in 1⁄16” divisions
Dimensions	100 x 68mm (3.9 x 2.7”)
Weight	154g (5.4oz)
Packing List	Elcometer 147 Weld Gauge and instruction card

Elcometer 119

Pit Gauge



The Elcometer 119 Pipe Pit Gauge is a pocket size gauge designed to identify the condition of a pipe.

The gauge is placed horizontally on the surface of the pipe and the stylus is positioned into the base of the corrosion pit.

The gauge shows the pit depth compared to the nominal pipe wall thickness. Imperial units only.

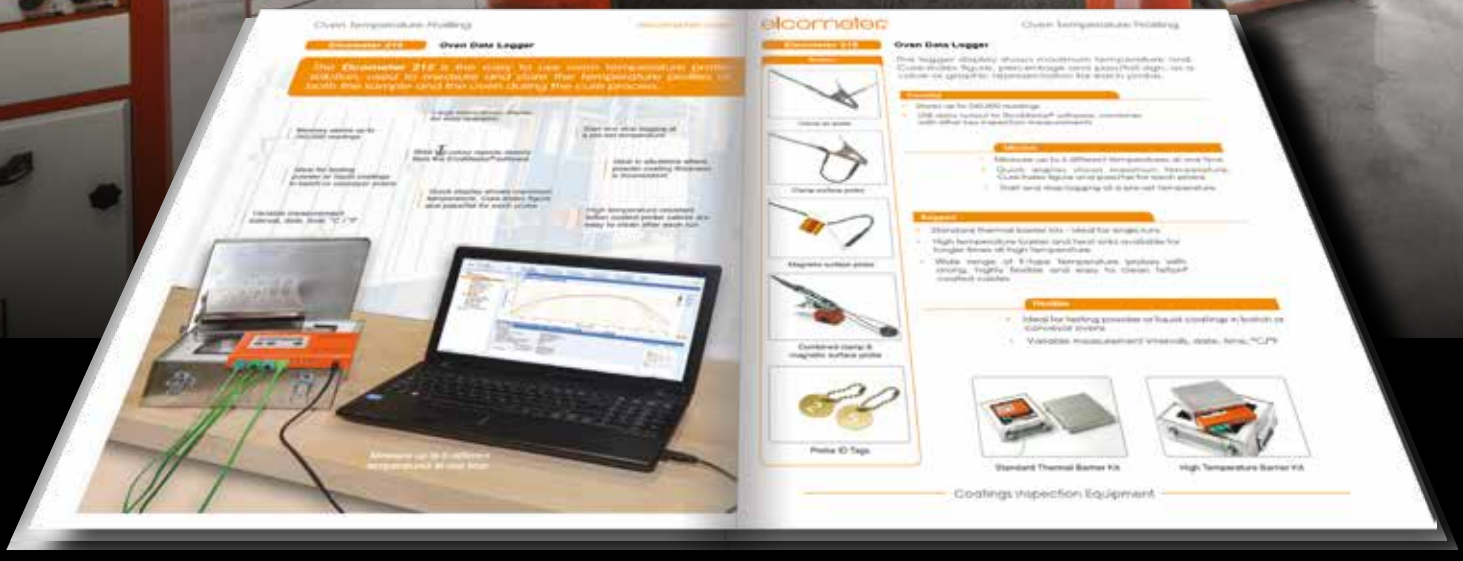
Technical Specification

Part Number	Description
E119-----	Elcometer 119 Pipe Pit Gauge
Range	0 - 500mils (0 - 0.5”)
Graduation	10mils and 1⁄16”
Dimensions	68 x 133 x 4mm (21 x 5.25 x 0.18”)
Weight	227g (8oz)

elcometer®

For all your Industrial Finishing & Physical Test Equipment

visit industrial.elcometer.com



Elcometer 224

Separate Digital Surface Profile Gauge

The **Elcometer 224** provides the very latest in surface profile measuring technology for measuring profile on either flat or curved surfaces.

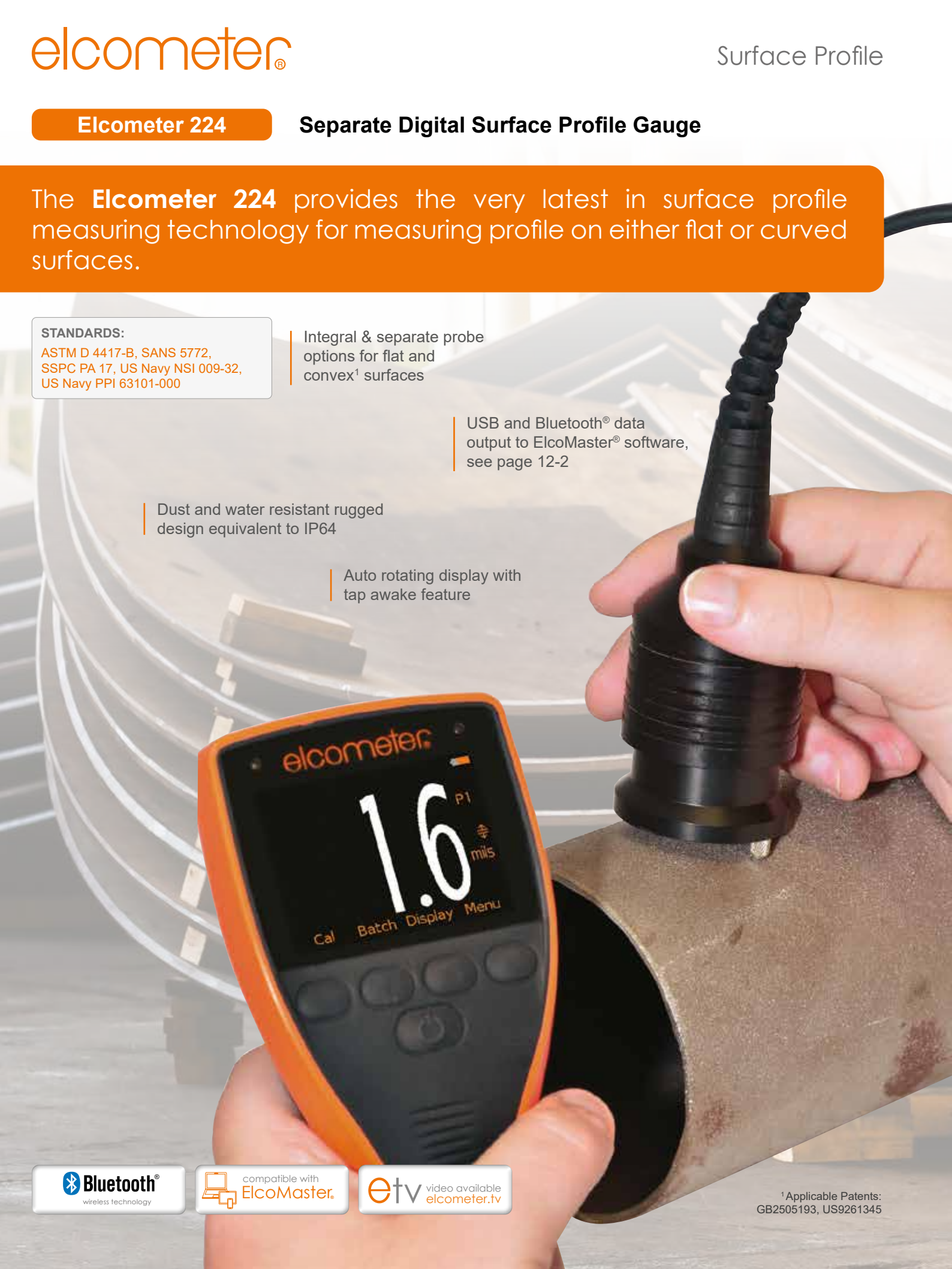
STANDARDS:
ASTM D 4417-B, SANS 5772, SSPC PA 17, US Navy NSI 009-32, US Navy PPI 63101-000

Integral & separate probe options for flat and convex[1] surfaces

USB and Bluetooth® data output to ElcoMaster® software, see page 12-2

Dust and water resistant rugged design equivalent to IP64

Auto rotating display with tap awake feature



Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

[1] Applicable Patents: GB2505193, US9261345

Elcometer 224 Separate Digital Surface Profile Gauge

User Friendly

- Large buttons ideal for gloved hands
- Easy to use menu structure in multiple languages
- High contrast colour LCD with auto rotate
- High and low reading limit indicators
- Factory calibrated for immediate use

Tough

- Sealed, heavy duty and impact resistant
- Dust and waterproof equivalent to IP64
- Suitable for use in harsh environments
- Scratch and solvent resistant display
- Durable gauge and probe construction

Accurate

- Can be used in accordance with National and International Standards
- Temperature stable measurements
- Statistics are calculated and displayed in real time
- Live and batch readings graph format for instant analysis

Efficient

- Fast reading rate of 50+ per minute
- Integral and separate probe versions to suit your application
- Alpha numeric batch identification
- Compatible with ElcoMaster® software and ElcoMaster® Mobile App
- Powersave Mode with tap awake

Reliability

- Repeatable and reproducible measurements
- 2 year gauge warranty[2]
- Supplied with fully traceable Test Certificates
- Batch & individual readings are date and time stamped

Powerful

- User replaceable tough tungsten carbide tip, can be used for up to 20,000 readings
- USB and Bluetooth® data output to iPhone[1] or Android™ devices
- Measures profiles up to 500µm (20mils)

Integral or separate probes measure profiles up to 500µm (20mils)

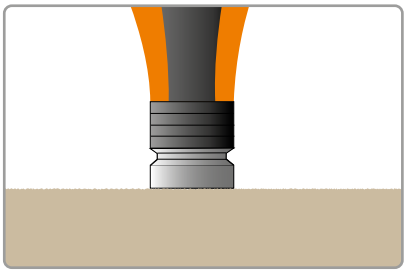
Ergonomic design for comfort during continuous use

2.4” colour screen provides enhanced reading visibility at all angles

[1] Compatible with iPod, iPhone and iPad.
[2] The Elcometer 224 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 www.elcometer.com.

Elcometer 224

Separate Digital Surface Profile Gauge

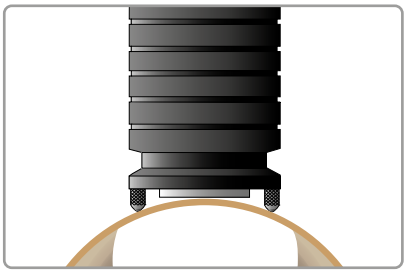


Flat Surface Profile Probes
Supplied with either standard cables or armoured metal reinforced heavy duty cables, Elcometer surface profile probes are supplied with a glass zero tile, calibration test foils (nominal values 125µm (5.0mils) & 508µm (20mils)) and an Elcometer test certificate.

Technical Specification

Range: 0-500µm (0-20mils) | Resolution: 1µm (0.1mil) | Accuracy: ±5% or ±5µm (±0.2mil)

Probe Design	Part Number	Minimum Headroom	Minimum Sample Diameter	Certificate
Flat Surface: Standard	T224C500US	125mm (4.92”)	25mm (1.0”)	●
Flat Surface: Armoured	T224C500UARM	165mm (6.50”)	25mm (1.0”)	●



Convex Surface Profile Probes
Supplied with either standard cables or armoured metal reinforced heavy duty cables, Elcometer convex surface profile probes are supplied with a glass zero tile, calibration test foils (nominal values 125µm (5.0mils) & 508µm (20mils)) and an Elcometer test certificate.

Technical Specification

Range: 0-500µm (0-20mils) | Resolution: 1µm (0.1mil) | Accuracy: ±5% or ±5µm (±0.2mil)

Probe Design	Part Number	Minimum Headroom	Minimum Pipe Diameter	Certificate
Convex Surface: Standard*	T224C500UX	135mm (5.31”)	75mm (3.0”)	●
Convex Surface: Armoured*	T224C500UXARM	175mm (6.89”)	75mm (3.0”)	●

Accessories

Part Number		Description
Integral Gauge	Separate Gauge	
T22419793	T22419793	Probe Tip Protection Cap
T22420072	T22420072	Glass Zero Tile with Wallet
T22421882C	T22421882C	Certified Calibration Test Kit: 125µm & 500µm (5 & 20mils) Calibration Foils, Glass Zero Tile & Calibration Certificate
T99921325	T99921325	USB Cable
T99924797	T99924797	USB Bluetooth® Adaptor (V2.0+) - for PCs without Bluetooth®
T99922341	T99922341	Self Adhesive Screen Protectors (Pack of 10)
T22420053	T22420053	Replacement Tip (Pack of 2) with Fixing Tool
T22420095	T22420095	Replacement Tip (Pack of 5)
-	T45622371	Benchtop Inspection Stand

● Test Certificate supplied as standard.
Elcometer 224 probes are covered by a 1 year warranty

* Applicable Patents: GB2505193, US9261345

Elcometer 224

Integral Digital Surface Profile Gauge

Fast, accurate and user friendly, the **Elcometer 224** is available with or without memory and Bluetooth®.

Review batch data or last 20 readings in a graph format

Stores up to 150,000 readings in up to 2,500 alphanumeric batches

Time & date stamped measurements

Fast reading rate of 50+ readings per minute[1]

Measurement capability to ±5%

Accurate, immediate and repeatable results

User replaceable tough tungsten carbide tips

Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

STANDARDS:

ASTM D 4417-B, SANS 5772, SSPC PA 17, US Navy NSI 009-32, US Navy PPI 63101-000

[1] Up to 25 readings per minute for the convex probe

Elcometer 224 Digital Surface Profile Gauge

Product Features	■ Standard	□ Optional
	Model B	Model T
Fast, accurate reading rate; *50+ readings per minute*[1]	■	■
Repeatable & reproducible measurements	■	■
Easy to use menu structure; *in 30+ languages*	■	■
Tough, impact, waterproof & dust resistant; *equivalent to IP64*	■	■
Bright colour screen; *with permanent back light*	■	■
Scratch & solvent resistant display; *2.4" (6cm) TFT*	■	■
Large positive feedback buttons	■	■
Flat & convex surfaces[2]	■	■
USB power supply; *via PC*	■	■
Test certificate	■	■
2 year gauge warranty[3]	■	■
Automatic rotating display; *0°, 90°, 180° & 270°*	■	■
Ambient light sensor; *with adjustable auto brightness*	■	■
Emergency Light Mode	■	■
Gauge software updates[4]; *via ElcoMaster® software*	■	■
Data output	■	■
USB; *to computer*	■	■
Bluetooth®: *to computer, Android™ & iOS[5] devices*		■
On screen statistics	■	■
Number of readings, *n;* Mean (average), $\bar{x}$ *;* Standard deviation, σ; Highest reading, *Hi;* Lowest reading, *Lo;* Coefficient of variation, *CV%*	■	■
High & low limits; *definable audible & visual alarms*		■
Number above high limit;		■
Number below low limit;		■
ElcoMaster® software & USB cable		■
Date and time stamp *for each reading*		■
Replaceable screen protectors	■	■
Protective case	■	■
Plastic transit case	□	■
Measurement range	0-500µm (20 mils)	0-500µm (20 mils)
On screen calibration instructions; *in 30+ languages*	■	■
Number of batches		2,500
Gauge memory; *number of readings*	Last 5	150,000
Delete last reading	■[6]	■
Limits; *user definable audible & visual pass/fail warnings*		■
Gauge (g) or gauge & batch specific (gb) limits		gb
Batch types; *normal, counted average*		■
Review, clear & delete batches		■
Copy batches and calibration settings		■
Alpha-numeric batch names; *user definable on the gauge*		■
Fixed Batch Size Mode; *with batch linking*		■
Trend graph; *last 20 readings*		■
Review batch graph		■

[1] Up to 25 readings per minute for the convex probe [2] Applicable Patents: GB2505193, US9261345 [3] The Elcometer 224 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 www.elcometer.com. Elcometer 224 probes are covered by a 1 year warranty. [4] Internet connection required [5] Visit www.elcometer.com/sdk to find out how to integrate Elcometer's MFi certified products to your App.
[6] Up to the last 5 readings can be deleted

Elcometer 224 Digital Surface Profile Gauge

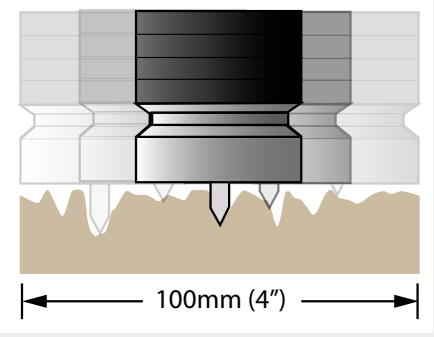
Model Options

Part Number		Description	Certificate
Integral Gauge	Separate Gauge[1]		
E224C-BI	E224C-BS	Elcometer 224 Model B Digital Surface Profile Gauge	●
E224C-TI	E224C-TS	Elcometer 224 Model T Digital Surface Profile Gauge	●

Technical Specification

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[2]	
Minimum Headroom	Integral:	185mm (7.3")
	Separate:	See page 3-6
Gauge Dimensions (h x w x d)	Integral:	168 x 73 x 37mm (5.61 x 2.87 x 1.46")
	Separate:	141 x 73 x 37mm (5.55 x 2.87 x 1.46")
Gauge Weight (including batteries)	Integral:	218g (7.69oz)
	Separate:	161g (5.68oz)
Measurement Range	0-500µm (0-20mils)	
Probe Tip	Tungsten carbide tip 60° angle; Tip Radius: 50µm (2mil)	
Operating Temperature	-10 to 50°C (14 to 122°F) Storage temperature -10 to 60°C (14 to 140°F)	
Accuracy & Resolution	Accuracy[3]: ±5% or ±5µm (±0.2mil); Resolution: 1µm (0.1mil)	
Packing List[4]	Elcometer 224 gauge, glass zero tile[4], 2 x calibration foils[4], wrist harness, plastic transit case (T), protective case, screen protector, probe protection cap[4], 2 x AA batteries, test certificate, operating instructions, USB cable (T) & ElcoMaster® software (T)	

Measuring Surface Profile



1. Ensure probe is 90° to substrate to ensure accurate readings and calibrate the gauge on a glass zero tile.
2. To take one spot measurement, take either 5 or 10 readings within a 100mm (4") diameter area.
3. The measurement displayed is either the average peak-to-valley height or the maximum reading of the 5 or 10 readings, depending on which measurement mode you have selected.
4. To establish the average surface profile of an area, record 5 spot measurements for each 1m x 1m (3ft x 3ft) area.

[1] Probes are supplied separately, see page 3-8 for details. [2] Using default settings & lithium batteries, alkaline or rechargeable batteries may differ.
[3] Whichever is the greater. [4] For separate gauges, the test foils, glass zero tile and probe protection cap are supplied with the separate probe.
● Test Certificate supplied as standard.

Elcometer

Digital Inspection Kits

These digital inspection kits have been specifically designed to undertake the three principal inspection requirements in the Protective and Industrial Coatings Industry – climate, surface profile and dry film thickness. The kits come complete with ElcoMaster® software for professional reporting and analysis - ideal for paperless quality assurance systems.

For more information see page 11-3.

Technical Specification

Part Number	Description
YKIT-DIGITAL-B	Elcometer Basic Digital Inspection Kit (F)
YKIT-DIGITAL-T	Elcometer Top Digital Inspection Kit (F)
YKIT-DIGITALFNF-B	Elcometer Basic Digital Inspection Kit (FNF)
YKIT-DIGITALFNF-T	Elcometer Top Digital Inspection Kit (FNF)

Elcometer 123

Surface Profile Gauge

The Elcometer 123 Surface Profile Gauge is an easy to use analogue gauge which measures the peak-to-valley height of a blast cleaned surface in a similar way to the Elcometer 224.

STANDARDS:
ASTM D 4417-B, SANS 5772,
SSPC PA 17, US Navy NSI 009-32,
US Navy PPI 63101-000

etv video available elcometer.tv

Technical Specification

Part Number	Description		Certificate
E123A--M-	Elcometer 123 Surface Profile Gauge, Metric		○
Range	0 - 1000µm	Scale	2µm
Dimensions	105 x 55 x 25mm (4.1 x 2.2 x 1”)	Weight	335g (12oz)
Packing List	Elcometer 123 Surface Profile Gauge, glass slide, 2mm Allen key, carry case and operating instructions		

○ Optional Calibration Certificate available.

Elcometer 122

Replica Tape

STANDARDS:
ASTM D 4417-C, BS 7079-C5, ISO 8503-5, NACE RP0287, SSPC PA 17, US Navy NSI 009-32, US Navy PPI 63101-000

Elcometer 122 Testex® Tape consists of foam with a non-compressible backing. The foam side is rubbed into the surface providing a permanent mould of the peak-to-valley profile, which can then be measured using the Elcometer 124 Thickness Gauge.

Elcometer 122 Testex® Tape is available in four profile ranges. It is important that the tape grade chosen is reflective of the profile being measured.

- For profiles between 12 & 25µm (0.5 & 1.0mils): Coarse Minus Tape
- For profiles between 20 & 64µm (0.8 & 2.5mils): Coarse Tape
- For profiles between 38 & 115µm (1.5 & 4.5mils): X-Coarse Tape
- For profiles between 116 & 127µm (4.6 & 5.0mils): X-Coarse Plus Tape

There are 50 tests in each roll.

etv video available elcometer.tv

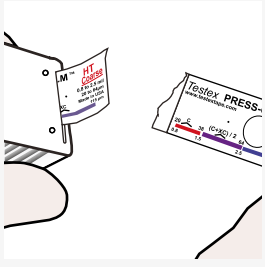
Technical Specification

Description	Profile Range		Part Number			
	Metric	Imperial	1 Roll	Pack of 10	Pack of 50	Pack of 100
Elcometer 122 Coarse Minus	12 - 25µm	0.5 - 1.0mils	E122----A1	E122----A10	E122----A50	E122----A100
Elcometer 122 Coarse	20 - 64µm	0.8 - 2.5mils	E122----B1	E122----B10	E122----B50	E122----B100
Elcometer 122 X-Coarse	38 - 115µm	1.5 - 4.5mils	E122----C1	E122----C10	E122----C50	E122----C100
Elcometer 122 X-Coarse Plus	116 - 127µm	4.6 - 5.0mils	E122----F1	E122----F10	E122----F50	E122----F100

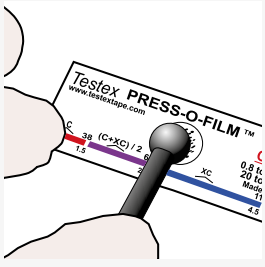
Accessories

T12222498	Swizzle Sticks (Pack of 5)

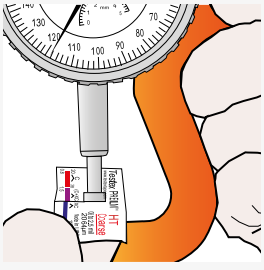
How to take a reading using the Testex® Replica Tape



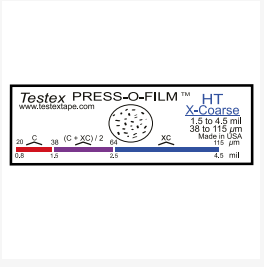
1.Tear off one section of the tape from the roll, peel off the backing tape and retain the back if required for future use.



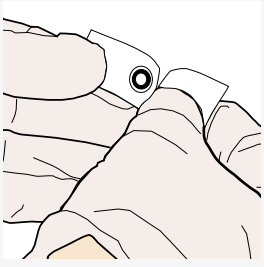
2. Stick the tape on to the test surface, and rub the central portion using the swizzle stick, or the end of a pen, pencil or similar rounded object until dark spots appear. This gives a surface replica.



3. Using a micrometer such as the Elcometer 124 Thickness Gauge, measure the thickness of the central portion of the tape replica and subtract 50µm (2mils) from the reading. This result is the peak-to-valley profile height. Write the value on the tape.



4. If the value falls within the purple band on the coarse tape (38-64µm) then repeat the test as shown in step 2 using the extra coarse tape and then average the two values.



5. If the tape is required for future reference, replace the backing tape to preserve the imprinted profile.

Elcometer 124

Thickness Gauge

The Elcometer 124 Thickness Gauge is used to measure the peak-to-valley height of a surface profile moulded in the Elcometer 122 Testex® Replica Tape.

- Metric and Imperial versions available
- Quick and easy to use
- Anvil pressure as required in the Standards

STANDARDS:
ASTM D 4417-C, ISO 8503-5,
NACE RP 0287, SSPC PA 17,
US Navy NSI 009-32,
US Navy PPI 63101-000

etv video available elcometer.tv

Technical Specification

Part Number	Description	Range	Dimensions	Weight	Scale Resolution	Certificate
E124---3M	Elcometer 124 Metric	0 - 5mm	120 x 95 x 25mm	254g	2µm	○
E124---3E	Elcometer 124 Imperial	0 - 0.25”	4.7 x 3.7 x 1.0”	9oz	0.1mil	○

Elcometer 125

Surface Comparators

These extremely durable comparators allow the estimation of surface profile of either grit or shot blasted surfaces. Using the Elcometer 125 Surface Comparators as a reference the blasted profile can be compared to the four reference profile grades in each comparator. Profiles are recorded in microns.

- 4 Profile Values per Comparator

STANDARDS:
AS 3894.5, ASTM D 4417-A,
IMO MSC.215(82), IMO MSC.244(83),
ISO 8503-1, ISO 8503-2,
SSPC PA 17

Technical Specification

Part Number	Description	Section Profiles
E125----1	Elcometer Grit Surface Comparator	25, 60, 100, 150µm
E125----2	Elcometer Shot Surface Comparator	25, 40, 70, 100µm

○ Optional Calibration Certificate available.

Elcometer 127

Keane-Tator Surface Comparators & Magnifier

The Elcometer 127 range of Surface Comparators are available in sand, shot or grit surface profiles. Each comparator is supplied with 5 profile grades ranging from 0.5 - 5.5mils. Designed for use with the Elcometer 127 illuminated magnifier, each comparator has a hole in the centre allowing for clear visual comparisons to be made.

- 5 Profile Values per Comparator

STANDARDS:
AS 3894.5, ASTM D 4417-A, SSPC PA 17

Technical Specification

Part Number	Description	Section Profiles
E127----2	Elcometer 127 Sand Surface Comparator	0.5, 1, 2, 3, 4mils
E127----3	Elcometer 127 Grit Surface Comparator	1.5, 2, 3, 4.5, 5.5mils
E127----4	Elcometer 127 Shot Surface Comparator	2, 2.5, 3, 4, 5.5mils
E127----1	Illuminated magnifier (x 5) with integrated surface comparator holder	

Elcometer 129

Rubert & Rugotest Surface Comparators

The Elcometer 129 Surface Comparators are available in two models:

- Elcometer 129 Rubert - available in grit and shot versions
- Elcometer 129 Rugotest - shot and grit profiles on the same block

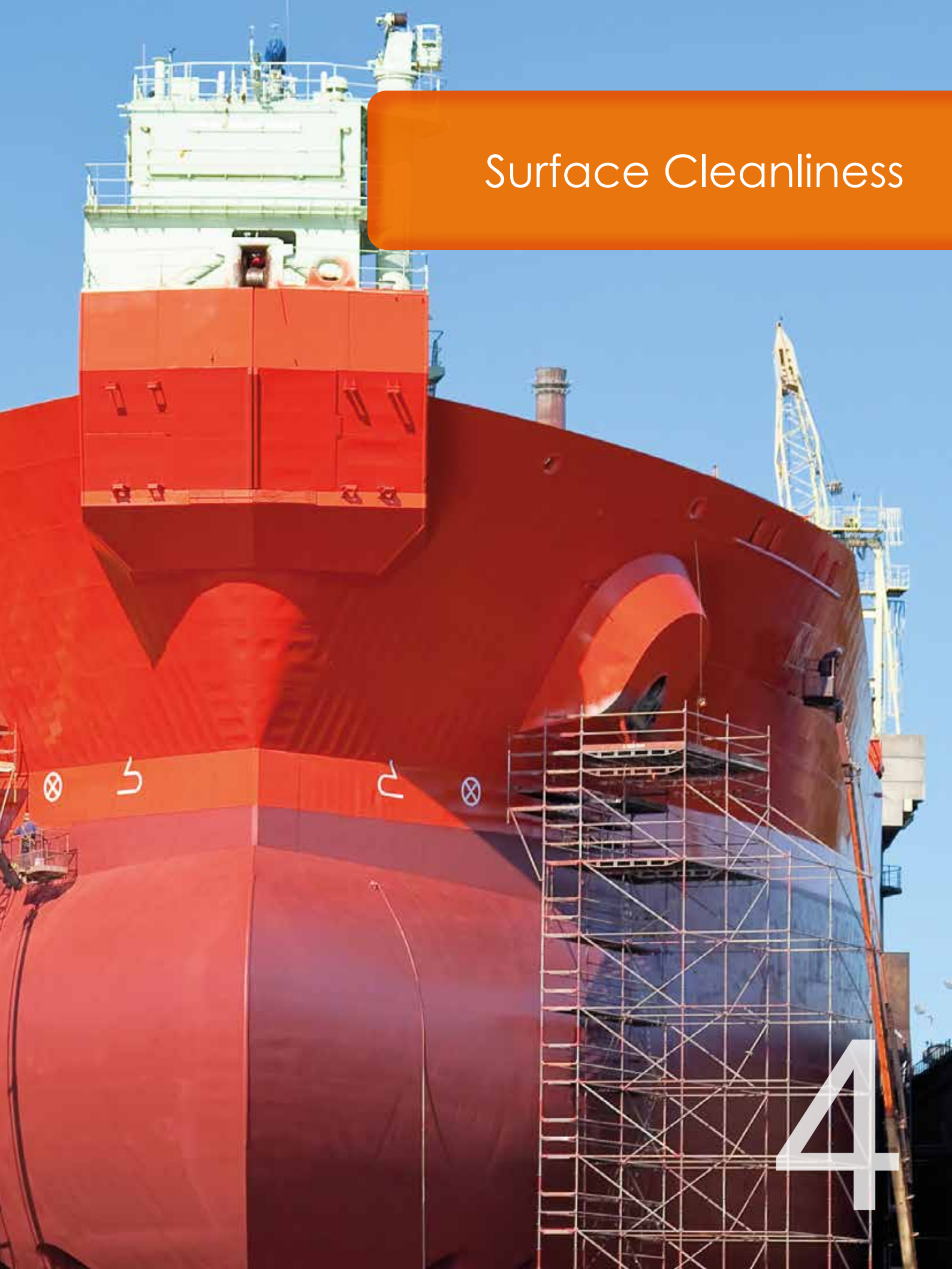
Roughness is displayed in both “classes” and “roughness averages” for easier identification. Available in Metric only.

- 6 Roughness Values per Comparator

STANDARDS:
AS 3894.5

Technical Specification

Part Number	Description	Section Profiles
E129----1	Elcometer 129/1 Rubert Grit Surface Comparator	0.4, 0.8, 1.6, 3.2, 6.3, and 12.5µm
E129----2	Elcometer 129/2 Rubert Shot Surface Comparator	0.4, 0.8, 1.6, 3.2, 6.3, and 12.5µm



Surface Cleanliness

4

Surface preparation is one of the most important factors in the successful application of a coating or surface treatment and is critical to the effective lifetime of the coating. For any coating to perform it is essential that the substrate is prepared properly.

Ensuring the correct surface preparation optimises the performance of the coating and material usage. Elcometer supply a range of products to meet each of the key industry standard surface preparation inspection methods, these include;

Surface Cleanliness: soluble salts & ion specific contamination (sulphates, chlorides, nitrates, etc.) which are often invisible to the eye, together with amine blush (for amine cured epoxy coatings) can result in premature coating failure, resulting in high re-coating and maintenance costs. Elcometer has a range of test equipment for assessing surface cleanliness prior to applying a coating.

Elcometer 130 SSP Soluble Salt Profiler

The **Elcometer 130** Soluble Salt Profiler provides fast and accurate measurement of the level and density of soluble salts - over 4 times faster than other Bresle equivalent methods.

BRESLE EQUIVALENT
ISO 8502-9 TEST METHOD

Large colour LCD screen displays readings in µg/cm², ppm, µS/cm, mS/cm, % salinity or mg/m²

Stores up to 3,500 sets of readings in 1,000 alpha numeric batches

Range of measurement modes:
- Cleanliness
  - Bresle Method Equivalency
  - Elcometer 130 Equivalency
- Conductivity

Multi-point conductivity sensor allows the trend in conductivity to be displayed as a density map

Automatic temperature compensation ensures accurate results

Non-oxidising gold plated contacts ensure lifetime performance

STANDARDS:
SSPC Guide 15, NSI 009-32

Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

Elcometer 130 SSP

Soluble Salt Profiler

Large Single Reading

Four Bresle equivalent readings in 2½ minutes

Each filter paper is the size of four Bresle patches - the Elcometer 130 Soluble Salt Profiler not only displays the individual reading, but also provides four Bresle equivalent readings in just over two minutes.

Four Bresle Patch
Equivalent Readings

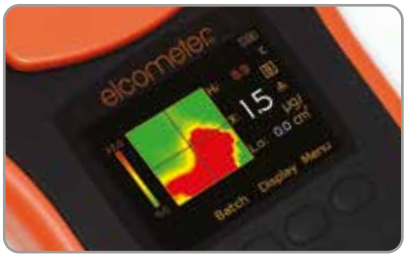
Detailed analysis

In addition to soluble salt levels (cleanliness) or conductivity, the Elcometer 130 SSP carries out a detailed analysis of the test area - providing an accurate salt density profile map, pinpointing areas of high contamination outside user defined limits.

Pass/Fail to User Defined Limits

Accurate in all environments

The Elcometer 130 SSP has automatic temperature compensation ensuring accuracy in all climatic conditions. Impure water can be offset for accurate and repeatable readings.



2D Salt Density Map with
High/Low Readings

Designed to last

Robust, durable & water resistant, the Elcometer 130 SSP is available with a 2 year manufacturer's warranty; giving you peace of mind.

3D Salt Density Profile &
Peak Salt Concentration (Hi)

Generate instant reports with ElcoMaster® software

The Elcometer 130 SSP wirelessly transmits readings, statistics and batches via Bluetooth® or via USB straight into an inspection application or into ElcoMaster® software, Elcometer's Mobile App, for instant report generation at your desk, or using your mobile in the field.

Elcometer 130 SSP Soluble Salt Profiler

How to use the Elcometer 130 Soluble Salt Profiler

Step 1

Wearing clean disposable gloves (supplied), fill a syringe with precisely 1.6ml of pure distilled water.

Step 2

Using tweezers, remove a filter paper from the pack and place it on the cleaned, non-labelled side of the magnetic disc supplied.

Step 3

Disperse the water from the syringe, evenly across the whole of the filter paper and remove any bubbles from under the paper.

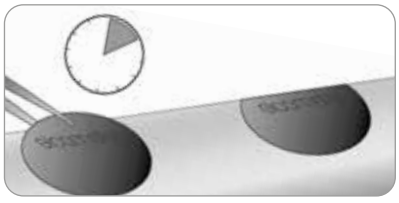
Step 4

Place the magnetic disc, wetted face down, on to the area under test, pressing firmly into any contours or irregularities and start the 2 minute timer on the gauge.

Step 5

After two minutes, carefully remove the filter paper and magnetic disc from the test surface and place on to the measurement electrodes.

Step 6



As each filter paper remains on the surface for two minutes, multiple tests can be undertaken at the same time, reducing inspection times further.

Step 7

Close the lid, ensuring that the magnetic catch is fully engaged, the gauge will begin measuring.

Step 8

The reading will be displayed on screen in the chosen display mode.

Step 9

If required for further analysis, place the filter paper in a resealable bag (supplied).

Elcometer 130 SSP Soluble Salt Profiler

Product Features

		Model SSP
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*		■
2 year gauge warranty[1]		■
USB power supply; *via PC*		■
Calibration certificate		■
Calibration Verification Mode *(with optional certified calibration tile)*		■
Ambient light sensor; *with adjustable auto brightness*		■
Emergency Light Mode		■
Magnetic & tripod mounting points		■
Data output, USB to PC & Bluetooth to PC, Android™ & iOS[2] devices		■
On screen statistics		
Number of readings *(n);* Mean/Average, *($\bar{x}$);* Standard deviation (σ); Highest reading/Peak salt concentration *(Hi;)* Lowest reading *(Lo);* Coefficient of variation *(CV%);* Number of readings above high limit ($\overline{x}_n$)		■
Gauge memory		
Number of individual reading sets; *including salt density, pass/fail map & distribution graph*		3,500
Number of batches		1,000
Measurement units & range		
Surface Cleanliness - Elcometer 130 Mode	0-50µg/cm²	0-500mg/m²
Surface Cleanliness - Bresle Equivalent Method Mode	0-15µg/cm²	0-150mg/m²
Conductivity	0-6000µS/cm 0-3000ppm	0-6mS/cm 0-0.3% Salinity
Resolution		
Surface Cleanliness	0.1µg/cm²	1mg/m²
Conductivity	1µS/cm 1ppm	0.001mS/cm 0.0001% Salinity
Gauge Accuracy		±1% of reading
Measurement mode		
Surface Cleanliness		■
Conductivity		■
Calibration Offset Mode		■
Automatic temperature compensation		■
ElcoMaster® software & USB cable		■
Individual reading and profile map stored with time and date		■
Plastic transit case		■
Alpha-numeric batch names; *user definable on the gauge*		■
Fixed Batch Size Mode; *with batch linking*		■
Delete last reading		■
Limits; *(gauge & batch specific)*		■
Review, copy, clear & delete batches & calibration settings		■
Trend graph; *last 20 readings*		■
Batch review graph		■
Analogue bar graph		■

[1] The Elcometer 130 SSP 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 www.elcometer.com.

[2] Visit www.elcometer.com/sdk to find out how to integrate Elcometer's MFi certified products to your App.

Elcometer 130 SSP Soluble Salt Profiler

Technical Specification

Model	Description	Certificate
E130-SP	Elcometer 130 Soluble Salt Profiler[1]	
E130-SPC	Elcometer 130 Certified Soluble Salt Profiler[1]	●
Operating Range	5°C - 40°C (41°F - 104°F)	
Power Supply	4 x AA batteries or via USB (rechargeable batteries can also be used)	
Battery Life	Alkaline: Approximately 30 hours Lithium: Approximately 45 hours	
Sample Time	2 minutes	
Sampling Size	110mm (4.3") circle	
Dimensions	250 x 145 x 50mm (9.8 x 5.7 x 1.9")	
Weight	780g (1.72lb)	
Standards	SSPC Guide 15 (Bresle Equivalent ISO 8502-9 Test Method), NSI 009-32	
Packing List	Elcometer 130 Soluble Salt Profiler, 3 x magnetic discs, 100 x high purity test papers, 250ml (8.5fl oz) pure distilled water, 20 x PVC storage bags, disposable gloves, sensor wipes, 3 x 3.0ml (0.1fl oz) syringes, 2 x plastic tweezers, 4 x AA batteries, shoulder strap, plastic transit case, test certificate and operating instructions, USB cable, ElcoMaster® software	

Accessories

		Certificate
T13027115	Calibration Verification Tile	●
T13025964	Magnetic Discs (x3)	
T13024091	3.0ml / 0.1fl oz Syringe (x3)	
T13024093	Self Seal Polythene Bags (x20)	
T99911344	Pure Distilled Water - 250ml (8.5fl oz) Bottle with 3ml syringe	
T13027596	Pure Distilled Water - 1000ml (33.8fl oz) Bottle with 3ml syringe	
T13024094	High Purity Test Papers (x100)	
T13024092	Disposable Vinyl Gloves (x20)	
T13024098	Plastic Tweezers (x2)	
T13024087	Box of 72 Sensor Wipes	
T99920130	USB Bluetooth® Adaptor V2.1+	

Calibration verification - peace of mind

A Calibration Verification Tile is available for verifying the accuracy of the gauge whilst out in the field and the verification date is recorded for use in reports.

● Calibration Certificate supplied as standard.

[1]Applicable Patents: GB 2527766

Elcometer 130 SSP Soluble Salt Profiler

Bresle Patch Equivalence

Tested under laboratory conditions in accordance with ISO 8502-9, the Elcometer 130 SSP provides equivalent measurements to the Bresle Patch Method.

To show equivalency of measurement between the Bresle Method and the Elcometer 130 SSP it is essential that all parameters are identical except the gauges under test.

For equivalency to be established, both gauges should read a similar value, taking into account the accuracy and resolution of each test.

TEST METHOD

Working with the School of Materials at the University of Manchester (UK) an automated, repeatable and reproducible doping method was developed to apply a known salt concentration uniformly over a large panel.

Over 200 individual tests were undertaken across a range of concentrations and blast profiles.

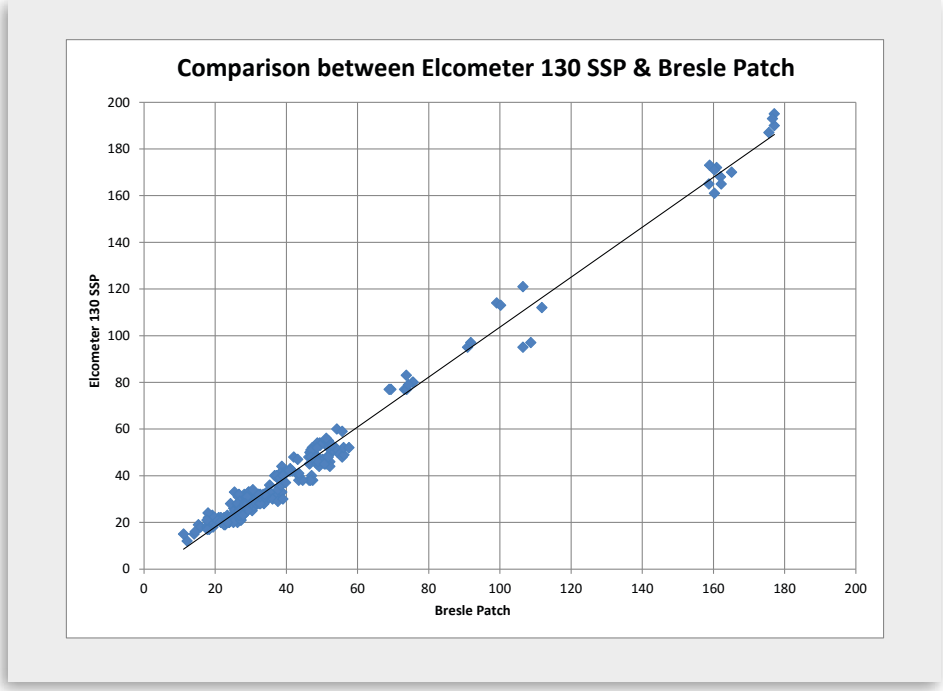
Nominal steel grit blast profiles

- Smooth <25µm (1.0mils)
- 25 to 50µm (1.0 to 2.0mils)
- 50 to 75µm (2.0 to 3.0mils)
- 75 to 150µm (3.0 to 6.0mils)

Surface salt concentration levels

- 15mg/m² to 25mg/m²
- 25mg/m² to 35mg/m²
- 35mg/m² to 45mg/m²
- 45mg/m² to 55mg/m²
- >55 mg/m²

Testing was undertaken under strict laboratory conditions, with each method tested in accordance with the manufacturer's instructions.



RESULTS

"The Elcometer 130 SSP measurement equivalency is less than 0.46µg/cm² across all concentrations on smooth and blasted substrates, almost half the background contamination of a Bresle Patch."

The Elcometer 130 SSP has undergone extensive side by side comparison testing against the Bresle Test Patch Method.

Background (inherent) contamination within the Bresle Test Patch has shown that the Bresle Test Patch has a background contamination range of 0.88µg/cm² (8.8mg/m²).

The variation in readings between the Elcometer 130 SSP and the Bresle Test Method are significantly within the background contamination range of the Bresle Patches (0.88µg/cm²); being less than 0.41µg/cm² for concentrations below 8.0µg/cm², and less than 0.46µg/cm² across concentrations below 16.5µg/cm².

For a copy of the full report and analysis visit www.elcometer.com

Elcometer 130 Salt Contamination Meter

The **Elcometer 130** quickly and accurately measures the level of soluble salts on surfaces over 4 times faster than Bresle equivalent test methods.

Non-oxidising gold plated contacts ensures lifetime accuracy

Automatic temperature compensation ensures accurate results

Fast reading rate allows multiple tests to be completed efficiently

Pressure plate ensures a constant and uniform pressure to paper

Stores up to 100,000 readings in 1,000 alpha numeric batches

Dust and water resistant rugged design equivalent to IP64

STANDARDS:
SSPC Guide 15

Measures on flat and convex surfaces

2 YEAR* WARRANTY

Elcometer 130 Salt Contamination Meter

User Friendly

- Large buttons ideal for gloved hands
- Easy to use menu structure in multiple languages
- High reading limit indicator
- Factory calibrated for immediate use

Tough

- Heavy duty, impact resistant, dust and waterproof design equivalent to IP64
- Wipe clean sealed unit ideal for harsh environments
- Scratch and solvent resistant display

Accurate

- Conductivity measurement to ±1%
- Can be used in accordance with National and International Standards
- Automatic temperature compensation ensures repeatable, accurate results
- Calibration verification tiles
- Trend and batch readings graph format for instant on screen analysis

Efficient

- Instant readings allows multiple tests to be completed efficiently
- Alpha numeric batch identification
- Compatible with ElcoMaster® software and ElcoMaster® Mobile App
- Calibration offset allows the use of non-pure water up to 2µg/cm²

Reliable

- Repeatable and reproducible measurements
- 2 year gauge warranty[1]
- Supplied with fully traceable Test Certificates
- Batch & individual readings are stored with date and time stamp

Powerful

- Measuring range up to 50µg/cm² (3000ppm)
- USB and Bluetooth® data output to iPhone[2] or Android™ devices
- Stores up to 100,000 readings in 1,000 batches
- Soluble salt and conductivity meter in one gauge

Calibration Verification Tiles available for verifying the accuracy of the gauge

[1] The Elcometer 130 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 www.elcometer.com.

[2]Compatible with iPod, iPhone and iPad.

Elcometer 130 Salt Contamination Meter

Product Features	■ Standard	□ Optional

		Model S	Model T
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*		■	■
2 year gauge warranty[1]		■	■
USB power supply; *via PC*		■	■
Calibration certificate		■	■
Calibration Verification Mode *(with optional certified calibration tiles)*		■	■
Ambient light sensor; *with adjustable auto brightness*		■	■
Emergency Light Mode		■	■
Magnetic & tripod mounting points		■	■
Gauge software updates; *via ElcoMaster® software*		■	■
Data output			
USB; *to computer*		■	■
Bluetooth®; *to computer, Android™ & iOS[2] devices*			■
ElcoMaster® software & USB cable		□	■
On screen statistics			■
Number of readings *(n);* Mean (average) *($\bar{x}$) ;* Standard deviation (σ); Highest reading *(Hi);* Lowest reading *(Lo);* Coefficient of variation*(CV%);* Number of readings above high limit ( )			■
Gauge memory			■
Number of readings			100,000
Number of batches			1,000
Measurement units & range	µg/cm² ppm µS/cm mS/cm % Salinity mg/m²	0-25	0-50 0-3000 0-6000 0-6 0-0.3 0-500
Measurement mode			
Surface cleanliness		■	■
Conductivity			■
Calibration Offset Mode		■	■
Automatic temperature compensation		■	■
Individual reading stored with date & time			■
Plastic transit case		■	■
Alpha-numeric batch names; *user definable on the gauge*			■
Fixed Batch Size Mode; *with batch linking*			■
Delete last reading			■
Limits; *user definable audible & visual pass/fail warnings*			■
Review, copy, clear & delete batches & calibration settings			■
Trend graph; *last 20 readings*			■
Batch review graph			■
Analogue bar graph			■

[1] The Elcometer 130 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 www.elcometer.com. [2] Visit www.elcometer.com/sdk to find out how to integrate Elcometer's MFi certified products to your App.

Elcometer 130 Salt Contamination Meter

Technical Specification

Model S	Model T	Description	Certificate
E130-S	E130-T	Elcometer 130 Salt Contamination Meter	
E130-SC	E130-TC	Elcometer 130 Certified Salt Contamination Meter	●

	Model S	Model T
Measurement Range	0-25µg/cm²	0-50µg/cm²; 0-500mg/m²; 0-6000µS/cm; 0-6mS/cm; 0-3000ppm; 0-0.3% Salinity
Resolution	0.1µg/cm²	0.1µg/cm²; 1mg/m² 1µS/cm; 0.001mS/cm 1ppm; 0.0001% Salinity

Measurement Accuracy	±1% of reading ±0.1µg/cm²	Operating Range	5°C - 40°C (41°F - 104°F)
Power Supply	4 x AA batteries (rechargeable batteries can also be used), or power via USB		
Number of Tests	Approximately 4,000 measurements before battery replacement		
Sample Time	2 minutes	Sampling Size	110mm (4.3") diameter circle
Dimensions	250 x 145 x 50mm (9.8 x 5.7 x 1.9")	Weight	780g (1.72lb)
Packing List	Elcometer 130 Salt Contamination Meter, 3 x magnetic discs, 100 x high purity test papers, 250ml (8.5fl oz) pure distilled water, 20 x PVC storage bags, disposable gloves, sensor wipes, 3 x 3ml (0.1fl oz) syringes, 2 x plastic tweezers, 4 x AA batteries, shoulder strap, plastic transit case, test certificate and operating instructions, USB cable (T), ElcoMaster® software (T)		

Accessories

		Certificate
T13023980	Calibration Verification Tiles, Set of 3	●
T13024091	3ml / 0.1fl oz Syringe (x3)	
T99922341	Pack of 10 Display Screen Protectors	
T13024093	Box of 20 Self Seal Polythene Bags	
T99911344	Pure Distilled Water - 250ml (8.5fl oz) Bottle with 3ml syringe	
T13027596	Pure Distilled Water - 1000ml (33.8fl oz) Bottle with 3ml syringe	
T13024094	Box of 100 High Purity Test Papers	
T13024092	Box of 20 Disposable Vinyl Gloves	
T13024098	Plastic Tweezers (x2)	
T13024087	Box of 72 Sensor Wipes	
T13025964	Magnetic Discs (x3)	
T99921325	USB Cable	

● Calibration certificate supplied as standard

Elcometer 135C

Elcometer Bresle Test Patches

The Elcometer 135C Bresle Test Patch determines the concentration of soluble salts on uncoated surfaces in accordance with the ISO 8502-6 test method.

Elcometer Bresle Test Patches are also available as part of the Elcometer 138 Bresle Salt Kit.

STANDARDS:
ISO 8502-6

Technical Specification

Part Number	Description			Certificate
E135----C25	Elcometer 135C Bresle Test Patch (Box of 25)			●
E135----C100	Elcometer 135C Bresle Test Patch (Box of 100)			●
Test Area	1250mm², 12.5cm² (1.93sq inches)	Sample Volume	2.6ml ± 0.6ml	
Dimensions	50 x 50mm (1.97 x 1.97”)			

Elcometer 135B

Bresle Patches

Elcometer 135B Original Bresle Patches are used to determine surface chloride contamination and are self-adhesive rubber film patches with a sealed compartment for sampling soluble impurities using a suitable solvent, from steel surfaces.

Elcometer 135B Bresle Patches can also be used with the Elcometer 138C Bresle Salt Kit.

