

elcometer®



Pinhole & Porosity Detection

www.elcometer.com

Pinhole & Porosity Detection

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:** Un-coated 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:

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.

Wet Sponge Technique

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.



Elcometer 260 UV Pinhole Flashlight

Battery powered and housed in a rugged aluminium case, the Elcometer 260 provides a quick, low cost method of testing coatings for pinholes.

Featuring a single Watt purple light emitting diode, the Elcometer 260 UV flashlight has a beam wavelength of 405nm (±5nm), which the human eye perceives as a purple light.

A UV reflective additive is applied to the base coat. The UV flashlight shines the purple light on the coating, the base coat fluoresces where it is not covered by any subsequent coating - identifying any pinholes in the top coat.



Technical Specification

| | |
|-------------------|--|
| Part Number | D260----2 |
| Beam Wavelength | 405nm ±5nm |
| Flashlight Casing | Hard anodised aluminium |
| Battery Life | 6 hours (continuous use) |
| Battery Type | 2 x CR123A lithium batteries |
| Lens Type | Dual element diffuser |
| Dimensions | 150 x 35mm (6 x 1.4") |
| Weight | 173g (6.1oz) |
| Packing List | Elcometer 260 UV Pinhole Flashlight, UV protective glasses, nylon belt holster, 2 x 123A lithium batteries, operating instructions |

Can be used in accordance with: (see Standards Explained inside back cover)

ASTM E2501

Accessories

| | |
|-----------|--|
| T26020140 | UV Protective Glasses |
| T26020141 | 2 x Replacement Lithium 123A Batteries |

Elcometer 270 Pinhole Detector

The Elcometer 270 range utilises the wet sponge technique and sets the standard for wet sponge detectors - high quality, low voltage detectors 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

Each unit can be converted into a separate wand with base unit using the separate wand adaptor

Automatic internal voltage check ensures that the selected voltage can be achieved

Easy release, snag proof cables - available in 4m (13'2") & 10m (32'10") lengths

Can be used in accordance with:
(see Standards Explained inside back cover)

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

Accessories



Standard wand
A universal flat sponge to suit almost all applications

T27016867

Spare flat sponge set
Pack of 3 sponges;
150x60x25mm (6x2.3x1")

T27018050



Roller sponge wand
Ideal for large flat surface inspection

T27016960

Spare roller sponge

T27018051



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

T27016999

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

T27016998



Extension piece
420mm (16.5") extensions to expand operators reach

T27016965

Additional extension pieces can be connected to each other



Pinhole Inspector's Kit
The complete pinhole detection kit. Each kit is supplied with:

T27018191

- 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; simply add the model number to the order



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

T99916954

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

T99916996



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

T27018024

Technical Specification


C certificate available

| Model | Elcometer 270/3 | Elcometer 270/2 | Elcometer 270/4 |
|-------------------------------|--|--------------------------------------|--|
| Part Number | D270----3 | D270----2 | D270----4 |
| Voltage | 9V and 90V | 67.5V | 9V, 67.5V and 90V |
| Maximum Measurement Range | 500µm (20mils) | 500µm (20mils) | 500µm (20mils) |
| Sensitivity | 9V: 90kΩ ±5% 90V: 400kΩ ±5% | 125kΩ ±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 | Up to 100 hours | 9V: up to 200 hours 67.5V: up to 100 hours 90V: up to 80 hours |
| Battery Type | 3 x AA (LR1600) 1.5V alkaline (NiMH rechargeable batteries can also be used, 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 | | |

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.

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.

A close-up photograph of the Elcometer 280 Pulsed DC Holiday Detector. The device is primarily orange with a black handle and a black control panel. The control panel features a small LCD display, several buttons, and a speaker grille. A black shoulder strap is attached to the top. A metal probe is visible at the bottom tip of the device.

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

Rugged, shock proof and water resistant design to ensure long life - even in harsh environments

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

A wide range of interchangeable probe accessories available - compatible with all Elcometer holiday detectors



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

Can be used in accordance with:
(see Standards Explained inside back cover)

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

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.