STANDARDS:
ISO 8502-6

Technical Specification

Part Number	Description		
E135----B	Elcometer 135B Bresle Patches		
Tests per Kit	25	Test Area	1250mm², 12.5cm² (1.93sq inches)
Sample Volume	2.6ml ±0.6ml	Dimensions	52 x 52mm (2.0 x 2.0”)

● Certificate of Cleanliness & Test Area available at www.elcometer.com/cert

Bresle Patch is a Trade Mark of SP Sveriges Tekniska Forskningsinstitut AB

Elcometer 138

Bresle Salt Kit

STANDARDS:
AS 3894.6-A, IMO MSC.215 (82), IMO MSC.244 (83), ISO 8502-6, ISO 8502-9, SSPC Guide 15, US Navy NSI 009-32, US Navy PPI 63101-000

It is essential that the level of contaminants on a surface is measured prior to application of the coating to ensure the quality of the coating and that its optimum lifetime is achieved.

If the coating is applied to a contaminated surface, which is not properly prepared, it could fail prematurely resulting in costly re-coating and high maintenance costs.

The Elcometer 138 Bresle Kits include the Elcometer 138 Bresle Salt Meter. This lightweight, portable meter measures the conductivity of the test sample using a single drop, then automatically converts this to show the density of salts, negating the need for the user to do a manual calculation when working in accordance with ISO 8502-6 or ISO 8502-9.

Technical Specification

Part Number	Description	Certificate
E138-1C	Elcometer 138 Bresle Salt Kit with Elcometer 138 Bresle Salt Meter and Elcometer 135C Bresle Test Patches	•
E138-1C-CM	Elcometer 138 Bresle Salt Kit with Elcometer 138 Conductivity Meter and Elcometer 135C Bresle Test Patches	•
E138-1	Elcometer 138 Bresle Salt Kit with Elcometer 138 Bresle Salt Meter and Elcometer 135B Bresle Patches	
E138-1-CM	Elcometer 138 Bresle Salt Kit with Elcometer 138 Conductivity Meter and Elcometer 135B Bresle Patches	
Measurement Range	E138-1, E138-1C: ISO Mode: 0 - 2399µg/cm² IMO Mode : 0 - 2199µg/cm² E138-1-CM, E138-1C-CM: 0 - 19.99mS/cm	
Accuracy*	±2% full scale (for each range)	
Dimensions	393 x 331 x 95mm (15.5 x 13 x 3.7”) Weight 1.4kg (3lb 1oz)	
Packing List	Box of 25 Elcometer 135C Bresle Test Patches (E138-1C) or Elcometer 135B Bresle Patches (E138-1), Elcometer 138 Bresle Salt Meter (E138-1C or E138-1) or Elcometer 138 Conductivity Meter (E138-1-CM or E138-1C-CM) & Sensor, 250ml (8.45fl oz) bottle of standard 84µS/cm calibration solution with certificate, 14ml (0.47fl oz) bottle of conditioning solution, 250ml (8.5fl oz) bottle of pure water, 3 x 5ml (0.17fl oz) syringes, 3 x blunt needles, 30ml (1fl oz) plastic beaker, 2 x CR2032 batteries (supplied fitted to the Elcometer 138), transit case and user guide	

Accessories

E135----B	Elcometer 135B Bresle Patches (Box of 25)		
E135----C25	Elcometer 135C Bresle Test Patch (Box of 25)		
E135----C100	Elcometer 135C Bresle Test Patch (Box of 100)		
T13830629-1	Standard 84µS/cm Calibration Solution, 250ml (8.45fl oz) Bottle		
T13830629-2	Standard 1413µS/cm Calibration Solution, 250ml (8.45fl oz) Bottle		
T13827259	Pure Water - 250ml (8.5fl oz) Bottle		
T13818517	3 x 5ml (0.17fl oz) Syringes	E138-BSM	Elcometer 138 Bresle Salt Meter
T13818518	3 x Needles	E138-CM	Elcometer 138 Conductivity Meter
T13818519	Plastic Beaker 30ml (1fl oz)	T13833402	Replacement Sensor for Conductivity Meter & Bresle Salt Meter

* See Elcometer 138 Bresle Salt Meter for full specification
* See Elcometer 138 Conductivity Meter for full specification

• Certificate of Cleanliness & Test Area available at www.elcometer.com/cert

Elcometer 138

Bresle Salt Meter

Incorporating a flat sensor, the Elcometer 138 Bresle Salt Meter measures the conductivity of a sample, then automatically converts this to show the density of salts, negating the need for the user to do a manual calculation when working in accordance with ISO 8502-6 or ISO 8502-9.

Features:

- Highly precise measurements can be obtained from a single drop
- Out of range and low battery alarms
- Visual indication when ambient temperature is outside the operating range

Technical Specification

Part Number	Description	
E138-BSM	Elcometer 138 Bresle Salt Meter	
Measurement Principle	2 Electrode Bipolar AC	
Measurement Mode	ISO, IMO, Temperature	
Minimum Sample Volume	0.12ml	
	ISO Mode	IMO Mode
Measuring Range	0 - 2399µg/cm²	0 - 2199µg/cm²
Conversion Factor	µS/cm to µg/cm² : 0.12 µS/cm to mg/m² : 1.2	µS/cm to µg/cm² : 0.11 µS/cm to mg/m² : 1.1
Resolution	0 - 239.9µg/cm² : 0.1µg/cm² 240 - 2399µg/cm² : 1µg/cm²	0 - 219.9µg/cm² : 0.1µg/cm² 220 - 2199µg/cm² : 1µg/cm²
Accuracy	±2% full scale (for each range)	
Operating Temperature	5°C to 40°C (41°F to 104°F)	
Operating Humidity	85% or less relative humidity (no condensation)	
Battery Type	2 x CR2032 lithium batteries	
Battery Life	approx. 200 hours of continuous use without backlight	
Weight	50g (1.76oz) - including sensor and batteries	
Dimensions	164 x 29 x 20mm (6.5 x 1.1 x 0.79”)	
Packing List	Elcometer 138 Bresle Salt Meter, 14ml (0.5fl oz) bottle of conditioning solution, 2 x CR2032 lithium batteries and operating instructions	

Accessories

T13833402	Replacement Conductivity Sensor
T13830629-1	Standard 84µS/cm Calibration Solution, 250ml (8.45fl oz) Bottle

Elcometer 138

Conductivity Meter

Incorporating a flat sensor, the Elcometer 138 Conductivity Meter can measure the conductivity of a solution from a single drop of a sample.

Users can either place a sample on the meter's flat sensor or immerse the meter's sensor directly into the solution under test. The Elcometer 138 can be used for a broad range of applications, including: soluble salt concentrations, the electric conductivity (EC) of solutions used in agricultural operations and measuring rainwater pollution levels.

The Elcometer 138 Conductivity Meter includes a convenient salinity conversion indicator.

Features:

- Highly precise measurements can be obtained from a single drop
- Automatic range switching gives a wide measurement range of 1µs/cm to 19.99mS/cm
- Out of range and low battery alarms
- Visual indication when ambient temperature is outside the operating range

Technical Specification

Part Number	Description
E138-CM	Elcometer 138 Conductivity Meter
Measurement Principle	2 Electrode Bipolar AC
Measurement Mode	Conductivity, Temperature
Minimum Sample Volume	0.12ml
Measuring Range	0 - 19.99mS/cm
Resolution	0 - 1999µS/cm: 1µS/cm 2.00 - 19.99mS/cm: 0.01mS/cm
Accuracy	±2% full scale (for each range)
Operating Temperature	5°C to 40°C (41°F to 104°F)
Operating Humidity	85% or less relative humidity (no condensation)
Battery Type	2 x CR2032 lithium batteries
Battery Life	approx. 200 hours of continuous use without backlight
Weight	50g (1.76oz) - including sensor and batteries
Dimensions	164 x 29 x 20mm (6.5 x 1.1 x 0.79")
Packing List	Elcometer 138 Conductivity Meter, 14ml (0.5fl oz) bottle of conditioning solution, 14ml (0.5fl oz) bottle of standard 1413µS/cm calibration solution, 2 x CR2032 lithium batteries and operating instructions

Accessories

T13833402	Replacement Conductivity Sensor
T13830629-2	Standard 1413µS/cm Calibration Solution, 250ml (8.45fl oz) Bottle

Elcometer 138/2

Surface Contamination Kit

STANDARDS:
AS 3894.6-A, AS 3894.6-D,
SSPC Guide 15

Measuring the level of contaminants on a surface prior to application of the coating is essential to ensure the quality of the coating and that its optimum lifetime is achieved.

If the coating is applied to a contaminated surface, which is not properly prepared, it could fail prematurely resulting in costly recoating and high maintenance costs.

The Elcometer 138/2 Surface Contamination Kit provides the user with a means for testing invisible surface contaminants, these include:

- pH
- chloride ions
- iron
- salts

Technical Specification

Part Number	Description	Certificate
E138----2	Elcometer 138/2 Surface Contamination Kit	●
Measuring Range	pH: 0pH to 14pH Iron: 3,10, 25, 50, 100, 250, 500mg/l Fe^2 Chloride: 30 - 600ppm Cl	
Dimensions	300 x 220 x 75mm (11 x 8.6 x 3”)	
Weight	2.1kg (4.62lb)	
Packing List	100 x pH test strips, 100 x iron test strips, 40 x chloride test strips, 50 x Elcometer 135C Bresle test patches, 3 x 5ml (0.17fl oz) syringes, 3 x needles, 30ml (1fl oz) plastic beaker, carry case and operating instructions	

Accessories

E135----C25	Elcometer 135C Bresle Test Patch (Pack of 25)
E135----C100	Elcometer 135C Bresle Test Patch (Box of 100)
T13818517	3 x 5ml (0.17fl oz) Syringes
T13818518	3 x Needles
T13818519	Plastic Beaker, 30ml (1fl oz)
T13827259	Pure Distilled Water, 250ml (8.5fl oz) Bottle
T13820562	100 x pH Test Strips
T13820563	100 x Iron Test Strips
T13820564	40 x Chloride Test Strips

● Certificate of Cleanliness & Test Area available at www.elcometer.com/cert

Elcometer 138/2

Chloride Test Strips

Chloride ions on a steel surface increase the probability that corrosion of the steel will take place even if a protective coating is applied. Chloride ions trapped under a coating in the presence of steel and moisture will form a corrosion cell. This corrosion process will result in premature failure of the protective coating and may cause blistering of coatings in immersion service.

The chloride test strips will indicate the concentration of chloride ions in the sample solution and if the area of sample collection and the volume of water is known the concentration can be measured in parts per million or micrograms per millilitre.

Technical Specification

Part Number	Description
T13820564	40 x Chloride Test Strips

Elcometer 138/2

Iron Test Strips

Ferrous ions are an indicator of the corrosion of steel as they are formed when the iron oxidises as a result of a corrosion cell formed between the steel and oxygen in the presence of water. The ferrous ion test strips will also indicate the concentration of ferrous ions in a sample solution in the same way as the chloride strips.

Technical Specification

Part Number	Description
T13820563	100 x Iron Test Strips

Elcometer 138/2

pH Test Strips

These strips will determine if a solution or surface is acid or alkaline in nature. Acids form when certain gases are dissolved in water, for example, chlorine in water produces hydrochloric acid, carbon dioxide in water produces carbonic acid, sulphur dioxide in water produces sulphuric acid all of which are corrosive to steel.

The presence of these contaminants can either be detected in a solution washed from the surface or by putting a wet pH Test Strip on to the dry surface. pH does not measure the concentration but it does indicate how acidic or alkaline the surface is. Alkaline surfaces are normally associated with either concrete surfaces that are to be coated or steel re-enforcement bars buried in concrete.

Technical Specification

Part Number	Description
T13820562	100 x pH Test Strips

Elcometer 134S

Chloride Ion Test Kit for Surfaces

STANDARDS:
ISO 8502-5, SSPC Guide 15

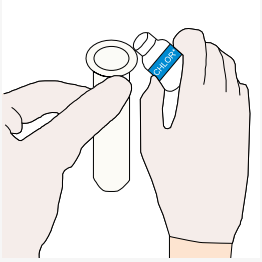
Chloride salts left on the surface before the first coat is applied can result in the coating system being forced off the surface by corrosion or blistering before the full life of the coating has been reached. To ensure that the chloride has been removed it is essential that the surface is tested before the coating is applied.

Elcometer 134S test method: a latex sleeve is filled with a Chlor*Rid extract solution and stuck to the test surface where the solution is worked against the surface to extract the salts. The titration tube is inserted and the results can be recorded.

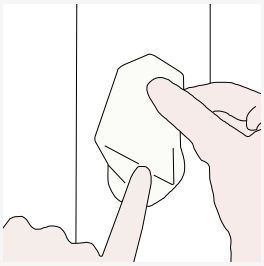
Technical Specification

Part Number	Description
E134----1	Elcometer 134S Salt Detection Kit for Blast Cleaned Surfaces
Measuring Range	1 - 60µg/cm² (1 - 60ppm)
Scale Resolution	1µg/cm² (1ppm)
Tests per Kit	5
Dimensions	185 x 125 x 110mm (7 x 5 x 4.5”)
Weight	250g (9oz)
Packing List	5 x test kits each containing: titration tube snapper, strap, clip, pre-measured bottle of Chlor*Rid extract solution, sleeve, titration tube and operating instructions

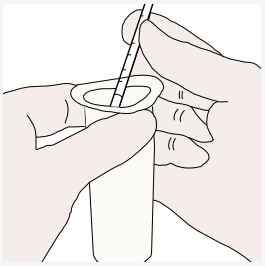
How to use a Chloride Ion Test Kit for Surfaces



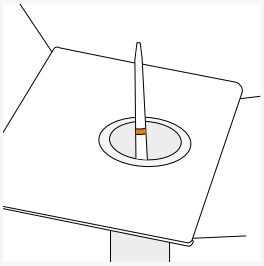
1. Remove cap from CHLOR*EXTRACT solution bottle and pour entire contents into the test sleeve.



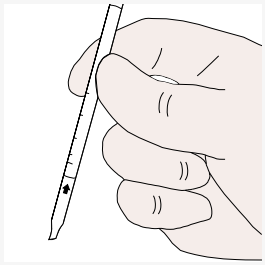
2. Firmly apply test sleeve to test surface, allowing extract solution to come into contact with test surface.



3. Insert the titration tube into the test sleeve.



4. Insert sleeve with extract solution and titration tube into the hole previously made in the box lid and wait 1½ minutes.



5. Immediately remove and read the number on the titration tube at the interface of the colour change. Pink is normal, white is the chloride level.

For Chloride Ion Test Kits for water and abrasives see page 1-3

Elcometer 134 CSN

CSN Chloride, Sulphate & Nitrate Kit

STANDARDS:
ISO 8502-5, ISO 8502-11, SSPC Guide 15

The Elcometer 134 CSN Salt Kit is designed to accurately measure surface chloride, sulphate and nitrate ions in minutes and offers a single kit solution for testing in the field.

All the components of the Elcometer CSN Test Kits are pre-measured and pre-dosed for trouble free testing.

Results are recorded in parts per million (ppm) requiring no complicated calculations. Elcometer 134 CSN tests are all designed to use a ratio of 1:1 for easy conversion to µg/cm².

Supplied in an ABS plastic carry case for easy portability around the site, each field kit is supplied with full instructions attached to the inside lid, together with:

- 5 x Chloride tests
- 5 x Sulphate tests, together with 1 x colorimeter, for sulphate testing
- 5 x Nitrate test strips
- 5 x Syringes (without needles)

Refill kits containing 5 x chloride, nitrate and sulphate tests are available.

Technical Specification

Part Number	Description
E134-CSN	Elcometer 134 CSN Chloride, Sulphate & Nitrate Test Kit
Measuring Range	0 - 100µg/cm² (0 - 100ppm)
Scale Resolution	1µg/cm² (1ppm)
Sample Time	1 - 5 minutes (approximately)
Storage Temperature	Not exceeding 25°C (77°F)
Dimensions	360 x 320 x 140mm (14.2 x 12.6 x 5.5”)
Weight	1.76kg (3.8lb)
Packing List	5 x tests (containing: 5 x chloride tests, 5 x nitrate test strips, 5 x sulphate tests, 5 x syringes), a colorimeter, carry case and operating instructions

Accessories

T134-KIT	Refill Kit for Elcometer 134 CSN

Elcometer 139

Amine Blush Swab Test Kit

When using amine cured epoxy resin coatings in a multi-layer system, if the original coating cures in a low ambient temperature and/or in a high humidity environment, problems - referred to in the industry as amine blush can develop. The presence of amine blush can lead to inter-coat adhesion failures if the film is re-coated.

The Elcometer 139 Amine Blush Swab Test Kit is a rapid colorimetric test designed solely for the use in the quick and immediate identification of amine blush (carbamates) on the surface of coatings using surface swabs. The presence of amine blush is indicated by a visual change of colour of the test solution when compared with a control sample.

Technical Specification

Part Number	Description		
E139----A	Amine Blush Swab Test Kit		
Dimensions	172 x 110 x 100mm (6.75 x 4.25 x 4.00")	Weight	350g (12.3oz)
Packing List	20 x polystyrene sampler test tubes of 1.0ml (0.035fl oz) buffer solution, a test tube of diluent part A solution, a test tube of diluent part B solution, 2 x diluent transfer pipettes, 3 x test part A dropper bottles - containing ACh-E powder (freeze dried), 3 x test part B dropper bottles - containing ATC powder (freeze dried), a test part C dropper bottle - containing chromogen DTNB solution, a bottle of swab solution - containing 25ml (0.89fl oz) of rubbing alcohol (70% IPA), 20 x cotton swabs (q-tips), 2 x swab templates - 2.54 x 2.54cm (1 x 1"), a pair of tweezers, a re-sealable plastic bag for content disposal and operating instructions		

Elcometer 139

Amine Blush Chip Screen Test Kit

The Elcometer 139 Amine Blush Chip Screen Test Kit is a rapid colorimetric test designed solely for the use in the quick and immediate identification of amine blush (carbamates) on the surface of coatings using small chips or shavings.

The presence of amine blush is indicated by a visual change of colour of the test solution when compared with a control sample.

The Elcometer 139 determines whether amine blush is or is not present on the coating's surface.

Technical Specification

Part Number	Description		
E139----C	Amine Blush Chip Screen Test Kit		
Dimensions	172 x 110 x 100mm (6.75 x 4.25 x 4.00")	Weight	310g (10.9oz)
Packing List	20 x polystyrene sampler test tubes of 1.0ml (0.035fl oz) buffer solution, 1 x test tube of diluent part A solution, 1 x test tube of diluent part B solution, 2 x diluent transfer pipettes, 3 x test part A dropper bottles - containing ACh-E powder (freeze dried), 3 x test part B dropper bottles - containing ATC powder (freeze dried), 1 x test part C dropper bottle - containing chromogen DTNB solution, 1 x scissors 1 x re-sealable plastic bag for content disposal and operating instructions		

Accessories

T13923546	Test Tube Stand

Elcometer 142

ISO 8502-3 Dust Tape Test Kit

The Elcometer 142 Dust Tape Test kit allows assessment of the quantity and size of dust particles on surfaces prepared for painting. Dust on blast cleaned surfaces can reduce coating adhesion, leading to premature coating failure and sub-standard coating finish.

Used in conjunction with the Elcometer 145 Dust Tape Roller the kit can be used in accordance with the recommendations of BS EN ISO 8502-3 either as a pass/fail test or as a permanent record of the presence of dust.

STANDARDS:
AS3894.6-C, IMO MSC.215 (82), IMO MSC.244 (83), ISO 8502-3, US Navy PPI 63101-000

Technical Specification

Part Number	Description		
E142----1	Elcometer 142 ISO 8502-3 Dust Tape Test Kit		
Measuring Range	Chart with dust classes ranging from 0 - 5 with descriptions for accurate class placement		
Dimensions	210 x 297mm (8.27 x 11.69”)	Weight	250g (9oz)
Packing List	Microscope with 10 x magnifier, 2 batteries (LR14), graticule, adhesive tape to specification ISO 8502-3, comparator display board, dust assessment plate, test record sheets (pack of 25) and operating instructions		

Accessories

T14219451	Test Record Sheet
T14219454	Display Board
T9999358-1	Adhesive Tape (1 roll) ISO 8502-3
T9999358-2	Adhesive Tape (2 rolls) ISO 8502-3
T14219525	Dust Assessment Plate

Elcometer 145

Dust Tape Roller

The Elcometer 145 Dust Tape Roller is used in conjunction with the Elcometer 142 Dust Tape Test kit to assess the quantity and size of dust particles on surfaces prepared for painting.

The Dust Tape Roller presses the Elcometer 142 Dust Tape to the surface using a controlled constant force as required by BS EN ISO 8502-3 (BS 7079-B3:1993).

Technical Specification

Part Number	Description		
E145----1	Elcometer 145 Dust Tape Roller		
Load Exerted	39.2 to 49.0 N, (8.8 and 11.0 lbF) when spring fully depressed		
Dimensions	160 x 70 x 110mm (6.3 x 2.76 x 4.33”)	Weight	615g (21.7oz)

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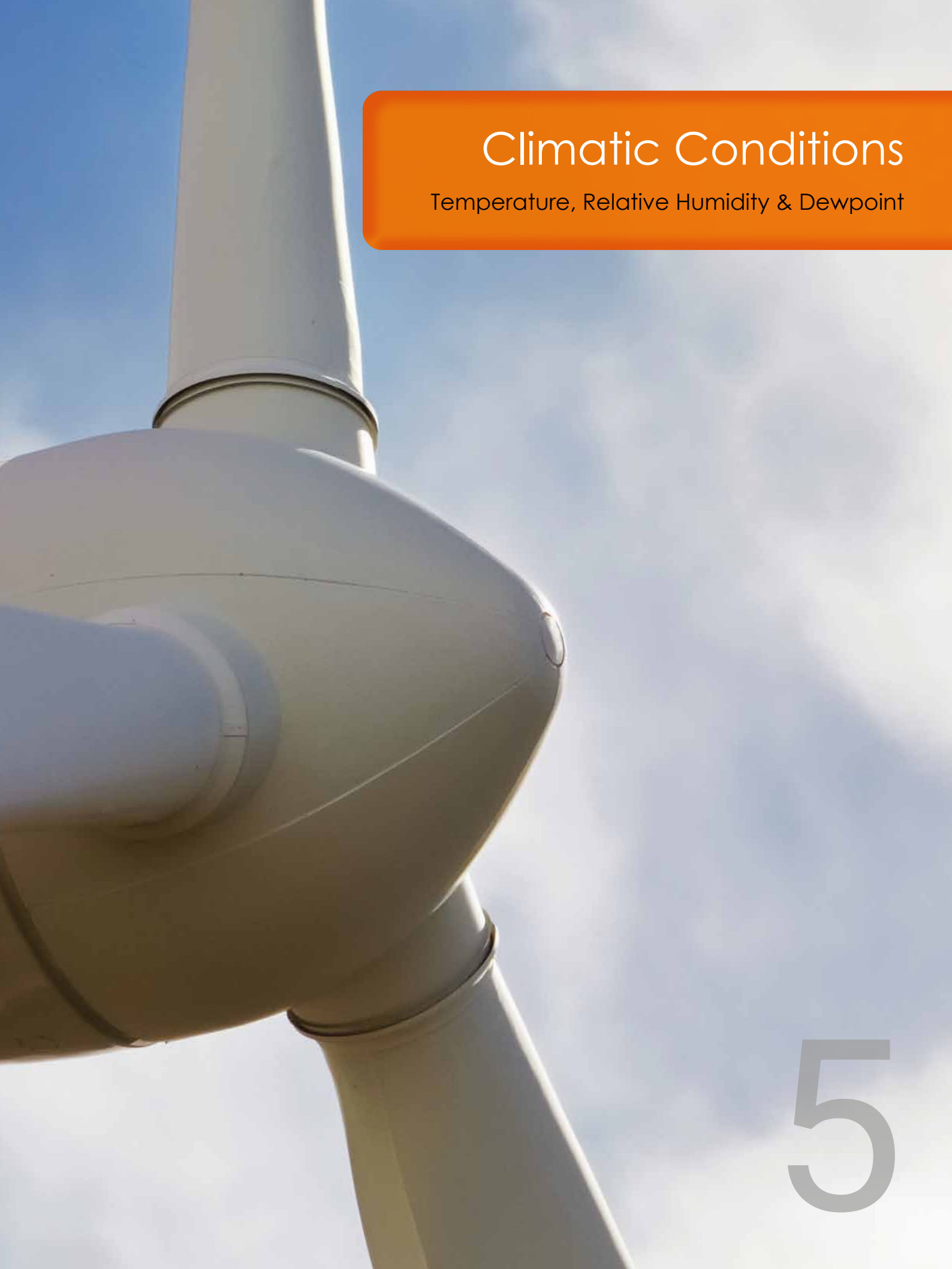
elonmeter®



Climatic Conditions

Temperature, Relative Humidity & Dewpoint

5

Monitoring climatic conditions, such as temperature, relative humidity, dewpoint and moisture, is often vital to the successful application of a coating and are critical to the resulting quality and performance of the coated product.

Climatic Conditions: Elcometer offer a complete range of dewpoint and relative humidity meters, thermometers, dataloggers, moisture meters and anemometers to monitor climatic conditions.

In the protective coatings industry, moisture can form on the surface when the surface temperature is low enough to cause condensation from the atmosphere. The Dewpoint temperature (Td) is the point at which this occurs.

Monitoring the surface temperature (Ts), the air temperature (Ta) and its relative humidity (%RH) allows the dewpoint temperature to be calculated and compared to the surface temperature. This difference in temperature (TΔ) is the key parameter dictating when it is safe to apply the coating.

Elcometer 319 Dewpoint Meter

The rugged **Elcometer 319** Dewpoint Meter is designed to measure and record all relevant climatic parameters required to determine whether the conditions are suitable for painting.

- Stores 25,000 records in up to 999 batches[1]
- Integrated magnets allow the gauge to be attached to the substrate during remote logging
- A hand-held Dewpoint meter with both manual and automatic data logging in one gauge[1]
- Robust temperature sensors
- Fully dustproof and waterproof (equivalent to IP66)
- Easy to use, intuitive menu structure
- Visual and audible indication of user defined limits for any or all parameters
- Gauges can be recertified at Elcometer Authorised Service Centres

etv video available elcometer.tv

2 YEAR* WARRANTY

[1] Model T only

* The Elcometer 319 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 www.elcometer.com.

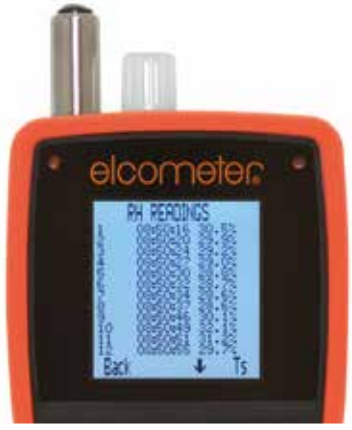
Elcometer 319

Dewpoint Meter

STANDARDS:
BS 7079-B4, IMO MSC.215(82), IMO MSC.244(83), ISO 8502-4, US Navy NSI 009-32, US Navy PPI 63101-000

Large easy to read measurements in degrees °C or °F

View up to 5 user selectable parameters on screen



Review individual readings

Measure and record climatic parameters:

- RH — Relative humidity
- Ta — Air temperature
- Ts — Surface temperature
- Td — Dewpoint temperature
- TΔ — TΔ (the difference between surface temperature and dewpoint)
- Tdb — Dry Bulb temperature
- Twb — Wet Bulb temperature
- Te — External probe temperature (K-type)
- SH — Specific Humidity[1]

Versatile

- Can be used as either a hand-held dewpoint meter or as a remote data logging monitor[1]
- Rapid response time
- Each gauge can be powered by either 2 x AA batteries (for up to 400 hours[2] use) or directly via the USB cable
- Adjustable limits can be set for each measurement parameter which triggers visual and audible alarms whenever a limit is exceeded
- Intelligent memory calculates total available logging time when using batches
- Gauges can be recertified at Elcometer Authorised Service Centres

Accurate

- Meets requirements of ISO 8502 Standard
- Each instrument is supplied with a Calibration Certificate
- Readings are switchable between Celsius and Fahrenheit
- All readings are time & date stamped

[1] Model T only
[2] Based on 1 reading every 10 minutes in Logging Mode.

Elcometer 319

Dewpoint Meter

Te - Ideal for use as a simple thermometer

Waterproof and rugged to IP66

Remote monitoring of climatic parameters

Fully dustproof and waterproof

Simple

- Easy menu-driven user interface in multiple languages
- Clear, illuminated display showing up to five user-defined parameters
- Arrow indicators show parameter trends

Flexible

- Integrated K-Type connector allows measurement of surface temperature during remote logging using a separate probe
- Using an external probe, the thermometer mode transforms the gauge into a thermometer - ideal for measuring the temperature of paint prior to application
- Hold/freeze function allows manual readings to be reviewed before being added into the memory

Durable

- Available with a two year* manufacturer's warranty; giving you peace of mind
- Safe to use in climates between -20°C (-4°F) and +80°C (+176°F)
- Waterproof and dustproof rating equivalent to IP66
- Rugged, ergonomic design, the re-engineered sensors have greater durability for an extended life

Powerful

Connect the Elcometer 319 via Bluetooth® or USB to a PC, Android™ or iOS mobile device & download the data into an inspection application or into ElcoMaster® software for instant report generation.

Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

* The Elcometer 319 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 www.elcometer.com.

Elcometer 319 Dewpoint Meter

Technical Specification

Model	Model S	Model T	Certificate
Part Number	G319----S	G319----T	●
Reading Parameters - RH, Ta, Ts (Te[6]), Td, TΔ, Tdb, Twb[1], SH[1,8]	■	■	
Statistics - number of readings, standard deviation, mean, coefficient of variation, minimum, maximum	■	■	
Dustproof & waterproof - equivalent to IP66	■	■	
Integral Magnets - secure the gauge during logging	■	■	
High/Low Limits - audible, visual, red/green LED alarms can be set against any or all parameters	■	■	
Multilingual Menus	■	■	
Backlight - user selectable	■	■	
K-Type Connector for external probes	■	■	
Memory - with reading and statistic review	Last 10 records	25,000 records in 999 batches	
Manual Logging	■	■	
Interval Logging[2]		Adjustable between 1 second and 24 hours	
Data Output			
USB		■	
Bluetooth® *to computer, Android™ & iOS[4] devices*		■	
ElcoMaster® software & USB cable		■	

	Temperature Range	Accuracy	Resolution
Gauge[5]	-20 to +80°C (-4 to +176°F)	±0.5°C (±1°F)	0.1°C (0.1°F)
Air Temperature (Ta)	-20 to +80°C (-4 to +176°F)	±0.5°C (±1°F)[7]	0.1°C (0.1°F)
Surface Temperature (TS)	-20 to +80°C (-4 to +176°F)	±0.5°C (±1°F)	0.1°C (0.1°F)
External K-Type Thermocouple (Te)	-40 to +200°C (-40 to+392°F)	±0.5°C (±1°F)[6]	0.1°C (0.1°F)
Relative Humidity (RH)	0 to 100%RH	±3%RH[3]	0.1%

Gauge & LCD Operating Range	-20°C to +80°C (-4°F to +176°F)		
Power Supply	2 x AA batteries or via USB Cable		
Battery Life	Manual Mode: Greater than 40 hours (Backlight Off) Interval Logging: up to 400 hours (1 reading every 10 minutes)		
Dimensions	180 x 75 x 35mm (7 x 3 x 1.4”)	Weight	300g (0.66lb)
Packing List	Elcometer 319 Dewpoint Meter, 2 x AA batteries, wrist strap, protective pouch, calibration certificate, USB cable[8], ElcoMaster® software[8] and operating instructions		

Accessories

T31920162	External Magnetic Surface Temperature Probe; -40 to +80°C (-40 to +176°F)
T9996390-	External Liquid Temperature Probe; -200 to +1100°C (-328 to +2012°F)
T99921325	USB Cable
T99916063	Wrist Strap
T99923480	Protective Pouch

[1] Calculated Value [2] With Part Number T31920162 [3] at 1m/s [4] Visit www.elcometer.com/sdk to find out how to integrate Elcometer’s MFi certified products to your App.
[5] Do not expose the gauge to temperatures outside the gauge and LCD operating range [6] Accuracy ±2°C (4°F) with K Type probes supplied by Elcometer. Gauge tested with voltage input
[7] Accuracy ±0.75°C below 10°C (±1.35°F below 50°F) [8] Model T only.

● Certificate supplied as standard.

Elcometer 116

Whirling & Sling Hygrometers

STANDARDS:
ASTM E 337-B, BS 2842, ISO 8502-4

These instruments are designed to determine the dewpoint and relative humidity at any given time.

The Elcometer 116A Whirling Hygrometer is available in Celsius scale only. A guide for relative humidity (RH) determination is supplied with each instrument and the dewpoint can accurately be obtained using the Elcometer 114 Dewpoint Calculator.

The Elcometer 116C Sling Hygrometer, shown as the black unit in the photograph, is a convenient, self contained instrument with an inbuilt slide rule for the calculation of %RH and dewpoint. It has spirit filled thermometers and is available in °C scales.

- Manual operation
- Spirit filled thermometers

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Technical Specification

Part Number	Description		
G116A---1	Elcometer 116A Whirling Hygrometer - Metric °C		
G116C---1	Elcometer 116C Sling Hygrometer - Metric °C		
Measuring Range	-5°C to 50°C (23°F to 122°F)		
Dimensions	17 x 22mm (6.9 x 10”)	Weight	300g (0.6lb)
Packing list	Elcometer 116 Whirling Hygrometer, RH look-up table, carry case and operating instructions Elcometer 116 Sling Hygrometer, slide rule table and operating instructions		

Accessories

T1164441-	Elcometer 116A Spare Thermometer (°C)
T11631224	Elcometer 116C Spare Thermometer (°C) (Pack of 2)
T1164487-	Elcometer 116A Wicks (Pack of 5)
T11631168	Elcometer 116C Wicks (Pack of 4)
T11600212	Elcometer 116A Replacement Slide Rule
T13827259	Pure Distilled Water - 250ml (8.5fl oz)
T13827494	Pure Distilled Water - 1000ml (33.8fl oz)

Elcometer 114

Dewpoint Calculator

This provides accurate values of dewpoint and relative humidity (RH) from the wet and dry bulb temperatures measured by a Whirling or Sling Hygrometer.

The range of the Elcometer 114 is -10°C to 50°C (14°F to 122°F) and has an accuracy of ±1% with respect to standard tables.

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Td RH TΔ

Technical Specification

Part Number	Description
G114----2	Elcometer 114 Dewpoint Calculator

Elcometer 113

Magnetic Thermometers

The Elcometer 113 Magnetic Thermometer continuously indicates the surface temperature of steel and other magnetic material.

The thermometers are based on a bimetallic strip and therefore do not require batteries but do require time to adjust to the temperature.

The Elcometer 113 is available in a number of scale ranges and as an economy version.

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Ts

Technical Specification

Part Number	Description	Scale Range
G113----1	Elcometer 113 Magnetic Thermometer	-40°C to 60°C
G113----2	Elcometer 113 Magnetic Thermometer	0°C to 120°C
G113----3	Elcometer 113 Magnetic Thermometer	-20°C to 250°C
G113----4	Elcometer 113 Imperial Magnetic Thermometer	0°F to 500°F
G113----2B	Elcometer 113 Economy Magnetic Thermometer	0°C to 120°C
Dimensions	57 x 20mm (2.25 x 0.8”)	
Weight	56g (1.9oz)	
Packing List	Elcometer 113 Magnetic Thermometer	

Elcometer 212

Digital Pocket Thermometer

The Elcometer 212 is a digital, pocket size thermometer ideal for day to day use.

Incorporating a fast response stainless steel liquid or surface probe, the Elcometer 212 provides temperature readings in under four seconds.

Housed in a water resistant case with integrated rubber seals and a moulded flush window, preventing dirt and leaks damaging the LCD display, the Elcometer 212 is ideal for use in the harshest of environments.

The probe when not in use, conveniently folds back into the side of the instrument, preventing damage.

- Liquid or surface temperature options available
- User switchable between °C and °F
- Resolution can be set to 0.1°C (0.1°F) or 1°C (1°F)

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Ts

Technical Specification

Part Number	Description
G212----1A	Elcometer 212 Digital Pocket Thermometer with Liquid Probe
G212----2A	Elcometer 212 Digital Pocket Thermometer with Surface Probe
Measuring Range	-49.9°C to +299.9°C (-58°F to +572°F) user selectable
Operating Temperature	-20 to 50°C (-4 to 58°F)
Resolution	0.1°C (0.1°F) or 1°C (1°F) user selectable
Accuracy	±0.4°C (±0.7°F) up to 199.9°C (392°F), ±1°C (±1.8°F) above 199.9°C (392°F)
Probe	K-type Thermocouple
Display	14mm LCD
Battery Type	2 x CR2032 batteries
Battery Life	Approximately 1500 hours
Auto Switch Off Time	10 minutes
Case Dimensions	19mm x 47mm x 153mm (0.7” x 1.9” x 0.7”)
Weight	97g (3.4oz)
Packing List	Elcometer 212 Digital Pocket Thermometer with batteries fitted and operating instructions

Elcometer 213/2

Digital Waterproof Thermometer

The Elcometer 213/2 is a simple, easy-to-use digital thermometer for quick and easy measurements of surface and liquid temperature plus the temperature of soft materials.

Features:

- Rubber bumper seals for impact resistance
- Waterproof case (IP67 protection)
- Extruded aluminium case for superior durability
- °C/°F switchable
- Easy to read LCD display

Probes are available to purchase separately.

etv video available elcometer.tv Ts Te

Technical Specification

Part Number	Description	Certificate
G213----2	Elcometer 213/2 Digital Thermometer[1]	○
Operating Range[2]	-49°C to +1372°C (-56°F to 2500°F)	
Accuracy	±1% of the reading ±1 digit	
Resolution	0.1°C (0.1°F) up to 299.9°C (572°F), 1°C (1°F) above 299.9°C (599.9°F)	
Battery Life	5,000 hours	
Power Supply	3 x AAA (LR03) 1.5V	
Dimensions	35 x 60 x 115mm (1.4 x 2.4 x 4.5”)	
Weight	194g (0.42lb)	
Packing List	Elcometer 213/2 Digital Waterproof Thermometer, battery, protective pouch and operating instructions	

[1] Probes are not supplied as standard with the Elcometer 213/2; please select from the list below
[2] Operating range is dependent on probe used

Accessories

T99911728	Magnetic Surface Probe,13mm Diameter (0.51”)	Range: -50°C to 150°C (-58°F to 302°F)
T2136069	Surface Probe,130 x 4.2mm Diameter (5.11 x 0.17”)	Range: -50°C to 600°C (-58°F to 1112°F)
T9996390	Liquid Probe,130 x 3mm Diameter (5.11 x 0.12”)	Range: -200°C to 1100°C (-328°F to 2012°F)
T2136391	Needle Probe, 130 x 3mm Diameter (5.11 x 0.12”)	Range: -50°C to 400°C (-58°F to 752°F)

Other probes available on request. Contact Elcometer for further information.

Magnetic
T99911728

Liquid
T9996390-

Surface
T2136069

Needle
T2136391

○ Optional Calibration Certificate available.

Elcometer 214L

IR Digital Laser Thermometer

The Elcometer 214 is a simple, easy to use, non-contact thermometer which safely and accurately measures surface temperature of non-reflective materials using infrared technology.

With a user switchable measuring range of -35°C to 365°C or -31°F to 689°F, a digital display of the temperature is produced in less than one second.

- Non-contact technology with laser spot indicator
- °C / °F user switchable
- Fast, 1 second scanning of any surface
- Measure objects as small as 25mm (1”)
- Distance-to-Target Ratio of 8:1
- Easy to read LCD display

The Elcometer 214 IR Digital Laser Thermometer has a D/T ratio (Distance-to-Target) of 8:1 and measures the emitted energy from a target spot one-eighth the size of the working distance.

As can be seen in the diagram below, if the distance from the sensor optics to the target is 200mm (8”) for example, the diameter of the measured area is 25mm (1”).

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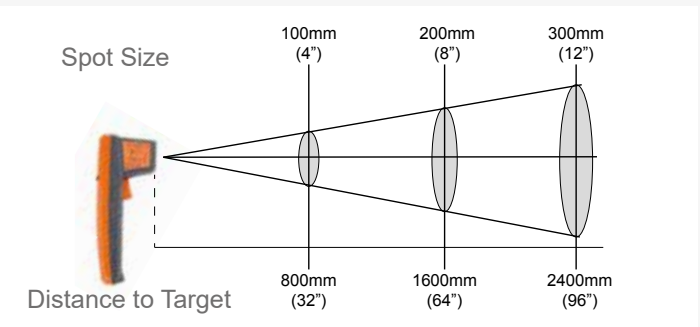
Ts

Technical Specification

Part Number	Description		
G214L----3	Elcometer 214 Infrared Digital Laser Thermometer		
Measuring Range	-35°C to 365°C (-31°F to 689°F)		
Ambient Temperature	0 to 50°C (32 to 122°F)		
Resolution	0.2°C (0.5°F)	Accuracy	±1.5°C (2.7°F)
Distance-To-Target	8:1, 25mm (1”) spot size		
Emissivity	Fixed at 0.95		
Response Time	1 second		
Battery Type	2 x AAA batteries	Battery Life	14+ hours continuous use
Dimensions	166 x 34 x 64 (6.5 x 1.3 x 2.5”)	Weight	113g (3.98oz)
Packing List	Elcometer 214 Infrared Digital Laser Thermometer, 2 x AAA batteries, wrist strap and operating instructions		

Digital Laser Thermometer



Elcometer 410

Anemometer

The Elcometer 410 Anemometer is a portable, pocket size instrument for taking accurate readings of wind speed.

The lightweight impeller with high precision jewel bearings provides very accurate airflow measurements. The impeller can easily be replaced without the need to return the unit to Elcometer.

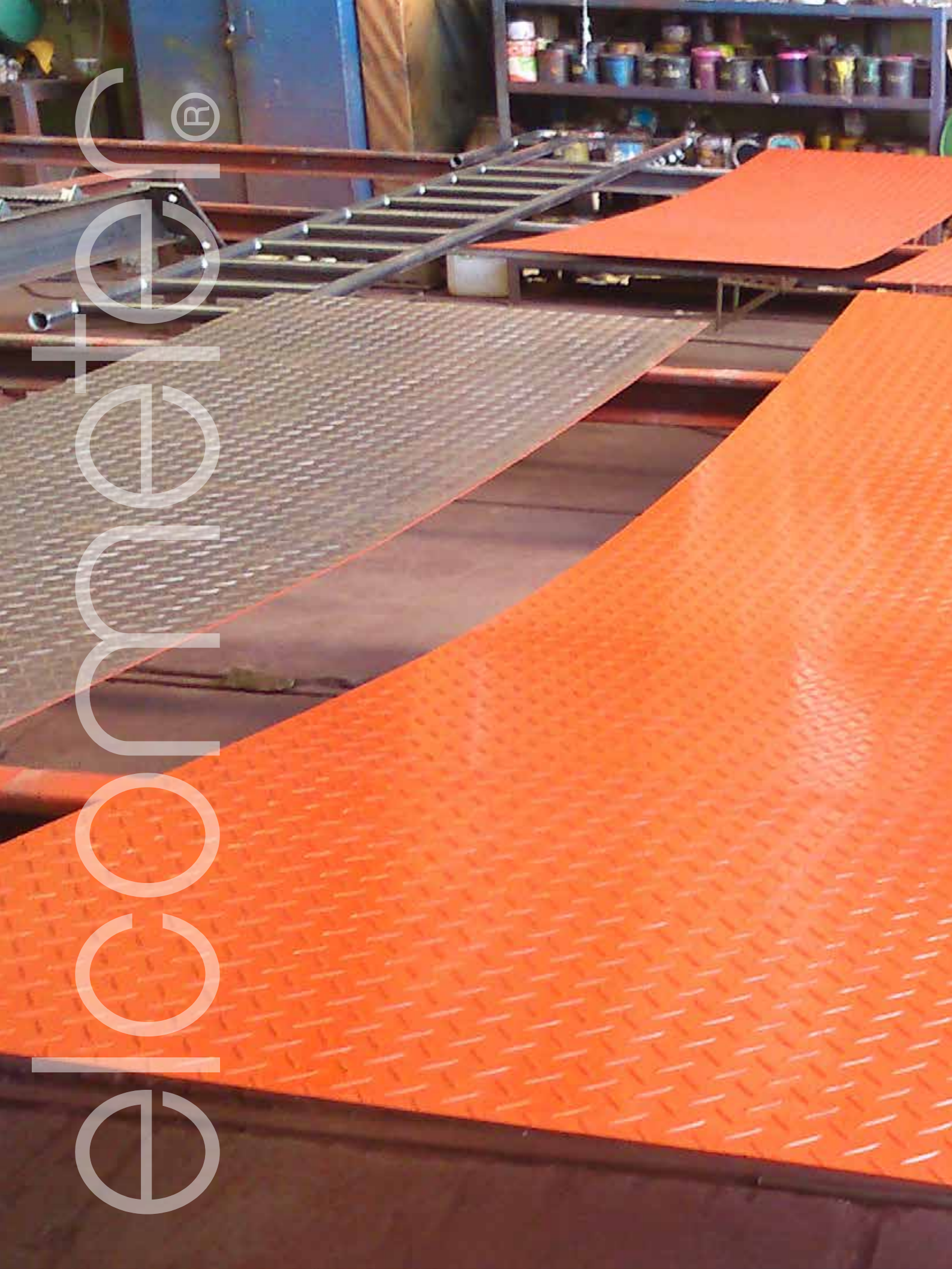
The wind speed can be displayed in various measurement units; indicating current speed, maximum speed or average speed.

Technical Specification

Part Number	Description	
G410-1	Elcometer 410 Anemometer	
Functions	Current wind speed Average 3 second wind speed Maximum wind gust Data Hold	
Measurement Units	Knots (kt), metres per second (m/s), kilometres per hour (km/h), miles per hour (mph), feet per minute (ft/min) and Beaufort Force (B)	
Operating Range	0.4m/s to 60m/s (0.8 to 135.0mph)	
Specification Range	0.4m/s to 40m/s (0.8 to 89.0mph)	
On-axis Accuracy	±3% of reading or least significant digit, whichever is the greater	
Off-axis Response	-1% at 5º, -2% at 10º, -3% at 15º	
Calibration Drift	<1% after 100 hours operation at 7m/s	
Resolution	0.1 kt, m/s, km/h, mph. 1 ft/min below 1999 ft/min, 10 ft/min above 2000 ft/min. 1 Beaufort (0 to 12)	
Operating Temperature	-10ºC to +55ºC (14ºF to 131ºF)	
Storage Temperature	-30ºC to +60ºC (-22ºF to 140ºF)	
Power Supply	1 x CR2032 battery	
Battery Life	Approximately 300 hours	
Auto Switch Off	45 minutes after last key press	
Dimensions	Instrument Only: Instrument and Protective Cover:	122 x 42 x 20mm (4.8 x 1.6 x 0.8”) 122 x 46 x 26mm (4.8 x 1.8 x 1”)
Weight	Instrument Only: Instrument and Protective Cover:	65g (2.3oz) 102g (3.6oz)
Packing List	Elcometer 410 Anemometer, protective cover, lanyard, 1 x CR2032 battery and operating instructions.	

Accessories

T41021406 Replacement Impeller


elcometer®

Wet Film Thickness

6

When applying a liquid coating, by measuring the uncured film thickness, it is possible to determine the eventual dry film thickness. Applying too much coating wastes time and materials. It can also affect the performance and finish of the product.

Too much wet film can cause the coating to crack as it cures; too little coating increases the risk that the substrate will not be sufficiently protected, leading to rust spots.

The three methods for measuring wet film thickness are:

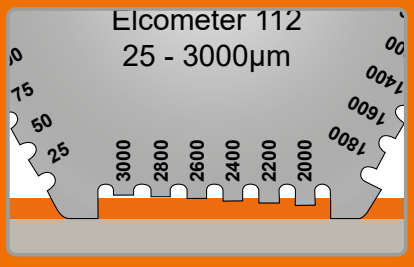
- Wet Film Combs
- Wet Film Wheels

In each case, the thickness of the coating is measured and the dry film thickness can be estimated using the coating's solid : wet ratio.

Using a Wet Film Comb

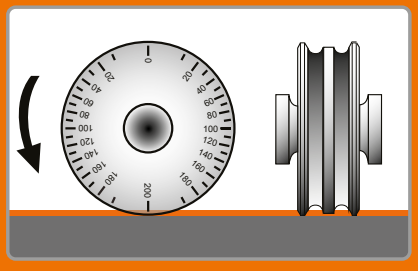
Place a comb perpendicular to and touching the substrate. Hold the comb in position and wait a few seconds until the teeth are wet. Remove the comb from the film.

The wet film thickness lies between the highest value 'coated' or 'wet' tooth and the highest value 'uncoated' or 'dry' tooth.



Using a Wet Film Wheel

Roll the wheel through a wet coating, the centre wheel eventually touches the film. This point on the scale indicates the thickness. When the volume to solids ratio of the coating is known, generally found on a product data sheet, the wet film thickness can be used to predict the dry film thickness. Roll from maximum to minimum to avoid a false reading caused by surface tension.



Elcometer 112 & 3236

Hexagonal Wet Film Combs (Stainless Steel)

These hexagonal precision formed stainless steel wet film combs are long lasting, reusable and supplied in a range of thicknesses measuring up to 3,000µm (120mils).

These six sided combs vary in size, giving either 24 or 36 measurement steps, depending upon the comb, thus providing increased accuracy.

STANDARDS:
ASTM D 4414-A, AS/NZS 1580.107.3, BS 3900-C5-7B, ISO 2808-1A, ISO 2808-7B, JIS K 5600-1-7, NF T30-125, US Navy PPI 63101-000, US Navy NSI 009-32

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Technical Specification

Part Number	Range	Values	Certificate
K0003236M201	20 - 370µm	20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 150, 170, 190, 210, 230, 250, 270, 290, 310, 330, 350, 370µm	○
K0003236M202	25 - 2,000µm	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1,000, 1,100, 1,200, 1,300, 1,400, 1,500, 1,600, 1,700, 1,800, 1,900, 2,000µm	○
B112----1B	25 - 3,000µm	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 1,000, 1,100, 1,200, 1,400, 1,600, 1,800, 2,000, 2,200, 2,400, 2,600, 2,800, 3,000µm	○
K0US3236M203	0.5 - 15mils	0.5, 0.75, 1.0, 1.25, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 8, 9, 10, 11, 12, 13, 14, 15mils	○
K0US3236M204	1 - 80mils	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 55, 60, 65, 70, 75, 80mils	○
B112----2B	1 - 120mils	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 26, 28, 30, 32, 34, 36, 38, 40, 45, 50, 55, 60, 70, 80, 90, 100, 110, 120mils	○
Dimensions and Weight	Elcometer 3236 M201 / M203	53 x 50 x 1mm (2.09 x 1.97 x 0.04”), 10g (0.35oz)	
	Elcometer 3236 M202 / M204	77 x 90 x 1mm (2.95 x 3.54 x 0.04”), 22g (0.77oz)	
	Elcometer 112	75 x 65 x 1mm (2.95 x 2.54 x 0.04”), 20g (0.7oz)	
Packing List	Wet Film Comb, storage case and operating instructions		

○ Optional Calibration Certificate available.

Elcometer 115

Wet Film Combs (Stainless Steel)

STANDARDS:
ASTM D 4414-A, AS/NZS 1580.107.3, BS 3900-C5-7B, ISO 2808-1A, ISO 2808-7B, JIS K 5600-1-7, NF T30-125, US Navy PPI 63101-000, US Navy NSI 009-32

These reusable precision stainless steel combs are made to be long lasting and are supplied with either Metric or Imperial measurements.

Four separate thickness ranges are available up to a maximum of 1,250µm or 50mils and are manufactured to an accuracy of ±5% of marked value or ±3µm (0.12mil), whichever is greater.

Each comb has 10 measurement steps (teeth).

etv video available elcometer.tv

Technical Specification

Metric Combs

Part Number	Range	Measurement Steps	Certificate
B11529455M	20 - 325µm	20, 35, 50, 75, 100, 125, 175, 225, 275, 325µm	○
B11529456M	50 - 450µm	50, 75, 100, 150, 200, 250, 300, 350, 400, 450µm	○
B11529457M	50 - 750µm	50, 100, 150, 200, 250, 350, 450, 550, 650, 750µm	○
B11529458M	125 - 1,250µm	125, 250, 375, 500, 625, 750, 875, 1,000, 1125, 1,250µm	○
B1152959WM		Set of 4 Combs	○

Imperial Combs

Part Number	Range	Measurement Steps	Certificate
B11529451E	1 - 13mils	1, 1.5, 2, 3, 4, 5, 7, 9, 11, 13mils	○
B11529452E	2 - 18mils	2, 3, 4, 6, 8, 10, 12, 14, 16, 18mils	○
B11529453E	2 - 30mils	2, 4, 6, 8, 10*, 10*, 15, 20, 25, 30mils	○
B11529454E	5 - 50mils	5, 10, 15, 20, 25, 30, 35, 40, 45, 50mils	○
B1152959WE		Set of 4 Combs	○

* Two 10mil values, one on each edge of the comb

Elcometer 3238

Long Edge Wet Film Combs (Stainless Steel)

STANDARDS:
ASTM D 4414-A, AS/NZS 1580.107.3, BS 3900-C5-7B, ISO 2808-1A, ISO 2808-7B, JIS K 5600-1-7, NF T30-125, US Navy PPI 63101-000, US Navy NSI 009-32

These stainless steel combs are wire eroded to provide an accuracy ±5% of marked value or ±3µm (0.12mil), whichever is greater, and are supplied with either Metric or Imperial measurements.

Each comb has 24 measurement steps (teeth) providing a more accurate wet film thickness value.

etv video available elcometer.tv

Technical Specification

Metric Combs

Part Number	Range	Measurement Steps	Certificate
K0003238M201	5 – 120µm	5µm	○
K0003238M202	25 – 600µm	25µm	○
K0003238M203	50 – 1200µm	50µm	○
K0003238M204		Set of 3 Combs	○

Imperial Combs

Part Number	Range	Measurement Steps	Certificate
K0US3238M201	0.5 – 6mils	0.5mil	○
K0US3238M202	1.0 – 24mils	1.0mil	○
K0US3238M203	2.0 – 48mils	2.0mil	○
K0US3238M204		Set of 3 Combs	○

○ Optional Calibration Certificate available.

Elcometer 112AL

Punched Wet Film Combs (Aluminium)

These punched aluminium combs offer the user a low cost method of measuring the wet film thickness.

The Elcometer 112AL, being punched from aluminium, is not as accurate as precision formed stainless steel wet film combs and has a shorter lifespan.

Supplied in a pack of 10 combs, each comb has Metric (25 - 3,000µm) on one side and Imperial (1 - 118mils) on the other.

The Elcometer 112AL can be customised with your logo. Please contact Elcometer for further details.

STANDARDS:
ASTM D 4414-A, AS/NZS 1580.107.3, BS 3900-C5-7B, ISO 2808-1A, ISO 2808-7B, JIS K 5600-1-7, NF T30-125, US Navy PPI 63101-000, US Navy NSI 009-32

etv video available elcometer.tv

Technical Specification

Part Number	Description		
B112AL12473-3	Elcometer 112AL Aluminium Wet Film Comb (Pack of 10)		
Dimensions	75 x 65 x 1mm (2.95 x 2.56 x 0.04”)	Weight	90g (3.17oz)
Packing List	Elcometer 112AL (Pack of 10) and operating instructions		

Elcometer 154

Plastic Wet Film Combs

The Elcometer 154 Wet Film Combs are made from ABS plastic and are designed to be used once and kept as a record of wet film thickness measurement for quality assurance or customer requirements.

Metric and Imperial values are on the same comb, 50 to 800µm on one side, 2 to 32mils on the other.

Supplied in a pack containing 500 combs. Each comb has 16 measurement steps.

STANDARDS:
BS 3900-C5-7B, ISO 2808-1A, ISO 2808-7B, JIS K 5600-1-7, NF T30-125

Technical Specification

Part Number	Description
B154----1	Elcometer 154 Plastic Wet Film Combs (Pack of 500)
Dimensions	40 x 40mm (1.57 x 1.57”)
Weight	900g (2lb)
Packing List	Elcometer 154 Wet Film Combs (Pack of 500) and operating instructions

Elcometer 3230

Wet Film Wheels

STANDARDS:
ASTM D 1212-A, AS/NZS 1580.107.3, BS 3900-C5-7A, ISO 2808-1B, ISO 2808-7A, JIS K 5600-1-7, NF T30-125

The Elcometer 3230 Wet Film Wheel is a high precision, accurate and easy to use instrument which consists of a set of three wheels. The central wheel is of a smaller diameter and is eccentric relative to the two outer wheels. By rolling the gauge through a wet coating, the centre wheel eventually touches the film. This point on the scale indicates the thickness.

A convenient mounting handle for the wheel is available in two lengths; 15cm (6”) or 50cm (19”); please order separately.

When the volume to solids ratio of the coating is known (generally found on the product data sheet supplied by the manufacturer), the wet film thickness can be used to predict the dry film thickness.

Several measurement ranges between 0 to 25µm and 0 to 1,000µm (0 to 1mil and 0 to 40mils) are available.

- Continuous scale produces measurement accuracy of ±5% of marked value or ±3µm (0.12mil), whichever is greater
- Suitable for flat and curved surfaces

etv video available elcometer.tv

Technical Specification

Metric Film Wheels				Imperial Film Wheels			
Part Number	Range	Graduations	Certificate	Part Number	Range	Graduations	Certificate
K0003230M001	0 - 25µm	1.25µm	○	K0US3230M001	0 - 1mil	0.05mil	○
K0003230M016	0 - 40µm	2.0µm	○	-	-	-	○
K0003230M002	0 - 50µm	2.5µm	○	K0US3230M002	0 - 2mils	0.10mil	○
K0003230M003	0 - 100µm	5.0µm	○	K0US3230M003	0 - 4mils	0.20mil	○
K0003230M004	0 - 150µm	7.5µm	○	K0US3230M004	0 - 6mils	0.25mil	○
K0003230M005	0 - 200µm	10.0µm	○	-	-	-	○
K0003230M006	0 - 250µm	12.5µm	○	-	-	-	○
K0003230M007	0 - 300µm	15.0µm	○	K0US3230M005	0 - 12mils	0.50mil	○
K0003230M008	0 - 400µm	20.0µm	○	-	-	-	○
K0003230M009	0 - 500µm	25.0µm	○	K0US3230M006	0 - 20mils	1.0mil	○
K0003230M010	0 - 1000µm	50.0µm	○	K0US3230M007	0 - 40mils	2.0mils	○
Dimensions	50 x 30mm (1.97 x 1.18”)			Weight	220g (7.76oz)		
Packing List	Wet Film Wheel, storage case and operating instructions						

Accessories

KT003230N003	15cm (6”) Wet Film Wheel Handle
KT003230N002	50cm (19”) Wet Film Wheel Handle

○ Optional Calibration Certificate available.

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Test your coating's adhesion **quickly** and **accurately** at the press of a button with the **Elcometer 510** Automatic Adhesion Gauge.

See page 8-6

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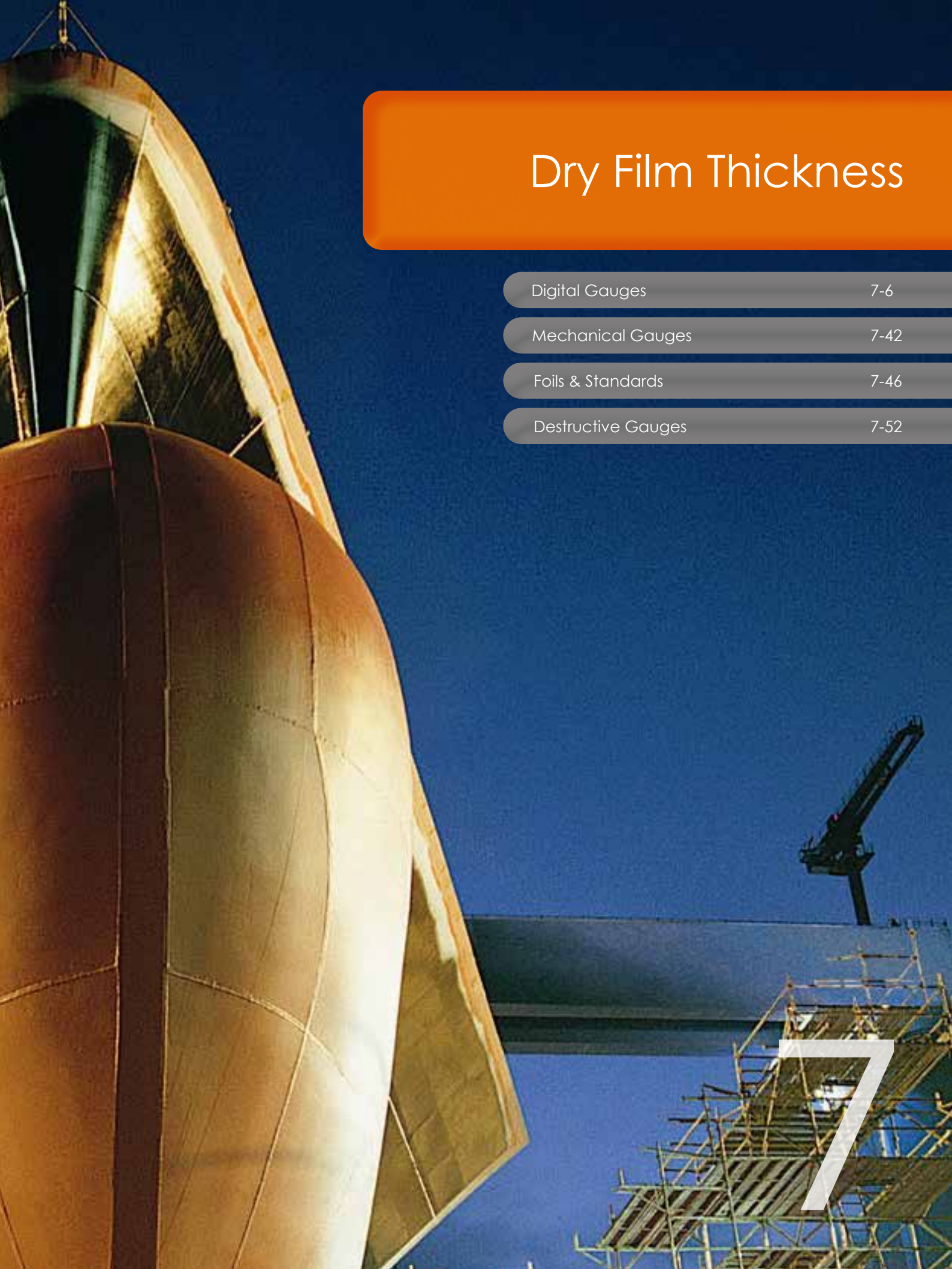

Dry Film Thickness

Digital Gauges 7-6

Mechanical Gauges 7-42

Foils & Standards 7-46

Destructive Gauges 7-52

7

Dry Film Thickness is probably the most critical measurement in the coatings industry. It provides vital information as to the expected life of the substrate, the product's fitness for purpose and its appearance. It also ensures compliance with a host of International Standards.

A 'dry film' is the coating on a surface which has cured as the solvent has evaporated and the coating is dry to touch. The coating is typically a paint, a varnish or a powder. But it can be any substance applied to a substrate. A dry film thickness (DFT) gauge, often referred to as a coating thickness gauge, can be used to measure the thickness of coatings when dry.

There are three types of dry film thickness gauges; destructive, mechanical and digital. In 1947, Elcometer launched one of the world's first non-destructive coating thickness gauges, the Elcometer 101, and over the last 7 decades, Elcometer have developed a comprehensive range of destructive, mechanical and digital Dry Film Thickness gauges to meet all of your coating inspection requirements.

Coating Thickness Standards

There are two types of coating thickness standards available from Elcometer:

Calibration Foils; supplied individually or in sets, these precision foils (or 'shims'), accurately measured to ±1%, offer you the ideal method for adjusting the calibration of your coating thickness gauge on your substrate, taking into account your specific substrate material, surface finish and form, to ensure the greatest possible accuracy. Foils are available with or without a calibration certificate traceable to National Standards (UKAS and NIST).

Zero Test Plates; in some cases, it may be difficult or impractical to obtain an uncoated substrate. For this reason, Elcometer provide a range of zero test plates. These test plates, when used in conjunction with a set of foils, are ideal for accurately measuring the performance of your coating thickness gauge.

Choose the correct Thickness Gauge for your dry film thickness measurement

Digital Gauges

- The most accurate and reliable method for metal and cementitious substrates
- Incredible accuracy and super-fast measurement
- For use on almost any metalic substrate, whether ferrous or non-ferrous
- Compatible with ElcoMaster® data management software to import measurements at a click of a button

Mechanical Gauges

- Used in areas where electrical instruments are not permitted or temperatures are high
- For measurement on ferrous substrates
- Quick and immediate results

Destructive Gauges

- For measurement on non-metallic substrates or assessing the thickness of a multi-coat paint
- Low cost, portable and easy to use

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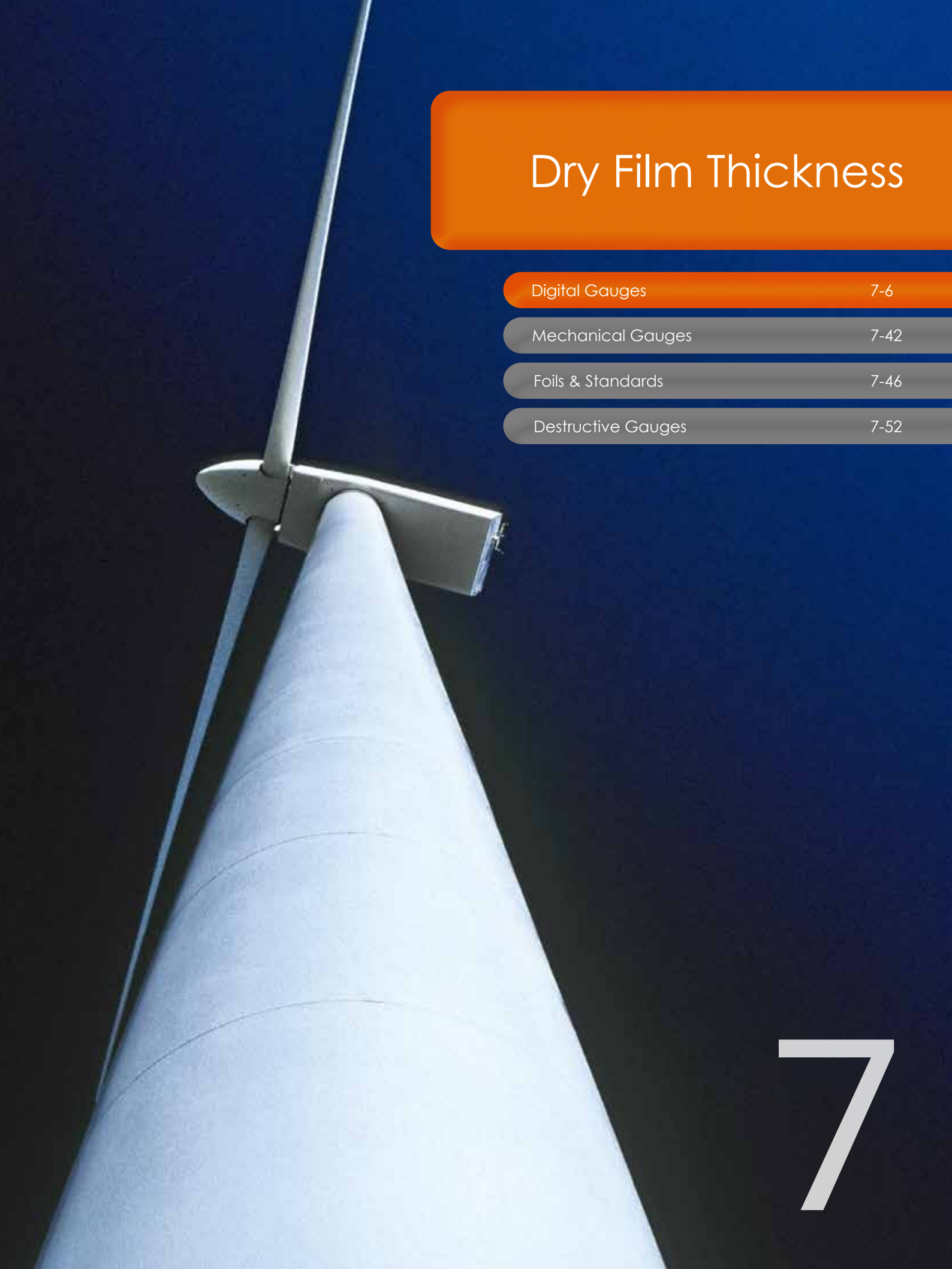


Dry Film Thickness

Digital Gauges 7-6

Mechanical Gauges 7-42

Foils & Standards 7-46

Destructive Gauges 7-52

7

elcometer®

Dry Film Thickness - Digital

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 – Ferrous & Non-Ferrous Substrates – FAST · REPEATABLE · ACCURATE · DURABLE

Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

Elcometer 456

Separate Coating Thickness Gauge

Large easy to read measurements in Metric and Imperial units

Fast

Helping you become more efficient

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

Halve the inspection time using the scan probe

Accurate

Accurate measurements on smooth, rough, thin and curved surfaces

Measures on smooth, rough, thin and curved surfaces to ±3% or 2.5µm, in accordance with National & International Standards.

View up to 8 user selectable statistics on screen

Easy

Large buttons and colour screen

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

Rugged and reliable, ideal for harsh environments

Reliable

Designed to last

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

Powerful

Store up to 150,000 readings in upto 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 7-12

* 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 www.elcometer.com.

Elcometer 456 Separate Coating Thickness Gauge

Scan and Auto Repeat Modes

Using the Scan Probe in Scan Mode

Using the Elcometer 456 with the Scan Probe in scan mode 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.

Elcometer 456 Separate Coating Thickness Gauge

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
- Any cap wear during use[1] 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

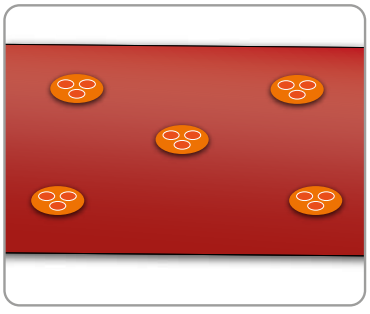
- The Elcometer 456 Model S and Model T are supplied with the Counted Average Mode
- Once the user has defined the number of individual gauge readings to be taken within a spot measurement, the gauge stores the average of the individual gauge readings into the memory.

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] 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); *x̄* 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 7-12 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 www.elcometer.com. [2] Internet connection required

[3] Visit www.elcometer.com/sdk to find out how to integrate Elcometer's MFi certified products to your App.

[4] Elcometer Index Values are used in the automotive industry to assess a coating's overall quality; USA Patent Number US7606671B2

Elcometer 456 Separate Coating Thickness Gauge

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 7-12			

STANDARDS:

AS 2331.1.4, AS 3894.3-B, AS/NZS 1580.108.1, ASTM B244, 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 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

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

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)*.

To find out if you should be using a ferrous or non-ferrous probe, see page 7-25

*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[1]

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

[1] UK Patent Number: 2571577

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

Choosing the correct probe for your coating thickness gauge:

Angled Probes

Right Angle Probe

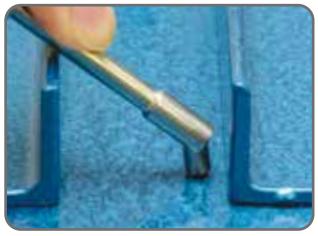
Take readings in areas with restricted clearance.

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

F / FNF Armoured Probe

Reinforced heavy duty cables reduce the risk of cable damage.

Elcometer 456 — Probe Range for Separate Coating Thickness Gauge

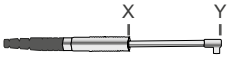
Scale 0.5 Probe Range — 0-500µm / 0-20mils

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

c. Probe length is measured from X to Y
d. for Elcometer 456 Model T gauges only
Elcometer 456 probes are covered by a 1 year warranty



• Certificate supplied as standard.

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

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

Ferrous (F) Probes

#	Description	Probe Length[c]	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”)

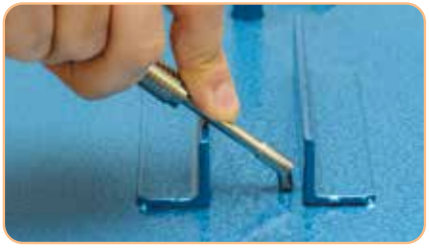
Non-Ferrous (N) Probes

#	Description	Probe Length[c]	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	Probe Length[c]	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	Probe Length[c]	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

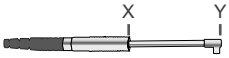
Accuracy[ae]:	±1-3% or ±2.5µm	±1-3% or ±0.1mil
Range[d]:	0-1,500µm	0-60mils
Resolution:	0.1µm: 0-100µm 1µm: 100-1,500µm	0.01mil: 0-5mils 0.1mil: 5-60mils
Certificate:	•	

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

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

Ferrous (F) Probes

#	Description	Probe Length[c]	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77")	T456CF1S	85mm (3.35")	4mm (0.16")
1	Straight Probe sealed	45mm (1.77")	T456CF1E	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")

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")

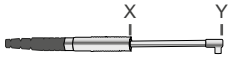
Ferrous & Non-Ferrous (FNF) Probes

#	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

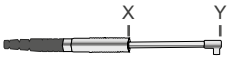
Accuracy[ae]:	±1-3% or ±20µm	±1-3% or ±1.0mil
Range[d]:	0-5mm	0-200mils
Resolution:	1µm: 0-1mm 10µm: 1-5mm	0.1mil: 0-50mils 1.0mil: 50-200mils
Certificate:	●	

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
Elcometer 456 probes are covered by a 1 year warranty
● Certificate supplied as standard.

c. Probe length is measured from X to Y



d. Excluding Scan Probe end cap
e. Scan Probe accuracy is ±3% or ±0.02mm (0.8mil) with cap fitted, ±1-3% or ±0.02mm (0.8mil) without cap, when calibrated using a sample of the uncoated substrate.

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

Ferrous (F) Probes

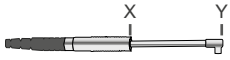
#	Description	Probe Length[c]	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CF2S	89mm (3.50”)	8mm (0.32”)
2	Straight Probe armoured cable	45mm (1.77”)	T456CF2ARM	138mm (5.43”)	8mm (0.32”)
3	Scan Probe	45mm (1.77”)	T456CF2U	90mm (3.54”)	15mm (0.59”)
4	90° Probe	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	Probe Length[c]	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
Elcometer 456 probes are covered by a 1 year warranty
● Certificate supplied as standard.

c. Probe length is measured from X to Y
d. Excluding Scan Probe end cap
e. Scan Probe accuracy is ±3% or ±0.02mm (0.8mil) with cap fitted, ±1-3% or ±0.02mm (0.8mil) without cap, when calibrated using a sample of the uncoated substrate.



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:	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

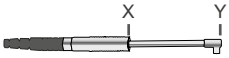
#	Description	Probe Length[c]	Part Number	Minimum Headroom	Minimum Sample Diameter[b]
1	Straight Probe	45mm (1.77”)	T456CF3S	102mm (4.02”)	14mm (0.55”)
2	PINIP™ Integral Probe		T456CF3P	184mm (7.24”)	14mm (0.55”)

Non-Ferrous (N) Probes

#	Description	Probe Length[c]	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

c. Probe length is measured from X to Y



● Certificate supplied as standard.

Elcometer 456 probes are covered by a 1 year warranty

Elcometer 456 Probe Range for Separate Coating Thickness Gauge

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[i]	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	Probe Length[c]	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	Probe Length[c]	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

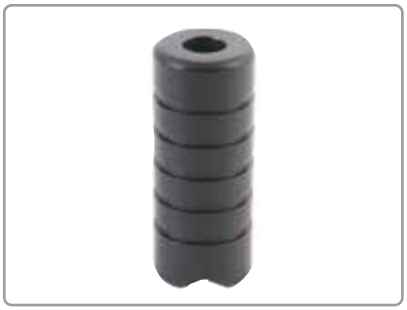
Accuracy[a]:	±1-3% or ±100µm	±1-3% or ±4.0mils
Range[d]:	0-31mm	0-1220mils
Resolution:	10µm: 0-2mm 100µm: 2-31mm	1.0mil: 0-100mils 10mils:100-1220mils
Certificate:	•	

Ferrous (F) Probes

#	Description	Probe Length[c]	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

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	Scale 1	Scale 2
Accuracy:	±3% or ±2.5µm (±1mil)	±1-3% or ±0.02mm (±1mil)
Measuring Range:	100-1000µm (3.9-39mils)	0.1-4.5mm (4-180mils)
Part Number	T456C23956	
Description	Replacement Scan Probe End Caps (3 per pack)	

Roller Scan Probe Cap

Clip on adaptor designed for large coated structures, abrasive coatings and pre-construction primers. The Roller Scan Cap can scan in excess of 50km (30 miles) on rough surfaces without damaging the substrate or probe.

F & Dual FNF Probes	Scale 1	Scale 2
Accuracy:	±6%	±5%
Measuring Range:	100-1000µm (3.9-39mils)	0.5-4.5mm (20-180mils)
Part Number	T456C29050	
Description	Elcometer 456 Roller Scan Probe Cap[1]	

For a full range of calibration standards and foil sets see page 7-46

[1] UK Patent Number: 2571577

Elcometer What is the correct probe for each Coating/Substrate?

The table below shows common coating/substrate combinations. If you do not see your coating/substrate combination, please contact Elcometer to discuss your particular requirement.

Elcometer offers a free Test Sample Report. Contact us to arrange for our Technical Department to establish the most appropriate gauge for your process or application.

	SUBSTRATE									
COATING	Aluminium	Brass	Bronze	Copper	Steel	Magnesium	Stainless Steel	Titanium	Uranium	Zinc
Aluminium	-	-	-	-	F	-	-	-	-	-
Anodising	NF	-	-	-	-	NF	-	-	-	-
Brass	-	-	-	-	F	-	-	-	-	-
Bronze	-	-	-	-	F	-	-	-	-	-
Cadmium	-	-	-	-	F	-	-	-	-	-
Ceramic	-	-	-	-	F	-	-	-	-	-
Chrome (Hard)	NF*	-	-	NF*	F	-	-	-	-	-
Copper	-	-	-	-	F	-	-	-	-	-
Eloxal	NF	-	-	-	F	-	-	-	-	-
Epoxy	NF	NF	NF	NF	F	-	NF	NF	-	NF
Galvanising	-	-	-	-	F	-	-	-	-	-
Lacquer	NF	NF	NF	NF	F	-	NF	-	-	NF
Metal Spray	-	-	-	-	F	-	-	-	-	-
Molybdenum Disulphide	-	-	-	-	F	-	NF	-	-	-
Nickel (Electroless)	NF*	NF*	-	NF*	F	-	-	-	-	-
Paint	NF	NF	NF	NF	F	NF	NF	NF	NF	NF
Plastic	NF	NF	NF	NF	F	NF	NF	NF	NF	NF
Plating	-	-	-	-	F	-	-	-	-	-
Rubber	NF	-	-	-	F	-	-	-	NF	-
Resist	-	-	-	NF	-	-	-	-	-	-
Tin	-	-	-	-	F	-	-	-	-	-
Varnish	NF	NF	NF	NF	F	-	-	-	-	-
Zinc	-	-	-	-	F	-	-	-	-	-

NF : use Non-Ferrous probe
F : use Ferrous probe
* : known sample required for calibration

elcometer®

Dry Film Thickness - Digital

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.

Easy to read, user definable display with automatic screen brightness

Ergonomic design, ideal for continuous use

Reading rate of 70+ per minute

Measure coatings up to 13mm (500mils) on metal substrates

Scratch and solvent resistant screen

Stores up to 150,000 readings in alphanumeric batches

Bigfoot™ integral probe

Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

Elcometer 456

Integral Coating Thickness Gauge

Large easy to read measurements in Metric and Imperial units

Bigfoot™ integral probe for accurate measurements

Easy to use and minimum set up required

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

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.

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.

Reliable

Peace of mind

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

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.

STANDARDS:

AS 2331.1.4, AS 3894.3-B, AS/NZS 1580.108.1, ASTM B244, 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

[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 www.elcometer.com.

[2] Compatible with iPod, iPhone and iPad.

Elcometer 456 Integral 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; *n,* 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)*	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; *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 www.elcometer.com. Elcometer 456 probes are covered by a 1 year warranty. [2] Internet connection required

[3] Visit www.elcometer.com/sdk to find out how to integrate Elcometer's MFi certified products to your App.

[4] Elcometer Index Values are used in the automotive industry to assess a coating's overall quality; USA Patent Number US7606671B2

Elcometer 456 Integral Coating Thickness Gauge

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 N1 PINIP™ Probe	See separate gauges with N1 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®

Dry Film Thickness - Digital

Elcometer 456 IPC

Industrial Protective Coating Thickness Gauge

The **Elcometer 456 IPC** Industrial Protective Coating Thickness Gauge is pre-calibrated to measure DFT on shot or grit blasted steel substrates.

Easy to use multi-lingual menu structure

Stores up to 150,000 readings in alphanumeric batches

Pre-calibrated with 4 profile ranges:

Profile	Metric	Imperial
Smooth	0-25µm	0-1mil
Fine	25-60µm	1-2mils
Medium	60-100µm	2-3mils
Coarse	>100µm	3-4mils

Built in integral probe for stable, repeatable readings on flat or curved surfaces

Measure dry film thickness on shot or grit blasted steel substrates

Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

Elcometer 456 IPC

Industrial Protective Coating Thickness Gauge

Transfer readings via Bluetooth® or USB to ElcoMaster®

Ready to Use

Calibrated and ready for immediate use

Pre-calibrated with 4 profile ranges, simply remove the Elcometer 456 IPC[1] Gauge out of the box and begin measuring.

Ready to use straight from the box, no need for calibration

Reliable

Designed to last

Robust, durable, weather resistant and available with a 2 year[2] manufacturer's warranty; giving you peace of mind.

Displays 3 individual readings together with their average

Wireless Connectivity

Seamlessly connect to any PC, Android™ or iOS mobile device

Instantly transmit your thickness values via USB or Bluetooth® to your PC or mobile device using ElcoMaster® or your own software application.

Efficient

Stable, repeatable readings on flat or curved surfaces

With a built in integral probe, the Elcometer 456 IPC is designed to display three individual readings together with their average in microns or mils.

STANDARDS:
ASTM D7091, ISO 2808, ISO 19840, SSPC PA-2, US Navy NSI 009-32

[1] USA patent number US6243 661, European patent number: 2754993

[2] The Elcometer 456 IPC 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 www.elcometer.com.

Elcometer 456 IPC — Industrial Protective Coating Thickness Gauge

Product Features

Model	Model S	Model T
Part Number	A456CFI1-IPC	A456CFTI1-IPC
Test Certificate	●	●
Fast, accurate reading rate; *70+ readings per minute*	■	■
Data output	■	■
USB; *to computer*	■	■
Bluetooth®; *to computer, Android™ & iOS[1] devices*	■	■
On screen statistics; *in Batch Mode*		■
Number of readings; η, Mean (average); $\bar{x}$, Standard deviation; σ, Highest reading; Hi, Lowest reading; Lo, Coefficient of variation; CV%, Elcometer index value[2]; EIV, Nominal dry film thickness; NDFT, High & low limits; definable audible & visual alarms, Number of readings above high limit; Number of readings below low limit		■
ElcoMaster® software & USB cable		■
Integral Probe type; *Ferrous (F)*	■	■
Measurement range; *0 - 1,500µm (0 - 60mils)*	■	■
Resolution; *10µm/1mil (where 5µm/0.5mil is rounded up)*	■	■
Accuracy[3]; *±5%*	■	■
Minimum substrate thickness; *300µm (12mils)*	■	■
Pre-calibrated with 4 profile ranges;	■	■
Smooth 0-25µm 0-1mil, Fine 25-60µm 1-2mils, Medium 60-100µm 2-3mils, Coarse >100µm 3-4mils	■	■
Auto calibration	■	■
Calibration memory type; *gauge (g) or gauge & batch (gb)*	g	gb
Number of batches; *with unique calibrations*		2,500
Calibration lock; *with optional PIN code unlock*	■	■
Delete last reading	■	■
Gauge memory; *number of readings*		150,000
Individual batch calibrations; *sent to PC via ElcoMaster® software*		■
Limits; *user definable audible & visual pass/fail warnings*		■
Gauge & batch specific limits		■
Date and time stamp		■
Review, clear & delete batches		■
Batch types; *normal, counted average*		■
Batch review graph		■
Copy batches and calibration settings		■
Alpha-numeric batch names; *user definable on the gauge*		■

Technical Specification

Battery Type	2 x AA batteries, rechargeable batteries can also be used
Battery Life[4]	Alkaline: Approx. 16 hours Lithium: Approx. 24 hours
Gauge Dimensions (h x w x d)	141 x 73 x 37mm (5.55 x 2.87 x 1.46”)
Weight (including batteries)	156g (5.5oz)
Operating Temperature	-10 to 50°C (14 to 122°F)
Packing List	Elcometer 456 IPC Gauge, calibration foils, wrist harness, protective case, 1 x screen protector, USB cable, test certificate, 2 x AA batteries & user guide.

[1] Visit www.elcometer.com/sdk to find out how to integrate Elcometer’s MFi certified products to your App. ● Test certificate supplied as standard.
[2] Elcometer Index Values are used in the automotive industry to assess a coating’s overall quality; USA patent number US7606671B2 [3] When in test calibration mode
[4] Using default settings & lithium batteries, alkaline or rechargeable batteries may differ

Elcometer 500 Coating Thickness Gauge - Cementitious Substrates

The **Elcometer 500** Coating Thickness Gauge accurately measures the thickness of coatings on concrete and other similar substrates[1] - non destructively.

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

Easy to read, user definable display with automatic screen brightness

Store up to 100,000 readings in up to 1,000 alpha-numeric batches

Measure FAST · REPEATABLE · DFT on concrete ACCURATE · DURABLE

Ergonomic design, ideal for continuous use

Measure more than 60 readings per minute in Standard Mode and over 140 readings per minute in Scan Mode

Accurately measure up to 9mm (355mils) of coatings on concrete or other similar substrates[2]

Rugged, intelligent probes with field replaceable tips;

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

Bluetooth® wireless technology

compatible with ElcoMaster®

etv video available elcometer.tv

[1] Similar substrates include plasterboard, drywall, concrete block, brick, etc.

[2] Epoxy coatings, thickness on other materials may vary

Elcometer 500

Coating Thickness Gauge - Cementitious Substrates

Ergonomic probes
with replaceable probe tips

Easy to use and minimum
set up required

USB and Bluetooth® data output to
iPhone[4] or Android™ devices

No force is required to
take a reading

Fast

Significantly reduce your inspection times

Measure over 60 readings per minute in Standard Mode and over 140 readings per minute in Scan Mode.

Rugged

Designed to last

Designed to work in harsh environments, with a 2 year gauge warranty[3], the Elcometer 500 is robust, ergonomic and sealed against dirt and water, equivalent to a rating of IP54.

Intelligent

Maximise inspection time

Supplied with user replaceable probe tips, the gauge informs the user when the probe tip requires changing, maximising inspection time.

Easy to Use

Calibrated and ready for immediate use

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

Wireless Connectivity

Seamlessly connect to any PC, Android™ or iOS mobile device

Instantly transmit your thickness values via USB or Bluetooth® to your PC or mobile device using ElcoMaster® software.

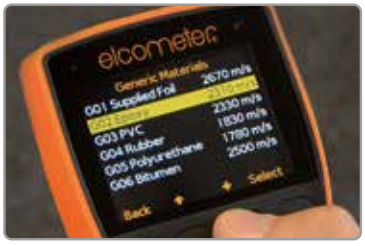
[3] The Elcometer 500 is supplied with a 1 year warranty against manufacturing defects.
The warranty can be extended free of charge to 2 years within 60 days of purchase via www.elcometer.com.
[4] Compatible with iPod, iPhone and iPad.

Elcometer 500 **Coating Thickness Gauge - Cementitious Substrates**

3 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
- 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.

Elcometer 500 **Coating Thickness Gauge - Cementitious Substrates**

Creating a coating sample

How to create a coating sample using the Elcometer 500 (CCM).

Step 1

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

Step 2

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

Step 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.

Step 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.

Display Modes

Individual Readings

Readings & Statistics

Readings & Run Charts

Readings & Bar Graphs

Readings & Differential

Elcometer 500 Coating Thickness Gauge - Cementitious Substrates

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[1]	■	■
Ambient light sensor; *with adjustable auto brightness*	■	■
Automatic probe recognition	■	■
Gauge software updates[2]; *via ElcoMaster® software*	■	■
Data output	■	■
USB; *to computer*	■	■
Bluetooth®; *to computer, Android™ & iOS[3] 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	□	■

[1] The Elcometer 500 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 www.elcometer.com. [2] Internet connection required [3] Visit www.elcometer.com/sdk to find out how to integrate Elcometer's MFi certified products to your App.

Elcometer 500 Coating Thickness Gauge - Cementitious Substrates

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 / Model 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, ElcoMaster® software & USB cable, test certificate	

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
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 (750°F)*
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)
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

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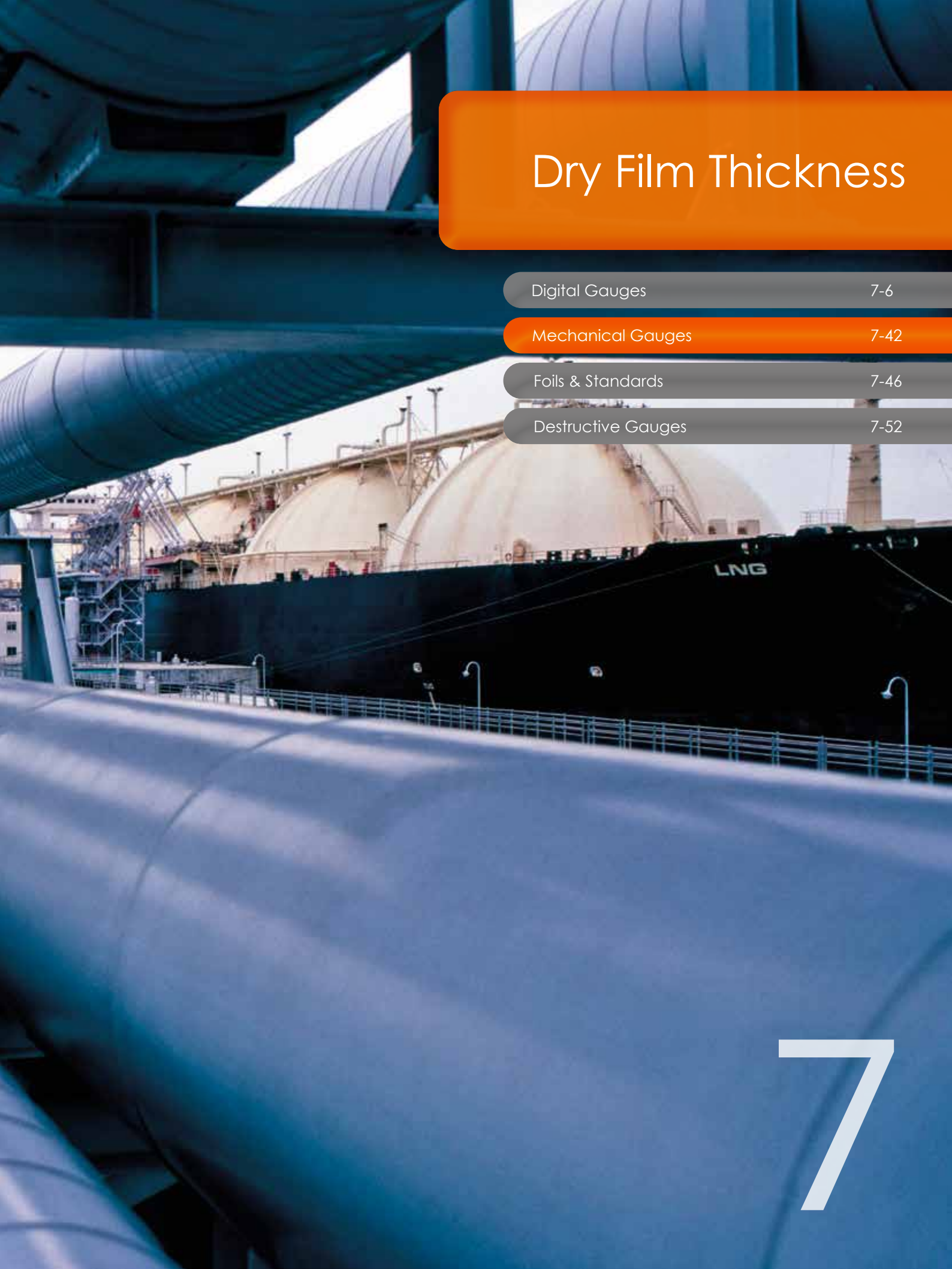
Generate **professional reports** at the click of a button - with the **ElcoMaster® App** your office is now wherever you are.

See page 12-2

elcometer®



Dry Film Thickness

Digital Gauges 7-6

Mechanical Gauges 7-42

Foils & Standards 7-46

Destructive Gauges 7-52

7

elcometer®

Elcometer 211

Mechanical Coating Thickness Gauge

The **Elcometer 211** Coating Thickness Gauge, commonly referred to as the "Banana Gauge", is a Type I instrument designed to measure dry film thickness.

- Foils supplied to check calibration on site
- Small and portable with ±5% accuracy
- Ideal for cold surfaces or where use of electronic instruments is prohibited
- Factory calibrated - with user calibration adjustment
- Available in either Metric or Imperial versions
- Measures coatings up to 6mm (250mils)
- "V" grooved base ideal for pipeline inspection

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

Elcometer 211

Mechanical Coating Thickness Gauge

Ready to Use

Calibrated and ready for immediate use

The Elcometer 211 is factory calibrated with user calibration adjustment and also comes with foils to check calibration on site.

Accurate

Small and portable with ±5% accuracy

Available in either Metric or Imperial versions, the Elcometer 211 measures coatings up to 6mm (250mils).

Versatile

Ideal for use in a range of environments

Ideal for environments where the use of electronic instruments is difficult, e.g. inflammable atmospheres in oil and gas production, it can also be used for underwater* coating inspection. The “V” grooved base also makes it ideal for pipeline inspection.

Technical Specification

Part Number	Description	Range	Certificate
A211F--1M	Elcometer 211 Coating Thickness Gauge	0 - 1,000µm	○
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		

For a full range of calibration standards and foils sets see page 7-46

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

○ Optional Calibration Certificate available.

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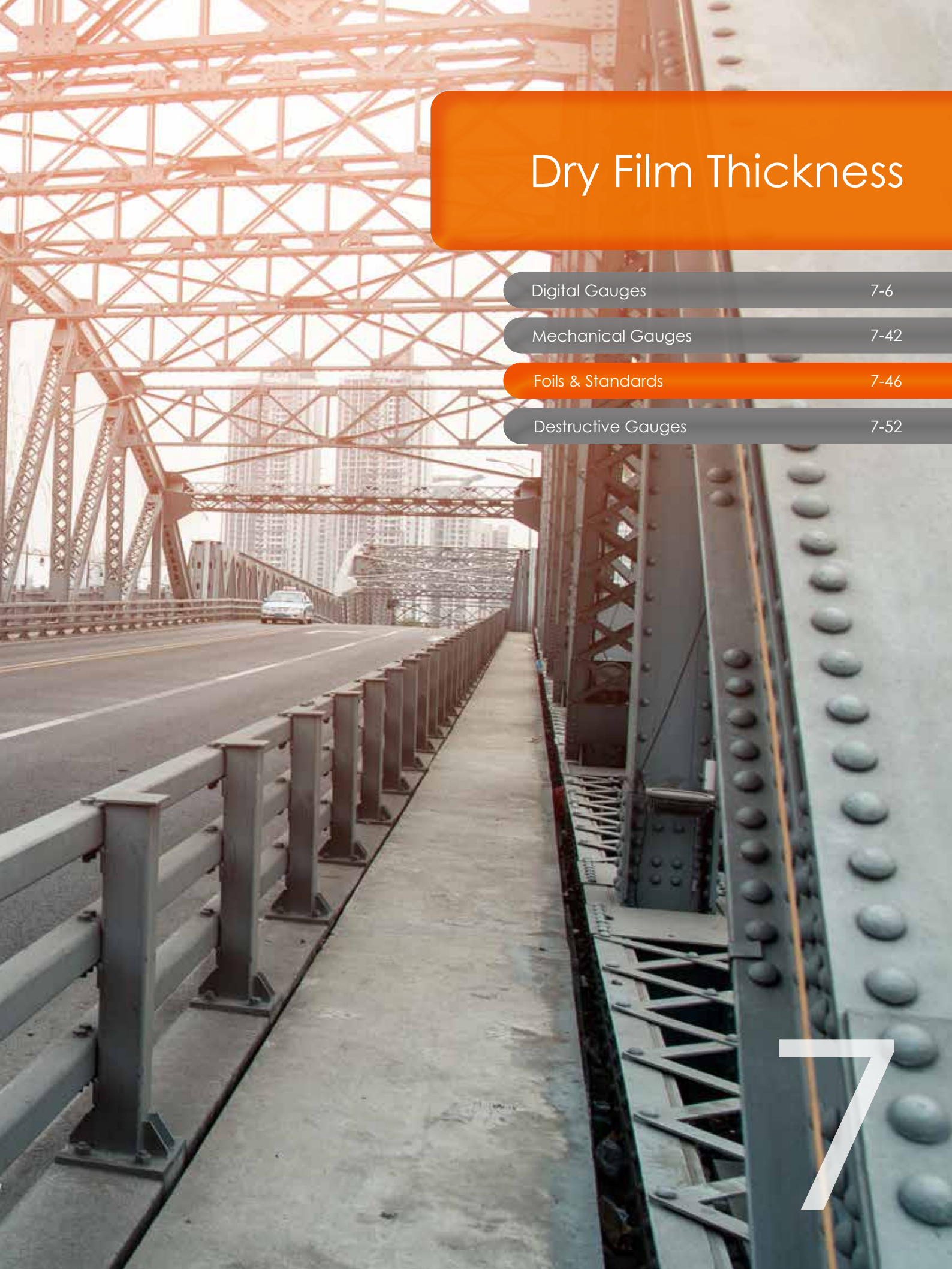


Dry Film Thickness

Digital Gauges 7-6

Mechanical Gauges 7-42

Foils & Standards 7-46

Destructive Gauges 7-52

7

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[3]	Grey	n/a		5,000µm	(197mils)	○

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

[2] A certificates can be supplied with any combination of up to 8 Foils (but not As and Bs together)

[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.

Elcometer 990

Calibration Foils Sets

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; 0-800µm (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)	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.