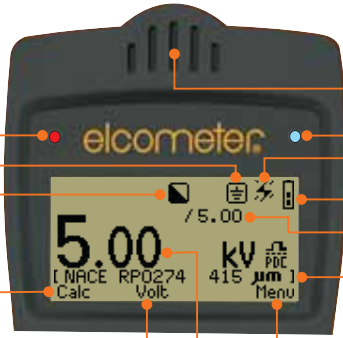
From the two stage safety switch, bright LED's and screen icons signifying when the high voltage is on, to the extended ribbing to protect the user from spark

creep, the Elcometer 280 sets the standard for high voltage measurement safety.

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

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

Elcometer 280 Features



- 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 relevant standard & 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 up to 30+ hours of continuous use*
- Earth return lead socket including 1/4 turn lock/release to ensure connection during testing
- Rubberised second hand grip provides greater control and balance during testing
- Large, waterproof buttons ideal for 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

Technical Specification

C certificate available

| Description | Model S | Model T |
|---|--|------------|
| Elcometer 280 Pulsed DC Holiday Detector | D280-S---- | D280-T---- |
| Elcometer 280 Pulsed DC Holiday Detector Inspection Kit | D280-S-KIT | D280-T-KIT |
| Rugged, Shock Proof & 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 lithium ion battery, fully charged within 4 hours | |
| Typical Battery Life | Battery life is dependant on 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 | <p>Elcometer 280 Pulsed DC Holiday Detector Gauge (Model S or T), 5m (16') trailing signal return lead, battery pack, battery charger with mains cables (UK, EUR and US), shoulder strap and operating instructions</p> <p>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 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 light weight, rugged, wheeled transit case - ideal for transportation</p> | |

Accessories

| | |
|--|-------------|
| Light weight, 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 un-grounded 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 rolling springs, rubber or wire brush probes and other accessories see pages 14 - 18

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 springs available

Voltage calculator automatically sets the correct voltage from your coating thickness value

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

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

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

Dual safety switch on handle to avoid accidental switch on

Can be used in accordance with:
(see Standards Explained inside back cover)

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



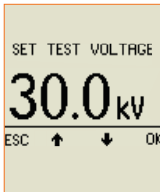
Elcometer 266 Key Features



Interchangeable DC probe handles
 Voltage Range Max Coating Range
 500 - 5,000 Volts 1.25mm (50mils)
 500 - 15,000 Volts 3.75mm (150mils)
 500 - 30,000 Volts 7.50mm (300mils)



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



Internal jeep tester
 Continuous testing ensures that the selected test Voltage is always generated - regardless of the battery life or climatic conditions



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



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



Universal probe adaptors
 Enables the Elcometer 266 to work with all major holiday detector's accessories

Technical Specification

certificate available

| Description | Part Number |
|---|---|
| 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 lithium ion battery, fully charged within 4 hours |
| Measured Current Flow Accuracy | ±5% of full scale Output Current: 0 - 100μA maximum |
| 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, lithium battery, curly connection cable for high voltage handle, 10m (32') signal return lead, battery charger with 3 mains cables (UK, EUR and US), band brush, shoulder strap, tough plastic carry case and operating instructions |

Accessories

| | DC5 (0 - 5KV) | DC15 (0 - 15kV) | DC30 (0 - 30kV) |
|---------------------------------------|--------------------|---------------------|-----------------|
| Elcometer 266 Probe Handle (Voltage)* | T26620033-1 | T26620033-2 | T26620033-3 |
| Second Hand Grip | T26620081 | | |
| Earth Signal Return Lead | 4m(13'): T99916954 | 10m(32'): T99916996 | |

For rolling springs, rubber or wire brush probes and other accessories see pages 14 - 18

*The Elcometer 266 does not include the probe handle; please select the required handle from the list above

Elcometer 236 Holiday Detector

This instrument provides high voltage porosity testing to detect pits, flaws, holes, etc, in a wide variety of non-metallic coatings.