For a list of standards, foils and foil sets, see page 7-46.

etv video available elcometer.tv

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	

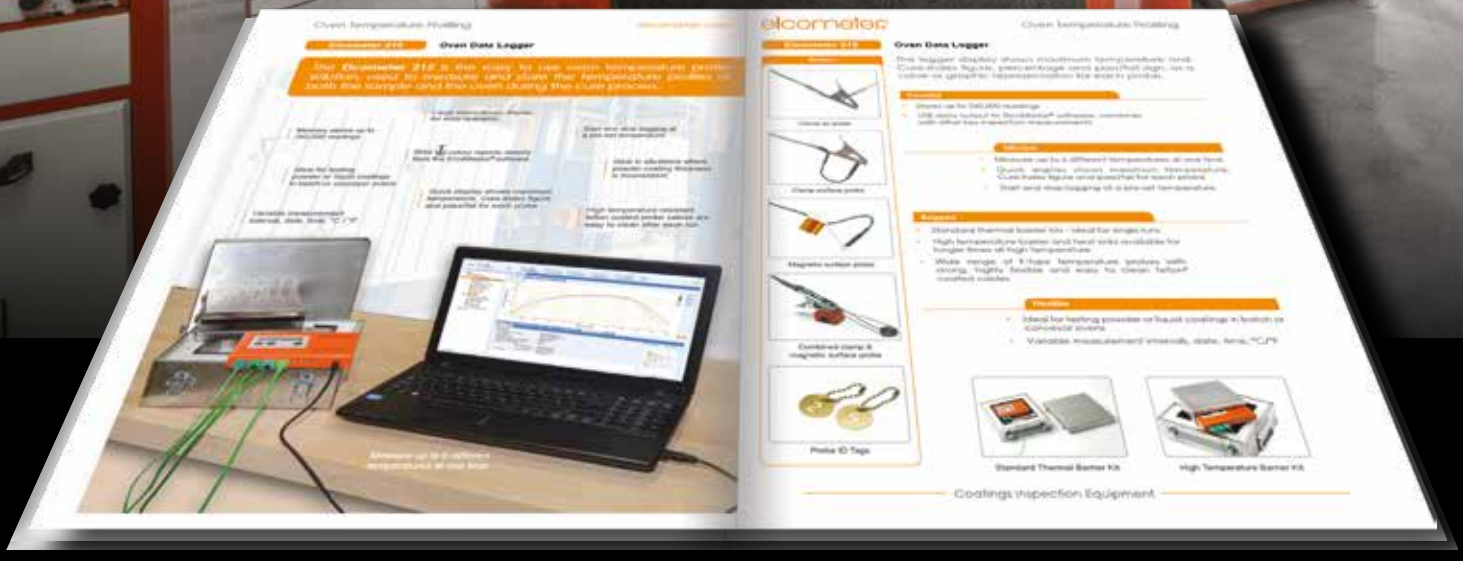
* To be used only with the Elcometer 311 or Elcometer 415

○ Optional Calibration Certificate available.

elcometer®

For all your Industrial Finishing & Physical Test Equipment

visit industrial.elcometer.com



elcometer®

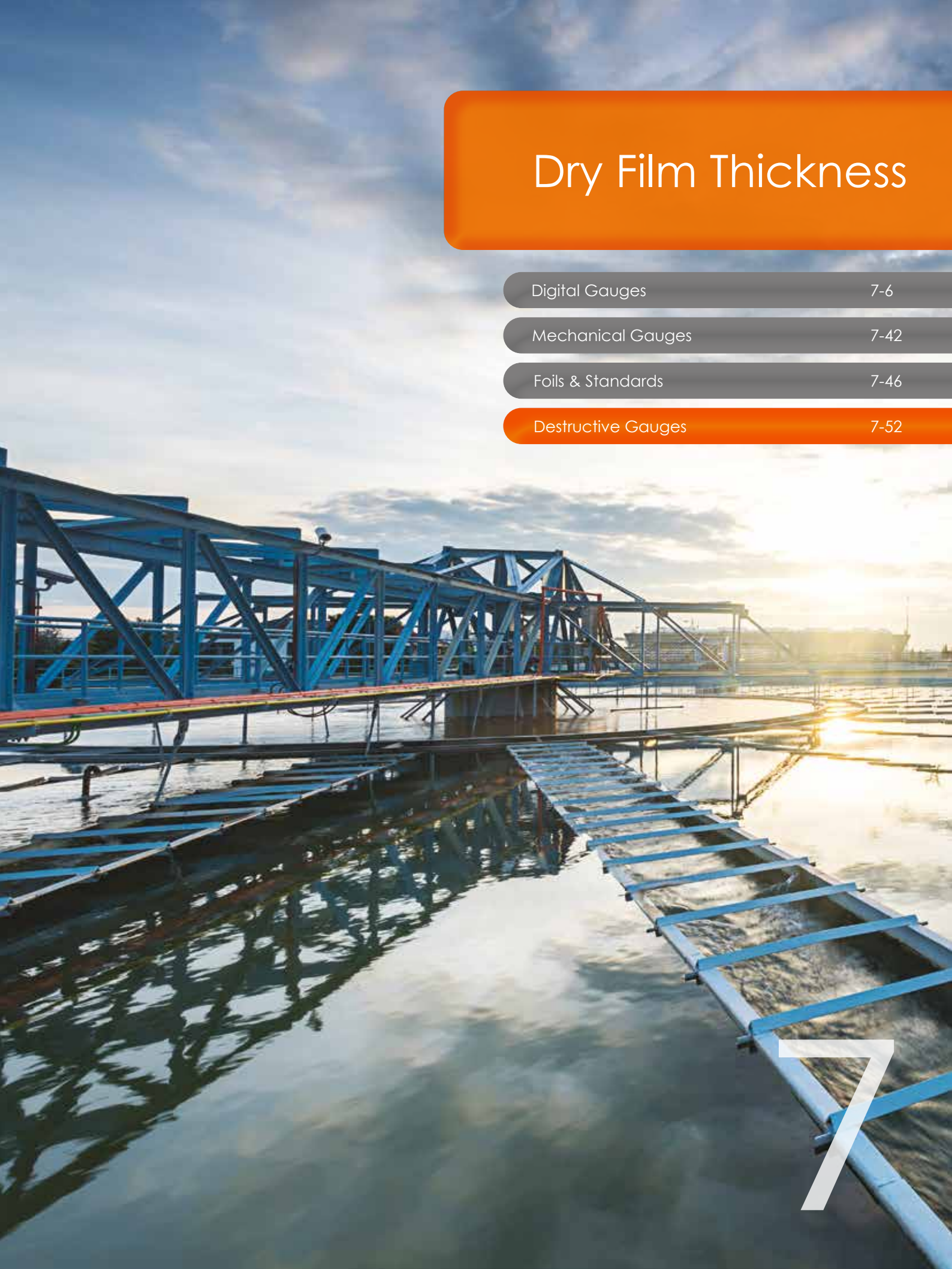
Dry Film Thickness

Digital Gauges 7-6

Mechanical Gauges 7-42

Foils & Standards 7-46

Destructive Gauges 7-52



7

Elcometer 121/4

Standard & Top Paint Inspection Gauges (P.I.G.)

Available in two models, the **Elcometer 121** Paint Inspection Gauge (P.I.G.) is designed to measure the paint thickness of single or multiple layers of coatings.

A simple rotation of the cutter holder changes the cutting tool

Made of anodised aluminium for durability

Bright LED light source for clear vision

Compact and convenient, ideal for use in confined areas

Top model can hold one cross hatch cutter & three standard cutters

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.

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 - 2,000µm (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, microscope (x50 magnification), 4 x AG3 batteries for lamp (fitted), hexagonal wrench, black marker pen, wrist strap, carry case and operating instructions		

Accessories

Part Number	Description	Angle	Measurement Range	Graticule	Certificate
T99915761-1	Tungsten Carbide Cutter No 1	45°	20 - 2,000µm (1 - 80mils)	20µm (1mil)	○
T99915761-4	Tungsten Carbide Cutter No 4	26.6°	10 - 1,000µm (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:

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

* Standards apply to Top Model only

○ Optional Calibration Certificate available.

Elcometer 141

Paint Inspection Gauge

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

The Elcometer 141 Paint Inspection Gauge (P.I.G.) provides a useful method for determining the paint thickness of both single and multiple layer coatings.

The Paint Inspection Gauge is 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

Technical Specification

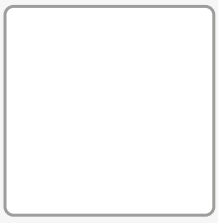
Part Number	Description	Certificate
A141---D	Elcometer 141 Paint Inspection Gauge	○
Scale Range	0 to 1.8mm (0 to 0.07”)	
Scale Resolution	0.02mm (0.001”)	
Dimensions (fitted to handle)	160 x 100 x 35mm (6.3 x 4 x 1.4”)	
Weight (fitted to handle)	510g (1lb 2oz)	
Packing List	Elcometer 141 P.I.G, microscope (x50 magnification), 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 - 2,000µm (1 - 80mils)	20µm (1mil)	○
T99915761-4	Tungsten Carbide Cutter No 4	26.6°	10 - 1,000µm (0.5 - 35mils)	10µm (0.5mil)	○
T99915761-6	Tungsten Carbide Cutter No 6	5.7°	2 - 200µm (0.1 - 8mils)	2µm (0.1mil)	○

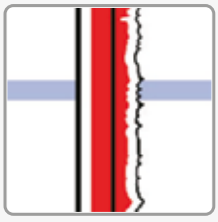
○ Optional Calibration Certificate available.

Using the Paint Inspection Gauge

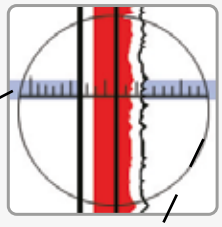


1. Take the coated product.

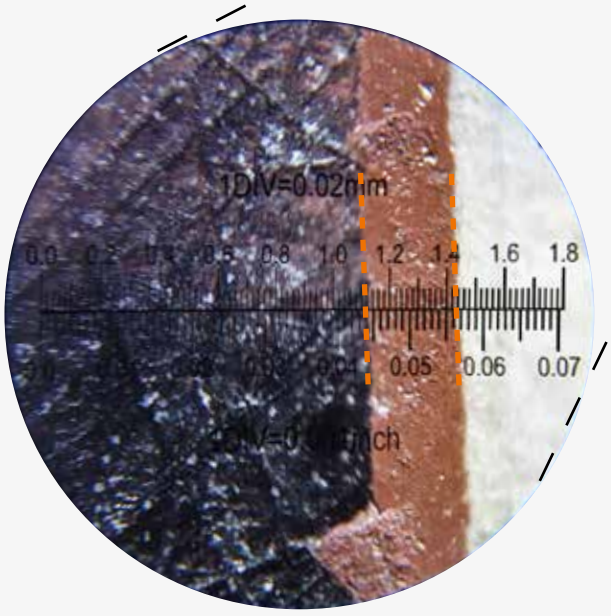
2. Using the supplied marker, draw a line across the coating in order to create a contrast when viewing the coating so that the top surface can be identified.



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



4. Using the microscope supplied, measure the width of the cut coating as a number of graticule divisions.



5. To convert the width of the cut coating into coating thickness, multiply the number of graticule divisions by the graticule scale factor.

6. In the example shown the coating thickness using cutting tool #1 is:

   15 divisions x 20µm per division = 300µm
   or;
   12 divisions x 1mil per division = 12mils

Cutting tool #	Practical maximum thickness[a]		Cutting angle	Graticule scale factor	
	(µm)	(mils)		mm scale (µm)	inch scale (mils)
1	1600	64	45°	20	1
4	800	32	26.6°	10	0.5
6	160	6.4	5.7°	2	0.1

a. Based on using 80% of cutter width

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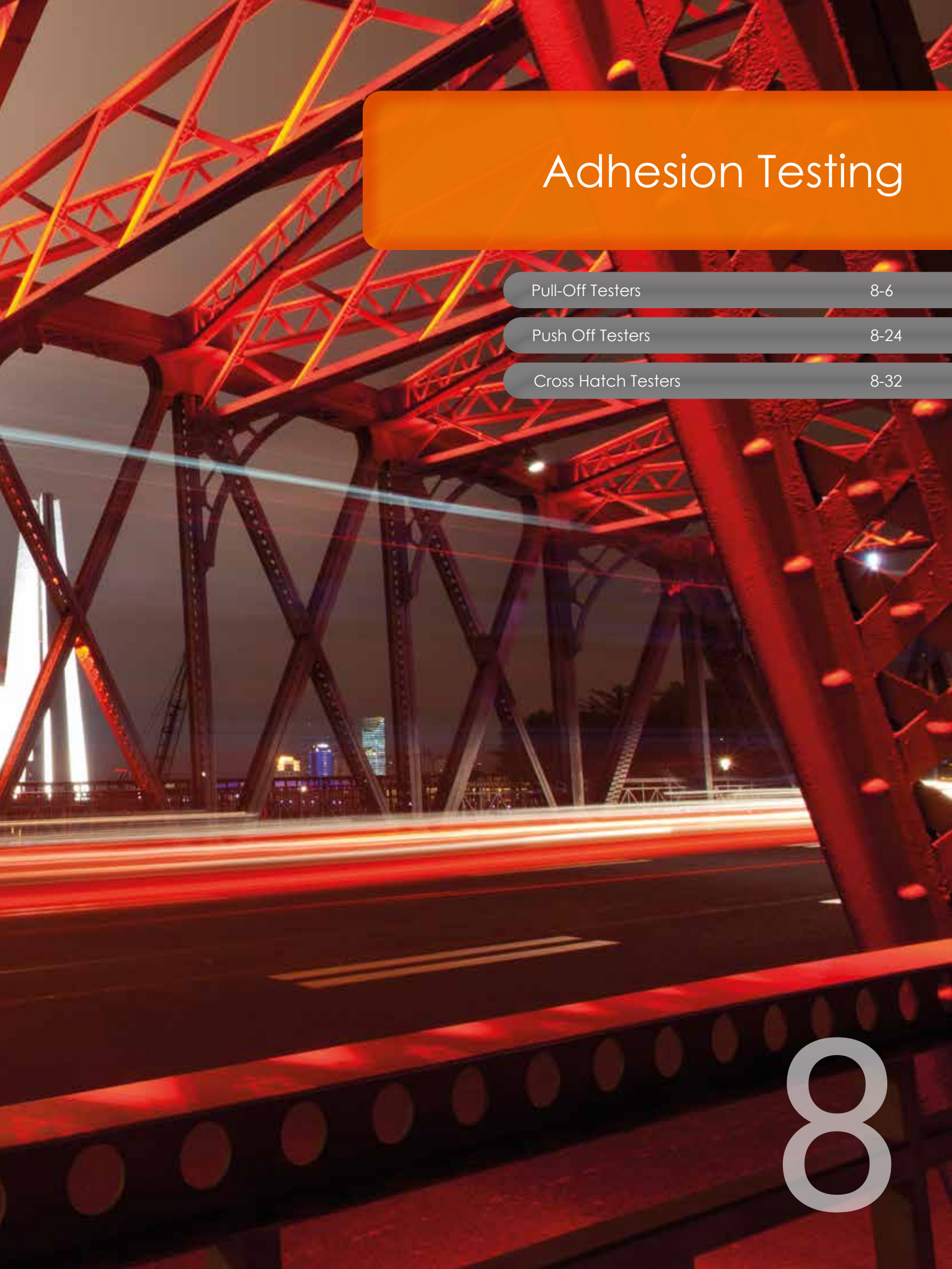


Adhesion Testing

Pull-Off Testers 8-6

Push Off Testers 8-24

Cross Hatch Testers 8-32

8

From the largest man-made structures to the smallest household appliances, most manufactured products have a protective or cosmetic coating. Premature failure of this coating can, at the very least, result in additional costs of rework.

Adhesion testing after the coating process will quantify the strength of the bond between substrate and coating, or between different coating layers or the cohesive strength of some substrates. Routine testing is used as part of inspection and maintenance procedures to help detect potential coating failures.

Adhesion Methods

Pull-Off Adhesion: simple to use, quantitative range giving a definitive adhesion value, ideal for the laboratory or field on flat or curved substrate applications. Tensile Dollies (or stubs) are glued to the coating and, when the adhesive has cured, the force required to pull the coating off the surface is measured.

Push Off Adhesion: a dolly is adhered to the coating. When the adhesive has cured, the dolly is pushed off the surface by the adhesion tester. The push off design makes this method ideal for flat and curved surfaces.

Cross Hatch/Cross Cut: a fast, low cost, visual comparison method for paint and powder coatings up to a thickness of 250µm (10mils). The coating is cut into small squares, thereby reducing lateral bonding, and the adhesion assessed against ISO, ASTM or Corporate Standards.

When selecting an adhesion gauge, it is important to use the same inspection test methods throughout the inspection to ensure accurate comparisons.

Choose the correct Adhesion Tester for your protective coating adhesion test

Automatic Pull-Off Adhesion

- Measures the pull force required to remove a dolly from the coating
- Automatic hydraulic pump ensures smooth and continuous pressure application for consistent, repeatable results
- Ideal for use on a wide range of substrates, including steel, aluminium, concrete, wood & plastic

Manual Pull-Off Adhesion

- Measures the pull force required to remove a dolly from the coating
- Hand-held, ergonomic and fully portable - ideal for on-site adhesion testing
- Rotating crank handle applies an even uniform load up to 50MPa (7250psi)

Manual Push-Off Adhesion

- Measures the pressure required to push an area of coating away from the substrate
- Ideal for flat or curved surfaces and both internal and external pipes

Cross Hatch Cutter

- Provides an instant assessment of the quality of the bond to the substrate
- A quick change, four sided cutter allows adhesion testing on a wide range of coating thicknesses

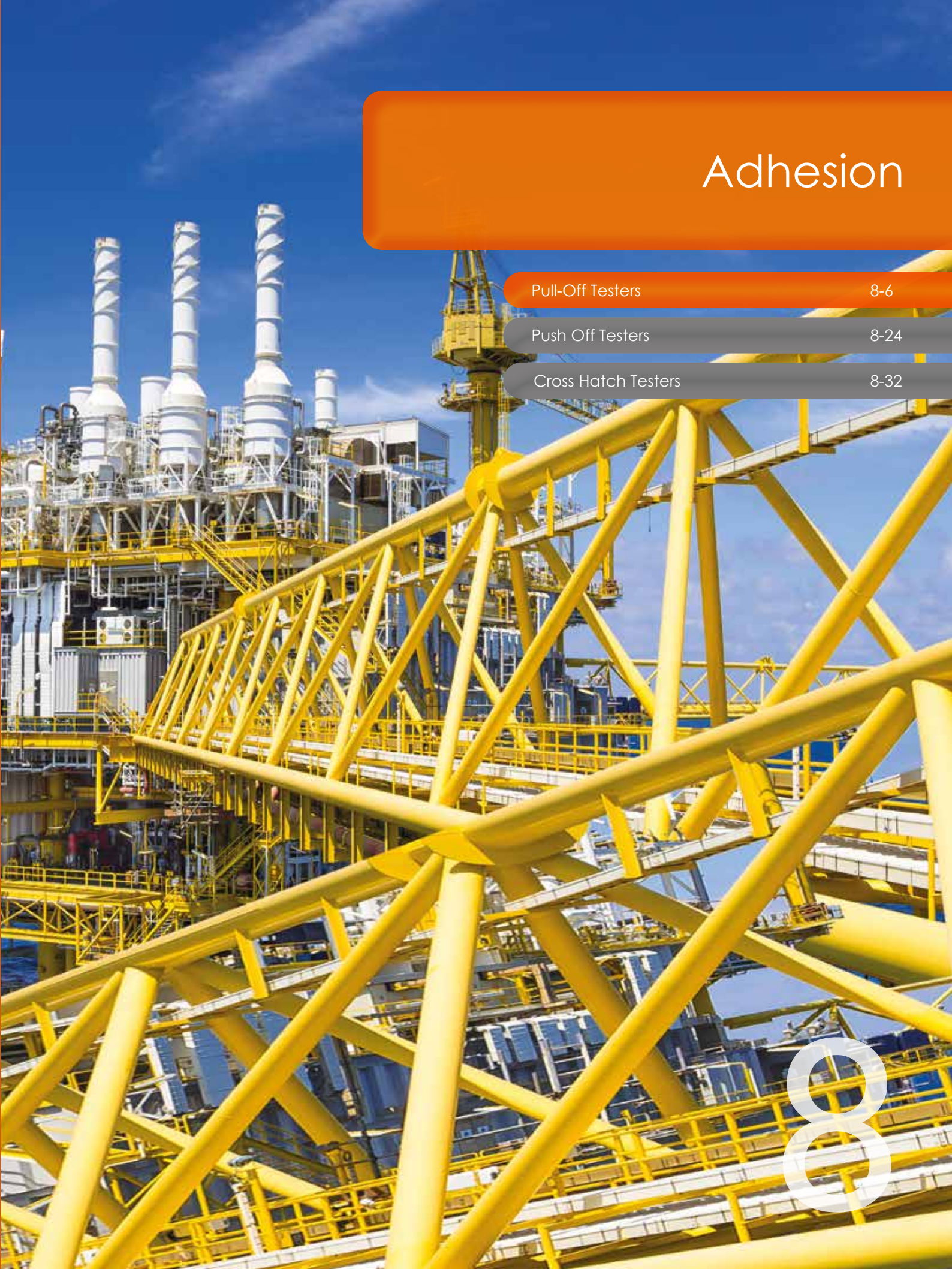
elcometer®

Adhesion

Pull-Off Testers 8-6

Push Off Testers 8-24

Cross Hatch Testers 8-32



8

Elcometer 510 Automatic Pull-Off Adhesion Tester

The **Elcometer 510** Automatic Pull-Off Adhesion Tester accurately measures the strength of the bond between the coating and the substrate.

Automatic hydraulic pump ensures smooth and continuous pressure application for consistent, repeatable results

Fully adjustable pull rates 0.1-1.4MPa/s (15-203psi) to meet National and International Standards

Store up to 60,000 readings with individual pull graphs in up to 2,500 alpha numerical batches, complete with attribute failure information

Hand-held, waterproof rugged design equivalent to IP64

User definable measurement range with an accuracy of ±1% of full scale:
10mm dolly: 100MPa / 14,400psi
14.2mm dolly: 50MPa / 7,200psi
20mm dolly: 25MPa / 3,600psi
50mm dolly: 4MPa / 580psi

10, 14.2, 20 and 50mm diameter dolly options

User definable limits with unique pressure hold and release function

Intuitive & easy to use menu structure in multiple languages

STANDARDS:
ASTM C1583, ASTM D4541, ASTM D7234-12, AS/NZS 1580.408.5, BS 1881-207, DIN 1048-2, EN 1015-12, EN 12636, EN 13144, EN 1542, EN 24624, ISO 16276-1, ISO 4624, JIS K 5600 5-7, NF T30-606, NF T30-062

Elcometer 510

Automatic Pull-Off Adhesion Tester

Range of reusable dollies

Efficient

- Ideal for laboratory and field use
- 10, 14.2, 20 and 50mm (0.39, 0.56, 0.76 & 1.96") diameter reusable dollies
- Compatible with ElcoMaster® Software and ElcoMaster® Mobile App
- Measures on small, curved and flat surfaces

USB and Bluetooth® data output, compatible with ElcoMaster® Software

Powerful

- Suitable for use on metal, wood, concrete and other substrates
- Smooth load application up to 100MPa (14,400psi)
- USB and Bluetooth® data output to iOS† or Android™ devices
- Stores up to 60,000 readings in 2,500 batches

Sealed, heavy duty and impact resistant

Durable

- Sealed, heavy duty and impact resistant
- Dust and waterproof equivalent to IP64
- Suitable for use in harsh environments

An accuracy of ±1% of full scale

Accurate

- Measurement range up to 100MPa (14,400psi) with an accuracy of ±1% of full scale
- Can be used in accordance with National & International Standards

etv video available elcometer.tv

2 YEAR* WARRANTY

* The Elcometer 510 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 www.elcometer.com.

† Compatible with iPod, iPhone and iPad.

Elcometer 510 Automatic Pull-Off Adhesion Tester

Key Features

Selectable Pull Rates

Automatic adhesion tester with selectable pull rates for 10, 14.2, 20 & 50mm diameter dollies.

Graphs & Statistics

View trend graphs or live statistics alongside the reading value.

Pull Rate Graphs

Individual user definable pull rate graphs can be saved with each reading.

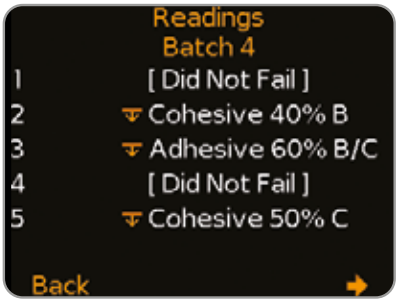
Memory

Stores individual readings and pull rate graphs in up to 2,500 alphanumeric batches, together with the date, time and attribute information.

Limits

Either pull to maximum or pull to preset limit. Unique time hold feature allows users to set a delay before pressure returns to zero.

Failure Attributes



Save cohesive and adhesive failure attributes alongside your adhesion pull data in accordance with National and International Standards.

Testing Coatings on Low Bond Strength Substrates

When testing coatings on low bond strength substrates such as concrete, wood or other fibrous materials, a larger surface area of dolly (50mm) is required to provide accurate, repeatable and reproducible results.

The Elcometer 510 is available as a Concrete Adhesion Tester Kit, or 50mm concrete accessory items (skirt, dolly, cutter) can be added to existing Elcometer 510 pull-off adhesion kits.

Elcometer 510 Automatic Pull-Off Adhesion Tester

Key Features

Long Battery Life

Powered by either standard rechargeable batteries or AC mains*. Each battery charge performs up to 200 pulls. Battery recharge time <300 minutes.

Robust Case

Supplied in a robust plastic carry case for easy transportation to and around the job site.

Anchor Clamp

The optional magnetic anchor clamp ensures the actuator doesn't fall during tests on vertical surfaces or testing at height.

Range of Dollies

A range of interchangeable substrate skirt adaptors allow each gauge to be used with 10, 14.2, 20 or 50mm diameter reusable dollies, ideal for testing coatings on thin, thick, flat or convex substrates.

Wireless

Using wireless Bluetooth® communication link the gauge to an Android™ or iPhone mobile device. Live GPS coordinates from your mobile device can be added to reports and emailed instantly.

Data Management

Transfer data to your PC via USB or Bluetooth® for further analysis with ElcoMaster® software or view live pull rate graphs in ElcoMaster® Software during the test.

* Model T only.

Elcometer 510 Automatic Pull-Off Adhesion Tester

Assessing The Results - Failure Attributes

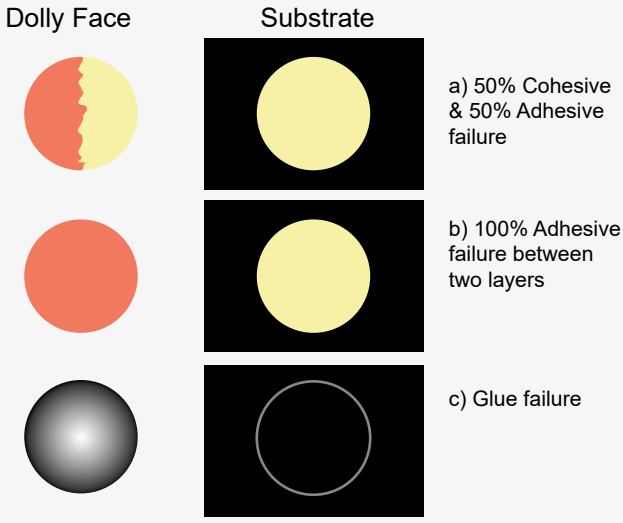
Many National and International Standards, including ISO 4624 & ASTM D4541, require the user to record not only the pull-off force but also the nature of the failure. This is done by examining the bottom of the dolly and assessing the failure. In 'Advanced' Mode on the Elcometer 510 it is possible to select the 'Attributes' feature (Menu/Set up/Gauge Mode/Advanced) allowing the nature of the fracture to be recorded against each reading and stored within the batch.

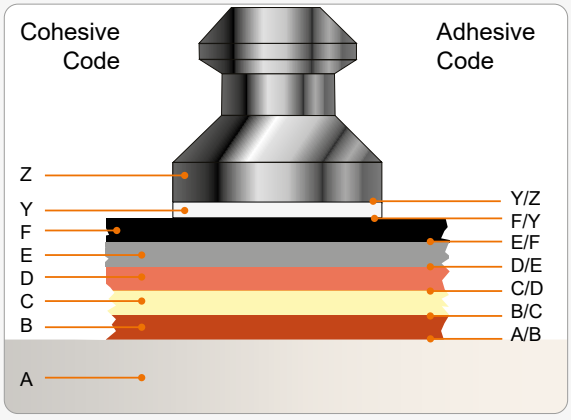
Examining The Dolly

a) Cohesive Failure: The coating fails within the body of a coating layer leaving the same coating on the surface and on the dolly face.

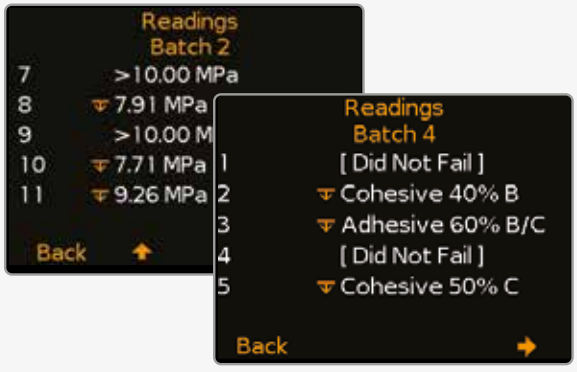
b) Adhesive Failure: Failure occurs at the interface between layers (intercoat) where one pulls away from the other. The "coating" on the dolly face will not be the same as that on the test area.

c) Glue Failure: When no coating is present on the dolly it must be recorded as a failure of the glue. This may be due to incorrect or insufficient mixing of the component parts of the adhesive, incompatibility between the adhesive/coating/dolly/test surface.





Cohesive Failure Layer[1]		Adhesive Failure Layers	
Code	Description	Code	Description
A	Substrate	A/B	Substrate & Layer 1
B	Layer 1	B/C	Layer 1 & Layer 2
C	Layer 2	C/D	Layer 2 & Layer 3
D	Layer 3	D/E	Layer 3 & Layer 4
E	Layer 4	E/F	Layer 4 & Layer 5
F	Layer 5	F/Y	Layer 5 & Glue
Y	Glue	Y/Z	Glue & Dolly



The data is saved in the batch and can be viewed at any time displayed as

##.## MPa[2] **N% A, M% A/B**, where;

##.## MPa[2]	= Pull Force in MPa or other measurement units (psi, Newtons or Nmm^{-2})
N%	= Cohesive failure percentage[3]
A	= Cohesive failure layer
M%	= Adhesion failure percentage[3]
A/B	= Intercoat adhesive failure layers

[1] The number of layers can be user defined for each batch via Batch/New Batch/Number of Layers. This will affect the number of layers available for selection during attribute recording. The maximum number of layers available is five, excluding the substrate and glue.

[2] Or equivalent units. [3] To the nearest 10%, in line with International Standards.

Elcometer 510 **Automatic Pull-Off Adhesion Tester**

Create instant reports with ElcoMaster® Software

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

ElcoMaster® Software 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.

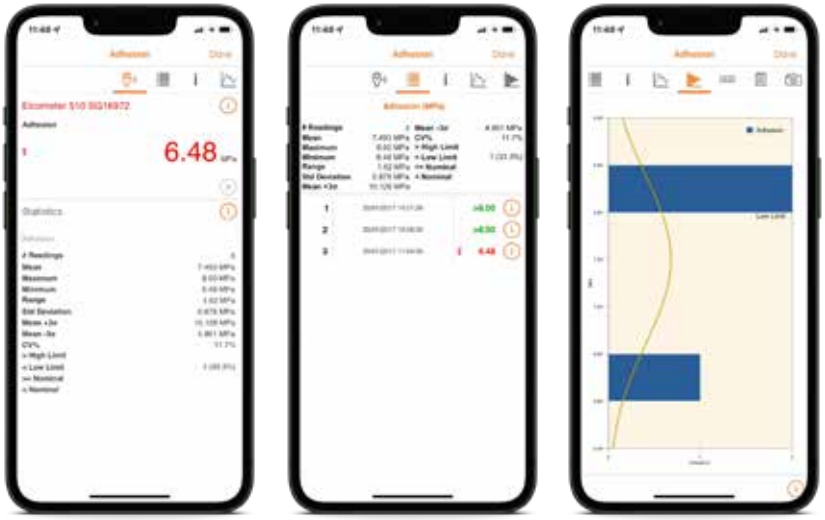
Whether you are out in the field or on the factory floor, using the ElcoMaster® Software Mobile App users can;

- Store live readings directly on to a mobile device and save them into batches.
- View the pull rate graph in real-time for the duration of the test.
- Add attribute data to each individual batch reading.
- Add photographs of the dolly and test surface to each individual batch reading at the click of a button.
- Plot individual readings on to a location map, photograph or diagram.
- Inspection data can be transferred from mobile to PC for further analysis and reporting.
- Generate instant .pdf report for submission.

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

Data transferred from the gauge to ElcoMaster® Software includes;

- Adhesion Measurements
- Date & Time
- Cohesive/Adhesive Failure Attributes
- Dolly size
- Pull rate graph
- Pull to Limit/Max
- Limit values
- Limit Hold Time
- Cutting Device
- Number of Layers
- Skirt Type/Support Ring Dimensions
- Batch Information & Statistics
- Calibration Information
- Calibration Verification Date/Time



Elcometer 510 Automatic Pull-Off Adhesion Tester

Product Features

	Model S	Model T
Repeatable & reproducible measurements	■	■
Easy to use menu structure; *in multiple languages*	■	■
Tough, impact, waterproof & dust resistant; *equivalent to IP64*	■	■
Bright LCD colour screen; *with ambient light sensor*	■	■
Scratch & solvent resistant display; *2.4" (6cm) TFT*	■	■
Calibration certificate	■	■
2 year gauge warranty[1]	■	■
Automatic rotating display; *0°, 180°*	■	■
Data output via USB (Live readings - and batch)	■	■
Data output via Bluetooth®		■
PC command; *start & stop gauge from a PC with live readings (USB only)*		■
Switchable Units (MPa, psi, N, Nmm^{-2})	■	■
On Screen Statistics (*η, x̄, σ, Hi, Lo, CV%, N>hi limit*[2])	■	■
Pull Rate Indicator	■	■
Trend Graph	■	■
Pull Rate Graph *(Load v Time)*		■
Interchangeable Dolly Selection; *10, 14.2, 20 & 50mm*	■	■
User Selectable Pull Rates; (Model S & Model T Standard Mode) *10mm: 1.00, 2.00, 3.00, 4.00, 5.00MPa/s 125, 200, 400, 600, 725psi/s* *14.2mm: 0.4, 0.7, 1.4, 2.0, 2.5MPa/s 60, 100, 200, 300, 360psi/s* *20mm: 0.2, 0.3, 0.7, 1.0, 1.2MPa/s 30, 50, 100, 150, 180psi/s* *50mm: 0.04, 0.08, 0.12, 0.16, 0.20MPa/s 5, 8, 16, 24, 30psi/s*	■	■
User Selectable Pull Rates; (Model T Advanced Mode) *10mm: 0.40 - 5.60MPa/s 58 - 812psi/s in 0.1MPa / 1psi steps* *14.2mm: 0.20 - 2.80MPa/s 29 - 403psi/s in 0.1MPa / 1psi steps* *20mm: 0.10 - 1.40MPa/s 15 - 203psi/s in 0.1MPa / 1psi steps* *50mm: 0.02 - 0.22MPa/s 2 - 32psi/s in 0.01MPa / 0.1psi steps*		■
User Selectable Limit & Limit Hold Time		■
Gauge Memory; *maximum number of readings*	60	60,000[3]
Number of Batches *(Alpha Numeric - Model T)*	1	2,500
Attribute Modes to meet National & International Standards		■
Display Modes		
Readings, Selected Stats & Run Chart (last 20 readings)	■	■
Pull Rate Graphs		■
Batch Review		■
Power; *Battery (B), AC Mains Power (M)*	B	B, M
USB Cable & ElcoMaster® Software CD	■	■
Power Cable with Multi International Plug Adaptor *(UK, EU, US, AUS)*		■
Plastic Transit Case	■	■
Date & Time		■
In Field Adhesion Calibration Verification Mode	■	■

[1] The Elcometer 510 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 www.elcometer.com. [2] Model T only. [3] When 'Rate Graph' is enabled, the number of readings which can be stored depends on the graph resolution selected.

Elcometer 510 Automatic Pull-Off Adhesion Tester

Technical Specification

Part Number	Description				Certificate
F510-20S	Elcometer 510 Model S Automatic Adhesion Tester; 20mm Kit				●
F510-20T	Elcometer 510 Model T Automatic Adhesion Tester; 20mm Kit				●
F510-50S	Elcometer 510 Model S Automatic Adhesion Tester; 50mm Concrete Kit				●
F510-50T	Elcometer 510 Model T Automatic Adhesion Tester; 50mm Concrete Kit				●
Pressure Accuracy	±1% of full scale		Pull Rate Accuracy	±(2.5% + 0.3 seconds)	
Pressure Resolution	0.01MPa (1psi)		Pull Rate Resolution	0.01MPa/s (1psi/s)	
Dolly Diameter	**10mm (0.39")**	**14.2mm (0.56")**	**20mm (0.76")**	**50mm (1.96")**	
Operating Range	8 - 100MPa (1200 - 14400psi)	4 - 50MPa (600 - 7200psi)	2 - 25MPa (300 - 3600psi)	0.3 - 4MPa (50 - 580psi)	
Pull Rate Range	0.4 - 5.6MPa/s (58 - 812psi/s)	0.2 - 2.8MPa/s (29 - 403psi/s)	0.1 - 1.4MPa/s (15 - 203psi/s)	0.02 - 0.22MPa/s (2 - 32psi/s)	
Gauge Dimensions	260 x 100 x 66mm (6.3 x 3.9 x 2.6")				
Actuator Height[1]	85mm (3.4")	85mm (3.4")	85mm (3.4")	110mm (4.3")	
Instrument Weight[1]	2.9kg (6.4lb)	2.9kg (6.4lb)	2.9kg (6.4lb)	3.1kg (8.3lb)	
Kit Weight	-	-	6.1kg (13.5lb)	7.3kg (16.1lb)	
Power Supply	8 x AA batteries (16 rechargeable batteries supplied complete with charger) or AC mains power (Model T only)				
Battery Life	~200 pulls per charge up to 25MPa (3600psi) at 1MPa/s (150psi/s), recharge time <5 hours				
Packing List: 20mm Kit	Elcometer 510 Adhesion Tester with 20mm dollies (x10), standard skirt for 20mm dollies, 20mm dolly cutter handle, 20mm dolly cutter, Araldite standard two part epoxy adhesive (2 x 15ml tubes), abrasive pad, shoulder harness, carry case, 16 x AA NiMH rechargeable batteries & charger (UK, EU, US, AUS), mains power supply (UK, EU, US, AUS) (Model T), ElcoMaster® Software CD & USB cable, calibration certificate and operating instructions.				
Packing List: 50mm Kit	Elcometer 510 Adhesion Tester with 50mm dollies (x6), standard skirt for 50mm dollies, 50mm dolly cutter arbor, 50mm dolly cutter, Araldite standard two part epoxy adhesive (2 x 15ml tubes), abrasive pad, shoulder harness, carry case, 16 x AA NiMH rechargeable batteries & charger (UK, EU, US, AUS), mains power supply (UK, EU, US, AUS) (Model T), ElcoMaster® Software CD & USB cable, calibration certificate and operating instructions.				

Accessories

Dolly Diameter	Pack of 10[2]	Pack of 100	Standard Skirt	Thin Substrate Skirt	Cutter Handle/ Arbor	Dolly Cutter
10mm (0.39")	T5100010AL-10	T5100010AL-100	T9991420S	-	-	-
14.2mm (0.56")	T9990014AL-10	T9990014AL-100	T9991420S	T9990014T	T9991420H	T9990014CT
20mm (0.76")	T9990020AL-10	T9990020AL-100	T9991420S	T9990020T	T9991420H	T9990020CT
50mm (1.96")	T9990050AL-4	-	T9990050S	-	T9990050H	T9990050CT
50mm (1.96") Stainless Steel	T9990050SS-4	-	T9990050S	-	T9990050H	T9990050CT

Part Number	Description
T99923797	Magnetic Anchor Clamp - holds actuator securely during tests on vertical surfaces
T99912906	Araldite Standard Two Part Epoxy Adhesive, 2 x 15ml Tubes
T99923147	Dolly Cleaning Heating Tongs - EUR 220V / UK 240V
T99923103	Dolly Cleaning Heating Tongs - US 110V

● Calibration Certificate supplied as standard.

[1] Including Actuator with Standard Skirt fitted.

[2] 50mm (2") dollies are supplied in packs of 4.

Elcometer 510 Automatic Pull-Off Adhesion Tester

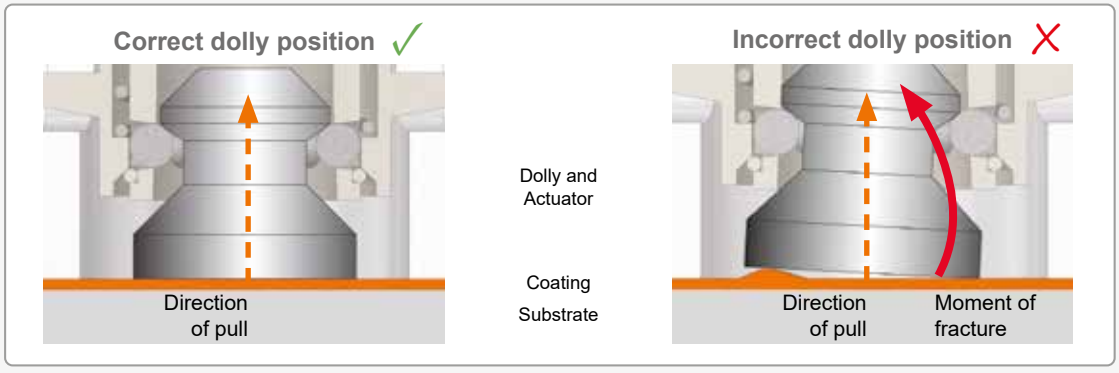
Pull-Off Adhesion Tests - Preventing Adhesive and Cohesive Failures

Preparing the surface and dolly

1. Select an appropriate test area which is flat and has sufficient area to attach the adhesion tester actuator.
2. Abrade the dolly and surface, clean both to remove any dust - minimising the risk of an 'adhesive' failure.

Fixing the dolly

3. Mix the adhesive correctly and apply a uniform adhesive film over the entire dolly face.
4. Test Standards require that the dolly is pulled off perpendicularly to the test surface. The dolly must therefore be adhered on to a prepared flat test surface (see images below). Apply an even pressure to the dolly to ensure that the dolly face is parallel to the test surface.
5. Remove any excess adhesive from around the dolly and allow to fully cure. Tape may be required when applying dollies to vertical surfaces during the cure process.
6. If required, once the dolly has fully cured, score the coating around the dolly.
7. Attach the actuator to the dolly and begin test.



Assessment of the Adhesion Test

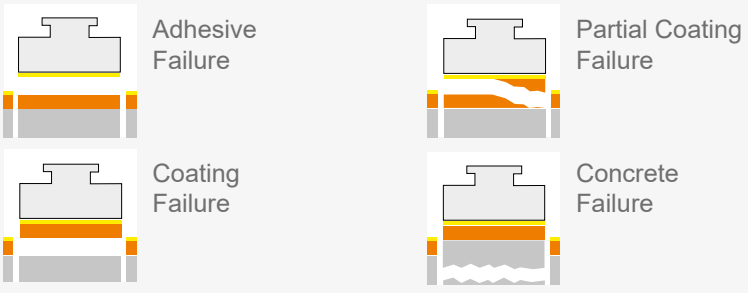
For a valid pull-test, the coating must cover at least 50% of the area of the dolly face. If the glue fails and no coating is present on the dolly, or it covers less than 50% of the dolly face area, the pull-test is invalid and should be repeated.

When the coating has failed within the layer leaving the same coating on both the dolly and the test panel it is known as a *'cohesive failure'*.

'Adhesive failures' occur when either the coating has failed at the interface with another coating (leaving a coating on the dolly and another coating on the substrate), or when the coating has failed at the substrate (leaving the coating on the dolly and the substrate bare).

NOTE: If the glue fails at a value above the specification then it can be reported that the adhesion exceeded the specification for this individual test.

Coating Adhesion Testing on Concrete



Elcometer 506 Pull-Off Adhesion Tester

The **Elcometer 506** Pull-Off Adhesion Testers allow the user to accurately measure the strength of the bond between the coating and the substrate.

STANDARDS:

ASTM D4541, ASTM D7234, AS/NZS 1580.408.5, BS 1881-207, DIN 1048-2, EN 12636, EN 13144, EN 1542, EN 24624, ISO 16276-1, ISO 4624, JIS K 5600-5-7, NF T30-606, NF T30-062

Hand-held, ergonomic and fully portable - ideal for on-site adhesion testing

Measurement range up to 50MPa (7250psi) with an accuracy of ±1% of full scale

Rotating crank handle applies an even uniform load up to 50MPa (7250psi)

Safety harness clip prevents accidental damage of surrounding areas during tests on vertical surfaces

2 YEAR* WARRANTY

etv video available elcometer.tv

Elcometer 506

Pull-Off Adhesion Tester

Suitable for use in harsh environments

Powerful

- Suitable for use on metal, wood, concrete and other substrates
- Rugged & lightweight - ideal for frequent testing
- Smooth load application up to 50MPa (7250psi)

Quick connect coupling for 14.2, 20 and 50mm diameter dollies

Flexible

- Easy to use hand-held design
- Ideal for laboratory use
- 14.2, 20 and 50mm (0.56, 0.76 & 1.96") diameter reusable dollies
- Measures on small, curved and flat surfaces

Actuator skirts for a range of substrate thicknesses and bond strengths, on flat or curved surfaces, ideal for thin substrates

Accurate

- Measurement range up to 50MPa (7250psi) with an accuracy of ±1% of full scale

Durable

- Sealed, heavy duty and impact resistant
- Dust and waterproof equivalent to IP65
- Suitable for use in harsh environments

Sealed, heavy duty and impact resistant

* The Elcometer 506 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 www.elcometer.com.

Elcometer 506 Pull-Off Adhesion Tester

Technical Specification

Part Number	Description			Certificate
F506-20D	Elcometer 506 Digital Adhesion Tester Kit; 20mm			●
F506-20DC	Elcometer 506 Digital Adhesion Tester Kit; 20mm - Certified			○
F506-50D	Elcometer 506 Digital Adhesion Tester Kit; 50mm			●
F506-50DC	Elcometer 506 Digital Adhesion Tester Kit; 50mm - Certified			○
Accuracy	±1% of full scale			
Pressure Rating	26MPa (3800psi)			
	14.2mm (0.56”) Dolly	**20mm (0.76”) Dolly**	**50mm (1.96”) Dolly**	
Operating Range	4 - 50MPa (600 - 7200psi)	2 - 25MPa (300 - 3600psi)	0.3 - 4MPa (50 - 580psi)	
Scale Resolution	0.01MPa (1psi)	0.01MPa (1psi)	0.01MPa (1psi)	
Instrument Length	290mm (11.5”)	290mm (11.5”)	290mm (11.5”)	
Actuator Height (skirt fitted)	85mm (3.4”)	85mm (3.4”)	110mm (4.3”)	
Instrument Weight	1.8kg (4lb)	1.8kg (4lb)	2.0kg (4.4lb)	
Kit Weight	4kg (8.8lb)	4kg (8.8lb)	5.2kg (11.5lb)	
Battery Type	2 x AA batteries (digital gauge only)		Battery Life: 2000 hours	
Packing List:				
20mm Kit	Elcometer 506 Adhesion Tester with 20mm dollies (x10), standard skirt for 20mm dollies, 20mm dolly cutter handle, 20mm dolly cutter, Araldite standard two part epoxy adhesive (2 x 15ml tubes), abrasive pad, carry case, 2 x LR6 (AA) batteries (Digital Gauge only), test certificate and operating instructions.			
50mm Kit	Elcometer 506 Adhesion Tester with 50mm dollies (x6), standard skirt for 50mm dollies, 50mm dolly cutter arbor, 50mm dolly cutter, Araldite standard two part epoxy adhesive (2 x 15ml tubes), abrasive pad, carry case, 2 x LR6 (AA) batteries (Digital Gauge only), test certificate and operating instructions.			

Accessories

Dolly Diameter	Pack of 10[1]	Pack of 100	Standard Skirt	Thin Substrate Skirt	Dolly Cutter Handle	Dolly Cutter
14.2mm (0.56”)	T9990014AL-10	T9990014AL-100	T9991420S	T9990014T	T9991420H	T9990014CT
20mm (0.76”)	T9990020AL-10	T9990020AL-100	T9991420S	T9990020T	T9991420H	T9990020CT
50mm (1.96”)	T9990050AL-4	-	T9990050S	-	T9990050H	T9990050CT
50mm (1.96”) Stainless Steel	T9990050SS-4	-	T9990050S	-	T9990050H	T9990050CT

Part Number	Description
T99923797	Magnetic Anchor Clamp - holds actuator securely during tests on vertical surfaces
T99912906	Araldite Standard Two Part Epoxy Adhesive, 2 x 15ml Tubes
T99923147	Dolly Cleaning Heating Tongs - EUR 220V / UK 240V
T99923103	Dolly Cleaning Heating Tongs - US 110V

The Elcometer 506 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 www.elcometer.com. ● Test Certificate supplied as standard. ○ Calibration Certificate supplied as standard. [1] 50mm (2”) dollies are supplied in packs of 4.

Elcometer 106 Pull-Off Adhesion Tester

The **Elcometer 106 Adhesion Tester** is easy to operate and is a fully portable Type II adhesion gauge which provides a numerical value for adhesion strength.

Hand-held, ergonomic and fully portable - ideal for on-site adhesion testing

Rotating handwheel applies a uniform load up to 22MPa (3200psi)

Quick connect coupling for 20 and 40mm diameter dollies

Available in 5 scale ranges to test the adhesion on coatings on a variety of substrates

STANDARDS:

AS 1580.408.5, ASTM D 4541, AS/NZS 1580.408.5, EN 13144, EN 24624, ISO 4624, ISO 16276-1, JIS K 5600-5-7, NF T30-062, NF T30-606

etv video available elcometer.tv

Elcometer 106

Pull-Off Adhesion Tester

- Supplied in a carry case - ideal for site tests
- Hand operated - no power supply necessary
- Includes a cutter for EN13144 and ISO 4624 tests

Applications for the Elcometer 106 Adhesion Test include paint or plasma spray on bridge decking, coatings on steel, aluminium, concrete, etc.

Technical Specification

		Range			
Part Number	Description	MPa (N/mm²)	kg/cm²	psi	Certificate
F106----1	Elcometer 106 Adhesion Tester - Scale 1	0.5 - 3.5	5 - 35	72 - 500	○
F106----2	Elcometer 106 Adhesion Tester - Scale 2	1 - 7.0	10 - 70	145 - 1000	○
F106----3	Elcometer 106 Adhesion Tester - Scale 3	3 - 15	30 - 150	435 - 2000	○
F106----4	Elcometer 106 Adhesion Tester - Scale 4	5 - 22	50 - 220	725 - 3200	○
F106----5	Elcometer 106 Adhesion Tester - Scale 5	0.05 - 0.2	0.5 - 2.0	7.25 - 30	○
Dimensions	Scales 1, 2, 5: 175 x 76mm (7 x 3”) Scales 3 and 4: 185 x 76mm (7.5 x 3")				
Dolly Diameter	20mm (0.76”)	Dolly Area	314mm² (0.49sq inch)		
Gross weight of Kit	Scale 1, 2 and 5: 2.8kg (6.2lb)	Scale 3: 4.2kg (9.3lb)	Scale 4: 4.5kg (9.9lb)		
Packing List	Elcometer 106 Pull-Off Adhesion Tester, pack of 20 dollies, Araldite adhesive, base support ring, magnetic dolly clamp, dolly cutter, carry case and operating instructions				

Accessories

T1062895-10	Spare Dollies 20mm (0.78”) Diameter (Pack of 10)
T1062895-	Spare Dollies 20mm (0.78”) Diameter (Pack of 100)
T1062914-	Large Dollies 40mm (1.57") Diameter (Pack of 5)
T1062915-	Large Base Ring for 40mm (1.57”) Dollies
T99912906	Araldite Standard Two Part Epoxy Adhesive, 2 x 15ml Tubes
T99914009	20mm (0.78”) Dolly Cutter

Test Method

A test dolly is bonded to the coating using an adhesive. The Elcometer 106 houses a spring arrangement which applies a lift force to the dolly as the tension is increased.

When the coating is pulled off the surface, an indicator on the scale shows the numerical value of adhesion expressed in terms of the force per unit area required to remove the dolly.

Inspection of the dolly face is required to determine the failure mode.

○ Optional Calibration Certificate available.

Elcometer 106/6 Adhesion Tester for Coatings on Concrete

The **Elcometer 106/6** Adhesion Tester has been specifically designed to measure coatings on concrete.

Rotating a hexagonal wrench applies an even uniform load up to 3.5MPa (500psi)

Hand-held, ergonomic and fully portable - ideal for on-site adhesion testing

50mm (2") diameter dollies for testing coatings on concrete

Dolly Cutting Tool available to isolate the coating according to ASTM standard test method

etv video available elcometer.tv

STANDARDS:
ASTM D 7234, BS 1881-207, DIN 1048-2, EN 1542, EN 12636

Elcometer 106/6

Adhesion Tester for Coatings on Concrete

Operating in a similar way to the regular Elcometer 106 Adhesion Tester, the Elcometer 106/6 uses a 50mm (2”) diameter dolly for testing coatings on concrete.

The Elcometer 106/6 is fully portable and supplied in a carry case - making it ideal for on site tests.

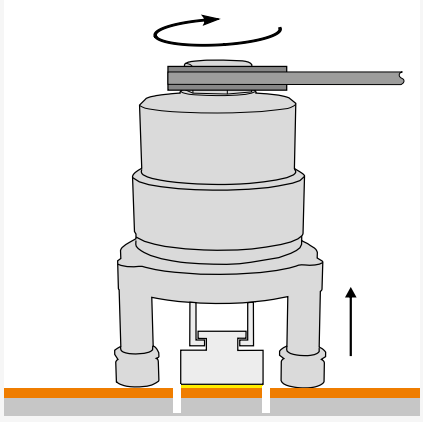
Technical Specification

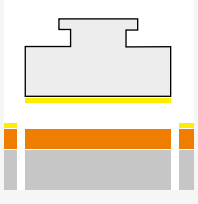
Part Number	Description	Certificate
F106----6	Elcometer 106 Coatings on Concrete Adhesion Tester - Scale 6	○
Range	0 - 3.5MPa (N/mm²) 0 - 500psi	
Dimensions	105 x 210mm (4 x 8")	
Gross weight of Kit	5.7kg (12.6lb)	
Packing List	Elcometer 106/6 Coatings on Concrete Adhesion Tester, 5 x 50mm (2”) dollies, support ring, Araldite adhesive, ratchet spanner, carry case and operating instructions	

Accessories

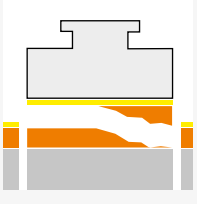
T10618570	50mm (2”) Diameter Dollies (Pack of 5)
KT001910P122	50mm (2”) Diameter Dolly Cutting Tool
T99912906	Araldite Standard Two Part Epoxy Adhesive, 2 x 15ml Tubes

Coating Adhesion Testing on Concrete

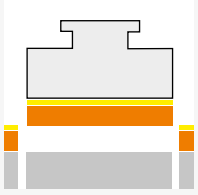




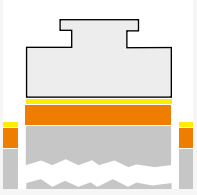
Adhesive Failure



Partial Coating Failure



Coating Failure



Concrete Failure

○ Optional Calibration Certificate available.

elcometer®

Adhesion

Pull-Off Testers 8-6

Push Off Tester 8-24

Cross Hatch Testers 8-32

8

Elcometer 508 Digital Push Off Adhesion Tester

The extremely versatile **Elcometer 508** Type III[1] adhesion tester can be used for many adhesion testing requirements on flat or curved (concave and convex) surfaces such as pipelines and tanks.

Compatible with standard, convex and concave dollies

Hand-held, ergonomic and fully portable - ideal for on-site adhesion testing

Measurement range up to 25MPa (3630psi) with a full scale accuracy of ±1.5%

Rotating crank handle applies smooth loading from 2 up to 25MPa (3630psi)

Quick connect coupling for easy connection to the dolly

etv video available elcometer.tv

2 YEAR[2] WARRANTY

STANDARDS:
ASTM D 4541, ISO 16276-1, NF T30-606

1 Type III in accordance with ASTM D 4541 2 The Elcometer 508 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 www.elcometer.com.

Elcometer 508 Digital Push Off Adhesion Tester

Powerful

- Suitable for use on flat, concave & convex surfaces
- Rugged & lightweight
- Smooth load application up to 25MPa (3630psi)

Durable

- Sealed, heavy duty & impact resistant
- Dust & waterproof equivalent to IP65
- Suitable for use in harsh environments

Flexible

- Easy to use hand-held design
- Ideal for field use on tanks & pipelines
- Reusable stainless steel dollies
- MPa / psi switchable

Accurate

- Measurement range up to 25MPa (3630psi)
- Full scale accuracy of ±1.5%
- Maximum hold - displays the highest value reached

Technical Specification

Part Number UK 240V/EUR 220V	US 110V	Description	Certificate
F508-DD	F508-DC	Elcometer 508 Digital Push Off Adhesion Tester	●
Dolly Size	Outside Diameter	19.4mm (0.76")	
	Inside Diameter	3.7mm (0.15")	
	Area	284mm² (0.44sq inch)	
Scale Range		0 - 26MPa (0 - 3800psi)	
Operating Range		2 - 25MPa (290 - 3630psi)	
Scale Resolution		0.01MPa (1psi)	
Accuracy		±1.5% of full scale	
Power Supply		2 x AA alkaline dry batteries (rechargeable batteries can be used)	
Weight		Gauge: 1.7kg (3.7lb) Kit: 4.5kg (9.9lb)	
Instrument Length		290mm (11.5") Coupling Height: 200mm (8")	
Packing List		Elcometer 508, transit case, 5 flat dollies, 5 dolly plugs, GR415 cyanoacrylate adhesive, dolly cleaning tool, 2 x LR6 (AA batteries), operating instructions and calibration certificate	

Accessories

Part Number	Description	Part Number	Description
T9999646-	Standard Flat Dolly (x1)	-	Concave & Convex Dollies available upon request
T99911135	Cyanoacrylate Adhesive	T9994586-	Dolly Cleaning Tool
T99911136	Dolly Plug (x5)	T99923147	Dolly Cleaning Heating Tongs - EUR 220V / UK 240V
T99914009	Dolly Cutter	T99923103	Dolly Cleaning Heating Tongs - US 110V

● Calibration Certificate supplied as standard.

Elcometer 108 Hydraulic Adhesion Tester

Ideal for tanks or pipelines, the **Elcometer 108** Hydraulic Adhesion Tester is an extremely versatile Type III[1] adhesion tester which can be used for many applications, even on flat or curved surfaces.

Compatible with standard, convex and concave dollies to test on flat or curved surfaces.

Hand-held, ergonomic and fully portable - ideal for on-site adhesion testing

Measurement range up to 25MPa (3630psi) with an accuracy of ±3% or 0.4MPa (60psi) - whichever is the greater

Rotating crank handle applies smooth loading from 0 up to 25MPa (3630psi)

Quick connect coupling for easy connection to the dolly

2 YEAR[2] WARRANTY

STANDARDS:
ASTM D 4541, ISO 16276-1, NF T30-606

1 Type III in accordance with ASTM D 4541 2 The Elcometer 108 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 www.elcometer.com.

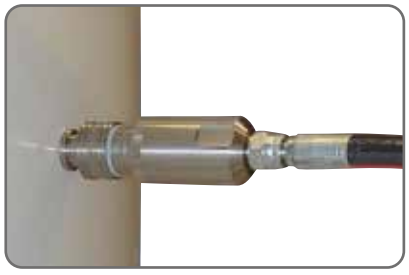
Elcometer 108

Hydraulic Adhesion Tester

Digital and analogue gauges available for harsh and hazardous environments

Powerful

- Suitable for use on flat, concave & convex surfaces
- Rugged & lightweight
- Smooth load application up to 25MPa (3630psi)



Safety coupling sleeve prevents accidental damage of surrounding areas during test on vertical surfaces

Flexible

- Ideal for laboratory and field use
- Reusable stainless steel dollies
- MPa / psi switchable

A wide range of curved dollies available, each designed for a specific range of curvature

Accurate

- Measurement range up to 50MPa (7250psi) with an accuracy of ±3%
- Maximum hold - displays the highest value reached

Sealed, heavy duty and impact resistant

Durable

- Sealed, heavy duty and impact resistant
- Dust and waterproof equivalent to IP65
- Suitable for use in harsh environments

Elcometer 108 Hydraulic Adhesion Tester

Technical Specification

Part Number UK 240V/EUR 220V	Part Number US 110V	Description	Certificate
F108---1D	F108---1C	Elcometer 108/1 Hydraulic Adhesion Tester - Analogue Dial Gauge	○
F108---2D	F108---2C	Elcometer 108/2 Hydraulic Adhesion Tester - Digital Gauge	○
Scale Range		Analogue: 0 - 25MPa (0 - 3600psi) Digital: 0 - 25MPa (0 - 3600psi)	
Operating Range		Analogue: 2 - 18MPa (290 - 2600psi) Digital: 2 - 18MPa (290 - 2600psi)	
Scale Resolution		Analogue: 1MPa (100psi) Digital: 0.1MPa (1psi)	
Analogue Instrument Accuracy		±1MPa Metric Scale; 150psi Imperial Scale	
Digital Instrument Accuracy		±3% or 0.4MPa (60psi) - whichever is the greater	
Dolly Size	Outside Diameter	19.4mm (0.76”)	
	Inside Diameter	3.7mm (0.15”)	
	Area	284mm² (0.44sq inch)	
Packing List		Elcometer 108, ABS carry case, 5 flat dollies, 5 nylon plugs, GR415 cyanoacrylate adhesive, dolly cleaning tool, 2 x LR6 (AA batteries) (Digital gauge only) and operating instructions	

Accessories

T99911135	Cyanoacrylate Adhesive
T9999646-	Standard Flat Dolly 19.4mm (0.76”)
T99923147	Dolly Cleaning Heating Tongs - EUR 220V / UK 240V
T99923103	Dolly Cleaning Heating Tongs - US 110V

Concave & Convex dollies are available upon request

○ Calibration Certificate available.

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Adhesion

Pull-Off Testers 8-6

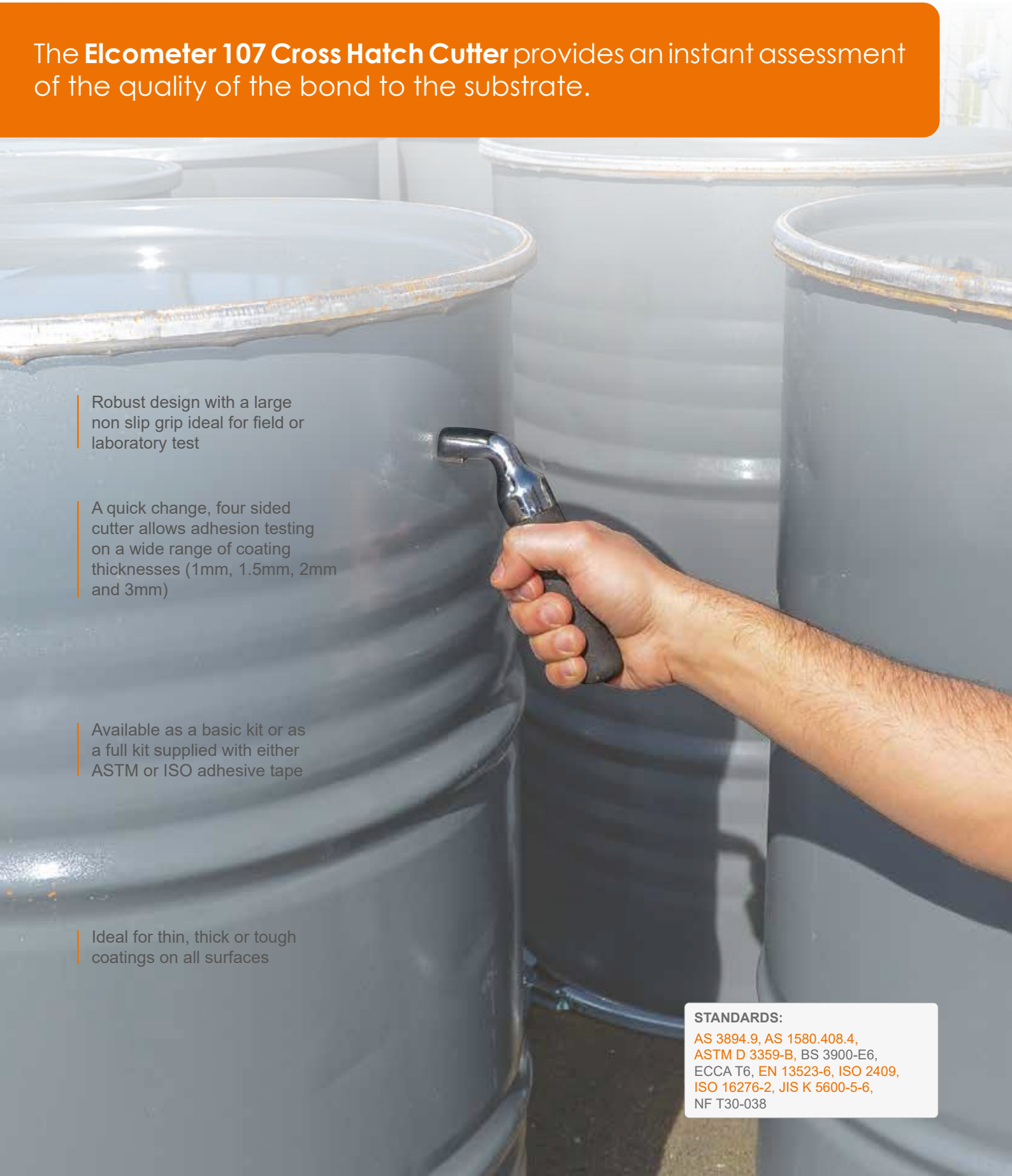
Push Off Testers 8-24

Cross Hatch Testers 8-32

8

Elcometer 107 Cross Hatch Cutter

The **Elcometer 107 Cross Hatch Cutter** provides an instant assessment of the quality of the bond to the substrate.



- Robust design with a large non slip grip ideal for field or laboratory test
- A quick change, four sided cutter allows adhesion testing on a wide range of coating thicknesses (1mm, 1.5mm, 2mm and 3mm)
- Available as a basic kit or as a full kit supplied with either ASTM or ISO adhesive tape
- Ideal for thin, thick or tough coatings on all surfaces

STANDARDS:

AS 3894.9, AS 1580.408.4, ASTM D 3359-B, BS 3900-E6, ECCA T6, EN 13523-6, ISO 2409, ISO 16276-2, JIS K 5600-5-6, NF T30-038

Elcometer 107

Cross Hatch Cutter

Due to its rugged construction, the Elcometer 107 Cross Hatch Cutter is ideal to assess the quality of the bond of thin, thick or tough coatings to a substrate on different types of surfaces.

With a range of interchangeable cutter blades available with different cutter spacings, the Elcometer 107 Cross Hatch Cutter can be used in accordance with a variety of Standards.

The Elcometer 107 is available as either a Basic Kit or as a Full Kit which includes a brush, magnifier (x6 magnification) and either ISO or ASTM adhesive tape.

Technical Specification

Part Number	Description	Cutter Type	Coating Thickness		Certificate
F10713222-1	Elcometer 107 Basic Kit	6 x 1mm	0 - 60µm	0 - 2.4mils	○
F10713348-6	Elcometer 107 Full Kit with ISO Tape	6 x 1mm	0 - 60µm	0 - 2.4mils	○
F10713348-1	Elcometer 107 Full Kit with ASTM Tape	6 x 1mm	0 - 50µm	0 - 2.0mils	○
F10713222-2	Elcometer 107 Basic Kit	11 x 1mm	0 - 50µm	0 - 2.0mils	○
F10713348-2	Elcometer 107 Full Kit with ASTM Tape	11 x 1mm	0 - 50µm	0 - 2.0mils	○
F10713222-3	Elcometer 107 Basic Kit	11 x 1.5mm	0 - 90µm*	0 - 3.5mils*	○
F10713222-4	Elcometer 107 Basic Kit	6 x 2mm	50 - 125µm	2.0 - 5.0mils	○
F10713348-9	Elcometer 107 Full Kit with ISO Tape	6 x 2mm	61 - 120µm	2.4 - 4.7mils	○
F10713348-4	Elcometer 107 Full Kit with ASTM Tape	6 x 2mm	50 - 125µm	2.0 - 5.0mils	○
F10713222-5	Elcometer 107 Basic Kit	6 x 3mm	121 - 250µm	5.0 - 10mils	○
Packing List	**Basic Kit:** Robust handle, cutter, hexagonal wrench, presentation storage case and instructions (together with Classification of Adhesion Test Results chart) **Full Kit:** Robust handle, cutter, hexagonal wrench, instructions (together with Classification of Adhesion Test Results chart), magnifier (x6 magnification), brush and adhesive tape (either ASTM or ISO tape), all in a plastic ABS carry case				

Accessories

		Methods			
Part Number	Description	ISO	ASTM	AS	Certificate
T99913700-1	6 x 1mm Four sided cutter blade	•	•		○
T99913700-2	11 x 1mm Four sided cutter blade		•		○
T99913700-3	11 x 1.5mm Four sided cutter blade				○
T99913700-4	6 x 2mm Four sided cutter blade	•	•		○
T99913700-5	6 x 3mm Four sided cutter blade	•			○
K0001539M001	Adhesive Tape (1 roll) ASTM D 3359		•		
T9999358-1	Adhesive Tape (1 roll) ISO 2409	•			
T9998894-	Adhesive Tape (2 rolls) ASTM D 3359		•		
T9999358-2	Adhesive Tape (2 rolls) ISO 2409	•			

* Approximate Thickness

○ Optional Calibration Certificate available.

Elcometer 1542

Cross Hatch Adhesion Tester

STANDARDS:
AS 3894.9, AS 1580.408.4, ASTM D 3359-B, BS 3900-E6, ECCA T6, EN 13523-6, ISO 2409, ISO 16276-2, JIS K 5600-5-6, NF T30-038

The Elcometer 1542 is ideal for measuring the cross hatch adhesion of coatings up to 250µm (9.8mils) on flat surfaces and test panels.

Measure on large or small panels by quickly changing the position of the guide wheel using the hexagonal wrench provided.

Each cutter wheel consists of 8 cutting faces. When one face becomes worn, rotate the cutting wheel to the next face.

The Elcometer 1542 is available with three different cutter spacings 1, 2 & 3mm for a range of coating thickness (see table below).

The Elcometer 1542 is available on its own (Basic Kit) or as a Full Kit which includes a brush, magnifier & ISO or ASTM adhesive tape. There are also Advanced Kits which include all three (1, 2 & 3mm) cross hatch adhesion testers, together with either ISO or ASTM adhesive tape.

Technical Specification

Part Number	Description	Cutter Type	Coating Thickness		Certificate
K1542M001	Elcometer 1542 Basic Kit	6 x 1mm	0 - 60µm	0 - 2.4mils	○
K1542M002	Elcometer 1542 Basic Kit	6 x 2mm	50 -125µm	2 - 5.0mils	○
K1542M003	Elcometer 1542 Basic Kit	6 x 3mm	121 - 250µm	4.8 - 9.8mils	○
K1542M001-I	Elcometer 1542 Full Kit - ISO Tape	6 x 1mm	0 - 60µm	0 - 2.4mils	○
K1542M002-I	Elcometer 1542 Full Kit - ISO Tape	6 x 2mm	50 -125µm	2.0 - 5.0mils	○
K1542M003-I	Elcometer 1542 Full Kit - ISO Tape	6 x 3mm	121 - 250µm	4.8 - 9.8mils	○
K1542M001-A	Elcometer 1542 Full Kit - ASTM Tape	6 x 1mm	0 - 60µm	0 - 2.4mils	○
K1542M002-A	Elcometer 1542 Full Kit - ASTM Tape	6 x 2mm	50 - 125µm	2 - 5.0mils	○
K1542M204-I	Elcometer 1542 Advanced Kit - ISO Tape	6 x 1, 2, 3mm	0 - 250µm	0 - 9.8mils	○
K1542M204-A	Elcometer 1542 Advanced Kit - ASTM Tape	6 x 1, 2, 3mm	0 - 250µm	0 - 9.8mils	○
Packing List	**Basic Kit:** 1x Elcometer 1542 Cross Hatch Tester*, cutter angle adjustment tool, hexagonal wrench, transit case & user guide **Full Kit:** Basic Kit plus: brush, magnifier (x6 magnification) & ISO or ASTM adhesive tape **Advanced Kit:** 3 x Elcometer 1542 Cross Hatch Testers (1, 2 & 3mm), cutter angle adjustment tool, hexagonal wrench, brush, magnifier (x6 magnification), ISO or ASTM adhesive tape, transit case & user guide				

Accessories

		Methods			
Part Number	Description	ISO	ASTM	AS	Certificate
KT1542P001	6 x 1mm Cross Hatch Cutter Wheel	•			○
KT1542P002	6 x 2mm Cross Hatch Cutter Wheel	•	•	•	○
KT1542P003	6 x 3mm Cross Hatch Cutter Wheel	•			○
K0001539M001	Adhesive Tape (1 roll) ASTM D 3359	T9998894-	Adhesive Tape (2 rolls) ASTM D 3359		
T9999358-1	Adhesive Tape (1 roll) ISO 2409	T9999358-2	Adhesive Tape (2 rolls) ISO 2409		
T10713356	Magnifier (x6 magnification)	T99913357	Cross Hatch Brush		

* 6 x 1mm, 6 x 2mm or 6 x 3mm cutter dependent on Part Number.
○ Optional Calibration Certificate available.

Elcometer 1540

Cross Hatch Adhesion Tester

The Elcometer 1540 is a simple instrument for quickly determining the adhesion of a large variety of paints up to 50µm (2mils) thickness.

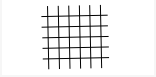
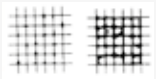
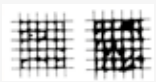
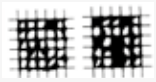
Made from steel, it has 11 tapered teeth with 1mm spacing. Two sets of lines are cut at right angles to obtain a pattern of 100 squares.

Results are determined by the table below.

Technical Specification

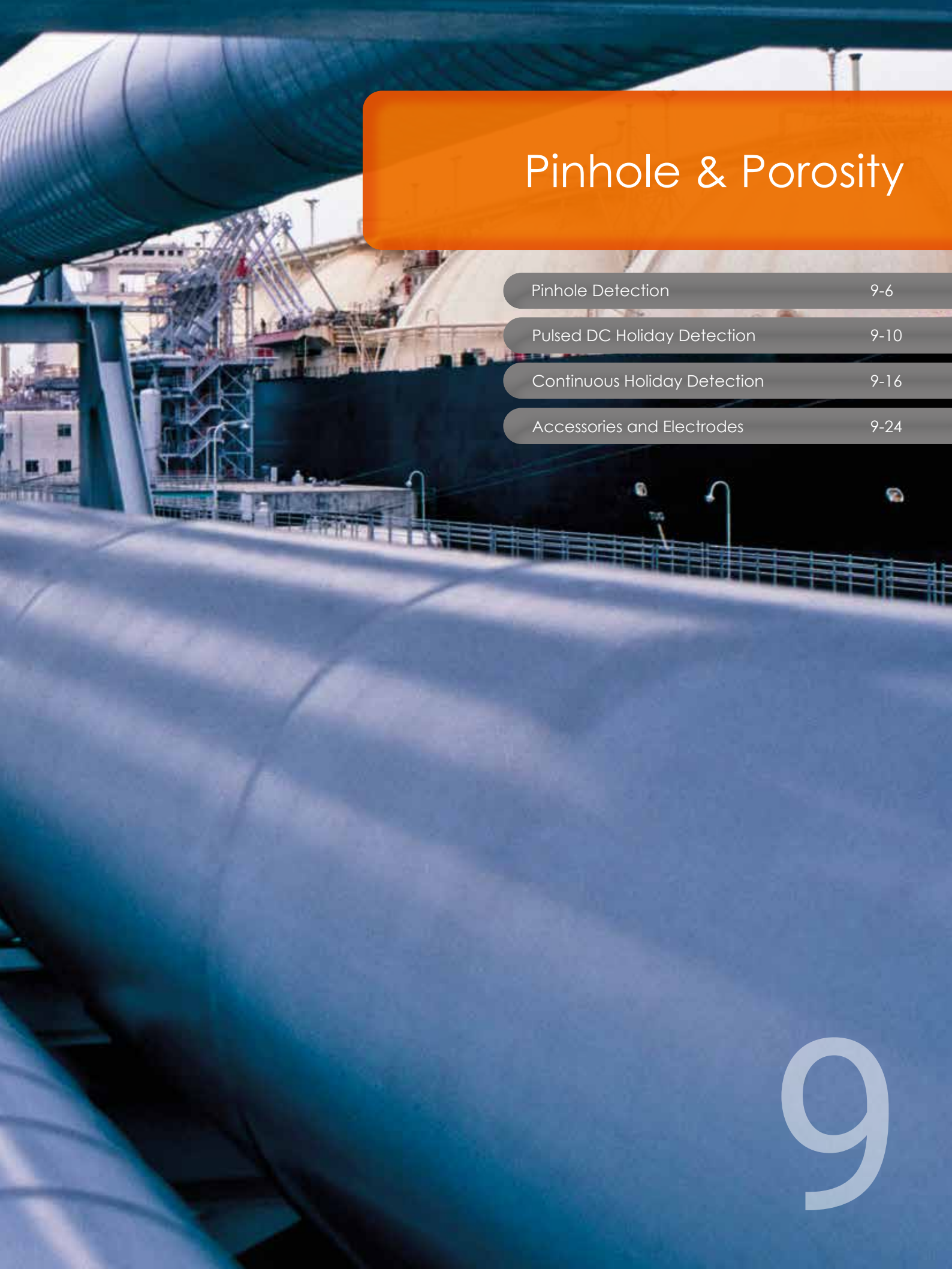
Part Number	Description	Certificate
K0001540M001	Elcometer 1540 Cross Cut Tester (11 x 1mm)	○

Classification of Cross Hatch Test Results

Surface	Typical description of result	ISO	ASTM
	The edges of the cuts are completely smooth, none of the squares of the lattice is detached.	0	5B
	Detachment of small flakes of the coating at the intersections of the cuts. A cross cut area not significantly greater than 5%, is affected.	1	4B
	The coating has flaked along the edges and/or at the intersections of the cuts. A cross cut area significantly greater than 5%, but not significantly greater than 15%, is affected.	2	3B
	The coating has flaked along the edges of the cuts partly or wholly in large ribbons, and/or it has flaked partly or wholly on different parts of the squares. A cross cut area significantly greater than 15%, but not significantly greater than 35%, is affected.	3	2B
	The coating has flaked along the edges of the cuts in large ribbons and/or some squares have detached partly or wholly. A cross cut area significantly greater than 35%, but not significantly greater than 65%, is affected.	4	1B
	Any degree of flaking that cannot be classified even by classification 4 (1B).	5	0B

Images and descriptions based on information published in ISO2409 and ASTM D 3559-B

○ Optional Calibration Certificate available.



Pinhole & Porosity

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Premature corrosion of a substrate is usually due to a coating failure. A major cause is the presence of flaws in the finished coating.

Collectively referred to as porosity, the main types of flaws are:

Runs & Sags: coatings move under gravity leaving a thin dry film.

Cissing: when a coating does not re-flow to cover the voids generated by air bubbles being released from the surface of a coating.

Cratering: if the substrate is wet or the coating has poor flow characteristics, voids are created in the coating.

Pinholes: caused by air entrapment which is then released from the surface, or by the entrapment of particulates (dust, sand, etc.) which do not stay in place.

Over Coating: if too much coating is applied, as it cures internal stresses of the coating can cause it to crack.

Under Coating: uncoated areas, or where the coating flows away from edges or corners of a substrate or welds. Insufficient coating over a rough surface profile may also leave the peaks of the profile exposed.

There are essentially three flaw detection methods in our range:

Wet Sponge Technique/Pinhole Detector: a low voltage is applied to a moist sponge. When the sponge moves over a coating flaw, liquid penetrates to the substrate and completes an electrical circuit, setting off the alarm. The wet sponge technique is suitable for measuring insulating coatings less than 500µm (20mils) on conductive substrates and is ideal for powder coatings and other coatings where the user does not wish to damage the coating.

High Voltage Technique: the high voltage, or porosity technique, can be used to test coatings up to 25mm (1”) thick and is ideal for inspecting pipelines and other protective coatings. Coatings on concrete can also be tested using this method.

A power supply generates a high voltage DC or pulsed DC to a probe. As the probe passes over a flaw, a spark at the contact point sets off the alarm. This technique is suitable for locating the types of flaws described above, although care is required on thin coatings.

UV Pinhole Detection: UV light can be used as a low cost, quick method of detecting pinholes in coatings. A base coat containing a UV fluorescing additive is applied. When the UV flashlight shines on the coating, areas where the base coat is not covered fluoresce, identifying the location of the pinhole.

Choose the correct gauge for your pinhole and porosity test

Pinhole Detection

- When a low voltage is applied to a moist sponge as it moves over a coating flaw, liquid penatrates to the substrate, completing the electrical circuit and sets off an alarm
- Ideal for measuring insulating coatings less than 500µm (20mils) on conductive substrates

Pulsed DC Holiday Detection

- Pulsed DC is a high voltage method where the energy is contained in very short pulses
- The break in energy stops the coating from building up a charge on its surface
- Ideal for testing on damp, dirty or slightly conductive coatings

Continuous Holiday Detection

- Continuous DC is a high voltage method where the current delivered to the coating is constant
- Ideal for testing insulation coatings on conductive substrates up to 7.5mm (300mils) thick

elcometer®

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Elcometer 270 Pinhole Detector

The **Elcometer 270** sets the standard for wet sponge, high quality, low voltage detectors which are supplied with a wide range of accessories to meet your requirements.

- A wide range of wand accessories available
- Visual and audible alarms indicate a pinhole
- User selectable voltages: 9V, 67.5V or 90V
- Easy release, snag proof cables - available in 4m (13'2") & 10m (32'10") lengths
- Automatic internal voltage check ensures that the selected voltage can be achieved
- Each unit can be converted into a separate wand with a base unit using the separate wand adaptor

etv video available elcometer.tv

STANDARDS:

AS 3894.2, ASTM D 5162-A, ASTM G6, ASTM G62-A, BS 7793-2, ISO 8289-A, ISO 14654, JIS K 6766, NACE RP 0188, NACE SP 0188, NACE TM0384

Elcometer 270 Pinhole Detector

Accessories

Standard wand T27016867
A universal flat sponge to suit almost all applications

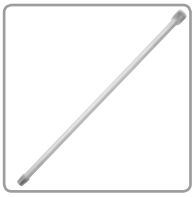
Spare flat sponge set Pack of 3 sponges; T27018050
150 x 60 x 25mm (6 x 2.3 x 1")

Roller sponge wand T27016960
Ideal for large flat surface inspection

Spare roller sponge T27018051

Telescopic wand adaptor T27016998
with belt clip - extends to 1m(39"), ideal for floors or high areas

Separate wand adaptor T27016999
with belt clip - converts the gauge into a separate pinhole detector



Extension piece T27016965
420mm (16.5") extensions to expand operators reach. Additional extension pieces can be connected to each other

Pinhole Inspector's Kit T27018191
The complete pinhole detection kit. Each kit is supplied with:
1 x separate wand handle & lead
1 x roller wand
1 x 10m (32') signal return cable
2 x extension pieces
1 x telescopic extension
1 x belt clip
1 x bottle of wetting agent
3 x AA batteries
1 x spare flat sponge
1 x spare roller sponge
The kit does not include the main instrument; just add the model number to the order

Return cable - 4m (13') T99916954
supplied as standard, complete with crocodile clip and connection plug

Return cable - 10m (32') T99916996
supplied on a drum, complete with clip and connection plug

Wetting agent T27018024
50ml (1.7floz) bottle - helps aid the fast detection of pinholes. Just add to the water used to dampen the sponge

Technical Specification

Model	Elcometer 270/3	Elcometer 270/4	Certificate
Part Number	D270----3	D270----4	
Part Number with Certificate	D270----3C	D270----4C	•
Voltage	9V and 90V	9V, 67.5V and 90V	
Coating Range (Max)	500µm (20mils)	500µm (20mils)	
Sensitivity	9V: 90kΩ ±5% 90V: 400kΩ ±5%	9V: 90kΩ ±5% 67.5V: 125kΩ ±5% 90V: 400kΩ ±5%	
Battery Life (continuous use)	9V: up to 200 hours 90V: up to 80 hours	9V: up to 200 hours 67.5V: up to 100 hours 90V: up to 80 hours	
Battery Type	3 x AA batteries (rechargeable batteries can also be used, but battery life will be reduced by up to 75%)		
Accuracy of Setting	±5%		
Dimensions	Without wand 210 x 42 x 37mm (8.3 x 1.7 x 1.5")		
	Standard wand 175mm (6.9") long (including sponge)		
Weight	610g (21oz) including wand, cable and batteries		
Packing List	Pinhole Detector, standard wand and flat sponge, 4m (13' 2") return lead with crocodile clip, 3 x AA (LR1600) batteries and operating instructions		

• Calibration Certificate supplied as standard.

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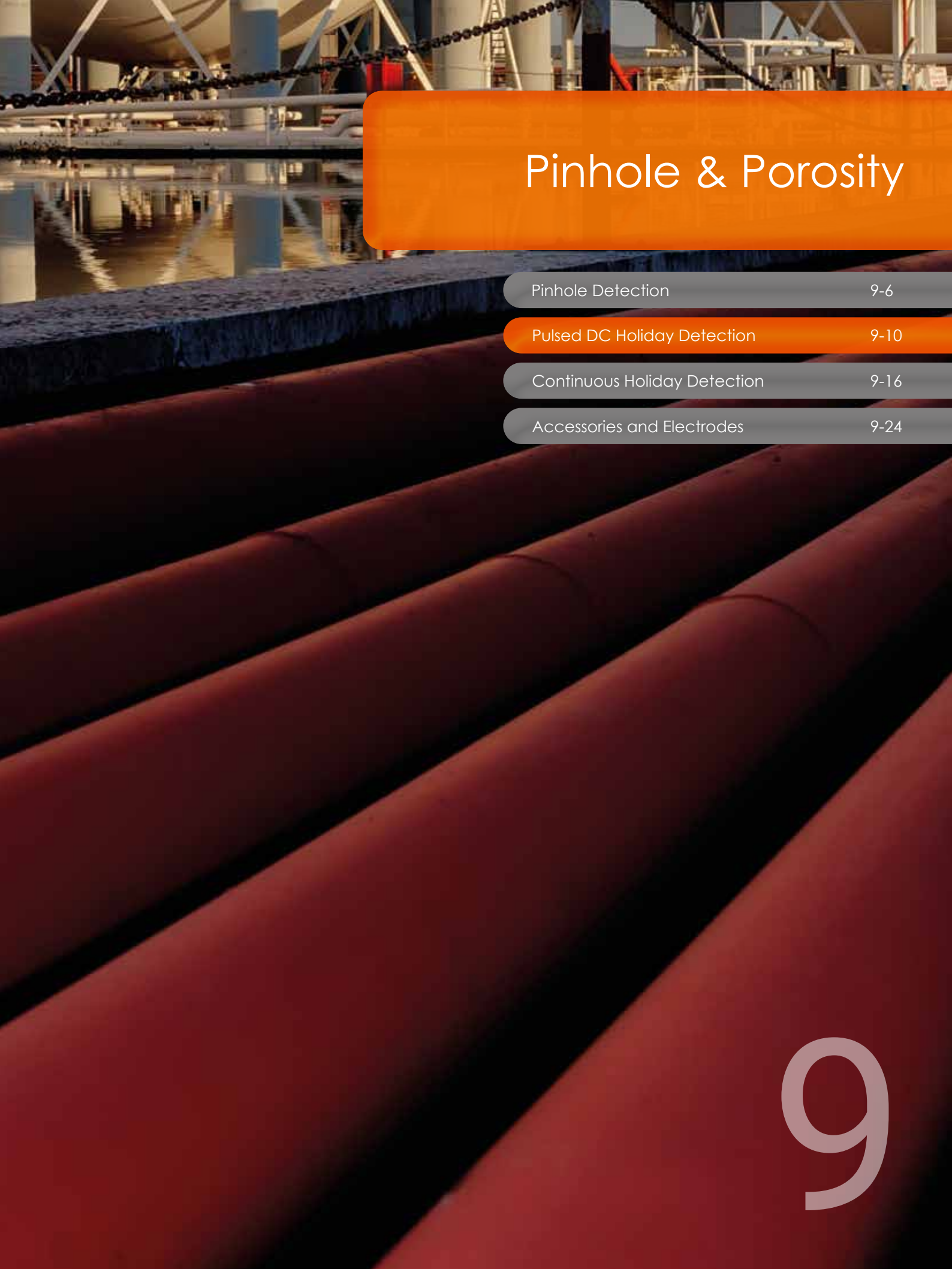

Pinhole & Porosity

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Elcometer 280 Pulsed DC Holiday Detector

The **Elcometer 280** is a 'stick type' holiday detector which has been designed to make pulsed DC high voltage holiday detection safer, easier and more reliable than ever before.

- Flashing display, bright LED and a user adjustable volume alarm indicates detection of a holiday
- 0.5 - 35kV range (user selectable) for detecting porosity in coatings up to 25mm (1") thick
- Safety trigger integrated inside the handle cuts power if released
- Ideal for testing clean, damp, dirty or slightly conductive coatings
- Voltage calculator automatically sets the correct voltage from your coating thickness value
- Internal jeep tester ensures that the selected voltage equals the test voltage

etv video available elcometer.tv

STANDARDS:

AS 3894.1, ANSI/AWWA C203, ANSI/AWWA C214, ASTM D4787, ASTM D5162, ISO 2746, ISO 29601, JIS G 3491, JIS G 3492, NACE RP0274, NACE SP0188, NACE SP0490, NACE TM0186, NACE TM0384

Elcometer 280 Pulsed DC Holiday Detector

Red LED indicates high voltage ON

Earth signal return lead disconnected icon

Porosity Detector overload icon
indicates that the unit cannot obtain selected voltage with current accessory / coating combination

Calculation softkey
select the relevant standard and coating thickness value

Voltage adjustment softkey

Waterproof buzzer

Blue LED flashes as holidays are detected

Holiday detected icon

Battery symbol indicating remaining charge

Voltage selected

Porosity standard in use
used in conjunction with setting the coating thickness within the Voltage Calculator

Menu softkey

Voltage level achieved at probe

Specialised extended ribbing
designed to standard EN61010, ribs provide additional protection to the user during use

Integrated safety trigger switch
switches off the high voltage if released

Quick release battery pack
fully charged in 4 hours, provides 30+ hours of continuous use*

Earth return lead socket
including ¼ turn lock/release to ensure connection during testing

Rubberised second hand grip
provides greater control and balance during testing

Large, waterproof buttons
for easy use - even in gloves

Shoulder harness point
strap can be quickly clipped on as required

Clear, backlit LCD display
shows all relevant information, even in dark environments

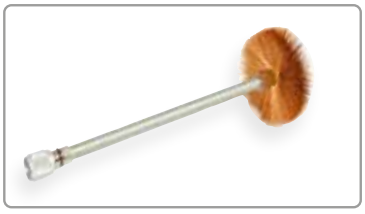
High Voltage ON/OFF
separate button minimises risk of accidental switch on

* the battery life is dependant on selected voltage and load applied - see Technical Specification for more information

Elcometer 280

Pulsed DC Holiday Detector

Right angled wire brush probe



Internal circular wire pipe brush probe

Band brush probes

External 'C-type' wire brush

Right angled rubber probe

Rolling Springs

Powerful

The high voltage pulsed DC technique is used to detect holidays in coatings - even if the coating is damp, dirty or slightly conductive.

Safe

Featuring a two stage safety switch, bright LED's and screen icons which signify when the high voltage is on. It is designed with extended ribbing to protect the user from spark creep.

User Friendly

Balanced, ergonomic design, complete with shoulder strap allows long periods of continuous use.

Versatile

Using the wide range of probe accessories, users can detect porosity/holidays in coatings up to 25mm (1") thick.

Tough

Rugged, shockproof and water resistant, each unit is designed for use even in the harshest of environments.

Elcometer 280 Pulsed DC Holiday Detector

Technical Specification

Description	Model S	Model T	Certificate
Elcometer 280 Pulsed DC Holiday Detector Inspection Kit	D280-S-KIT	D280-T-KIT	○
Elcometer 280 Pulsed DC Holiday Detector	D280-S----	D280-T----	○
Rugged, Shockproof & Water Resistant	■	■	
Integrated Safety Trigger Switch	■	■	
Quick Release Battery Pack	■	■	
Internal Jeep Tester	■	■	
Integrated Voltage Calculator		■	

Pulsed DC High Voltage Range	0.5kV - 35kV
Voltage Adjustment	User adjustable: 0.5 - 1kV: 10 Volt steps, 1 - 35kV: 100V steps
High Voltage Output Accuracy	±5% or ±50V below 1000 Volts
Pulse Repetition Rate	~30Hz
Operating Temperature	0°C to 50°C (32°F to 120°F)
Power Supply	Rechargeable Battery pack; battery fully charged within 4 hours
Typical Battery Life	Battery life is dependent upon selected voltage and load applied; 12” (DN305) Rolling Spring: 30 hours at 10kV; 12 hours at 35kV 40” (DN1016) Rolling Spring: 22 hours at 10kV; 8 hours at 35kV
Instrument Case Dimensions	PC ABS case; (l x w x h): 603 x 219 x 193mm (23.7 x 8.6 x 7.6”)
Weight (no probes attached)	3.0kg (6.6lb) - including battery pack
Packing List	**Elcometer 280 Pulsed DC Holiday Detector** Gauge (Model S or T), 5m (16’) trailing signal return lead, battery pack, battery charger with UK, EUR, US and AUS plugs, shoulder strap and operating instructions **Elcometer 280 Pulsed DC Holiday Detector Inspection Kit** Gauge (Model S or T), 5m (16’) trailing signal return lead, battery pack (2 supplied with Model T), battery charger with UK, EUR, US and AUS plugs, stainless steel rolling spring holder (supplied with Model T only), 250mm (9.8”) probe extension shaft, shoulder strap and operating instructions - packed in a light weight, rugged, wheeled transit case - ideal for transportation

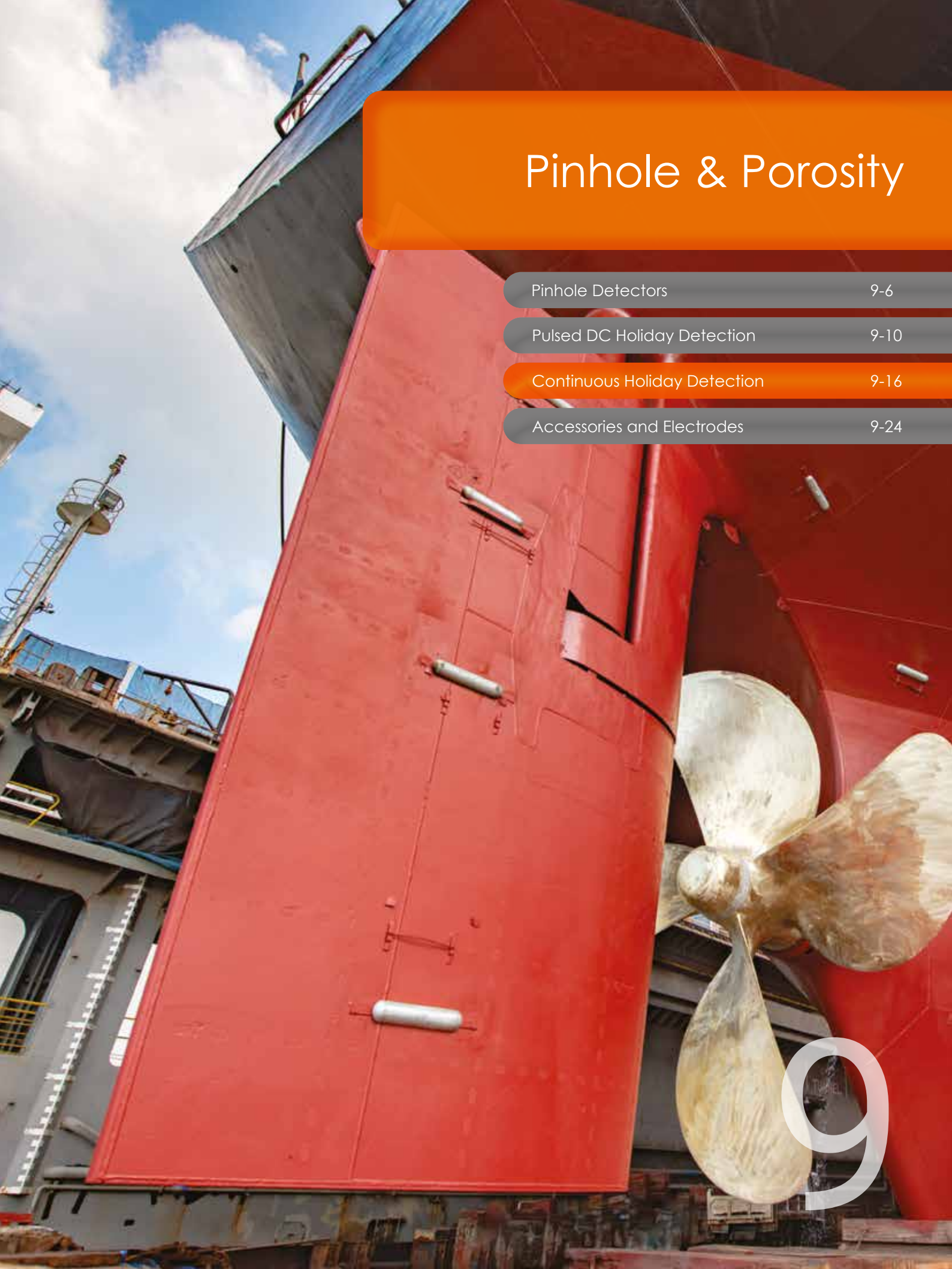
Accessories

Lightweight, rugged, wheeled transit case - ideal for gauge transportation, with additional space to house up to 20m (66’) of phosphor bronze or 6m (30’) of stainless steel rolling spring	T28022769
Grounding mats are ideal for testing on ungrounded pipes. The conductive rubber mat is wrapped around the coated pipe and connected to both the grounding pin (supplied separately) and the signal return lead.	
750mm (29.5”) long - for pipe diameters up to 9” (NPS)/ 229mm (DN)	T28022637-1
1500mm (59”) long - for pipe diameters up to 18” (NPS)/ 457mm (DN)	T28022637-2
2500mm (98.5”) long - for pipe diameters up to 30” (NPS)/ 762mm (DN)	T28022637-3
3500mm (137.5”) long - for pipe diameters up to 42” (NPS)/ 1067mm (DN)	T28022637-4
Grounding pin; 60cm (23.5”) long x 0.2cm (0.75”) diameter	T28022748
Trailing signal return lead, 5m (16’)	T28022622
10m (32’) earth lead, clips each end (for use with the grounding mat)	T28022749
10m (32’) earth lead, clip / Elcometer 280 connector (for use with the grounding mat)	T28022750

For a full range of rolling springs, rubber or wire brush probes and other accessories see page 9-24

○ Optional Calibration Certificate available.

elcometer®



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elcometer®

Pinhole & Porosity

Elcometer 266 Holiday Detector

The **Elcometer 266** revolutionises High Voltage DC testing of coatings porosity detection making it safer, easier and more reliable than ever before.

A wide range of probe brushes and rolling springs available

Visual and audible alarms, Bright LEDs on the handle, as well as a loud buzzer, clearly indicate when a holiday is detected

Adjustable Voltage:
0.5kV - 1kV in 50V steps
1kV - 30kV in 100V steps

To change maximum voltage range, select a different handle; 5kV, 15kV or 30kV DC or 30kV DC continuous

Dual safety switch on handle to avoid accidental switch on (grey/orange probe handles only)

Internal Voltmeter/Jeep tester ensures that the test voltage equals the selected voltage

STANDARDS:

ANSI/AWWA C213, AS 3894.1, ASTM C 536, ASTM C 537, ASTM D 4787, ASTM D 5162-B, ASTM G 62-B, BS1344-11, DIN 55670, EN 14430, ISO 2746, ISO 29601, JIS K 6766, NACE RP0274, NACE RP0188, NACE RP0190, NACE RP0490, NACE SP0188, NACE SP0490

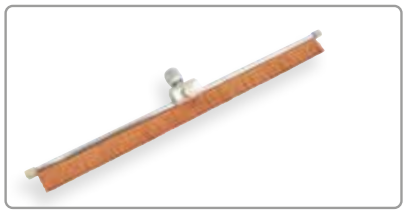
2 YEAR* WARRANTY

etv video available elcometer.tv

* The Elcometer 266 main instrument and the Elcometer 266 probe handles are 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 www.elcometer.com.

Elcometer 266

Holiday Detector



Right angled wire brush probe

Powerful

The Elcometer 266 can be used to test porosity on coatings up to 7.5mm (300mils) thick and is ideal for inspecting coatings on pipelines and other protective coatings.

Internal circular wire pipe brush probe

Safe

Featuring a dual safety switch on the handle to avoid accidental switch on and specialised ribbing provides superior protection.

Band brush probes

User Friendly

The voltage calculator automatically sets the correct voltage from your coating thickness value. No need to use look up tables.

External 'C-type' wire brush

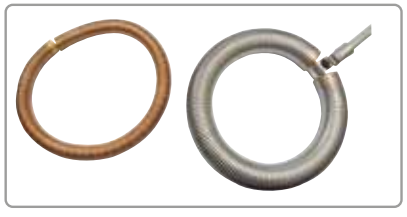
Versatile

To change maximum voltage range, select a different handle; 5kV, 15kV or 30kV DC or 30kV DC continuous.

Right angled rubber probe

Easy to Use

Bright LEDs on the handle, as well as a loud audible alarm, clearly indicates if the gauge is on (Red) and when a spark is detected (Blue).



Rolling Springs

Elcometer 266 Holiday Detector

Interchangeable DC probe handles*

Part Number	Description
T26620033-1	DC5 (0.5 - 5kV)
T26620033-2	DC15 (0.5 - 15kV)
T26620033-3	DC30 (0.5 - 30kV)
T26620033-4	DC30S (0.5 - 30kV)

Integrated voltage calculator

Enter the test standard & the coating thickness then the gauge will automatically programme the correct voltage

Testing has never been safer

Ribbing provides additional user protection - specifically designed to meet EN 61010

Second hand grip is available

Ideal for testing pipes and tank floors with 2 hands - without compromising safety

Part Number	Description
T26620081	Second Hand Grip

Removable, quick charge batteries

Fully charge the battery pack in 4 hours, within the gauge or separately, for up to 40 hours of continuous testing

Part Number	Description
T99923482	Rechargeable lithium ion battery pack

Universal probe adaptors

Enables the Elcometer 266 to work with all major holiday detector's accessories.

Technical Specification

Description	Part Number	Certificate
Elcometer 266*	D266----4	○
High Voltage Output Accuracy	±5% or ±50V below 1000 Volts	
Operating Temperature	0°C to 50°C (32°F to 120°F)	
Power Supply	Rechargeable Battery Pack; battery fully charged within 4 hours	
Measured Current Flow Accuracy	±5% of full scale ; 0 - 100µA maximum Output Current	
Typical Battery Life - Backlight Off (On)	DC5: 40 (20) hours DC15: 20 (15) hours DC30: 10 (8) hours	
Instrument Case Dimensions	Waterproof, ABS case; 520 x 370 x 125mm (20.5 x 14.5 x 5")	
Weight	Base unit (including battery pack): 1.2kg (2.7lb) Handle: 0.6kg (1.3lb)	
Packing List	Elcometer 266 DC Holiday Detector, battery pack, curly connection cable for high voltage handle, 10m (32') signal return lead, battery charger with UK, EUR, US and AUS plugs, band brush, shoulder strap, tough plastic carry case and operating instructions	

Probe Handles*

The Elcometer 266 does not include the probe handle; please select the required handle from the list below.