Available in 2 versions; 15 and 30kV;
fully adjustable in 100 Volt steps

Standard and telescopic handles
available for hard to reach areas



Integrated neon bulb in the handle,
together with buzzer indicate when
a holiday has been located

Adjustable sensitivity allows use
on partially conductive surfaces

A wide range of probe brushes
and springs available

Can be used in accordance with:
(see Standards Explained inside back cover)

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



Available in 2 versions, 15kV and 30kV, each Elcometer 236 unit provides the user with complete control of voltage and sensitivity settings.

Each unit is supplied in a convenient carrying case which also holds the probe handle and an additional (optional) external re-chargeable 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 structures.

Technical Specification

 certificate available

| | Elcometer 236 15kV Holiday Detector | Elcometer 236 30kV Holiday Detector |
|-----------------------------|--|-------------------------------------|
| Part Number | D236--15KV | D236--30KV |
| 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 | |
| Power Supply | NiMH 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 | External battery pack |



For rolling springs, rubber or wire brush probes and other accessories see pages 14 - 18

Accessories for all Elcometer High Voltage Holiday Detectors

| Part Number | Description | Compatible with | | | |
|--|--|---|---------------|---------------|---|
| | | Elcometer 236 | Elcometer 266 | Elcometer 280 | |
| Batteries, Chargers & Earth Signal Return Leads | | | | | |
| | 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 lithium ion battery pack | | • | • |
| | T99919999A | Battery charger & mains lead (UK 240V) | | • | • |
| | T99919999B | Battery charger & mains lead (EU 220V) | | • | • |
| | T99919999C | Battery charger & mains lead (US 110V) | | • | • |
| | 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 piece, 250mm (9.8") | ○ | • | • |
| | T99919988-1 | Probe extension piece, 500mm (20") | ○ | • | • |
| | T99919988-2 | Probe extension piece, 1000mm (39") | ○ | • | • |
| Accessory Adaptors, allowing 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

Accessories for all Elcometer High Voltage Holiday Detectors

| Part Number | Description | Compatible with | | | | |
|--|-------------------------------------|---|---------------|---------------|---|---|
| | | Elcometer 236 | Elcometer 266 | Elcometer 280 | | |
| Wire Brush Probes, band brush, flat brush, internal and external pipe brush probes | | | | | | |
|  | T99919975 | Band brush probe | ○ | ● | ● | |
| | T99922751 | Phosphor bronze brush probe | ○ | ● | ● | |
| | | Width | | | | |
| 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" | ○ | ● | ● |
| 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" | ● | ● | ● | |

○ Older Elcometer 236 models may require adaptor piece T99922768

Accessories for all Elcometer High Voltage Holiday Detectors

| Part Number | Description | Compatible with | | |
|-------------|-------------|-----------------|---------------|---------------|
| | | Elcometer 236 | Elcometer 266 | Elcometer 280 |



| | | Outside Diameter (OD) | | | | |
|--------------|--|-----------------------|----------|---|---|---|
| | | DN | NPS | | | |
| T99922752 | 'C-type' wire brush holder [†] (order C-type brush from the list below) | | | ○ | ● | ● |
| T99922907 | 'C-type' wire brush support handle | | | ○ | ● | ● |
| 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" | ● | ● | ● |

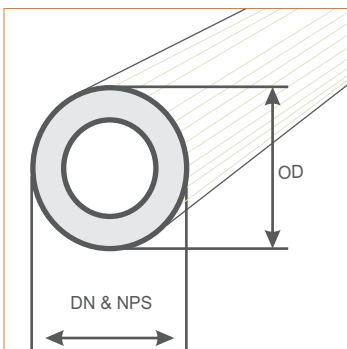
[†]Wire brush holder supplied separately (T99922752)

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" | ● | ● | ● |

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 at 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.

○ Older Elcometer 236 models may require adaptor piece T99922768

Accessories for all Elcometer High Voltage Holiday Detectors

| Part Number | Description | Compatible with | | |
|--|-------------|-----------------|---------------|---------------|
| | | Elcometer 236 | Elcometer 266 | Elcometer 280 |
| Rolling Springs, available in phosphor bronze or stainless steel, rolling spring holders are supplied separately | | | | |

| | | | | |
|------------------|---|---|---|---|
| T99920086 | Phosphor bronze rolling spring holder Order the relevant phosphor bronze spring(s) from the list below | ○ | ● | ● |
| T99922746 | Stainless steel rolling spring holder Order the relevant stainless spring(s) from the list below | ○ | ● | ● |



Phosphor Bronze



Stainless Steel

Rolling Spring Description / Dimensions

| | | Nominal Pipe Size | | Pipe Outside Diameter (OD) | | | |
|----------------|----------------|-------------------|----------|----------------------------|--------|------------|--------|
| | | DN | NPS | millimeters (mm) | | inches (") | |
| | | (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 | | | 125 | 136 | 4.9 | 5.4 |
| T99920438-45B | T99922744-45B | 114 | 4.5 | 136 | 141 | 5.4 | 5.6 |
| T99920438-50A | T99922744-50A | | | 141 | 155 | 5.6 | 6.1 |
| T99920438-50B | T99922744-50B | 125 | 5.0 | 155 | 168 | 6.1 | 6.6 |
| T99920438-60A | T99922744-60A | | | 168 | 180 | 6.6 | 7.1 |
| T99920438-60B | T99922744-60B | 152 | 6.0 | 180 | 193 | 7.1 | 7.6 |
| T99920438-70A | T99922744-70A | | | 193 | 213 | 7.6 | 8.4 |
| T99920438-70B | T99922744-70B | 178 | 7.0 | 213 | 219 | 8.4 | 8.6 |
| T99920438-80A | T99922744-80A | | | 219 | 240 | 8.6 | 9.4 |
| T99920438-90A | T99922744-90A | 229 | 9.0 | 240 | 264 | 9.4 | 10.4 |
| T99920438-100A | T99922744-100A | | | 264 | 290 | 10.4 | 11.4 |
| T99920438-110A | T99922744-110A | 279 | 11.0 | 290 | 320 | 11.4 | 12.6 |
| T99920438-120A | T99922744-120A | | | 320 | 350 | 12.6 | 13.8 |
| T99920438-140A | T99922744-140A | 305 | 12.0 | 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

Accessories for all Elcometer High Voltage Holiday Detectors

Rolling Springs, available in phosphor bronze or stainless steel, rolling spring holders are supplied separately



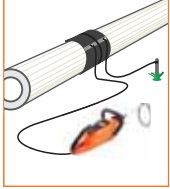
Rolling Spring Description / Dimensions

| | | Nominal Pipe Size | | Pipe Outside Diameter (OD) | | | |
|-----------------|-----------------|-------------------|-----------------|----------------------------|--------|------------|--------|
| | | DN (mm) | NPS (inches) | millimeters (mm) | | inches (") | |
| Phosphor Bronze | Stainless Steel | | | min OD | max OD | min OD | max OD |
| T99920438-160A | T99922744-160A | 406 | 16.0 | 400 | 435 | 15.7 | 17.1 |
| T99920438-160B | T99922744-160B | | | 435 | 450 | 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.

Accessories for all Elcometer High Voltage Holiday Detectors

Grounding mats



Grounding mats are ideal for testing on un-grounded 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.

| | 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 | | | | | • |

Why choose Elcometer ?

For more than sixty 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 'best in class' design, quality and service at a competitive price. By concentrating on these core values, Elcometer has grown into a global network with representation in over 70 countries.

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

Fit for Purpose - Standards Explained

All Elcometer products are designed to comply 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 and for the most up to date list, 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.

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Elcometer has over 150 Distributors around the world, all comprehensively trained in our products, providing a full after sales service and support within your region. With the widest range of own manufactured products, Elcometer can provide a complete solution to all your inspection requirements.

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