Part Number	Description	Voltage Range	Certificate
T26620033-1	Elcometer 266 Probe Handle Voltage	DC5 (0.5 - 5kV)	○
T26620033-1C	Elcometer 266 Probe Handle Certified	DC5 (0.5 - 5kV)	
T26620033-2	Elcometer 266 Probe Handle Voltage	DC15 (0.5 - 15kV)	○
T26620033-2C	Elcometer 266 Probe Handle Certified	DC15 (0.5 - 15kV)	
T26620033-3	Elcometer 266 Probe Handle Voltage	DC30 (0.5 - 30kV)	○
T26620033-3C	Elcometer 266 Probe Handle Certified	DC30 (0.5 - 30kV)	
T26620033-4	Elcometer 266 Probe Handle Voltage (Continuous Voltage)	DC30S (0.5 - 30kV)	○
T26620033-4C	Elcometer 266 Probe Handle Certified (Continuous Voltage)	DC30S (0.5 - 30kV)	
T26620081	Second Hand Grip		

* The Elcometer 266 main instrument and the Elcometer 266 probe handles are 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 www.elcometer.com.

○ Optional Calibration Certificate available.

Elcometer 236 Holiday Detector

The **Elcometer 236** Holiday Detector provides high voltage porosity testing to detect pits, flaws, holes, etc., in a wide variety of non-metallic coatings.

- Standard and telescopic handles available for hard to reach areas
- Available in 2 versions; 15 and 30kV; fully adjustable in 100 Volt steps
- Integrated neon bulb in the handle, together with buzzer indicate when a holiday has been located
- A wide range of probe brushes and springs available

etv video available elcometer.tv

STANDARDS:

ANSI/AWWA C213, AS 3894.1, ASTM C 536, ASTM C 537, ASTM D 4787, ASTM D 5162-B, ASTM G 62-B, BS1344-11, DIN 55670, EN 14430, ISO 2746, ISO 29601, JIS K 6766, NACE RP0274, NACE RP0188, NACE RP0190, NACE RP0490, NACE SP0188, NACE SP0490

Elcometer 236

Holiday Detector

The Elcometer 236 provides the user with complete control of voltage and sensitivity settings and is available in 2 versions, 15kV and 30kV.

Each unit is supplied in a convenient carry case which also holds the probe handle and an additional (optional) external rechargeable battery pack which doubles the testing time available.

Due to its unique design, the probe handle can be replaced with a telescopic probe handle - extending the measurement reach up to almost 4m (13'), ideal for testing on large/high structures.

Technical Specification

	Elcometer 236 15kV	Elcometer 236 30kV	Certificate
Part Number	D236--15KV	D236--30KV	○
Part Number with Certificate	D236--15KVC	D236--30KVC	●
Voltage Output	0.5 - 15kV in 100V steps	0.5 - 30kV in 100V steps	
Display Resolution	0.01kV	0.1kV	
Approximate Thickness Range	0 - 3.75mm (0 - 150mils)	0 - 7.5mm (0 - 300mils)	
Alarms	Audible & Visual		
Operating Temperature	0°C to 50°C (32°F to 120°F)		
Power Supply	12V internal rechargeable battery		
Battery Life (approximate)	10/12 hours continuous use, 20/24 hours with the optional external battery pack		
Dimensions	200 x 170 x 70mm (6 x 7 x 3")		
Weight	2.8kg (6lb 3oz)		
Packing List	Elcometer 236, probe handle and lead, band brush probe, 2m (79") & 10m (394") signal return/earth leads, battery charger with 3 mains cables (UK, EUR and US), carry case, transit case and operating instructions		

Accessories

T23622790-1	Telescopic probe handle, 600 - 1200mm (24 - 47")
T23622790-2	Telescopic probe handle, 1800 - 3600mm (71 - 142")
T236139031	2m (6.5') earth signal return lead
T236139032	10m (32') earth signal return lead
T23615550	Additional external battery pack (doubles operational use between charges)

For a full range of rolling springs, rubber or wire brush probes and other accessories see page 9-24

● Calibration Certificate supplied as standard. ○ Optional Calibration Certificate available.

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For all your Protective Coatings Inspection Equipment visit

protective.elcometer.com

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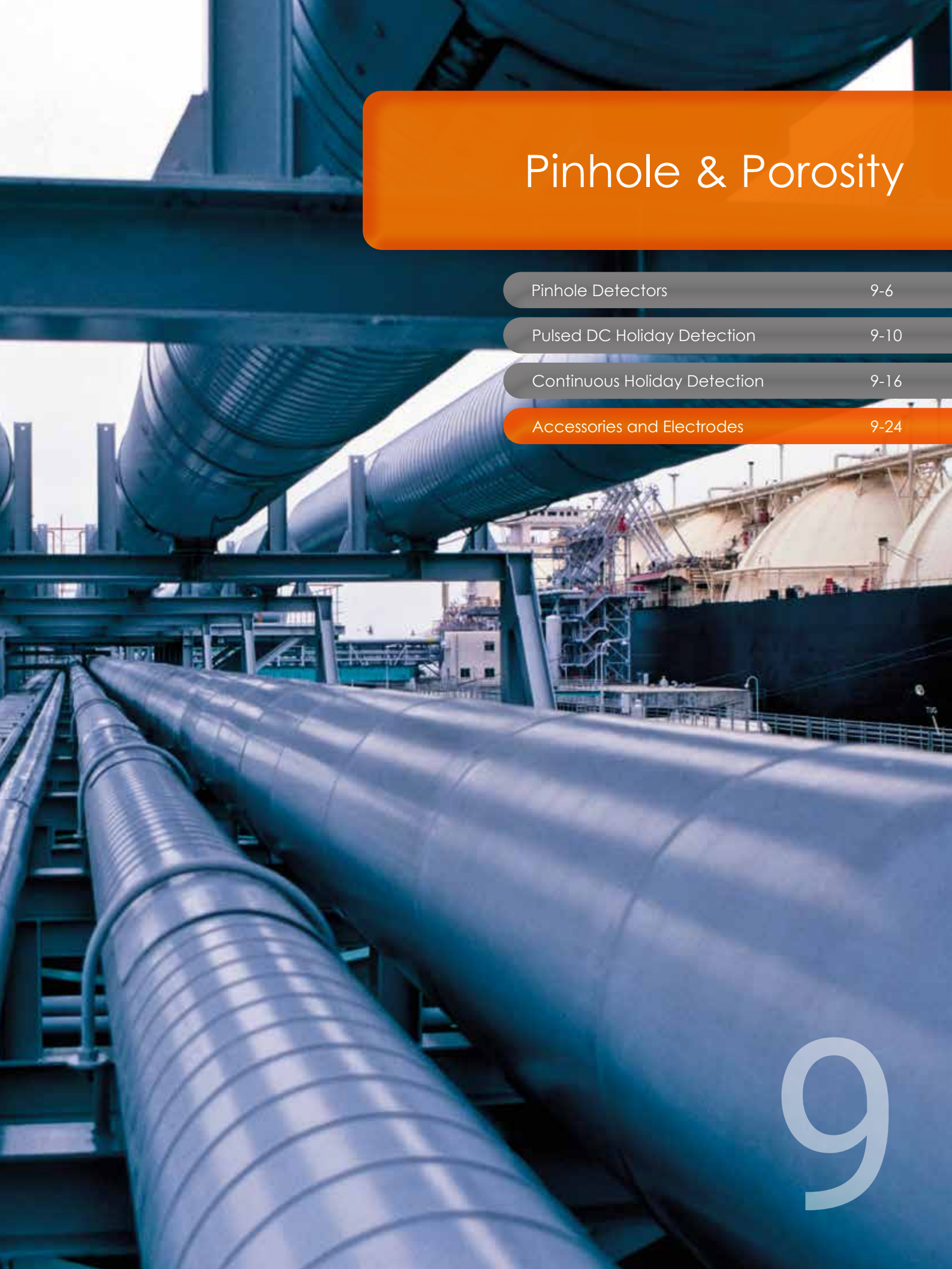

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Elcometer 236, 266 & 280 High Voltage Holiday Detector Accessories

Wire Brush Probes, flat brush, internal and external pipe brush probes

Part Number	Description	Width		Compatible with Elcometer 236	Elcometer 266	Elcometer 280
T99920022-1	Right angled wire brush probe	0.25m	9.8”	□	■	■
T99920022-2	Right angled wire brush probe	0.50m	19.7”	□	■	■
T99920022-3	Right angled wire brush probe	1.00m	39”	□	■	■
T99926621	Spare wire brush electrode	0.25m	9.8”	■	■	■
T99926622	Spare wire brush electrode	0.50m	19.7”	■	■	■
T99926623	Spare wire brush electrode	1.00m	39”	■	■	■
		Diameter				
T99920071-1	Internal circular wire pipe brush probe	38mm	1.5”	□	■	■
T99920071-2	Internal circular wire pipe brush probe	51mm	2.0”	□	■	■
T99920071-3	Internal circular wire pipe brush probe	64mm	2.5”	□	■	■
T99920071-4	Internal circular wire pipe brush probe	76mm	3.0”	□	■	■
T99920071-5	Internal circular wire pipe brush probe	89mm	3.5”	□	■	■
T99920071-6	Internal circular wire pipe brush probe	102mm	4.0”	□	■	■
T99920071-7	Internal circular wire pipe brush probe	114mm	4.5”	□	■	■
T99920071-8	Internal circular wire pipe brush probe	127mm	5.0”	□	■	■
T99920071-9	Internal circular wire pipe brush probe	152mm	6.0”	□	■	■
T99920071-10	Internal circular wire pipe brush probe	203mm	8.0”	□	■	■
T99920071-11	Internal circular wire pipe brush probe	254mm	10”	□	■	■
T99920071-12	Internal circular wire pipe brush probe	305mm	12”	□	■	■
T99920071-13	Internal circular wire pipe brush probe	356mm	14”	□	■	■
T99920071-14	Internal circular wire pipe brush probe	406mm	16”	□	■	■
T99920071-15	Internal circular wire pipe brush probe	508mm	20”	□	■	■
T99920071-16	Internal circular wire pipe brush probe	610mm	24”	□	■	■
T9993766-	Spare circular wire brush electrode	38mm	1.5”	■	■	■
T9993767-	Spare circular wire brush electrode	51mm	2.0”	■	■	■
T9993768-	Spare circular wire brush electrode	64mm	2.5”	■	■	■
T9993769-	Spare circular wire brush electrode	76mm	3.0”	■	■	■
T9993770-	Spare circular wire brush electrode	89mm	3.5”	■	■	■
T9993771-	Spare circular wire brush electrode	102mm	4.0”	■	■	■
T9993772-	Spare circular wire brush electrode	114mm	4.5”	■	■	■
T9993773-	Spare circular wire brush electrode	127mm	5.0”	■	■	■
T9993774-	Spare circular wire brush electrode	152mm	6.0”	■	■	■
T9993775-	Spare circular wire brush electrode	203mm	8.0”	■	■	■
T9993776-	Spare circular wire brush electrode	254mm	10”	■	■	■
T9993777-	Spare circular wire brush electrode	305mm	12”	■	■	■
T9993778-	Spare circular wire brush electrode	356mm	14”	■	■	■
T9993779-	Spare circular wire brush electrode	406mm	16”	■	■	■
T9993780-	Spare circular wire brush electrode	508mm	20”	■	■	■
T9993781-	Spare circular wire brush electrode	610mm	24”	■	■	■

□ Older Elcometer 236 models may require adaptor piece T99922768

Elcometer 236, 266 & 280 High Voltage Holiday Detector Accessories

Wire Brush Probes, band brush, flat brush, internal and external pipe brush probes

Part Number	Description	Outside Diameter (OD) DN	Outside Diameter (OD) NPS	Compatible with Elcometer 236	Compatible with Elcometer 266	Compatible with Elcometer 280
T99922752	'C-type' wire brush holder[1] (order C-type brush from the list below)			□	■	■
T99922907	'C-type' wire brush support handle[2]			□	■	■

T99922745-1	External 'C-type' wire brush	150 - 250mm	6 - 9"	■	■	■
T99922745-2	External 'C-type' wire brush	250 - 350mm	9 - 12"	■	■	■
T99922745-3	External 'C-type' wire brush	350 - 450mm	12 - 16"	■	■	■
T99922745-4	External 'C-type' wire brush	450 - 550mm	16 - 20"	■	■	■
T99922745-5	External 'C-type' wire brush	550 - 650mm	20 - 24"	■	■	■
T99922745-6	External 'C-type' wire brush	650 - 750mm	24 - 28"	■	■	■
T99922745-7	External 'C-type' wire brush	750 - 850mm	28 - 32"	■	■	■
T99922745-8	External 'C-type' wire brush	850 - 950mm	32 - 36"	■	■	■
T99922745-9	External 'C-type' wire brush	950 - 1050mm	36 - 40"	■	■	■
T99922745-10	External 'C-type' wire brush	1050 - 1150mm	40 - 44"	■	■	■

[1] Wire brush supplied separately
[2] Wire brush support handle ideal for two handed use or second person for large diameters

Conductive Rubber Probes

		Width				
T99920022-11	Right angled rubber probe	250mm	9.8"	□	■	■
T99920022-12	Right angled rubber probe	500mm	19.7"	□	■	■
T99920022-13	Right angled rubber probe	1000mm	39"	□	■	■
T99920022-14	Right angled rubber probe	1400mm	55"	□	■	■
T99926731	Spare rubber electrode	250mm	9.8"	■	■	■
T99926732	Spare rubber electrode	500mm	19.7"	■	■	■
T99926733	Spare rubber electrode	1000mm	39"	■	■	■
T99926734	Spare rubber electrode	1400mm	55"	■	■	■

Band brush probes

T99919975	Band brush probe	□	■	■
T99922751	Phosphor bronze brush probe	□	■	■

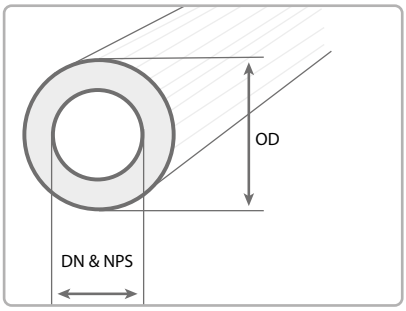
□ Older Elcometer 236 models may require adaptor piece T99922768

Elcometer 236, 266 & 280 High Voltage Holiday Detector Accessories

Rolling Springs Available in phosphor bronze or stainless steel

Each spring is supplied with an easy-release coupling piece, allowing users to quickly connect and disconnect the rolling spring from stanchions, pillars, etc.

Please note that rolling springs are not supplied with a spring holder. Please order the appropriate rolling spring holder separately.



Rolling springs are available in 2 versions, phosphor bronze round spring and 304 stainless steel box section spring. The 19mm (0.75”) diameter phosphor bronze springs are almost 3 times lighter than the 34mm (1.33”) diameter stainless steel springs.

Rolling Spring Dimensions		Nominal Pipe Size		Pipe Outside Diameter (OD)			
Part Number		DN	NPS	millimetres (mm)		inches (”)	
Phosphor Bronze	Stainless Steel	(mm)	(inches)	min OD	max OD	min OD	max OD
T99920438-15A	-	40	1.5	48	54	1.9	2.1
T99920438-15B	-			54	60	2.1	2.4
T99920438-20A	-	50	2.0	60	66	2.4	2.6
T99920438-20B	-			66	73	2.6	2.9
T99920438-25A	T99922744-25A	65	2.5	73	80	2.9	3.1
T99920438-25B	T99922744-25B			80	88	3.1	3.5
T99920438-30A	T99922744-30A	80	3.0	88	95	3.5	3.7
T99920438-30B	T99922744-30B			95	100	3.7	3.9
T99920438-35A	T99922744-35A	90	3.5	100	108	3.9	4.3
T99920438-35B	T99922744-35B			108	114	4.3	4.5
T99920438-40A	T99922744-40A	100	4.0	114	125	4.5	4.9
T99920438-45A	T99922744-45A	114	4.5	125	136	4.9	5.4
T99920438-45B	T99922744-45B			136	141	5.4	5.6
T99920438-50A	T99922744-50A	125	5.0	141	155	5.6	6.1
T99920438-50B	T99922744-50B			155	168	6.1	6.6
T99920438-60A	T99922744-60A	152	6.0	168	180	6.6	7.1
T99920438-60B	T99922744-60B			180	193	7.1	7.6
T99920438-70A	T99922744-70A	178	7.0	193	213	7.6	8.4
T99920438-70B	T99922744-70B			213	219	8.4	8.6
T99920438-80A	T99922744-80A	203	8.0	219	240	8.6	9.4
T99920438-90A	T99922744-90A	229	9.0	240	264	9.4	10.4
T99920438-100A	T99922744-100A	254	10.0	264	290	10.4	11.4
T99920438-110A	T99922744-110A	279	11.0	290	320	11.4	12.6
T99920438-120A	T99922744-120A	305	12.0	320	350	12.6	13.8
T99920438-140A	T99922744-140A	356	14.0	350	375	13.8	14.8
T99920438-140B	T99922744-140B			375	400	14.8	15.7

□ Older Elcometer 236 models may require adaptor piece T99922768

Elcometer 236, 266 & 280 High Voltage Holiday Detector Accessories

Rolling Springs Available in phosphor bronze or stainless steel

Rolling springs are available in 2 versions, phosphor bronze round spring and 304 stainless steel box section spring. The 19mm (0.75”) diameter phosphor bronze springs are almost 3 times lighter than the 34mm (1.33”) diameter stainless steel springs.

Rolling Spring Dimensions

Part Number		Nominal Pipe Size		Pipe Outside Diameter (OD)			
		DN	NPS	millimetres (mm)		inches (”)	
Phosphor Bronze	Stainless Steel	(mm)	(inches)	min OD	max OD	min OD	max OD
T99920438-160A T99920438-160B	T99922744-160A T99922744-160B	406	16.0	400 435	435 450	15.7 17.1	17.1 17.7
T99920438-180A	T99922744-180A	457	18.0	450	500	17.7	19.7
T99920438-200A	T99922744-200A	508	20.0	500	550	19.7	21.7
T99920438-220A	T99922744-220A	559	22.0	550	600	21.7	23.6
T99920438-240A	T99922744-240A	610	24.0	600	650	23.6	25.6
T99920438-260A	T99922744-260A	660	26.0	650	700	25.6	27.6
T99920438-280A	T99922744-280A	711	28.0	700	750	27.6	29.5
T99920438-300A	T99922744-300A	762	30.0	750	810	29.5	31.9
T99920438-320A	T99922744-320A	813	32.0	810	860	31.9	33.9
T99920438-340A	T99922744-340A	864	34.0	860	910	33.9	35.8
T99920438-360A	T99922744-360A	914	36.0	910	960	35.8	37.8
T99920438-380A	T99922744-380A	965	38.0	960	1010	37.8	39.8
T99920438-400A	T99922744-400A	1016	40.0	1010	1060	39.8	41.7
T99920438-420A	T99922744-420A	1067	42.0	1060	1110	41.7	43.7
T99920438-440A	T99922744-440A	1118	44.0	1110	1160	43.7	45.7
T99920438-460A	T99922744-460A	1168	46.0	1160	1210	45.7	47.6
T99920438-480A	T99922744-480A	1219	48.0	1210	1270	47.6	50.0
T99920438-500A	T99922744-500A	1270	50.0	1270	1320	50.0	52.0
T99920438-520A	T99922744-520A	1321	52.0	1320	1370	52.0	53.9
T99920438-540A	T99922744-540A	1372	54.0	1370	1425	53.9	56.1

Other sizes are available upon request. Please contact your nearest distributor for more information.

Rolling Springs Holders

Part Number	Description	Compatible with		
T99920086	Phosphor bronze rolling spring holder	□	■	■
T99922746	Stainless steel rolling spring holder	□	■	■

□ Older Elcometer 236 models may require adaptor piece T99922768

Elcometer 236, 266 & 280 High Voltage Holiday Detector Accessories

Batteries & Chargers

Part Number	Description	Compatible with		
		Elcometer 236	Elcometer 266	Elcometer 280
T23615550	External rechargeable battery pack	■		
T23613907	Battery charger & mains lead (UK 240V)	■		
T23613908	Battery charger & mains lead (EU 220V)	■		
T23613909	Battery charger & mains lead (US 110V)	■		
T99923482	Rechargeable battery pack		■	■
T99919999	Battery Charger with UK, EUR, US and AUS plugs		■	■

Earth Signal Return Leads

T236139031	Earth signal return lead, 2m (6.5')	■		
T236139032	Earth signal return lead, 10m (32')	■		
T99916954	Earth signal return lead, 4m (13')		■	
T99916996	Earth signal return lead, 10m (32')		■	
T28022750	10m (32') earth lead, clip / Elcometer 280 connector			■
T28022622	Trailing signal return lead, 5m (16')			■

Telescopic Probes, Probe Extension Rods

T23622790-1	Telescopic probe handle, 0.6 - 1.20m (24 - 47")	□		
T23622790-2	Telescopic probe handle, 1.8 - 3.60m (71 - 142")	□		
T99919988-3	Probe extension rod, 250mm (9.8")	□	■	■
T99919988-1	Probe extension rod, 500mm (20")	□	■	■
T99919988-2	Probe extension rod, 1000mm (39")	□	■	■

□ Older Elcometer 236 models may require adaptor piece T99922768

Elcometer 236, 266 & 280 High Voltage Holiday Detector Accessories

Grounding Mats

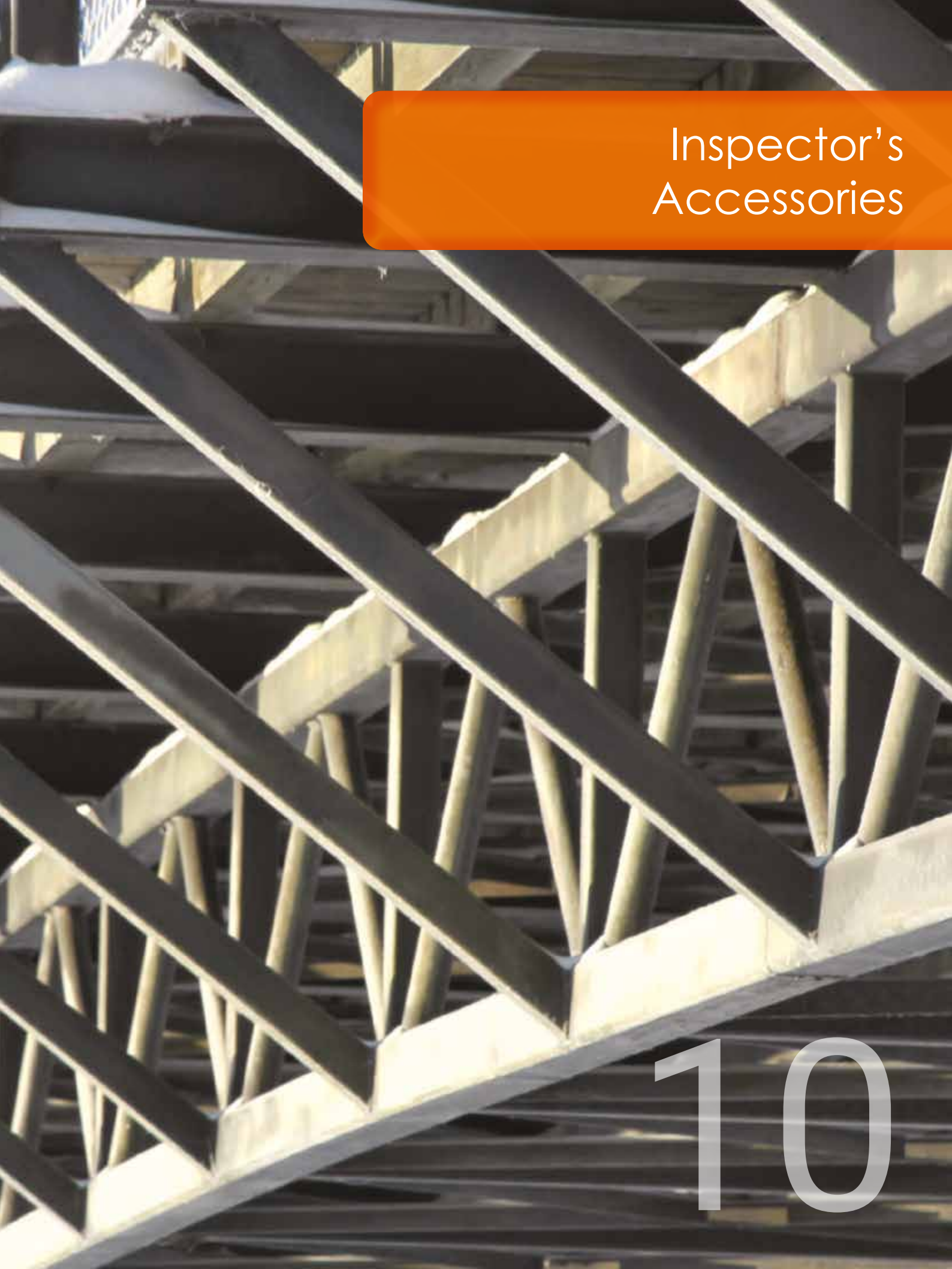
Grounding mats are ideal for testing on ungrounded pipes. The conductive rubber mat is wrapped around the coated pipe and connected to both the grounding pin (supplied separately) and the signal return lead.

Part Number	Description	Outside Diameter (OD)		Compatible with		
		DN	NPS	Elcometer 236	Elcometer 266	Elcometer 280
T28022637-1	Grounding Mat	up to 229mm	up to 9”			■
T28022637-2	Grounding Mat	up to 457mm	up to 18”			■
T28022637-3	Grounding Mat	up to 762mm	up to 30”			■
T28022637-4	Grounding Mat	up to 1067mm	up to 42”			■
T28022748	Grounding pin; 60cm (23.5”) long					■
T28022749	10m (32’) earth lead, clips each end					■
T28022750	10m (32’) earth lead, clip / Elcometer 280 connector					■

Accessory Adaptors Allows other manufacturer’s accessories to fit Elcometer models

T99920084	Adaptor for models: AP, APS, AP/S1, AP/S2, AP/W, 10/20, 14/20,10, 20 & 20S	□	■	■
T99920083	Adaptor for models: P20, P40, P60, 780, 785 & 790	□	■	■
T99920252	Adaptor for models: PHD 1-20 & PHD 2-40	□	■	■
T99922747	Adaptor for models: 4S, 4.0, 8.0, 35	□	■	■
T99920082	Adaptor for current range to fit old accessories	■	■	■
T99922768	Adaptor for Elcometer 136 and older 236 models	■		

□ Older Elcometer 236 models may require adaptor piece T99922768



Inspector's Accessories

10

Elcometer offers a full range of accessories specifically for the coatings inspector, these include:

Inspection Mirrors: it may be necessary to take a detailed look at a specific area where you cannot get to. In this case, an inspection mirror is required.

Magnifiers & Microscopes: for close up investigations, the inspector may require magnification of the surface for a clearer understanding.

Torches/Flashlight: in dark or shaded areas such as in ballast tanks or on large production sites, further investigation may require additional light.

Publications: inspection manuals for general coating defects or those specific to pipeline inspection.

Pictorial Surface Standards for blast cleaning incorporating standards for BS, ISO, SIS, and SSPC.

Elcometer 131

Inspection Mirrors

Ideal for inspecting difficult to access areas - inside pipes, behind corners and other inaccessible or awkward areas.

Combined with the full range of test equipment from Elcometer, these high quality, robust mirrors help to provide a detailed examination of the component or project under inspection.

Technical Specification

Part Number	Description
H131---1A	Elcometer 131/1A Telescopic Inspection Mirror
Dimensions	Extends from 520mm (20.5") to 1500mm (59") Mirror diameter: 63mm (2.5")
Weight	650g (1.43lb)
Packing List	Elcometer 131 Inspection Mirror

Part Number	Description
H131---1B	Elcometer 131/1B Telescopic Inspection Mirror
Dimensions	Extends from 165mm (6.5") to 925mm (36") Mirror diameter: 57mm (2.25")
Weight	100g (0.22lb)
Packing List	Elcometer 131 Inspection Mirror

Part Number	Description
H131---1C	Elcometer 131/1C Telescopic Inspection Mirror
Dimensions	Extends from 165mm (6.5") to 750mm (29.5") Mirror diameter: 82mm (3.25")
Weight	100g (0.22lb)
Packing List	Elcometer 131 Inspection Mirror

Elcometer 137

LED Illuminated (x10) Magnifier

From time to time a closer inspection of a surface is required to ascertain the exact conditions of the material's profile, cleanliness, etc.

The Elcometer 137 LED illuminated magnifier is the ideal product for the job as many environments can be in low light or dark areas - ballast tanks, oil and gas tanks, etc.

- Lightweight, battery powered, portable magnifier
- Ideal for viewing surface comparators
- x10 magnification for close surface inspection
- Scaled lens for easy measurement of surface features

Technical Specification

Part Number	Description
H137----1	Elcometer 137 LED Illuminated Magnifier
Battery Type	2 x LR14 (C)
Dimensions	33 x 215mm (1.3 x 8.5")
Weight	236g (0.52lb)
Packing List	Elcometer 137 LED Illuminated Magnifier and operating instructions

Elcometer 900

Illuminated (x50) Microscope

The Elcometer 900 is a very simple, graduated x50 microscope with internal illumination.

This allows the user to quickly determine the width by counting the number of graduated reticules on the scaled lens and then calculating the value.

Technical Specification

Part Number	Description		
W90018568-D	Elcometer 900 Microscope		
Battery Type	1 x AAA battery		
Dimensions	120 x 43 x 115mm (4.7 x 1.7 x 4.5")	Weight	145g (0.31lb)
Packing List	Elcometer 900 Illuminated Microscope and operating instructions		

Elcometer 132

Safety Torch / Flash Light

The Elcometer 132 Safety Torch / Flash Light is CE marked to the ATEX directive and IECEx. Certified for safe use in Zones 1 and 2 potentially explosive gas, vapour and mist atmosphere, where a T6 or T4 class permits, and Zones 21 and 22 dust atmospheres, with certified maximum surface temperatures of 65°C or 95°C.

Many environments can have low light, dark areas or explosive gas present; ballast tanks, oil and gas tanks, etc. It is imperative for safety reasons to be able to inspect the coating adequately with sufficient light.

Technical Specification

Part Number	Description
H132---1A	Elcometer 132 Safety Torch/Flash Light
Battery Type	2 x LR20 (D)
Dimensions	200 x 60mm (7.8 x 2.4")
Weight	150g (5.3oz) without batteries
Packing List	Elcometer 132 Safety Torch/Flash Light and operating instructions

Elcometer 144

Paint Safe Marker Pens

Paint Safe Marker Pens are used to highlight visual areas of non conformance, providing a clear indication of areas where rework or other processes need to be carried out.

The Marker pen has been specially selected for use as an inspection marker for all types of large steel fabrications which include both coated or uncoated ships and offshore structures.

The black permanent ink marker pen is ideal for marking in the most sensitive areas.

Technical Specification

Part Number	Description
H144----1	Elcometer 144 Paint Safe Marker Pens (pack of 5)

Elcometer 147

Weld Gauge

The Elcometer 147 Weld Gauge measures many aspects of welds in both Metric and Imperial:

- angle of preparation 0 to 60°
- misalignment (high - low)
- fillet weld throat size
- fillet weld length
- 2mm (0.79") edge roundness test
- excess weld metal (capping size)
- depth of undercut
- depth of pitting
- general linear measurements up to 60mm (2")

Technical Specification

Part Number	Description
H147----1	Elcometer 147 Weld Gauge
Angle of Preparation Scale	0 - 60° in 5° divisions
Misalignment Scale	0 - 25mm in 1mm divisions and 0 - 1" in 1/16" divisions
Fillet Leg & Excess Weld Scale	0 - 25mm in 1mm divisions and 0 - 1" in 1/16" divisions
Fillet Throat Scale	0 - 20mm in 1mm divisions and 0 - 3/4" in 1/16" divisions
Undercut Scale	0 - 4mm in 1mm divisions and 0 - 1/4" in 1/16" divisions
Dimensions	100 x 68mm (3.9 x 2.7")
Weight	154g (5.4oz)
Packing List	Elcometer 147 Weld Gauge and instruction card

For Pictorial Surface Standards see page 3-3

Fitz

Elcometer Fitz's Atlas 2 of Coatings Defects

The Elcometer Fitz's Atlas 2 of Coating Defects (EFA) takes the reader through a comprehensive range of problems and discusses each in detail.

EFA provides the User with a greater understanding of the defect, the probable cause and possible solutions. With in excess of 180 colour photographs, the user can quickly gain an insight into the coatings industry and the possible pitfalls.

Sections:

- Welding Faults: welds, cracks, surface porosity, undercut
- Surface Conditions: surface preparation, oil contamination, skip weld
- Coatings Defects: a comprehensive list of possible defects including blistering, bloom, chalking, cracking, erosion, fish eyes, orange peel
- Microscopy: blisters, bubbles, delamination, pinholes, voids, weed fouling
- Marine Fouling: animal fouling, barnacles, molluscs, weed or algae fouling

Technical Specification

Part Number	Description
H99916043	Elcometer Fitz's Atlas 2 of Coating Defects
Dimensions	223 x 220 x 70mm (9 x 8.6 x 3")
Weight	0.45kg (1lb)

elcometer®

Fast and easy to use - ElcoCalc™ instantly converts viscosity cup flow time in seconds into Centistokes (cSt).

Free to download from the Play Store and App Store for Android and Apple devices.

Download on the App Store

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Elcometer 2435 & 2437

Viscosity Dip Cups - Frikmar

STANDARDS:
DIN: DIN 53211 (cup 4 only)
FORD/ASTM: ASTM D 1200, D 5125
ISO: ISO 2431
AFNOR: NF T30-014

Thanks to its handle, this cup is very easy to use to perform checks on site or during the manufacturing process. It is ideal for measuring the consistency of paints, varnishes and other similar products.

Simply dip the cup into the product to be measured, lift it out and measure how long it takes for the contents to empty through the orifice.

The measured kinematic viscosity is generally expressed in seconds (s) flow time, which can be converted to Centistokes (cSt) if the Standard stipulates a conversion method.

Several ranges are available, according to the Standards being used; from 7 to 1,100cSt.

compatible with ElcoCalc™

etv video available elcometer.tv

Technical Specification

FORD/ASTM Viscosity Dip Cups Part Number	Description	Orifice Diameter	Range[1] (cSt)	Certificate
K0002435M001	Elcometer 2435/1 FORD/ASTM Dip Cup 4	4.12mm	70 - 370	◇
K0002435M001C	Elcometer 2435/1 with calibration certificate	4.12mm	70 - 370	● [3]

ISO Viscosity Dip Cups Part Number	Description	Orifice Diameter	Range[1] (cSt)	Certificate
K0002437M002	Elcometer 2437/2 ISO Dip Cup 3	3mm	7 - 42	◇
K0002437M003	Elcometer 2437/3 ISO Dip Cup 4	4mm	34 - 135	◇
K0002437M006	Elcometer 2437/6 ISO Dip Cup 5	5mm	91 - 326	◇
K0002437M004	Elcometer 2437/4 ISO Dip Cup 6	6mm	188 - 684	◇
K0002437M005	Elcometer 2437/5 ISO Dip Cup 8	8mm	-	
K0002437M002C	Elcometer 2437/2 with calibration certificate	3mm	7 - 42	● [3]
K0002437M003C	Elcometer 2437/3 with calibration certificate	4mm	34 - 135	● [3]
K0002437M006C	Elcometer 2437/6 with calibration certificate	5mm	91 - 326	● [3]
K0002437M004C	Elcometer 2437/4 with calibration certificate	6mm	188 - 684	● [3]
K0002437M005C	Elcometer 2437/5 with calibration certificate	8mm	-	● [2]

For a full range of Calibration Oils see page 10-12

[1] For Information Only [2] Dimensional Certificate [3] Efflux Time Certificate
● Calibration Certificate supplied as standard. ◇ Batch Calibration Certificate supplied as standard.

Elcometer 2434 & 2436 Viscosity Dip Cups - Frikmar

Technical Specification

DIN Viscosity Dip Cups Part Number	Description	Orifice Diameter	Range[1] (cSt)	Certificate
K0002434M001	Elcometer 2434/1 DIN Dip Cup 2	2mm	-	◇
K0002434M002	Elcometer 2434/2 DIN Dip Cup 4	4mm	96 - 683	◇
K0002434M003	Elcometer 2434/3 DIN Dip Cup 6	6mm	-	◇
K0002434M004	Elcometer 2434/4 DIN Dip Cup 8	8mm	-	◇
K0002434M001C	Elcometer 2434/1 with calibration certificate	2mm	-	● [2]
K0002434M002C	Elcometer 2434/2 with calibration certificate	4mm	96 - 683	● [3]
K0002434M003C	Elcometer 2434/3 with calibration certificate	6mm	-	● [2]
K0002434M004C	Elcometer 2434/4 with calibration certificate	8mm	-	● [2]

AFNOR Viscosity Dip Cups Part Number	Description	Orifice Diameter	Range[1] (cSt)	Certificate
K0002436M001	Elcometer 2436/1 AFNOR Dip Cup 4	3.99mm	50 - 1,100	
K0002436M001C	Elcometer 2436/1 with calibration certificate	3.99mm	50 - 1,100	● [2]

Elcometer 2210

Zahn Viscosity Dip Cups

The Elcometer 2210 Zahn Dip Cup is a small curved cup suspended from a looped wire. This method is ideal for measuring the consistency of paints, varnishes and similar products.

Simply dip the cup into the product to be measured, lift it out and measure how long it takes for the contents to empty through the orifice.

There are five cups with five different orifice sizes available, ranging from 5 to 1,840cSt.

STANDARDS:
ASTM D 1084-D, ASTM D 4212

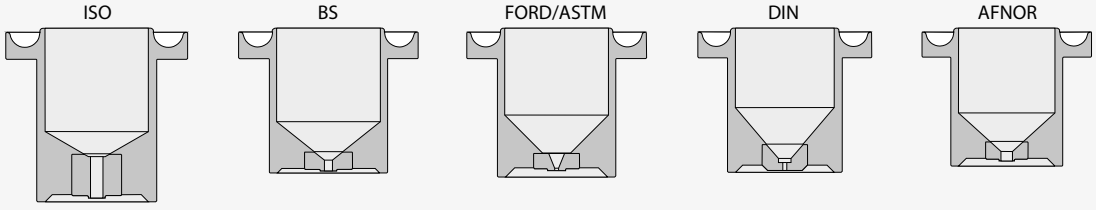
compatible with ElcoCalc™

etv video available elcometer.tv

Technical Specification

Part Number	Description	Orifice Diameter	Range[1] (cSt)	Certificate
K0002210M001	Elcometer 2210/1 Zahn Dip Cup 1	1.8mm	5 - 56	◇
K0002210M002	Elcometer 2210/2 Zahn Dip Cup 2	2.7mm	21 - 231	◇
K0002210M003	Elcometer 2210/3 Zahn Dip Cup 3	3.8mm	146 - 848	◇
K0002210M004	Elcometer 2210/4 Zahn Dip Cup 4	4.3mm	222 - 1,110	◇
K0002210M005	Elcometer 2210/5 Zahn Dip Cup 5	5.3mm	460 - 1,840	◇
K0002210M001C	Elcometer 2210/1 with calibration certificate	1.8mm	5 - 56	● [2]
K0002210M002C	Elcometer 2210/2 with calibration certificate	2.7mm	21 - 231	● [2]
K0002210M003C	Elcometer 2210/3 with calibration certificate	3.8mm	146 - 848	● [2]
K0002210M004C	Elcometer 2210/4 with calibration certificate	4.3mm	222 - 1,110	● [2]
K0002210M005C	Elcometer 2210/5 with calibration certificate	5.3mm	460 - 1,840	● [2]

Viscosity Flow Cups - Cup Designs



For a full range of Calibration Oils see page 10-12

[1] For Information Only
[2] Efflux Time Certificate
● Calibration Certificate supplied as standard.
◇ Batch Calibration Certificate supplied as standard.

Elcometer 2410

Elcometer Viscosity Dip Cup Standard Calibration Oils

In order to check the viscosity cup's calibration or to certify it for ISO purposes, it is imperative that viscosity cup standard calibration oils are used.

Standard oils have a specific drain time, dependent upon the viscosity cup type (Ford, Shell, Zahn, etc.) and the orifice or cup number used.

To check the viscosity cup, use the standard viscosity oils in place of the liquid and measure the drain time.

Specific calibration oils can only be used with specific flow and dip cups. Please use the table below to determine which calibration oil is required with each cup, or contact Elcometer. Viscosity oils are supplied in ½ litre (1 pint) bottles.

Technical Specification

	Dip Cups						
Part Number	Zahn	DIN Frikmar	ASTM/FORD Frikmar	ISO Frikmar	Shell	Kinematic Viscosity at 25°C (77°F)*	Certificate
K0002410M021	1			3	2	34cSt	●
K0002410M022	2	4		4	4	120cSt	●
K0002410M023	3	4	4	6	5	230cSt	●
K0002410M024	4	4		6	6	420cSt	●
K0002410M025	5					710cSt	●
K0002410M026	6					1,200cSt	●

* Nominal Value

● Calibration certificate supplied as standard.

Elcometer Viscosity Flow Cups Accessories

Accessories

K0007300M201	Elcometer 7300 High Precision Stopwatch

KT002400N003	Elcometer 2400 Conversion Disc Allowing viscosity (cSt) and flow times of different cups to be calculated. Front: No.4 cups according to AFNOR, BS, NF, ASTM, DIN, Zahn 2 Back: No.3-4-5-6 cups according to ISO and Zahn 3

Thermometers

To accurately measure flow for viscosity the temperature needs to be 23°C ±2°C (73.4°F ±3.6°F). Here are a range of thermometers from Elcometer. For more information see page 5-10.

T1164441-	Spirit Thermometer in °C
T1164442-	Spirit Thermometer in °F
G212----1A	Elcometer 212 Digital Pocket Thermometer (°C/°F) with Liquid Probe
	For more information see page 5-11
G213----2	Elcometer 213/2 Digital Thermometer (°C/°F)
T9996390-	Elcometer 213/2 Liquid Probe
	For more information see page 5-12

Elcometer Viscosity Cup Conversion

The table below lists the major flow cup types together with a conversion chart of Efflux Time (in seconds) to Viscosity in Centistokes (cSt). It has been constructed from the various International Standard calculators.

Each cup design is unique, care must be taken when comparing viscosity values between different cup types. These values are the absolute values and do not include the allowed tolerances, as these differ considerably between each of the Standards.

Time (seconds)	DIN	BS				ISO				FORD / ASTM				ZAHN					SHELL					
	4	3	4	5	6	3	4	5	6	1	2	3	4	1	2	3	4	5	1	2	3	4	5	6
15	38			35	66			35	66			19	40		4	88	148	322			20	48	91	235
16	45			39	75			39	75			22	44		7	99	163	345			21	52	98	251
17	51			43	84			43	84			24	48		11	111	178	368			23	55	104	267
18	57			47	93			47	93			26	52		14	123	192	391	1.1	7.5	24	59	111	284
19	63			51	101			51	101		1	29	56		18	135	207	414	1.4	8.1	26	62	117	300
20	69			55	110			55	110		3	31	60		21	146	222	437	1.6	8.6	27	66	124	316
21	74			58	118			58	118		4	33	64		25	158	237	460	1.8	9.2	29	69	130	332
22	80			62	126			62	126		6	36	67		28	170	252	483	2.0	9.8	30	72	137	348
23	85	1		66	134	1		66	134		7	38	71		32	181	266	506	2.3	10.4	32	76	143	365
24	91	2		70	142	2		70	142		9	40	75		35	193	281	529	2.5	10.9	33	79	150	381
25	96	3		73	150	3		73	150		10	43	79		39	205	296	552	2.7	11.5	35	83	156	397
26	101	4		77	157	4		77	157		12	45	83		42	216	311	575	2.9	12.1	36	86	163	413
27	107	4.5		80	165	4.5		80	165		13	47	87		46	228	326	598	3.2	12.7	38	90	169	429
28	112	5		84	173	5		84	173		14	49	91		49	240	340	621	3.4	13.2	39	93	176	446
29	117	6		88	180	6		88	180		16	52	94		53	252	355	644	3.6	13.8	41	97	182	462
30	122	6.6	34.5	91	188	6.6	34.5	91	188		17	54	98	1	56	263	370	667	3.8	14.4	42	100	189	478
31	127	7.3	36.0	95	196	7.3	36.0	95	196		19	56	102	2	60	275	385	690	4.1	15.0	44	104	195	494
32	132	7.9	37.5	98	203	7.9	37.5	98	203		20	59	106	3	63	287	400	713	4.3	15.6	45	107	202	510
33	137	8.6	38.0	102	210	8.6	38.0	102	210		22	61	110	4	67	298	414	736	4.5	16.1	47	110	208	527
34	142	9.2	41.0	105	218	9.2	41.0	105	218		23	63	114	6	70	310	429	759	4.7	16.7	48	114	215	543
35	147	9.8	42.0	109	225	9.8	42.0	109	225		24	66	117	7	74	322	444	782	5.0	17.3	50	117	221	559
36	152	10.4	44.0	112	233	10.4	44.0	112	233		26	68	121	8	77	333	459	805	5.2	17.9	51	121	228	575
37	157	11.0	45.2	115	240	11.0	45.2	115	240		27	70	125	9	81	345	474	828	5.4	18.4	53	124	234	591
38	162	11.6	47.0	119	247	11.6	47.0	119	247	1	29	73	129	10	84	357	488	851	5.6	19.0	54	128	241	608
39	167	12.1	48.0	122	254	12.1	48.0	122	254	2	30	75	133	11	88	369	503	874	5.9	19.6	56	131	247	624
40	172	12.7	50.0	126	262	12.7	50.0	126	262	2	32	77	137	12	91	380	518	897	6.1	20.2	57	135	254	640
41	176	13.3	51.2	129	269	13.3	51.2	129	269	3	33	80	141	13	95	392	533	920	6.3	20.7	59	138	260	656
42	181	13.8	53.0	133	276	13.8	53.0	133	276	4	35	82	144	14	98	404	548	943	6.6	21.3	60	141	267	672
43	186	14.4	54.0	136	283	14.4	54.0	136	283	4	36	84	148	15	102	415	562	966	6.8	21.9	62	145	273	689
44	191	14.9	56.0	139	291	14.9	56.0	139	291	5	37	86	152	17	105	427	577	989	7.0	22.5	63	148	280	705
45	196	15.5	57.0	143	298	15.5	57.0	143	298	5	39	89	156	18	109	439	592	1012	7.2	23.0	65	152	286	721
46	200	16.0	59.0	146	305	16.0	59.0	146	305	6	40	91	160	19	112	450	607	1035	7.5	23.6	66	155	293	737
47	205	16.6	60.0	149	312	16.6	60.0	149	312	6	42	93	164	20	116	462	622	1058	7.7	24.2	68	159	299	753
48	210	17.1	62.0	153	319	17.1	62.0	153	319	7	43	96	168	21	119	474	636	1081	7.9	24.8	69	162	306	770
49	215	17.6	63.5	156	326	17.6	63.5	156	326	7	45	98	171	22	123	486	651	1104	8.1	25.3	71	166	312	786
50	219	18.2	64.5	160	334	18.2	64.5	160	334	8	46	100	175	23	126	497	666	1127	8.4	25.9	72	169	319	802
51	224	18.7	66.0	163	341	18.7	66.0	163	341	8	48	103	179	24	130	509	681	1150	8.6	26.5	74	173	325	818
52	229	19.2	67.5	166	348	19.2	67.5	166	348	8	49	105	183	25	133	521	696	1173	8.8	27.1	76	176	332	834
53	234	19.7	69.0	170	355	19.7	69.0	170	355	9	50	107	187	26	137	532	710	1196	9.0	27.6	77	179	338	851
54	238	20.2	70.0	173	362	20.2	70.0	173	362	9	52	110	191	28	140	544	725	1219	9.3	28.2	79	183	345	867
55	243	20.7	71.5	176	369	20.7	71.5	176	369	10	53	112	194	29	144	556	740	1242	9.5	28.8	80	186	351	883
56	248	21.2	73.0	180	376	21.2	73.0	180	376	10	55	114	198	30	147	567	755	1265	9.7	29.4	82	190	358	899
57	253	21.7	75.0	183	383	21.7	75.0	183	383	11	56	116	202	31	151	579	770	1288	9.9	30.0	83	193	364	915
58	257	22.2	76.0	186	390	22.2	76.0	186	390	11	58	119	206	32	154	591	784	1311	10.2	30.5	85	197	371	932
59	262	22.7	77.0	190	397	22.7	77.0	190	397	12	59	121	210	33	158	603	799	1334	10.4	31.1	86	200	377	948
60	267	23.2	79.0	193	405	23.2	79.0	193	405	12	60	123	214	34	161	614	814	1357	10.6	31.7	88	204	384	964
65	290	26	86.0	210	440	26	86.0	210	440	15	68	135	233	40	179	673	888	1472	11.8	34.6	95	221	416	1045
70	313	28	93.0	226	475	28	93.0	226	475	17	75	147	252	45	196	731	962	1587	12.9	37.4	103	238	449	1126
75	337	31	100	243	510	31	100	243	510	20	82	158	271	51	214	790	1036	1702	14.0	40.3	110	255	481	1207
80	360	33	108	260	545	33	108	260	545	22	89	170	291	56	231	848	1110	1817	15.1	43.2	118	273	514	1288
85	383	35	115	276	580	35	115	276	580	25	96	181	310	61.6	249	907	1184	1932	16.3	46.1	125	290	546	1369
90	406	38	122	293	615	38	122	293	615	27	104	193	329	67	266	965	1258	2047	17.4	49.0	133	307	579	1450
100	452	42	135	326	684	42	135	326	684	32	118	216	368	78	301	1082	1406	2277	19.7	54.7	148	342	644	1612
110	499	47		359	754	47		359	754	37	132	239	406	89	336	1199	1554	2507	21.9	60.5	163	376	709	1774
120	545	51		392	823	51		392	823	42	147	262	445	100	371	1316	1702	2737	24.2	66.2	178	411	774	1936
130	591	56		425	893	56		425	893	47	161	285	483	111	406	1433	1850	2967	26.4	72.0	193	445	839	2098
140	637	61		458	962	61		458	962	51	176	308	522	122	441	1550	1998	3197	28.7	77.8	208	480	904	2260
150	682	65		491	1031	65		491	1031	56	190	331	560	133	476	1667	2146	3427	31.0	83.5	223	514	969	2422

All measurements are in Centistokes (cSt). Centipoise (cP) = cSt x product density

Elcometer

Black Polo Shirt

Technical Specification

Part Number	Size	Chest	Height
MT29173-S	Small	84-92cm (33-36")	164-170cm (5'5"-5'7")
MT29173-M	Medium	92-100cm (36-38")	170-176cm (5'7"-5'9")
MT29173-L	Large	100-108cm (38-42")	176-182cm (5'9"-6'0")
MT29173-XL	X-Large	108-116cm (42-45")	182-188cm (6'0-"6'2")
MT29173-2XL	XX-Large	116-124cm (45-49")	188-194cm (6'2"-6'6")
MT29173-3XL	XXX-Large	124-132cm (49-52")	194-200cm (6'6"-6'8")

Elcometer

Black Soft Shell Jacket

Technical Specification

Part Number	Size	Chest	Height
MT29166-S	Small	84-92cm (33-36")	164-170cm (5'5"-5'7")
MT29166-M	Medium	92-100cm (36-38")	170-176cm (5'7"-5'9")
MT29166-L	Large	100-108cm (38-42")	176-182cm (5'9"-6'0")
MT29166-XL	X-Large	108-116cm (42-45")	182-188cm (6'0"-6'2")
MT29166-2XL	XX-Large	116-124cm (45-49")	188-194cm (6'2"-6'6")
MT29166-3XL	XXX-Large	124-132cm (49-52")	194-200cm (6'6"-6'8")

Elcometer

Black Baseball Cap

Technical Specification

Part Number	Description
MT29158	Baseball Cap - One Size

enometer®

Inspection Kits

11

Elcometer offers one of the widest range of inspection equipment available. Our products are used across numerous industry sectors. In all cases, there is always a need to undertake a number of specific inspections during quality control assessments - as one parameter can affect another.

One inspection parameter can affect another, for example the thickness of an applied coating can affect properties such as adhesion, gloss, colour and porosity.

Elcometer has put together a number of inspection kits which are both product and industry specific - combining specialist gauges from our range into one robust carry case, ideal for transporting to and from the inspection site.

Elcometer inspection kits are available for the following:

- Digital Inspection
- Blasting Inspection
- Protective Coating Inspection
- Automotive Inspection
- Qualicoat & Powder Inspection
- Surface Contamination
- Soluble Salt & Ion Specific Inspection
- Pinhole & Holiday Detection
- Heating, Ventilation & AC Duct Inspection

These kits can be customised to meet your particular requirements, please contact your distributor for further information.

Elcometer

Digital Inspection Kits

These digital inspection kits have been specifically designed to undertake the three principal inspection requirements in the Protective and Industrial Coatings Industry – climate, surface profile and dry film thickness. Ideal for 'paperless' quality assurance systems, the Top Kit comes complete with the ElcoMaster® Data Management Software for professional reporting and analysis.

Two inspection kits are available (Basic & Top) to meet your specific needs.

Measurement parameters include:
- Surface profile
- Climatic conditions
- Coating thickness

Bluetooth® wireless technology

compatible with ElcoMaster®

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 4417-B, 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, BS 7079-B4, 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, ISO 8502-4, JIS K 5600-1-7, NF T30-124, SANS 5772, SS 184159, SSPC PA 2, US Navy PPI 63101-000, US Navy NSI 009-32

Contents

Model	Description	Basic Kit	Top Kit	Page
Elcometer 224	Integral Digital Surface Profile Gauge	Model B	Model T	3-9
Elcometer 319	Digital Dewpoint Meter	Standard	Top	5-3
Elcometer 319	External Magnetic Surface Probe		■	5-6
Elcometer 456	Ferrous/FNF Separate Coating Thickness Gauge	Model B	Model T	7-6
Elcometer 456	Ferrous/FNF Standard Separate Probe: Scale 1	■	■	7-18
Elcometer 456	Ferrous/FNF PINIP Probe: Scale 1	□	□	7-18
ElcoMaster®	Data Management Software and USB Cable		■	12-2

Technical Specification

Part Number	Description
YKIT-DIGITAL-B	Elcometer Basic Digital Inspection Kit (F)
YKIT-DIGITAL-T	Elcometer Top Digital Inspection Kit (F)
YKIT-DIGITALFNF-B	Elcometer Basic Digital Inspection Kit (FNF)
YKIT-DIGITALFNF-T	Elcometer Top Digital Inspection Kit (FNF)

□ Space in kit to fit, but not supplied. Order separately if required.

Elcometer

Blasting Inspection Kits

The Elcometer Blasting Inspection Kit is a surface preparation inspection kit providing a range of inspection equipment to test surface profile and surface contamination of blasted profiles.

An Elcometer 456 Gauge and probe can also be supplied. (Order separately if required.)

Measurement parameters include:

- Surface assessment
- Blast equipment inspection
- Surface profile
- Surface contamination

STANDARDS:

AS 3894.5, AS 3894.6-A, AS 3894.6-C, AS 3894.6-D, ASTM D 2200, ASTM D 4417-A, ASTM D 4417-B, ASTM D 4417-C, BS 7079-C5, IMO MSC.215(82), IMO MSC.244(83), ISO 8501-1, ISO 8502-3, ISO 8502-5, ISO 8502-6, ISO 8502-9, ISO 8503-1, ISO 8503-2, ISO 8503-5, NACE RP0287, SANS 5772, SS 55900, SSPC Guide 15, SSPC VIS 1, SSPC VIS 2, SSPC VIS 3, SSPC VIS 4, SSPC VIS 5, US Navy NSI 009-32, US Navy PPI 63101-000

Contents

Model	Description	Kit 1	Kit 2	Page
Elcometer 128	Pictorial Standards[1]	■	■	3-3
Elcometer 102	Needle Pressure Gauge	■	■	1-9
Elcometer 103	Blast Nozzle Gauge	■	■	1-9
Elcometer 125	Surface Comparator, Grit	■		3-14
Elcometer 125	Surface Comparator, Shot	■		3-14
Elcometer 122	Testex Tape, Coarse	■		3-13
Elcometer 122	Testex Tape, Extra Coarse	■		3-13
Elcometer 124	Thickness Gauge	■		3-14
Elcometer 224	Surface Profile Separate Gauge, Model T		■	3-6
Elcometer 224	Standard Separate Probe		■	3-8
Elcometer 142	Dust Tape Test Kit		■	4-22
Elcometer 134	Chlor*Test Surface Testing Kit	■	■	4-19
Elcometer 134	Chlor*Test Abrasive Testing Kit	■	■	1-3
Elcometer 134	Chlor*Test Water Testing Kit	■	■	1-3
Elcometer 138	Bresle Salt Kit[2]		■	4-14
Elcometer 138/2	Surface Contamination Kit		■	1-5
ElcoMaster®	Data Management Software & USB Cable		■	12-2

[1]Swedish Rust Standard ISO 8501, SIS055900 supplied in Metric Kit US Standard SSPC VIS 1-01 and VIS-3 supplied in Imperial Kit

[2] Supplied with Elcometer 135C Bresle Test Patches (x50)

Technical Specification

Part Number Metric	Imperial	Description
YKIT-BLAST-1M	YKIT-BLAST-1E	Elcometer Blasting Inspection Kit 1
YKIT-BLAST-2M	YKIT-BLAST-2E	Elcometer Blasting Inspection Kit 2
Dimensions	Kit 1	495 x 420 x 175mm (19.49 x 16.54 x 6.89”)
	Kit 2	575 x 475 x 205mm (22.64 x 18.70 x 8.07”)

Elcometer

Protective Coating Inspection Kits 1, 2 & 3

The Elcometer Protective Coatings Inspection Kits 1, 2 & 3 provide the tools required for the on-site inspection of a coating, including surface profile, dewpoint, relative humidity, both wet and dry film thickness and adhesive testing.

Available as metric or imperial kits and housed in a sturdy, lightweight carry case, the Elcometer Protective Coatings Inspection Kits are invaluable to the operator in the field to ensure the coating is, or has been, applied correctly.

Protective Inspection Kit 1
An entry level inspection kit containing profile, climate, wet and dry film thickness gauges.

Protective Inspection Kit 2
Like the Protective Inspection Kit 1 but with the addition of the Elcometer 224 digital surface profile gauge with data collection functionality and the Elcometer 319 digital dewpoint meter. Reports via ElcoMaster® Software can include data from both profile and climate inspections as well as dry film thickness.

Protective Inspection Kit 3
A comprehensive digital inspection kit providing gauges with data collection functionality for profile, climatic conditions and dry film thickness.

It comes complete with ElcoMaster® Software with Bluetooth® communication to PC and Android™ Mobile Apps for instant data analysis and reporting for paperless quality assurance.

Measurement parameters include:
- Surface profile
- Surface temperature
- Climatic conditions
- Coating thickness
- Adhesion

Bluetooth® wireless technology

compatible with ElcoMaster®

STANDARDS:

AS 1580.408.4, AS 2331.1.4, AS 3894.3-B, AS 3894.9, AS/NZS 1580.107.3, AS/NZS 1580.108.1, ASTM B 499, ASTM D 1186-B, ASTM D 1400, ASTM D 3359-B, ASTM D 4414-A, ASTM D 4417-B, ASTM D 4417-C, ASTM D 7091, ASTM E 376, ASTM G 12, BS 3900-C5-6B, BS 3900-C5-6A, BS 3900-C5-7B, BS 3900-E6, BS 7079-C5, BS 5411-11, BS 5411-3, BS 5599, BS 7079-B4, DIN 50981, DIN 50984, ECCA T1, ECCA T6, EN 13523-1, EN 13523-6, IMO MSC.215(82), IMO MSC.244(83), ISO 1461, ISO 16276-2, ISO 19840, ISO 2063, ISO 2360, ISO 2409, ISO 2808-1A, ISO 2808-6A, ISO 2808-6B, ISO 2808-7B, ISO 2808-7C, ISO 2808-7D, ISO 2808-12, ISO 8502-4, ISO 8503-5, JIS K 5600-1-7, JIS K 5600-5-6, NACE RP0287, NF T30-038, NF T30-124, NF T30-125, SANS 5772, SS 184159, SSPC PA 2, US Navy NSI 009-32, US Navy PPI 63101-000

Elcometer Protective Coating Inspection Kits 1, 2 & 3

Contents

Model	Description	Kit 1	Kit 2 Standard	Kit 2 Top	Kit 3 Standard	Kit 3 Top	Page
Elcometer 122	Testex Tape, Coarse & Extra Coarse	■	■	■			3-13
Elcometer 124	Thickness Gauge	■	■	■			3-14
Elcometer 224	Digital Surface Profile Gauge		Model B Integral	Model T Separate	Model B Integral	Model T Separate	3-6
Elcometer 224	Standard Separate Probe			■		■	3-8
Elcometer 212	Digital Thermometer °C (°F) with Surface Probe	■					5-11
Elcometer 116	Whirling Hygrometer °C (Metric)	■					5-9
Elcometer 114	Dewpoint Calculator	■					5-9
Elcometer 319	Digital Dewpoint Meter		Standard	Top	Standard	Top	5-3
Elcometer 112	Hexagonal Wet Film Comb 25 - 3000µm (1 - 120mils)	■	■	■			6-3
Elcometer 115	Wet Film Comb (Set of 4)				■	■	6-4
Elcometer 456	Integral Digital Coating Thickness Gauge, 0 - 1500µm (0 - 60mils)	Ferrous Model B					7-26
Elcometer 456	Separate Digital Coating Thickness Gauge		Ferrous Model S	Ferrous Model S	Dual FNF Model T	Dual FNF Model T	7-6
Elcometer 456	Standard Separate Probe, 0 - 1500µm (0 - 60mils)		Ferrous	Ferrous	Dual FNF	Dual FNF	7-18
Elcometer 107	Cross Hatch Full Kit[1]	■	■	■	■	■	8-36
ElcoMaster®	Data Management Software & USB Cable		■	■	■	■	12-2

[1] Kit 1: supplied with 6 x 1mm and 6 x 2mm cutters, Kits 2 & 3 Metric: supplied with 6 x 2mm cutter, Kits 2 & 3 Imperial: supplied with 6 x 1mm cutter

Technical Specification

Part Number Metric	Imperial	Description	Certificate
YKIT-PROTECTIVE-1M	YKIT-PROTECTIVE-1E	Elcometer Protective Inspection Kit 1	●
YKIT-PROTECTIVE-2SM	YKIT-PROTECTIVE-2SE	Elcometer Protective Inspection Kit 2 Standard	●
YKIT-PROTECTIVE-2TM	YKIT-PROTECTIVE-2TE	Elcometer Protective Inspection Kit 2 Top	●
YKIT-PROTECTIVE-3SM	YKIT-PROTECTIVE-3SE	Elcometer Protective Inspection Kit 3 Standard	●
YKIT-PROTECTIVE-3TM	YKIT-PROTECTIVE-3TE	Elcometer Protective Inspection Kit 3 Top	●
Dimensions	Kit 1 Kit 2 Kit 3	456 x 384 x 110mm (17.95 x 15.12 x 4.33”) 456 x 384 x 127mm (17.95 x 15.12 x 5.00”) 456 x 384 x 127mm (17.95 x 15.12 x 5.00”)	

If the kit that you require is not listed above, Elcometer will be happy to discuss your requirements and create one to suit your particular needs.

● Certificates available on applicable gauges

Elcometer

Protective Coating Inspection Kit 4

The Elcometer Protective Coatings Inspection Kit 4 provides a range of test equipment to help an inspector assess a substrate prior to the application of a coating.

Measurement parameters include:

- Surface inspection
- Weld inspection
- Surface cleanliness
- Climatic conditions
- Surface profile
- Coating thickness

Bluetooth® wireless technology

compatible with ElcoMaster®

STANDARDS:
AS 2331.1.4, AS 3894.3-B, AS 3894.6-A, AS 3894.6-C, AS 3894.9, AS/NZS 1580.107.3, AS/NZS 1580.108.1, ASTM B 499, ASTM D 1186-B, ASTM D 1400, ASTM D 2200, ASTM D 4414-A, ASTM D 4417-C, ASTM D 7091, ASTM E 376, ASTM G 12, BS 3900-C5-6A, BS 3900-C5-6B, BS 5411-11, BS 5411-3, BS 5599, BS 7079-B4, BS 7079-C5, 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 2808-12, ISO 2808-1A, ISO 2808-6A, ISO 2808-6B, ISO 2808-7B, ISO 2808-7C, ISO 2808-7D, ISO 8501-1, ISO 8502-3, ISO 8502-4, ISO 8502-6, ISO 8502-9, ISO 8503-5, JIS K 5600-1-7, NACE RP0287, NF T30-124, NF T30-125, SANS 5772, SS 184159, SS 55900, SSPC Guide 15, SSPC PA 2, SSPC VIS 1, SSPC VIS 2, SSPC VIS 3, SSPC VIS 4, SSPC VIS 5, US Navy NSI 009-32, US Navy PPI 63101-000

Contents

Model	Description	Kit 4	Page
Elcometer 128	Pictorial Standards[1]	■	3-3
Elcometer 131/1C	Telescopic Inspection Mirror	■	10-3
Elcometer 144	Paint Safe Marker Pens (Pack of 3)	■	10-6
Elcometer 147	Weld Gauge	■	10-6
Elcometer 142	Dust Tape Test Kit	■	4-22
Elcometer 138	Bresle Salt Kit[2]	■	4-14
Elcometer 319	Digital Dewpoint Meter with Magnetic Surface Probe	Top	5-3
Elcometer 224	Digital Surface Profile Integral Gauge	Model T	3-9
Elcometer 112	Hexagonal Wet Film Comb: 25 - 3000µm (1 - 120mils)	■	6-3
Elcometer 456	Separate Digital Coating Thickness Gauge with F2 Standard Probe	Ferrous Model T	7-6
ElcoMaster®	Data Management Software & USB Cable	■	12-2

Technical Specification

Part Number Metric	Imperial	Description	Certificate
YKIT-PROTECTIVE-4M	YKIT-PROTECTIVE-4E	Elcometer Protective Coatings Kit 4	●
Dimensions		495 x 420 x 175mm (19.49 x 16.54 x 6.89”)	

[1] Swedish Rust Standard ISO 8501, SIS055900 supplied in Metric Kit, US Standard SSPC VIS 1-01 and VIS-3 supplied in Imperial Kit

[2] Supplied with Elcometer 135C Bresle Test Patches (x50)

● Certificates available on applicable gauges

Elcometer

Protective Coating Inspection Kit 5

A more comprehensive kit than kits 1-4, the Elcometer Protective Coatings Inspection Kit 5 expands the range of instruments available to the protective coatings inspector.

Measurement parameters include:

- Material thickness
- Surface inspection
- Weld inspection
- Surface cleanliness
- Surface profile
- Climatic conditions
- Coating thickness
- Adhesion

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compatible with ElcoMaster®

STANDARDS:
AS 1580.108.2, AS 1580.408.4, AS 2331.1.4, AS 3894.3-B, AS 3894.6-A, AS 3894.6-C, AS 3894.6-D, AS 3894.9, AS/NZS 1580.107.3, AS/NZS 1580.108.1, ASTM B 499, ASTM D 1186-B, ASTM D 1400, ASTM D 2200, ASTM D 3359-B, ASTM D 4138-A, ASTM D 4414-A, ASTM D 4417-C, ASTM D 7091, ASTM E 376, ASTM E 797, ASTM G 12, BS 3900-C5-5B, BS 3900-C5-6A, BS 3900-C5-6B, BS 3900-E6, BS 5411-11, BS 5411-3, BS 5599, BS 7079-B4, BS 7079-C5, DIN 50981, DIN 50984, DIN 50986, ECCA T1, ECCA T6, EN 13523-1, EN 13523-6, EN 15317, IMO MSC.215(82), IMO MSC.244(83), ISO 1461, ISO 16276-2, ISO 19840, ISO 2063, ISO 2360, ISO 2409, ISO 2808-12, ISO 2808-1A, ISO 2808-5B, ISO 2808-6A, ISO 2808-6B, ISO 2808-7B, ISO 2808-7C, ISO 2808-7D, ISO 8501-1, ISO 8502-3, ISO 8502-4, ISO 8502-6, ISO 8502-9, ISO 8503-5, JIS K 5600-1-7, NACE RP0287, NF T30-038, NF T30-123, NF T30-124, NF T30-125, SANS 5772, SS 184159, SS 55900, SSPC Guide 15, SSPC PA 2, SSPC VIS 1, SSPC VIS 2, SSPC VIS 3, SSPC VIS 4, SSPC VIS 5, US Navy NSI 009-32, US Navy PPI 63101-000

Contents

Model	Description	Kit 5	Page
Elcometer MTG2	Material Thickness Gauge	■	2-3
Elcometer 128	Pictorial Standards[1]	■	3-3
Elcometer 131/1C	Telescopic Inspection Mirror	■	10-3
Elcometer 137	LED Illuminated Magnifier	■	10-4
Elcometer 144	Paint Safe Marker Pens (Pack of 3)	■	10-6
Elcometer 147	Weld Gauge	■	10-6
Elcometer 142	Dust Tape Test Kit	■	4-22
Elcometer 138	Bresle Salt Kit[2]	■	4-14
Elcometer 138/2	Surface Contamination Kit	■	1-5
Elcometer 122	Testex Tape, Coarse & Extra Coarse	■	3-13
Elcometer 124	Thickness Gauge	■	3-14
Elcometer 224	Digital Surface Profile Separate Gauge & Standard Probe	Model T	3-6
Elcometer 319	Digital Dewpoint Meter, with Magnetic Surface Probe	Top	5-3
Elcometer 112	Hexagonal Wet Film Comb: 25 - 3000µm (1 - 120mils)	■	6-3
Elcometer 456	Separate Digital Coating Thickness Gauge with F2 Standard Probe	Ferrous Model T	7-6
Elcometer 121	Paint Inspection Gauge with Cross Hatch Cutters 6 x 1, 2 & 3mm and ISO (ASTM) Adhesive Tape	Top	7-52
ElcoMaster®	Data Management Software & USB Cable	■	12-2

Technical Specification

Part Number Metric	Imperial	Description	Certificate
YKIT-PROTECTIVE-5M	YKIT-PROTECTIVE-5E	Elcometer Protective Coatings Inspection Kit 5	●
Dimensions		575 x 475 x 205mm (22.64 x 18.70 x 8.07”)	

[1] Swedish Rust Standard ISO 8501, SIS055900 supplied in Metric Kit, US Standard SSPC VIS 1-01 and VIS-3 supplied in Imperial Kit

[2] Supplied with Elcometer 135C Bresle Test Patches (x50)

● Certificates available on applicable gauges

Elcometer

Protective Coating Inspection Kit 6

The Elcometer Protective Coatings Inspection Kit 6 is a comprehensive kit which incorporates all the key gauges and inspection accessories required to assess a structure before, during and after coating has been applied.

Measurement parameters include:

- Material thickness
- Surface inspection
- Weld inspection
- Surface cleanliness
- Surface profile
- Climatic conditions
- Coating thickness
- Adhesion
- Pinhole detection

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STANDARDS:
AS 1580.108.2, AS 1580.408.4, AS 2331.1.4, AS 3894.2, AS 3894.3-B, AS 3894.6-A, AS 3894.6-C, AS 3894.6-D, AS 3894.9, AS/NZS 1580.107.3, AS/NZS 1580.108.1, ASTM B 499, ASTM D 1186-B, ASTM D 1400, ASTM D 2200, ASTM D 3359-B, ASTM D 4138-A, ASTM D 4414-A, ASTM D 4417-C, ASTM D 5162-A, ASTM D 7091, ASTM E 376, ASTM E 797, ASTM G 12, ASTM G6, ASTM G62-A, BS 3900-C5-5B, BS 3900-C5-6A, BS 3900-C5-6B, BS 3900-E6, BS 5411-11, BS 5411-3, BS 5599, BS 7079-B4, BS 7079-C5, BS 7793-2, DIN 50981, DIN 50984, DIN 50986, ECCA T1, ECCA T6, EN 13523-1, EN 13523-6, EN 15317, IMO MSC.215(82), IMO MSC.244(83), ISO 1461, ISO 14654, ISO 16276-2, ISO 19840, ISO 2063, ISO 2360, ISO 2409, ISO 2808-12, ISO 2808-1A, ISO 2808-5B, ISO 2808-6A, ISO 2808-6B, ISO 2808-7B, ISO 2808-7C, ISO 2808-7D, ISO 8289-A, ISO 8501-1, ISO 8502-3, ISO 8502-4, ISO 8502-6, ISO 8502-9, ISO 8503-5, JIS K 5600-1-7, JIS K 6766, NACE RP 0188, NACE RP0287, NACE SP 0188, NACE TM0384, NF T30-038, NF T30-123, NF T30-124, NF T30-125, SANS 5772, SS 184159, SS 55900, SSPC Guide 15, SSPC PA 2, SSPC VIS 1, SSPC VIS 2, SSPC VIS 3, SSPC VIS 4, SSPC VIS 5, US Navy NSI 009-32, US Navy PPI 63101-000

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Model	Description	Kit 6	Page
Elcometer MTG2	Material Thickness Gauge	■	2-3
Elcometer 128	Pictorial Standards[1]	■	3-3
Elcometer 131/1C	Telescopic Inspection Mirror	■	10-3
Elcometer 137	LED Illuminated Magnifier	■	10-4
Elcometer 144	Paint Safe Marker Pens (Pack of 3)	■	10-6
Elcometer 147	Weld Gauge	■	10-6
Elcometer 142	Dust Tape Test Kit	■	4-22
Elcometer 138	Bresle Salt Kit[2]	■	4-14
Elcometer 138/2	Surface Contamination Kit	■	1-5
Elcometer 122	Testex Tape, Coarse & Extra Coarse	■	3-13
Elcometer 124	Thickness Gauge	■	3-14
Elcometer 224	Seperate Digital Surface Profile Gauge with Standard Probe	Model T	3-6
Elcometer 319	Digital Dewpoint Meter, with Magnetic Surface Probe	Top	5-3
Elcometer 112	Hexagonal Wet Film Comb: 25 - 3000µm (1 - 120mils)	■	6-3
Elcometer 456	Separate Digital Coating Thickness Gauge with F2 Standard Probe	Ferrous Model T	7-6
Elcometer 121	Paint Inspection Gauge (Top) with Cross Hatch Cutters 6 x 1, 2 & 3mm & ISO (ASTM) Adhesive Tape	Top	7-52
Elcometer 270	Pinhole Detector (9 , 67.5 & 90V)	■	9-6

Technical Specification

Part Number Metric	Imperial	Description	Certificate
YKIT-PROTECTIVE-6M	YKIT-PROTECTIVE-6E	Elcometer Protective Coatings Kit 6	●
Dimensions	575 x 475 x 205mm (22.64 x 18.70 x 8.07”)		

[1] Swedish Rust Standard ISO 8501, SIS055900 supplied in Metric Kit, US Standard SSPC VIS 1-01 and VIS-3 supplied in Imperial Kit

[2] Supplied with Elcometer 135C Bresle Test Patches (x50)

● Certificates available on applicable gauges

Elcometer

Protective Inspection Kit for Hazardous Areas

The Elcometer Hazardous Area Inspection Kit is a protective coating inspection kit suitable for use in hazardous areas where electronic equipment is prohibited.

The kit provides all the tools required for the on-site inspection of a coating, including surface profile, dewpoint, relative humidity, both wet and dry film thickness and adhesive testing.

Measurement parameters include:

- Surface inspection
- Surface profile
- Surface contamination
- Climatic conditions
- Coating thickness
- Adhesion

The products contained in this kit are not tested or approved for use in Hazardous Areas. Site Management should be consulted before this kit is used.

STANDARDS:

AS 1580.408.4, AS 2331.1.3, AS 3894.3-A, AS 3894.5, AS 3894.9, AS/NZS 1580.107.3, AS/NZS 1580.108.1, ASTM B 499, ASTM D 2200, ASTM D 3359-B, ASTM D 4414-A, ASTM D 4417-A, ASTM D 4417-C, ASTM G 12, BS 3900-C5-6A, BS 3900-C5-7B, BS 3900-E6, BS 5411-11, BS 7079-C5, DIN 50981, ECCA T6, EN 13523-6, IMO MSC.215(82), IMO MSC.244(83), ISO 16276-2, ISO 2178, ISO 2409, ISO 2808-1A, ISO 2808-6A, ISO 2808-7A, ISO 2808-7B, ISO 8501-1, ISO 8503-1, ISO 8502-5, ISO 8503-2, ISO 8503-5, JIS K 5600-1-7, JIS K 5600-5-6, NACE RP0287, NF T30-038, NF T 30-124, NF T30-125, SS 55900, SSPC Guide 15, SSPC-PA2, SSPC VIS 1, SSPC VIS 2, SSPC VIS 3, SSPC VIS 4, SSPC VIS 5, US Navy NSI 009-32, US Navy PPI 63101-000

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Technical Specification

Part Number Metric	Imperial	Description
YKIT-HAZARD-1M	YKIT-HAZARD-1E	Elcometer Hazardous Area Inspection Kit
Dimensions		495 x 420 x 175mm (19.49 x 16.54 x 6.89”)

[1] Swedish Rust Standard ISO 8501, SIS055900 supplied in Metric Kit, US Standard SSPC VIS 1-01 and VIS-3 supplied in Imperial Kit

Elcometer 138/2

Surface Contamination Kit

STANDARDS:
AS 3894.6-A, AS 3894.6-D,
SSPC Guide 15

Measuring the level of contaminants on a surface prior to application of the coating is essential to ensure the quality of the coating and that its optimum lifetime is achieved.

If the coating is applied to a contaminated surface, which is not properly prepared, it could fail prematurely resulting in costly re-coating and high maintenance costs.

The Elcometer 138/2 Surface Contamination Kit provides the user with a means for testing invisible surface contaminants including:

- pH
- chloride ions
- iron
- salts

Technical Specification

Part Number	Description	Certificate
E138----2	Elcometer 138/2 Surface Contamination Kit	●
Measuring Range	pH: 0pH to 14pH Iron: 3,10, 25, 50, 100, 250, 500mg/l Fe^2 Chloride: 30 - 600ppm Cl	
Dimensions	300 x 220 x 75mm (11 x 8.6 x 3”)	
Weight	2.1kg (4.62lb)	
Packing List	100x pH test strips, 100x Iron test strips, 40x Chloride test strips, 50x Elcometer 135C Bresle test patches, 3 x 5ml (0.17fl oz) syringes, 3x needles, 30ml (1fl oz) plastic beaker, carry case and operating instructions	

Accessories

E135----C25	Elcometer 135C Bresle Test Patch (Pack of 25)
E135----C100	Elcometer 135C Bresle Test Patch (Box of 100)
T13818517	3 x 5ml (0.17fl oz) Syringes
T13818518	3x Needles
T13818519	Plastic Beaker, 30ml (1fl oz)
T13827259	Pure Distilled Water, 250ml (8.5fl oz) Bottle
T13820562	100x pH Test Strips
T13820563	100x Iron Test Strips
T13820564	40x Chloride Test Strips

● Certificate of Cleanliness & Test Area available at www.elcometer.com/cert

Elcometer 138

Bresle Salt Kit

STANDARDS:

AS 3894.6-A, IMO MSC.215 (82), IMO MSC.244 (83), ISO 8502-6, ISO 8502-9, SSPC Guide 15, US Navy NSI 009-32, US Navy PPI 63101-000

It is essential that the level of contaminants on a surface is measured prior to application of the coating to ensure the quality of the coating and that its optimum lifetime is achieved.

If the coating is applied to a contaminated surface, which is not properly prepared, it could fail prematurely resulting in costly re-coating and high maintenance costs.

The Elcometer 138 Bresle Kits include the Elcometer 138 Bresle Salt Meter. This lightweight, portable meter measures the conductivity of the test sample using a single drop, then automatically converts this to show the density of salts, negating the need for the user to do a manual calculation when working in accordance with ISO 8502-6 or ISO 8502-9.

etv video available elcometer.tv

Technical Specification

Part Number	Description	Certificate
E138-1C	Elcometer 138 Bresle Salt Kit with Elcometer 138 Bresle Salt Meter and Elcometer 135C Bresle Test Patches	•
E138-1C-CM	Elcometer 138 Bresle Salt Kit with Elcometer 138 Conductivity Meter and Elcometer 135C Bresle Test Patches	•
E138-1	Elcometer 138 Bresle Salt Kit with Elcometer 138 Bresle Salt Meter and Elcometer 135B Bresle Patches	
E138-1-CM	Elcometer 138 Bresle Salt Kit with Elcometer 138 Conductivity Meter and Elcometer 135B Bresle Patches	
Measurement Range	E138-1, E138-1C: ISO Mode: 0 - 2399µg/cm² IMO Mode : 0 - 2199µg/cm² E138-1-CM, E138-1C-CM: 0 - 19.99mS/cm	
Accuracy*	±2% full scale (for each range)	
Dimensions	393 x 331 x 95mm (15.5 x 13 x 3.7”) Weight 1.4kg (3lb 1oz)	
Packing List	Box of 25 Elcometer 135C Bresle Test Patches (E138-1C) or Elcometer 135B Bresle Patches (E138-1), Elcometer 138 Bresle Salt Meter (E138-1C or E138-1) & Sensor, 250ml (8.45fl oz) bottle of standard84µS/cm calibration solution with certificate, 14ml (0.47fl oz) bottle of conditioning solution, 250ml (8.5fl oz) bottle of pure water, 3 x 5ml (0.17fl oz) syringes, 3 x blunt needles, 30ml (1fl oz) plastic beaker, 2 x CR2032 batteries (supplied fitted to the Elcometer 138), transit case and user guide	

Accessories

E135----B	Elcometer 135B Bresle Patches (Box of 25)		
E135----C25	Elcometer 135C Bresle Test Patch (Box of 25)		
E135----C100	Elcometer 135C Bresle Test Patch (Box of 100)		
T13830629-1	Standard 84µS/cm Calibration Solution, 250ml (8.45fl oz) Bottle		
T13830629-2	Standard 1413µS/cm Calibration Solution, 250ml (8.45fl oz) Bottle		
T13827259	Pure Water - 250ml (8.5fl oz) Bottle		
T13818517	3 x 5ml (0.17fl oz) Syringes	E138-BSM	Elcometer 138 Bresle Salt Meter
T13818518	3 x Needles	E138-CM	Elcometer 138 Conductivity Meter
T13818519	Plastic Beaker 30ml (1fl oz)	T13833402	Replacement Sensor for Conductivity Meter & Bresle Salt Meter

* See Elcometer 138 Bresle Salt Meter for full specification
* See Elcometer 138 Conductivity Meter for full specification

• Certificate of Cleanliness & Test Area available at www.elcometer.com/cert

Elcometer 138

Abrasive Soluble Salt Test Kit

STANDARDS:
ASTM D4940

Abrasives used for blast cleaning surfaces can be contaminated with soluble salts due to the source or the re-use of the blasting media. This contamination can be transferred to the blast cleaned surface and result in accelerated corrosion conditions and also cause premature coating failure, if this contamination is not removed prior to applying the coating.

Testing abrasives on site for soluble salt contamination can be carried out quickly and easily using the Elcometer 138 Abrasive Soluble Salt Test Kit, according to the ASTM D4940 method. A measured volume of the abrasive is mixed with the same volume of water and agitated to allow any soluble salts to dissolve in the water. The resulting slurry is allowed to settle and the filtered water can then be tested using a conductivity meter. The Elcometer 138 Abrasive Soluble Salt Test Kit provides all that is needed to carry out the test in the field or in the laboratory.

Technical Specification

Part Number	Description
E138-A-CM	Elcometer 138 Abrasive Soluble Salt Test Kit with Elcometer 138 Conductivity Meter
Measurement Range	0 - 19.99mS/cm (see Elcometer 138 Conductivity Meter for full specification)
Accuracy	±2% of full scale (see Elcometer 138 Conductivity Meter for full specification)
Dimensions	456 x 384 x 127mm (18 x 15.1 x 5”) Weight 2.2kg (4lb 14oz)
Packing List	Elcometer 138 Conductivity Meter, 1000ml (33.8 fl oz) bottle of pure distilled water, 100ml & 600ml (3.4 & 20.3 fl oz) glass beakers, 500ml (16.9fl oz) plastic measuring beaker, funnel, stirring rod, box of 100 filter papers, 1 x 14ml (0.47fl oz) standard 1413 µS/cm (1.413 mS/cm) calibration solution, 1 x 14ml (0.47fl oz) conditioning solution, 2 x CR2032 batteries, transit case and user guide

Accessories

E138-CM	Elcometer 138 Conductivity Meter
T13833402	Replacement Sensor for Conductivity Meter
T13830629-2	Standard 1413µS/cm Calibration Solution; 250ml (8.45fl oz) Bottle
T13827494	Pure Distilled Water 1000ml (33.8fl oz) Bottle
T13827495	Glass Beaker 100ml (3.4fl oz)
T13827496	Glass Beaker 600ml (20.3fl oz)
T13827498	Plastic Measuring Beaker 500ml (16.9fl oz)
T13827497	Funnel
T13827499	Stirring Rod
T13827500	Box of 100 Filter Papers (Grade 413)

Elcometer 134 CSN

CSN Chloride, Sulphate & Nitrate Kit

STANDARDS:
ISO 8502-5, ISO 8502-11,
SSP Guide 15

Designed to accurately, measure surface chloride, sulphate and nitrate ions in minutes, the Elcometer 134 CSN Salt kit offers a single kit solution for testing in the field.

All the components of the Elcometer CSN Test Kits are pre-measured and pre-dosed for trouble free testing.

Results are recorded in parts per million (ppm) requiring no complicated calculations. Elcometer 134 CSN tests are all designed to use a ratio of 1:1 for easy conversion to µg/cm².

Supplied in an ABS plastic carry case for easy portability around the site, each field kit is supplied with full instructions attached to the inside lid, together with:

- 5x Chloride tests
- 5x Sulphate tests, together with 1x colorimeter, for sulphate testing
- 5x Nitrate test strips
- 5x Syringes (without needles)

Refill kits containing 5x chloride, nitrate and sulphate tests are available.

Technical Specification

Part Number	Description
E134-CSN	Elcometer 134 CSN Chloride, Sulphate & Nitrate Test Kit
Measuring Range	0 - 100µg/cm² (0 - 100ppm)
Scale Resolution	1µg/cm² (1ppm)
Sample Time	1 - 5 minutes (approximately)
Storage Temperature	Not exceeding 25°C (77°F)
Dimensions	360 x 320 x 140mm (14.2 x 12.6 x 5.5”)
Weight	1.76kg (3.8lb)
Packing List	5x tests (containing: 5x chloride tests, 5x nitrate test strips, 5x sulphate tests, 5x syringes) 1x colorimeter, carry case and operating instructions

Accessories

T134-KIT	Refill Kit for Elcometer 134 CSN

Elcometer 270

Pinhole Detection Inspection Kit

STANDARDS:
AS 3894.2, ASTM D 5162-A, ASTM G6, ASTM G62-A, BS 7793-2, ISO 8289-A, ISO 14654, JIS K 6766, NACE RP 0188, NACE SP 0188, NACE TM0384

The Elcometer 270 Pinhole Detector Inspection Kit utilises the wet sponge technique and has been designed to set a new standard for wet sponge detectors - a high quality, low voltage detector with similar accessories to a high voltage spark tester.

The Inspector's Kit does not include the main instrument; just add the model number to the order:

Part Number	Description
D270----3	Elcometer 270/3 Pinhole Detector (9V & 90V)
D270----4	Elcometer 270/4 Pinhole Detector (9V, 67.5V & 90V)

For more information see page 9-6.

Technical Specification

Part Number	Description
T27018191	Elcometer 270 Pinhole Detector Inspection Kit
Packing List	Separate wand handle & lead, roller wand, 10m (32') signal return cable, extension pieces, telescopic extension, belt clip, bottle of wetting agent, 3x AA batteries, spare flat sponge, spare roller sponge

The kit does not include the main instrument; see page 9-6 for more information

Accessories

Standard wand T27016867
A universal flat sponge to suit almost all applications
Spare flat sponge set T27018050
Pack of 3 sponges;
150 x 60 x 25mm (6 x 2.3 x 1")

Roller sponge wand T27016960
Ideal for large flat surface inspection
Spare roller sponge T27018051

Separate wand adaptor T27016999
with belt clip - converts the gauge into a separate pinhole detector
Telescopic wand adaptor T27016998
with belt clip - extends to 1m (39"), ideal for floors or high areas

Extension piece T27016965
420mm (16.5") extensions to expand operators reach
Additional extension pieces can be connected to each other

Wetting agent T27018024
50ml (1.7floz) bottle - helps aid the fast detection of pinholes. Simply add to the water used to dampen the sponge

Return cable - 4m (13') T99916954
supplied as standard, complete with crocodile clip and plug
Return cable - 10m (32') T99916996
supplied on a drum, complete with clip and connection plug

Elcometer 280

Pulsed DC Holiday Detector Inspection Kit

The Elcometer 280 is a 'stick type' holiday detector which has been designed to make pulsed DC high voltage holiday detection safer, easier and more reliable than ever before.

Using state of the art electronics, the Elcometer 280 allows users to inspect coatings - without connecting the earth return lead to the component substrate - ideal for inspecting large surfaces and pipelines.

The Elcometer 280 uses the high voltage pulsed DC technique to detect holidays in coatings - even if the coating is damp, dirty or slightly conductive.

From the two stage safety switch, bright LED's and screen icons signifying when the high voltage is on, to the extended ribbing to protect the user from spark creep, the Elcometer 280 sets the standard for high voltage measurement safety.

For more information see pages 9-10.

STANDARDS:

AS 3894.1, ANSI/AWWA C203, ANSI/AWWA C214, ASTM D4787, ASTM D5162, ISO 2746, ISO 29601, JIS G 3491, JIS G 3492, NACE RP0274, NACE SP0188, NACE SP0490, NACE TM0186, NACE TM0384

Technical Specification

Part Number	Description
D280-T-KIT	Elcometer 280 Pulsed DC Holiday Detector Inspection Kit
Packing List	Elcometer 280 Pulsed DC Holiday Detector Gauge (Model T), 5m (16') trailing signal return lead, battery pack (2 supplied with Model T), battery charger with mains cables (UK, EUR & US), stainless steel rolling spring holder (supplied with Model T only), 250mm (9.8") probe extension shaft, shoulder strap and operating instructions - packed in a lightweight, rugged, wheeled transit case

Accessories - For more information see pages 9-24 to 9-29

Band brush probes

See page 9-25

External 'C-type' wire brushes

See page 9-25

Right angled wire brush probes

See page 9-24

Right angled rubber probes

See page 9-25

Internal circular wire pipe brush probes

See page 9-24

Grounding mats

See page 9-29

Elcometer

Structural Steel Coatings Inspection Kit

Featuring Elcometer's top-of-the-range inspection gauges, the Elcometer Structural Steel Coatings Inspection Kit has been specifically designed to undertake the three principal inspection requirements when applying intumescent and other structural steel coatings – climate, wet film and dry film thickness. It can be used in combination with other Elcometer inspection products covering surface profile, adhesion and porosity (available separately).

Ideal for 'paperless' quality assurance systems the kits come complete with ElcoMaster® Data Management Software for professional reporting and analysis.

Two inspection kits are available for coatings applied on ferrous substrates:

- Elcometer Structural Steel Kit 1: FTS & F1S
  Utilising a scale 1 standard straight probe for dry film measurement on coatings 0 - 1,500µm and wet film combs to measure 25 - 3,000µm and 3,000 - 8,750µm.
- Elcometer Structural Steel Kit 2: FTS & F1U
  Utilising a scale 1 scan probe for faster dry film measurement on coatings 0-1,500µm and wet film combs to measure 25 - 3,000µm and 3,000 - 8,750µm.

Measurement parameters include:

• Climatic conditions

• Wet & Dry Film Coating thickness

Bluetooth® wireless technology

compatible with ElcoMaster®

STANDARDS:

AS 2331.1.4, AS 3894.3-B, AS/NZS 1580.107.3, AS/NZS 1580.108.1, ASTM B 244,ASTM B 499, ASTM D 1186-B, ASTM D 1400, ASTM D 4414-A, ASTM D 7091, ASTM E 376, ASTM G 12, BS 3900-C5-6B, BS 3900-C5-6A, BS 3900-C5-7B, BS 5411-11, BS 5411-3, BS 5599, BS 7079-B4, 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 2808-1A, ISO 2808-6A, ISO 2808-6B, ISO 2808-7B, ISO 2808-7C, ISO 2808-7D, ISO 2808-12, ISO 8502-4, JIS K 5600-1-7, NF T30-124, NF T30-125 SS 184159, SSPC PA 2, US Navy PPI 63101-000, US Navy NSI 009-32

Technical Specification

Part Number	Description
YKIT-STRUCTURAL-F1S	Elcometer Structural Steel Kit 1: FTS & F1S
YKIT-STRUCTURAL-F1U	Elcometer Structural Steel Kit 2: FTS & F1U

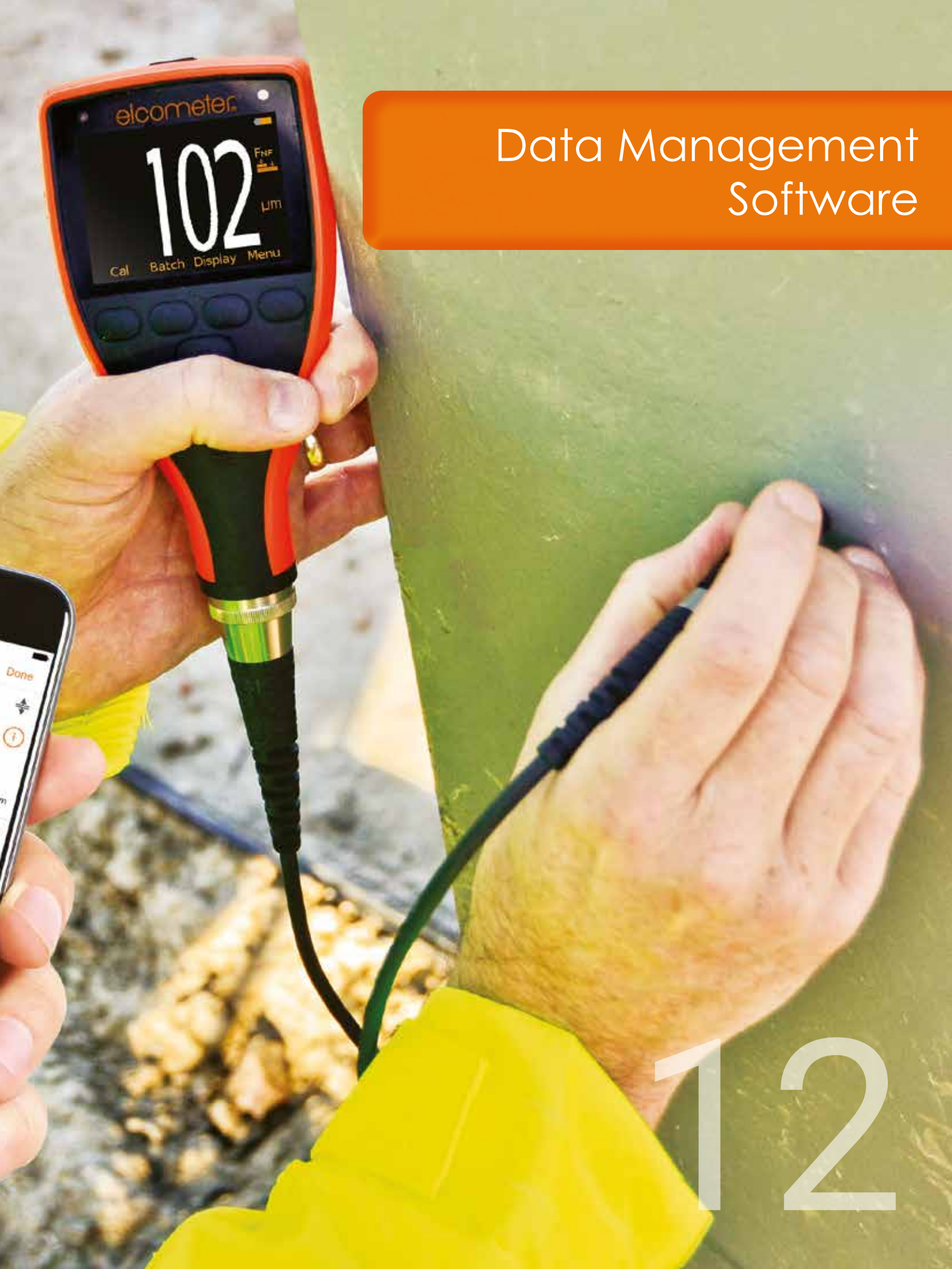
Accessories

Part Number	Description	Dry film Thickness Substrate Probe:
T456CF2S	Elcometer 456 Coating Thickness Gauge Straight Probe - Scale 2	Ferrous (F) Probes Range: 0-5mm, 0-200mils
T456CF3S	Elcometer 456 Coating Thickness Gauge Straight Probe - Scale 3	Ferrous (F) Probes Range: 0-13mm, 0-500mils

elcometer®

Carrier
10:12 AM
Top Coat
Elcometer 456C NJ07197
Thickness
Statistics
102
Readings 25
Mean 94.33 µm
Maximum 105.0 µm
Minimum 66.8 µm
Range 11.8 µm
Std Deviation 2.32 µm
CV% 2.5%
> High Limit 1 (4.0%)
< Low Limit 0 (0.0%)
>= Nominal
< Nominal

Data Management Software



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ElcoMaster® - as easy as 1, 2, 3!

From inspection to professional reports at the click of a button.

1

Take Readings

It's not all about taking readings, but what you do with the collected data that matters. ElcoMaster® Software is a fast, easy to use software and mobile app for all your data management, reporting and quality assurance needs.

2

Send to ElcoMaster®

ElcoMaster® Software transfers measurement data direct from Elcometer's Bluetooth® or USB enabled inspection gauges direct to your PC, mobile or tablet.

All your measurement data in one place

Coating Thickness

Salt Contamination

It's not all about taking readings, it's what you do next that counts. Save up to 30% of your working week by producing professional inspection reports in seconds by using ElcoMaster® Software.

etv video available elcometer.tv

3

Create Professional Inspection Report in Seconds

Inspectors can spend up to 30% of their working week producing reports. ElcoMaster® Software saves time and money by producing professional bespoke reports - even when out on site.

Climatic Conditions

Surface Profile

Adhesion Testing

Professional reports in seconds even when out on site. The **ElcoMaster® Software App** puts the office in your pocket.

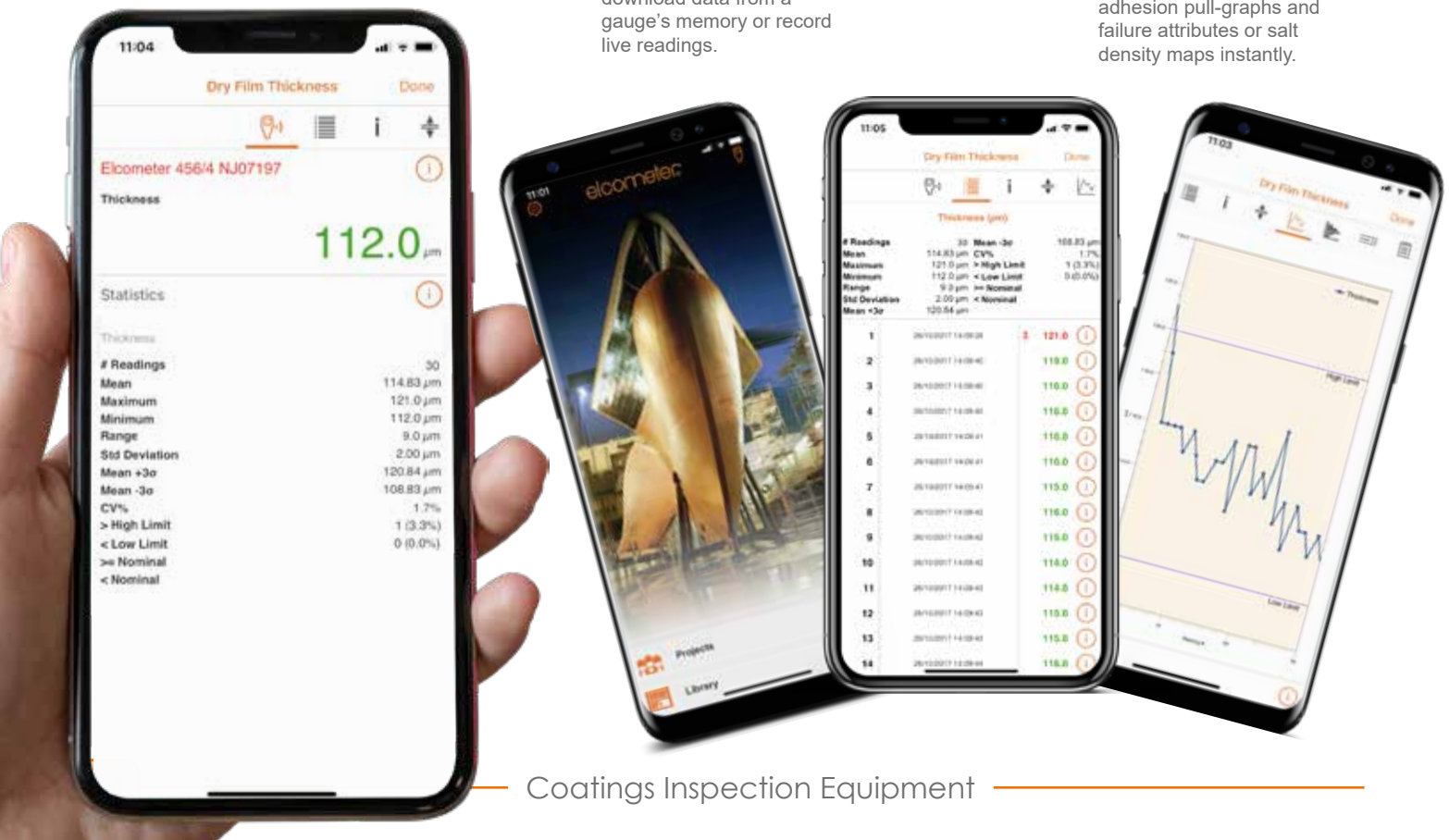
When out in the field or on site, you can review data instantly using our free ElcoMaster® Software Mobile App. Press 'Generate PDF' and watch the ElcoMaster® Software App produce a professional report instantly.

Email the report to your client seconds after you have finished inspecting or upload it via cloud technology so it can be accessed anywhere in the world.

Email, print or send
Export, print, .pdf or email directly from ElcoMaster® Software at the press of a button.

Easy to connect
Connect multiple gauges using Bluetooth® to download data from a gauge's memory or record live readings.

Analyse
Analyse data and statistics, complete with measurement parameters such as adhesion pull-graphs and failure attributes or salt density maps instantly.



ElcoMaster®

With data transferred to mobile communication devices, the Elcometer gauge does not have to be returned to the office for data download. Inspection work can continue without interruption.

Download on the App Store

GET IT ON Google Play

Easy to use
Store all project data, documents and reports in easy to manage folders.

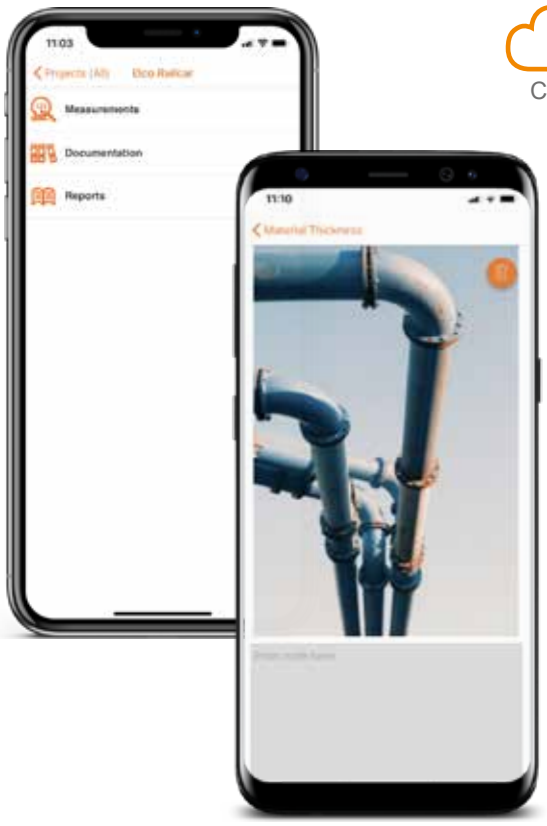
Live Readings & Statistics
Record each individual reading as it is taken and save it into batches. Ideal for gauges without an internal memory.

Collection Templates
Using measurement location points on images or photos to indicate the position for the next reading.

GPS
Store GPS locations in batches and view location on Google Maps.

Add Photos & Notes
Take photos, add notes and comments.

Combine
Combine multiple inspection parameters (DFT, climate, profile, adhesion & salt contamination) into bespoke reports.



Cloud

Email

elcometer®

Data Management Software

ElcoMaster® Software is the easy to use PC and mobile app for all your data management, reporting and quality assurance needs.

- No need to learn different software for different gauges, all Elcometer products use the same expert platform.
- Store data in a simple file tree, by project or by inspection type.
- Easy on screen analysis with histograms, statistics, measurements, limits, notes, diagrams and photographs.
- Export data direct to Microsoft Excel, .csv, .txt, Cqatk formats, etc., to save time and prevent keying in errors.
- Generate reports instantly using standard or pre-designed templates in seconds.
- No need for data manipulation, simply connect the gauge, download data and drag & drop.
- Combine multiple inspection parameters (such as DFT, profile, climate and adhesion) with images, notes and other project specific information in bespoke quality reports.
- Combine different inspection parameters to approve the final product.
- Using Cloud technology ElcoMaster® Software gives you real time quality control monitoring inspection projects in any location.

Easy to connect multiple gauges
Connecting a gauge & downloading data (via Bluetooth® or USB) is fast and easy

Easy to use
Store data in a simple file tree, by project and by inspection type

Combine
Combine multiple inspection parameters (DFT, climate, profile, adhesion & salt contamination) into bespoke reports

Products ElcoMaster® Software is compatible with:

Create reports by importing and combining measurements using Bluetooth® or USB from a wide range of Elcometer gauges, including;

- Surface Profile
- Climatic Conditions
- Coating Thickness
- Salt Contamination
- Adhesion Testing

Email, print or send
Export, print, .pdf or email directly from ElcoMaster® Software at the click of a button

Import existing reports
Scan your existing report into ElcoMaster® Software and drag & drop all your data where you want it, then simply save and print

Built-in template
ElcoMaster® Software Library with FREE Report, Collection, Limit & Standards Templates

Export direct
Export data direct to Microsoft Excel, .csv, .txt, cqatk formats, etc., to save time and prevent keying in errors

Analyse
Analyse data using sequential readings, statistics, batches, charts, graphs, and histograms

Live readings & statistics
Record each individual reading as it is taken and save it into batches. Ideal for gauges with no internal memory

Add photos & notes
Add photographs and notes to your reports

From inspection site, to Cloud and Client in real time - the different ways **ElcoMaster® Software** can help you.

1 Transfer your readings

Transfer your inspection data to Microsoft Excel or ElcoMaster® Software via Bluetooth® or USB to create professional reports at the click of a button.

2 Transfer from site to office

Instantly transfer inspection data to your smartphone or tablet via Bluetooth®. Then send your data via email or convert to pdf and print.

3 Upload to a cloud

Using ElcoMaster® Software Mobile App, upload inspection data, photos, notes and GPS coordinates to a Cloud account of your choice via 3G/4G or WiFi.

All data is instantly visible to other approved users of the cloud account - through a secure log-in on any computer or mobile device anywhere in the world.

Compare and combine inspection data from different production lines or different locations, to produce specific Project Inspection Reports quickly and easily.

4 Real time collaboration for multi-site projects

When working with manufacturers of sub-assemblies across the globe ElcoMaster® Software can collate all inspection data from each site, assembly line and project into one shared location.

Contractors can then:

- Accept or reject parts before shipment from sub-assembly plants.
- Combine all data from sub-assembly and final assembly inspection to generate Project Inspection Reports for quality management, both during the project and after completion of the project.
- Have real time in-progress visibility across the whole project, no matter where the sub-assembly manufacturing is in the world.
- Improve efficiency and quality throughout the production process.

Real time communication

Add comments to inspection data, projects and files or instantly message your colleagues, managers or clients to immediately discuss key points, send work instructions and store messages within the project file.

Your data - your choice - your control

Using your preferred Cloud service provider, make your data secure allowing only approved users to have access. ElcoMaster® Software Mobile App is compatible with a range of cloud service providers and FTP servers.

Concrete Inspection & Metal Detection

Test Hammer 13-6

Cover Meters & Half Cell Meters 13-8

Moisture Meters 13-22

Metal Detection 13-26

13

A covermeter, or rebar locator, is a gauge that measures the thickness of concrete cover over steel reinforcement bars and metal pipes. The covermeter can tell you the depth of the rebar, the location and orientation of reinforcement bar (rebar) and determine the diameter of the rebar.

Concrete Inspection

Test hammers are used to determine the surface hardness of concrete and are one of the most widely used instruments to assess concrete compressive strength. It is the quickest, simplest and least expensive method to obtain an estimate of the quality and strength of the concrete.

When corrosion occurs to rebar or steel structures within concrete the ferric oxide protective layer surrounding the rebar breaks down allowing an electrochemical reaction between the steel and the concrete. Half-cell meters accurately measure the condition and potentiial corrosion of rebars and steel structures wtihin concrete.

A rebar locator is used to determine the presence and orientation of steel reinforcement rebars under the surface of the concrete.

Many concrete structures have a protective or cosmetic coating. Premature failure of this coating can, at the very least, result in additional costs of rework. Adhesion tests verify that both surface preparation and coating application are within specification.

Concrete structures are porous and will absorb moisture, our range of moisture meters and climate monitoring gauges allows moisture content to be measured.

The range also includes gauges used for the measurement of crack width in concrete and other structures.

Metal Detection

The Elcometer Metal Detection range includes Valve Box Locators that are rugged and simple to use making them the ideal choice for all location work in all types of terrain.

Choose the correct gauge for your concrete inspection or metal detection

Test Hammer

- Quick, simple and inexpensive method for the evaluation of concrete compression strength and other masonry materials
- One of the most widely used instruments in the field of non-destructive testing

Cover Meters & Half Cell Meters

- Measures the thickness of concrete cover over steel reinforcement bars and metal pipes
- Can tell you the depth of the rebar, the location and orientation of rebar and determine the diameter of the rebar

Moisture Meters

- A non-invasive probe emits a radio frequency to penetrate the surface to detect moisture
- Ideal for rapid surveys of solid wall, floors and ceramic tiles

Metal Detection

- Detecting metal objects to a maximum depth of 1m (39.4")
- Originally designed to accurately locate valve boxes and manhole covers

elcometer®

Concrete Inspection & Metal Detection

Test Hammer 13-6

Cover Meters & Half Cell Meters 13-8

Moisture Meters 13-22

Metal Detection 13-26

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Elcometer 181

Analogue Concrete Test Hammer

STANDARDS:
ASTM C805, BS 1881:202, DIN 1048, EN 12504-2, ISO 8045, NFP18-417, UNI 9189

The concrete test hammer provides a quick, simple and inexpensive method for non-destructive evaluation of concrete compression strength and other masonry materials. Concrete test hammers are one of the most widely used instruments in the field of non-destructive testing.

This gauge consists of a spring loaded plunger which, when released, strikes the surface with fixed and constant impact energy. During the rebound stroke, the weight moves a pointer that indicates the maximum point of return and at the same time indicates a reference value called Rebound Number.

This number, converted by the correlations available on the hammer, gives the compression resistance value in respect of the impact angle.

Key Features:

- Impact Energy 2.207Nm
- Supplied with grinding stone to prepare test surface
- Aluminium body
- Rebound value indicated on test hammer
- Rebound value chart on body, for quick calculation of compressive strength
- Curve selection on chart dependant on testing angle

Technical Specification

Part Number	Description	Certificate
W181----1	Elcometer 181 Analogue Concrete Test Hammer - MPa / psi scale	○
Accuracy	Better than ±2 Rebound Number (When tested on Calibration Anvil at 80)	
Resolution	2 Rebound Number(s)	
Range	10 to 100 Rebound Number(s)	
Dimensions	Hammer: 280mm (11.02") length x 55mm (2.17") diameter In Case: 350mm (13.78") length x 80mm (3.15") diameter	
Weight	1.5kg (3.3lb) with case	
Packing List	Elcometer 181 analogue concrete test hammer, plastic storage case, abrasive stone & operating instructions	

Accessories

TW99919563	Calibration Anvil (supplied complete with Test Certificate)

○ Optional Calibration Certificate available.

Concrete Inspection & Metal Detection

Test Hammer 13-6

Cover Meters & Half Cell Meters 13-8

Moisture Meters 13-22

Metal Detection 13-26

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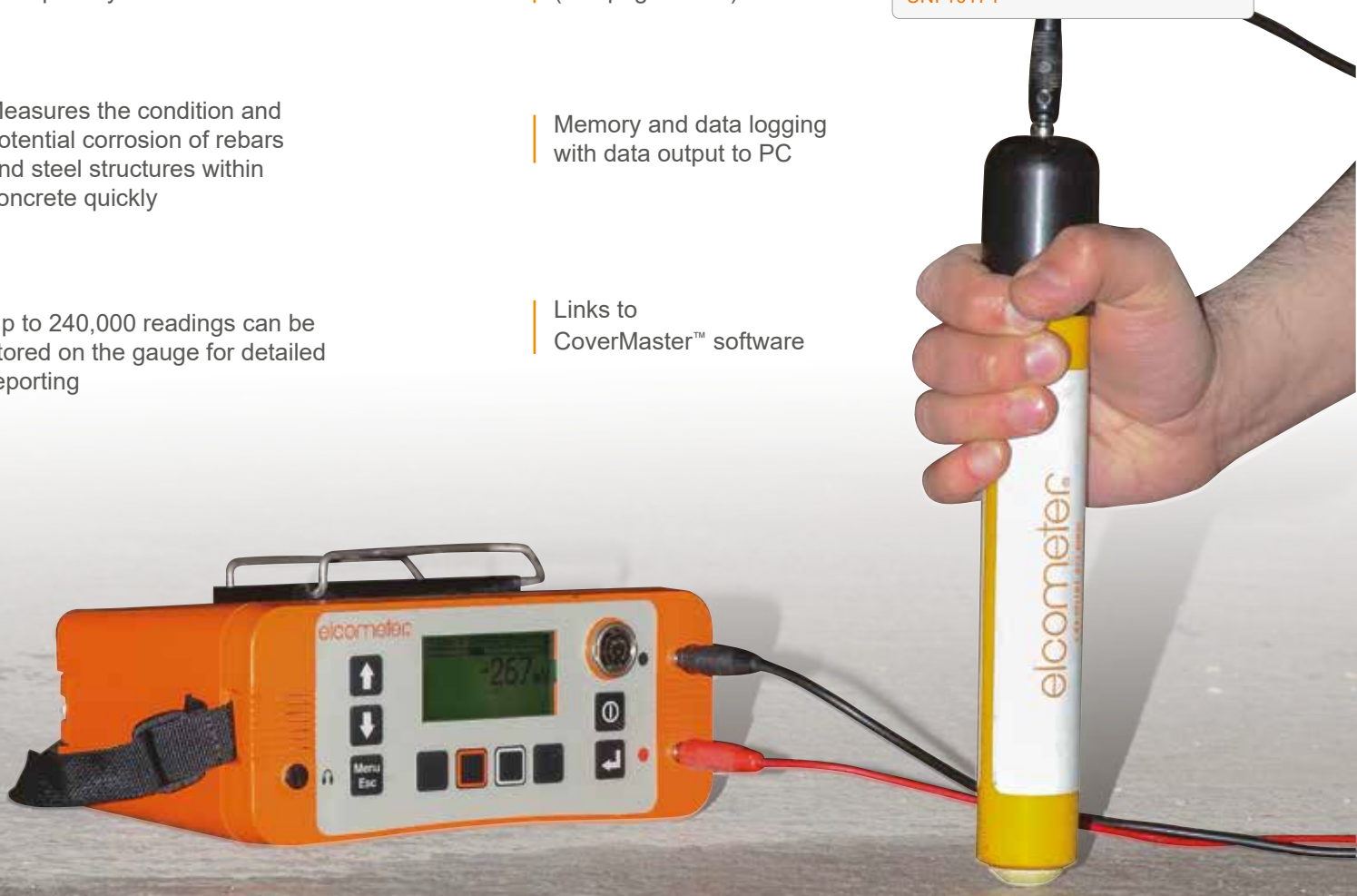
Elcometer 331HM Half-Cell Meter

The rugged **Elcometer 331HM** half-cell meters measure the condition and potential corrosion of rebars and steel structures within concrete.

- Single handed operation: all functions can be accessed & controlled through 4 simple keys/buttons
- Interchangeable Half-Cell probes are available (see page 13-18)
- Measures the condition and potential corrosion of rebars and steel structures within concrete quickly
- Memory and data logging with data output to PC
- Up to 240,000 readings can be stored on the gauge for detailed reporting
- Links to CoverMaster™ software

STANDARDS:
ASTM C876-91, DGZfP:B3, Concrete Society Technical Report 60, UNI 10174



How does a Half-Cell Meter work?

When corrosion occurs the ferric oxide protective layer surrounding the concrete breaks down allowing an electrochemical reaction between the steel and the concrete.

In the half-cell test, a reference electrode is passed over the surface of the concrete and the potential voltage difference is recorded. These potential voltage readings show where corrosion is likely to be, or is currently present.

Elcometer 331HM Half-Cell Meter is supplied with memory and allows users to store up to 240,000 readings in either linear or grid batches.

Elcometer 331HM Half-Cell Meter

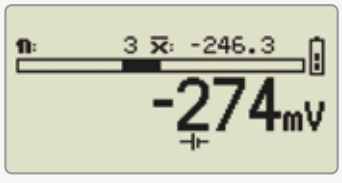
Product Features

Description	Elcometer 331HM
Model	HM
Part Number	W331HM--4
Half-Cell measurement	■
Large graphic display with backlight	■
Multiple language menu structure	■
Rugged waterproof case (IP65)	■
Adjustable beep volume & earphone socket	■
CoverMaster™ software	■
Statistics	■
Number of readings *(η)*, Mean (average) *($\bar{x}$)*	■
Standard deviation *(σ)*, Coefficient of variation *(CV%)*	■
Lowest reading ( ), Highest Reading ( )	■
Under range (<<)	■
Low Limit (or <), Within Limit ( ), High Limit (or >)	■
Over range (∞)	■
Blank readings( )	■
Date & Time	■
Memory	■
Linear batch memory	Up to 200 batches of 1,000 readings[1]
Grid batch memory	Up to 240,000 readings[1]
Graphics plot	■
Threshold plot	■

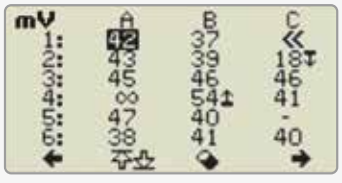
Technical Specification

Range	-999mV to +999mV	Accuracy	±5mV
Operating temperature	0 to 50°C (32 to 120°F)		
Power supply	7.4V battery pack provides up to 32 hours of continuous use (20 hours if backlight is on). Rechargeable in 4 hours, using an external charger, either inside or outside the gauge.		
Dimensions	230 x 130 x 125mm (9 x 5.1 x 4.9")	Weight	1.6kg (3.5lb)
Packing List[2]	Elcometer 331HM Half Cell Meter, 25m extension cable on spool, 1.7m red rebar connecting cable with connecting clip, 1.7m black half-cell connecting cable, rechargeable battery pack & charger (UK, US & EU), earphone, shoulder strap, plastic carry case, operating instructions, CoverMaster™ software & PC cable		

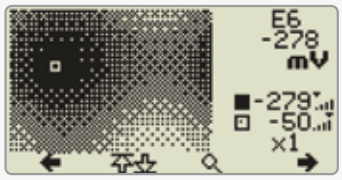
Displays



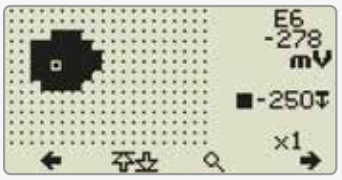
Reading Screen with Statistics



Grid Batch feature facilitates fast surveying for Half-Cell readings



Graphics plot
Allows an immediate visual indication of results



Threshold plot for a quick pass or fail analysis

[1] Linear Batch Mode: up to 200 batches of 1,000 readings each. Grid Batch Mode: up to 1,000 batches, maximum number of readings: 240,000
[2] Search Heads and Half-Cell Probes are not included as standard and must be ordered separately, see page 13-18

Elcometer 331B Covermeter

The easy to use **Elcometer 331B** covermeter quickly and accurately locates/orientates reinforcement bars in concrete and measures the depth of cover over the rebar.

- Locate and determine orientation of rebar quickly, easily & accurately
- Single handed operation: All functions can be accessed & controlled through 4 simple keys/buttons
- International bar sizes: User selectable bar sizes: Metric, Imperial, ASTM/Canadian and Japanese
- Range of fully interchangeable search heads (see page 13-18)

STANDARDS:

ACI 318, ASTM C876-91, BS1881:201, BS1881:204, BS8110, CP 110, DGZfP:B2, DGZfP:B3, DIN 1045, EC2, SIA 262, SS-EN 206, UNI 10174, Concrete Society Technical Report 60,

How does a Covermeter work?

To identify the location and orientation of the rebar under the surface of the concrete, a search head is connected to the Covermeter and is used to scan across the designated search area of the concrete.

When the search head approaches a reinforcement bar, the LED on the search head will start to glow. The Covermeter will start to emit a sound which will increase in pitch and the signal strength indicator bar on the display will increase in length.

When the bar is positioned below the centre of the search head then the pitch of the sound will be at its highest and the depth of cover will be shown on the Covermeter display. The signal strength indicator bar is at its maximum.

If the reinforcement bar is too deep to measure, the depth of cover will be displayed as infinite.

The Elcometer 331B Covermeter is an entry level gauge without memory that is only used to quickly locate and measure the depth of cover over the rebar.

Elcometer 331B Covermeter

Interchangeable Search Heads & Borehole Probes

A range of fully interchangeable search heads and borehole probes are available to suit the requirements without the need to return your gauge to Elcometer.

There are four types of search heads available for use with the Elcometer 331B; Standard, Narrow Pitch, Deep Cover and Borehole.

The Standard Search Head is designed to meet most of the measurement requirements whereas the Narrow Pitch Search Head accurately measures the cover thickness when the gaps (pitch) between each of the rebars are close together.

The Deep Cover Search Head is ideal for accurately measuring rebars that are deep within the structure. The Borehole Probe is ideal for locating tendon ducts and multiple layers of rebar lying deep within the concrete.

Changing from one type of search head to another is quick and easy; simply switch off the Covermeter, swap search heads, switch on again and zero the Covermeter.

For full details on search heads please see page 13-18.

Product Features

Description	Elcometer 331B
Model	B
Part Number	W331B---4
Covermeter/rebar location	■
Rebar orientation	■
Depth of cover	■
Large cover (thickness) reading mm or inches	■
Large graphic display with backlight	■
Multiple language menu structure	■
Signal strength bar	■
Interchangeable heads with LED & keypad	■
User selectable bar range sizes & numbers	■
Rugged waterproof case (IP65)	■
Adjustable beep volume & earphone socket	■
Measurement sound modes	
Locate *(tone increases as head approaches rebar)*	■

Technical Specification

Operating temperature	0 to 50°C (32 to 120°F)
Power supply	7.4V battery pack provides up to 32 hours of continuous use (20 hours if backlight is on). Rechargeable in 4 hours, using an external charger, either inside or outside the gauge.
Dimensions	230 x 130 x 125mm (9 x 5.1 x 4.9") Weight 1.6kg (3.5lb)
Packing List	Elcometer 331B Covermeter, standard search head & search head connecting cable, rechargeable battery pack & charger (UK, US & EU), earphone, shoulder strap, plastic carry case & operating instructions.

Elcometer 331

Covermeters & Half-Cell Meters

The **Elcometer 331** is an all in one gauge that combines the rebar locator, concrete covermeter and half-cell measurement, making site visits quicker and more convenient.

Locate and determine orientation of rebar quickly, easily & accurately in Cover Mode

Measures the condition and potential corrosion of rebars and steel structures within concrete quickly in Half-Cell Mode

Up to 240,000 readings can be stored on the gauge for detailed reporting

Single handed operation: all functions can be accessed & controlled easily through 4 keys/buttons

Memory and data logging with data output to PC

Links to CoverMaster™ software

International bar sizes:
user selectable bar sizes: Metric, Imperial, ASTM/Canadian and Japanese Available in Cover Mode

Full range of interchangeable search heads, borehole probe & half-cell probes available to suit the requirements
(see page 13-18)

STANDARDS:

ACI 318, ASTM C876-91, BS1881:201, BS1881:204, BS8110, CP 110, DGZfP:B2, DGZfP:B3, DIN 1045, EC2, SIA 262, SS-EN 206, Concrete Society Technical Report 60, UNI 10174

Elcometer 331

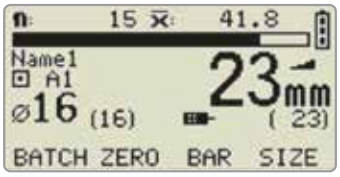
Covermeters & Half-Cell Meters

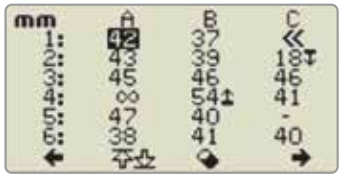
Interchangeable Search Heads, Borehole Probes & Half-Cell Probes

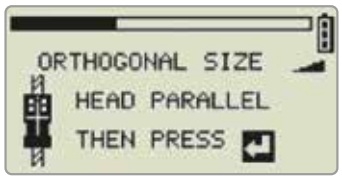
A range of fully interchangeable search heads, borehole probes and half-cell probes are available to suit the requirements without the need to return your gauge to Elcometer.

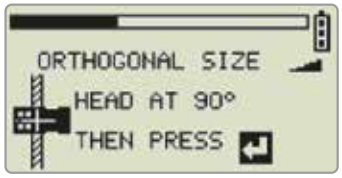
Changing from one search head to another is quick and easy; simply switch off the Covermeter, swap search heads, switch on again and zero the Covermeter.

Cover Mode Displays

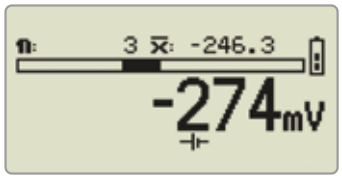


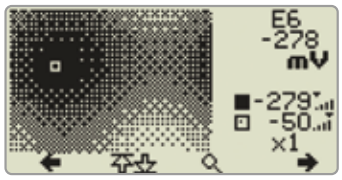


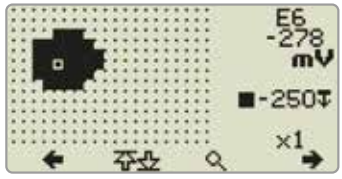


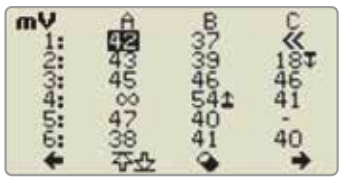


Half-Cell Mode Displays









Standard Search Head

- Designed to meet most measurement requirements

Narrow Pitch Search Head

- Accurately measures the cover thickness when the gaps (pitch) between each of the rebars are close together

Deep Cover Search Head

- Ideal for accurately measuring rebars that are deep within the structure

Dual Search Head

- Designed to locate high tensile steel & stainless steels

Borehole Probe

- Ideal for accurately measuring rebars that are deep within the structure

Half-Cell Kit

- Consists of either a copper electrode in a copper sulphate solution or a silver electrode in a sodium chloride solution
- Each half cell is a sealed unit - no need to mix chemicals
- Supplied with a 25m/80ft cable
- Every half-cell probe is guaranteed for 5 years

Elcometer 331 Covermeters & Half-Cell Meters

Product Features

Description	Covermeter & Half Cell			
Model	BH	SH	TH	THD
Covermeter	■	■	■	■
Half-Cell measurement	■	■	■	■
Rebar orientation	■	■	■	■
Depth of cover	■	■	■	■
Large cover (thickness) reading mm or inches	■	■	■	■
Large graphic display with backlight	■	■	■	■
Multiple language menu structure	■	■	■	■
Signal strength bar	■	■	■	■
Interchangeable heads with LED & keypad	■	■	■	■
User selectable bar range sizes & numbers	■	■	■	■
Rugged waterproof case (IP65)	■	■	■	■
Adjustable beep volume & earphone socket	■	■	■	■
Measurement Sound Modes				
Locate *(tone increases as head approaches rebar)*	■	■	■	■
Under Cover *(tone only sound for low cover)*		■	■	■
Maxpip™ *(tone only as head passes rebar centre)*		■	■	■
Large half cell reading mV	■	■	■	■
Automatic bar size estimate		■	■	■
Orthogonal bar size calculation		■	■	■
RS232 Output - direct to printer or PC		■	■	■
CoverMaster™ software		■	■	■
Statistics		■	■	■
Number of readings *(η)*		■	■	■
Mean (average) *($\bar{x}$)*		■	■	■
Standard deviation *(σ)*		■	■	■
Coefficient of variation *(CV%)*		■	■	■
Lowest reading ( ) , Highest Reading ( )		■	■	■
Under range (<<) , Over range (∞)		■	■	■
Low Limit (or <), Within Limit ( ), High Limit (or >)		■	■	■
Blank readings( )		■	■	■
Minimum & maximum cover limits		■	■	■
Date & Time		■	■	■
Memory		■	■	■
Linear batch memory		10 linear batches of 1,000 readings each	Up to 200 batches of 1,000 readings*	Up to 200 batches of 1,000 readings*
Grid batch memory			Up to 240,000 readings*	Up to 240,000 readings*
User customised batch size			■	■
Graphics plot			■	■
Threshold plot			■	■
Stainless Steel Measurement Mode				■

* Linear Batch Mode: up to 200 batches of 1,000 readings each Grid Batch Mode: up to 1,000 batches, maximum number of readings: 240,000

Elcometer 331 Covermeters & Half-Cell Meters

Technical Specification

Part Number	Description	Certificate
W331BH--4	Elcometer 331 Model BH Covermeter & Half Cell	
W331SH--4	Elcometer 331 Model SH Covermeter & Half Cell	
W331KITC-SH-STD	Elcometer 331 Certified Model SH Concrete Covermeter & Standard Search Head Kit	•
W331KITC-SH-DP	Elcometer 331 Certified Model SH Concrete Covermeter & Deep Cover Search Head Kit	•
W331KITC-SH-NP	Elcometer 331 Certified Model SH Concrete Covermeter & Narrow Pitch Search Head Kit	•
W331TH--4	Elcometer 331 Model TH Covermeter & Half Cell	
W331KITC-TH-STD	Elcometer 331 Certified Model TH Concrete Covermeter & Standard Search Head Kit	•
W331THD-4	Elcometer 331 Model THD Covermeter & Half Cell	
Range	-999mV to +999mV Accuracy ±5mV	
Operating temperature	0 to 50°C (32 to 120°F)	
Power supply	7.4V battery pack provides up to 32 hours of continuous use (20 hours if backlight is on). Rechargeable in 4 hours, using an external charger, either inside or outside the gauge.	
Dimensions	230 x 130 x 125mm (9 x 5.1 x 4.9") Weight 1.6kg (3.5lb)	
Packing List:	**Elcometer 331 Covermeter & Half-Cell Meter** Elcometer 331 Covermeter & Half-Cell Meter, half-cell & search head connecting cable, rechargeable battery pack & charger (UK, US & EU), earphone, shoulder strap, plastic carry case, operating instructions, CoverMaster™ software (SH, TH & THD) & PC cable (SH, TH & THD) **Elcometer 331 Covermeter & Half-Cell Meter Kit** Elcometer 331 Covermeter & Half-Cell Meter, half-cell & search head connecting cable, search head (Standard, Deep Cover or Narrow Pitch), rechargeable battery pack & charger (UK, US & EU), earphone, shoulder strap, calibration certificate, plastic carry case, operating instructions, CoverMaster™ software & PC cable	

Cover Mode and Half-Cell Mode

This all in one gauge combines the rebar locator, concrete covermeter and half-cell measurement, which allows the user to easily switch from Cover Mode to Half-Cell Mode depending on the type of measurement required on site.

Cover Mode: Measures the depth of cover over the rebar, detecting the location, orientation and depth of the rebar under the surface of the concrete using either a Standard, Narrow Pitch, Deep Cover, Dual Search Head or a Borehole Probe.

Half-Cell Mode: Measures the condition and potential corrosion of rebars and steel structures within the concrete using either a copper electrode in a copper sulphate solution or a silver electrode in a silver chloride solution.

The Elcometer 331 Covermeter and Half-Cell meter is available in four models - Model BH, SH, TH and THD.

Elcometer 331 Model BH: entry level gauge without memory.

Elcometer 331 Model SH: intermediate level gauge supplied with memory and allows users to store up to 1,000 readings in linear batches.

Elcometer 331 Model TH: supplied with memory and allows users to store up to 240,000 readings in either linear or grid batches.

Elcometer 331 Model THD: supplied with memory and allows users to store up to 240,000 readings in either linear or grid batches. Also able to detect stainless steel reinforcement bars.

• Calibration Certificate supplied as standard

Elcometer 331 Covermeters & Half-Cell

Bar Size Dimensions available on the Elcometer 331 Models B, BH, SH, TH & THD in Cover Mode

The bar size can be selected when using a Covemeter only or the Covermeter & Half-Cell meter in Cover Mode. Dimensions of reinforcement bars are stored in the Elcometer 331 Models B, BH, SH, TH & THD and includes the following four standards bar series: Metric, US Bar, ASTM/Canadian and Japanese. Due to this wide selection of bar sizing, the Elcometer 331 Covermeters can be utilised worldwide with accurate results.

When taking measurements for high tensile steel or Grades 304, 316 and Duplex Stainless Steel using the Elcometer 331 Model THD, details for the Bar Grade and Bar Size can be manually input into the covermeter, alternatively the gauge can be used in Autosizing Mode.

Metric	
Bar Size	Diam. (mm)
5	5
5.5	5.5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
14	14
16	16
18	18
20	20
22	22
25	25
28	28
32	32
36	36
40	40
44	44
50	50

Imperial	
Bar Size	Diam. (Inch)
#2	0.250
#3	0.375
#4	0.500
#5	0.625
#6	0.750
#7	0.875
#8	1.000
#9	1.125
#10	1.250
#11	1.375
#12	1.500
#13	1.625
#14	1.750
#15	1.875
#16	2.000
#18	2.250

ASTM/Canadian	
Bar Size	Diam. (mm^2)
10M	100
15M	200
20M	300
25M	500
30M	700
35M	1000
45M	1500
55M	2500

Japanese	
Bar Size	Diam. (mm)
6	6
10	10
13	13
16	16
19	19
22	22
25	25
29	29
32	32
35	35
38	38
41	41
44	44
48	48
51	51
57	57

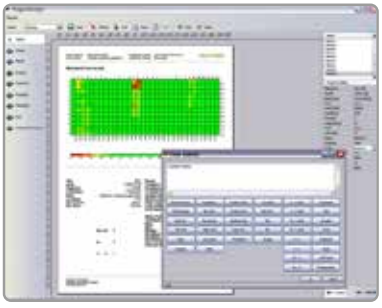
Elcometer 331 CoverMaster™ Software

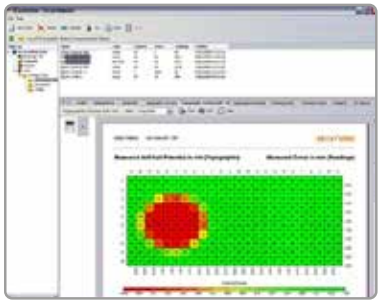
Elcometer's CoverMaster™ software will manage your data efficiently and effectively.

Available with the Elcometer 331 Models HM, SH, TH & THD.

Data is transferred quickly into the CoverMaster™ software data management system via RS232 connection.

Both Covermeter and Half-Cell readings can be stored together with associated photos, Word documents, Excel spreadsheets and other files.





CoverMaster™ software is supplied free of charge with all Elcometer 331 models that have batch data storage.

Features:

- Data easily translated into a typographic view giving you all the information you need at a glance
- Data for each reading can be presented in colour or can be shown in greyscale, complete with reading values in each grid
- Site survey data from both cover and half cell measurements can be shown on the same typographic (or gradient) chart
- Reports can be fully customised allowing corporate logos, photos and memos to be added providing a fully comprehensive report for clients
- All survey information in one place, CoverMaster™ links directly with Excel, Word and PowerPoint files, it is simple to analyse and assess your results
- CoverMaster™ - one platform for the storage of data, notes, photos, PDF files for the creation of comprehensive reports

Elcometer 331 Accessories

For the Elcometer 331 BH, SH, TH and THD models, all search heads, the borehole probe and half-cell probes are fully interchangeable there is no requirement to return your gauge to Elcometer.

Elcometer 331 SH, TH and THD models are also supplied with CoverMaster™ & EDTS Excel link transfer software and PC Cable.

The Elcometer 331 Model B does not have half-cell capability and cannot be used with the half-cell probes listed below.

Standard Search Head

Designed to meet most of your measurement requirements.

Part Number	TW33119124-1A
Range	40mm / 1.6" bar 15mm to 95mm / 0.6" to 3.75" 8mm / 0.3" bar 8mm to 70mm / 0.3" to 2.75"
Dimensions	155 x 88 x 42mm / 6.1 x 3.5 x 1.65"
Sensing area	120 x 60mm / 4.72 x 2.36"

Narrow Pitch Search Head

Accurately measures the cover thickness when the gaps (pitch) between each of the rebars are close together.

Part Number	TW33119124-2A
Range	40mm / 1.6" bar 8mm to 80mm / 0.3" to 3.1" 8mm / 0.3" bar 5mm to 60mm / 0.2" to 2.4"
Dimensions	155 x 88 x 42mm / 6.1 x 3.5 x 1.65"
Sensing area	120 x 60mm / 4.72 x 2.36"

Deep Cover Search Head

The ideal search head for accurately measuring rebars that are deep within the structure.

Part Number	TW33119171A
Range	40mm /1.6" bar 35mm to 180mm / 1.4" to 7" 8mm / 0.3" bar 25mm to 160mm / 1" to 6.3"
Dimensions	170 x 94 x 54mm / 6.7 x 3.7 x 2.1"
Sensing area	160 x 80mm / 6.3 x 3.15"

Dual Search Head for high tensile and stainless steels

The search head is designed to locate High Tensile and Stainless Steel.

Part Number	TW33120014D
Range	40mm /1.6" bar 35mm to 180mm / 1.4" to 7" 8mm / 0.3" bar 25mm to 160mm / 1" to 6.3"
Dimensions	170 x 94 x 54mm / 6.7 x 3.7 x 2.1"
Sensing area	160 x 80mm / 6.3 x 3.15"

Elcometer 331

Accessories

Borehole Probe

The solution for locating tendon ducts and multiple layers of rebar lying deep within the concrete.

		Metric	Imperial
Part Number	Short	TW33119223-1A	TW33119223-3A
	Long	TW33119223-2A	TW33119223-4A
Measurement depth	Short Probe: 0 - 400mm / 0 - 16" Long Probe: 0 - 1000mm / 0 - 40"		
Approximate detection ranges	Tendon duct (70mm / 2.75" diameter): up to 90mm / 3.54"		

Half-Cell Kit

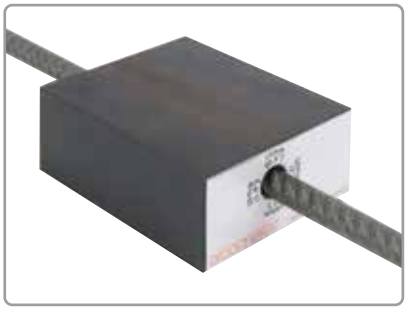
Consists of either a copper electrode in a copper sulphate solution or a silver electrode in a sodium chloride solution, each half cell is a sealed unit - no need to mix chemicals. Supplied with a 25m / 80' cable, every half-cell probe is guaranteed for 5 years.

Part Number	TW331CUKIT	Copper/Copper Sulphate
	TW331AGKIT	Silver/Silver Chloride

Extension Cable 100m / 325ft

The extension cable for use with the half-cell kits gives the flexibility to take readings in difficult to reach areas.

Part Number	TW33119683



Verification Block

The verification block allows the user to check the calibration of their gauge in order to ensure maximum measurement accuracy.

Part Number	TW33119218

Extension Arm Kit

This kit allows the user to scan bridge decks and floor areas using the hand-held search heads from a standing position as both the standard or narrow pitch search head can be attached to the extension arm.

Part Number	TW33119222

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Elcometer 7000

Digital Moisture Meters

The Elcometer 7000 offers accurate and easy to use moisture measurement.

The Digital Moisture Meter has two pin probes that allows the gauge to be pressed on to a surface to enable you to take a measurement of the immediate area. It also has a non-invasive probe on the back of the gauge for moisture detection.

- Calibrated ready for use
- Instant readings on a clear, easy to read scale
- Fully portable and battery operated

Technical Specification

Model	Elcometer 7000PS Digital Moisture Meter	Certificate
Part Number	G7000PS	○
Measuring Range	70 to 999 relative (non-invasive) Dry (green); 70 - 169 At risk (yellow); 170 - 199 Wet (red); 200 - 999 7.9% to 99% WME (pin measurement) Dry (green); 7 - 16.9 At Risk (yellow); 17 - 19.9 Wet (red); 20 - 99.9	
Measurement Depth	Non-invasive up to 19mm (¾") Pin up to 12.7mm (½")	
Display	LCD Display with separate colour indicators	
Dimensions	190 x 70 x 49mm (7.5 x 2.75 x 1.9")	
Weight	225g (8oz)	
Power Supply	9V battery (~ 20 hours continuous use)	
Packing list	Elcometer 7000PS Moisture Meter, HD MC probe, Deep Wall probe 127mm (5"), pin calibration check, wood calibration chart, battery, carry case and operating instructions	

○ Optional Calibration Certificate available

Elcometer 7410

Concrete Moisture Meter

STANDARDS:
ASTM F 2659

The Elcometer 7410 is an accurate and easy to use non-invasive instrument for non-destructive measurement of moisture content of concrete.

The electrodes transmit parallel low frequency signals, calibrated to give average moisture content by comparing the change in impedance between damp and acceptably dry concrete.

- Calibrated ready for use on concrete
- Instant readings on a clear, easy to read scale
- Fully portable, battery operated and non-destructive

Technical Specification

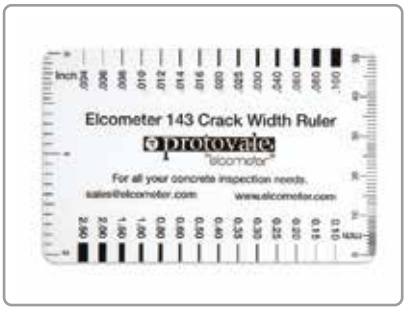
Part Number	Description		Certificate
K0007410M002	Elcometer 7410 Concrete Moisture Meter		●
Measuring Range	Concrete 0 - 6%, Floor screed 0-10%	Substrate Type	Concrete, gypsum floor screed
Measurement Depth	20mm (¾")	Power Supply	2 x AA Batteries
Dimensions	160mm x 85mm x 38mm (6.3" x 3.5" x 1.5")	Weight	344g (12.1oz)
Packing list	Elcometer 7410 Concrete Moisture Meter, battery, carry case, calibration certificate and operating instructions		

Accessories

KT007410P001	Calibration Check Plate
KT007410P002	Elcometer 7410 Extension Handle

Elcometer 143

Crack Width Ruler



This simple gauge is designed specifically to provide inspectors with a low cost alternative to a graduated microscope when determining the width of a crack in concrete or other building materials.

Similar in size to a standard credit card, this transparent gauge is marked with a range of graded lines. Each line is a specified width.

To use, position the gauge over the crack and identify which line is a similar width to the crack. Read off the width value.

Technical Specification

Part Number	Description
E143----1	Elcometer 143 Crack Width Ruler
Range	0.10 - 2.50mm / 0.004 - 0.100 inches

● Certificate supplied as standard.

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Concrete Inspection & Metal Detection

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Elcometer P500

Metal Box Locator

Although originally designed to accurately locate valve boxes and manhole covers, the Elcometer P500 can also be used as a general metal detector. It is straight forward to use and very rugged making it a popular choice in the market.

Detects metal objects to a maximum depth of 1m (39.4”), the Elcometer P500 has a number of key unique features:

- Manufactured from a single moulded design, in high impact ABS plastic, the Elcometer P500 stands up to a tough environment
- A balanced, lightweight unit with a single control button for ease of use
- Audio signal with headphone socket and an ultra-bright LED visual indicator which identifies when metal has been detected

Technical Specification

Part Number	Description
W500157F	Elcometer P500 Metal Box Locator
Overall Length	960mm (38”)
Search Head Diameter	210mm (8”)
Weight	1.1kg (2.5lb)
Power Supply	4 x 1.5V AA Cells or 4 x 1.5V NiMH Rechargeable Cells
Packing List	Elcometer P500 Metal Box Locator, 4x LR6 (AA) batteries, operating instructions

Approximate Detection Ranges

Typical Object Type	Metric	Imperial
Stop Top Box	500mm	19”
Fire Hydrant Cover	870mm	34”
Inspection Cover	950mm	37”

Metal Box Locator

The Elcometer P500 submits a strong, focused downwards search field ensuring the accurate location of objects, even when close to metal fencing and vehicles.

The metal box locator ignores any ghost signals from cigarette packets, drink cans and other metallic waste materials, making your search more efficient.

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The Elcometer 500 can quickly, accurately and repeatably measure dry film thickness on concrete and other cementitious substrates.

See page 7-33

Standards & Index

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This section lists all Standards included in this catalogue. Current Standards are shown in orange and superseded Standards are shown in grey. For further information please see the catalogue introduction. For the most up to date information, please refer to our website.

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Velocity Chart for the preset choice of 39 materials in the Elcometer MTG

Elcometer Material Number	Material Description (Chemical Symbol/ Grouping)	Material Name	Sound Velocity (m/sec)	Sound Velocity (in/µsec)	Source of Value NPL = National Physics Laboratory ASNT = The American Society for Non destructive Testing Industry = Industry knowledge
1	Fe	Iron (soft)	5960	0.235	NPL
2	Fe	Iron Cast	4990	0.196	NPL
3	Al	Aluminium (7075-T6)	6350	0.250	ASNT
4	Ti	Titanium	6100	0.240	ASNT
5	Mg	Magnesium	5790	0.228	ASNT
6	Ni	Nickel	5630	0.222	ASNT
7	W	Tungsten	5180	0.204	ASNT
8	Cu	Copper	4660	0.183	ASNT
9	Zn	Zinc	4190	0.165	NPL
10	Ag	Silver	3600	0.142	Industry
11	Sn	Tin	3380	0.133	NPL
12	Pt	Platinum	3260	0.128	NPL
13	Au	Gold	3240	0.128	NPL
14	Cd	Cadmium	2780	0.109	NPL
15	Bi	Bismuth	2180	0.086	Industry
16	Pb	Lead	2160	0.085	ASNT
17	Cobalt-chromium Alloy	Stellite	6990	0.275	Industry
18	Iron Alloy	Steel (Carbon 1018)	5920	0.233	Industry
19	Iron Alloy	Steel (Alloy 4340)	5850	0.230	Industry
20	Nickel-chromium Alloy	Inconel (625)	5820	0.229	Industry
21	Silver Alloy	Stainless Steel, (Austenitic 304)	5660	0.233	ASNT
22	Copper Alloy	Constantan	5180	0.204	NPL
23	Copper-nickel Alloy	German Silver	4760	0.187	Industry
24	Copper-zinc Alloy	Brass (Naval)	4430	0.174	ASNT
25	Non-metal	Glass (Quartz)	5930	0.233	ASNT
26	Non-metal	Glass (Crown)	5660	0.223	NPL
27	Non-metal	Glass (Flint)	5260	0.207	NPL
28	Non-metal	Porcelain	5840	0.230	Industry
29	Non-metal	Plexiglas	2760	0.109	Industry
30	Non-metal	Glass Fibre	2740	0.108	Industry
31	Non-metal	Nylon	2680	0.106	NPL
32	Non-metal	Epoxy Resin	2540	0.100	Industry
33	Non-metal	Polystyrene	2350	0.093	NPL
34	Non-metal	PVC	2330	0.092	NPL
35	Non-metal	Rubber (Butyl)	1830	0.072	Industry
36	Non-metal	Rubber (Natural)	1600	0.063	NPL
37	Non-metal	Polyurethane	1780	0.070	Industry
38	Non-metal	Teflon	1400	0.055	NPL
39	Non-metal	Water	1490	0.059	ASNT

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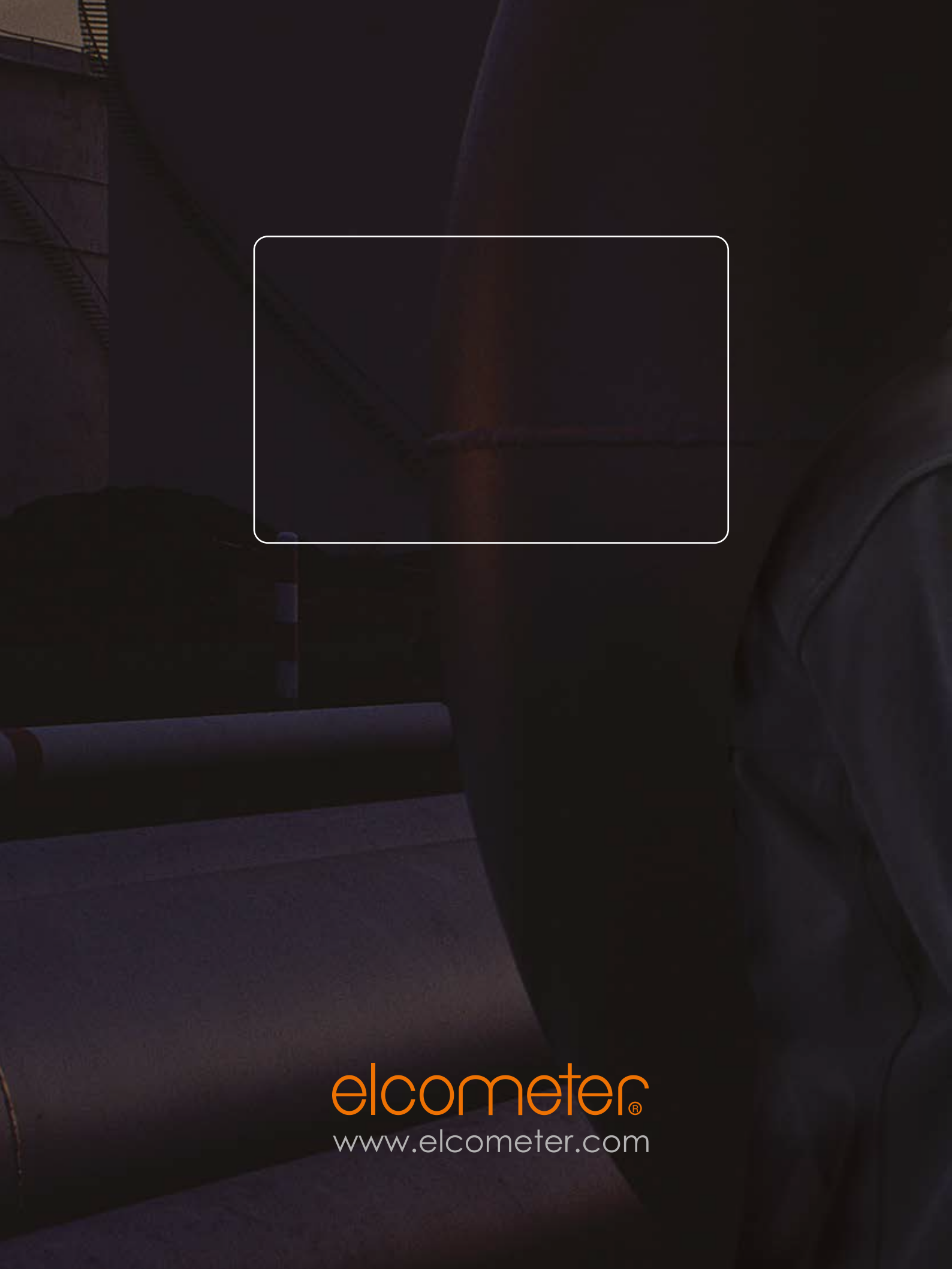

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