Elcometer 236 DC Holiday Detector

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At a glance

- *Ideal for field, site or laboratory inspection.*
- *Available in 1-15kV or 2-30kV versions.*
- *Wide range of accessories available for various applications.*

Can be used in accordance with:	
ANSI/AWWA C 214-89	ANSI/AWWA C 214-91
ASTM G 6	ASTM D 5162
ASTM G 62-B	BS 1344-11
ISO 2746	JIS G-3491
JIS-G 3492	NACE RP 0274
NACE RP 0490-2001	NACE RP 0188-88

Elcometer 236 DC Holiday Detector
The premature corrosion of a substrate is often due to the failure of its coating. Major causes of failure are flaws in the finished coating, these include pinholes, holidays, inclusions, thin spots and bubbles.

The Elcometer 236's convenient carry case allows the probe handle and accessories to be attached to the front making the Elcometer 236 ideal for field, site or laboratory inspection.

An accessory pouch, which accommodates the additional rechargeable battery (optional) can also be attached to the soft carry case - thereby extending inspection time without the need for recharging the unit.

- Simple to use
- Robust and fully portable
- Audio and visual alarms – for noisy environments
- Supplied with a brush band probe
- Full set of probe accessories
- Digital display of output voltage and current
- Adjustable sensitivity
- 15kV and 30kV options available with fully adjustable output voltage
- Low Weight 1.8kg (4lb)

The Elcometer 236 is available in two versions: 1 - 15kV and 2- 30kV version.

Each unit provides the user with complete control on Voltage and Sensitivity settings. Due to the unique method of operation, the Elcometer 236 minimises the risk of additional damage to a coating and avoids the danger of coating popping off the surface which can occur with some high Voltage systems.

Pinhole & Porosity Detection
Premature corrosion of a substrate is usually due to the failure of the coating. A major cause of failure is the presence of flaws in the finished coating. Collectively referred to as a coating's porosity the main types of flaw are described below:

Runs & Sags
: The wet coating moves under gravity leaving a thin dry film

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

Cratering
: Occurs when the substrate is wet or if the coating has poor flow characteristics, thus creating voids in the coating.

Pinholes
: Caused either 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 to a substrate, as the coating cures it can crack from internal stresses of the coating.

Under Coating
: Areas are not coated, or the coating flows away from particular edges, corners of a substrate and welds. Furthermore over a rough surface profile, insufficient coating may leave the profile's peaks exposed.

Convenient Kit Case
The Elcometer 236 DC Holiday Detector is supplied as a complete kit, allowing the User to begin testing immediately after charging the unit.

The kit is supplied in a hard backed transit case for transportation and long term storage.

	15kV	30kV
Accuracy of Voltage Setting	±5% or ±0.2%kV	
Display Resolution	0.01kV	0.1kV
Range of Coating Thickness	0 - 3.75mm (approximate) 0 - 150mils (approximate)	0 - 7.5mm (approximate) 0 - 300mils (approximate)
Voltage Output	0.5 - 15kV in 100V steps	0.5 - 30kV in 100V steps
Alarms	Audio & Visual	
Power Supply	NimH 12V internal rechargeable battery, providing 10/12 hours continuous use	
Battery Life (approximate)	10/12 hours continuous use, the optional external battery pack can increase this to 20/24 hours of continuous use	
Unit Dimensions	200 x 170 x 70mm (6 x 7 x 3")	
Product Weight (inc case and probe)	2.8kg (6lb 3oz)	

Model	**Description**	**Part Number**		
		UK 240V	**EUR 220V**	**US 110V**
Elcometer 236/15	Elcometer 236 High Voltage Holiday Detector – 1 - 15kV	D236--15A	D236--15B	D236--15D
Elcometer 236/30	Elcometer 236 High Voltage Holiday Detector – 2 - 30kV	D236--30A	D236--30B	D236--30D
Accessories	External Battery Pack	T23615550		
Packing List	Elcometer 236, Probe Handle and Lead, Brush Band Probe Accessory, 2m and 10m Signal Return/Earth Leads, Battery Charger, Carry Case, Transit Case and Instruction Book			
See the following page for a complete range of Elcometer 236 Probe Accessories				

The consequent cost of repairs and subsequent loss of production can be considerable. Early inspection for coating flaws will prevent the expense and inconvenience of a coating failure. Instruments used to detect coating flaws are referred to by many different names, these include spark or jeep testers, porosity or holiday detectors, and pinhole testers.

There are two methods of testing:

Wet Sponge Technique

Suitable for measuring insulating coatings less than 500µm (20mils) on conductive substrates. The wet sponge technique is ideal for powder coatings and any thin coating where the User does not wish any damage to occur to the coating.

A low voltage is applied to a sponge, moistened with a wetting agent. When the sponge moves over a coating flaw, liquid penetrates to the substrate and completes an electrical circuit, setting off the alarm.

This technique will identify coating flaws where the substrate is uncovered, i.e. cissing, cratering, pinholes and some forms of over and under coating flaws.

High Voltage Technique

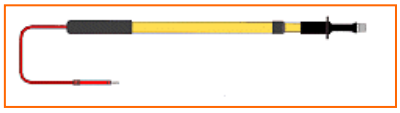
Locates all flaws in insulating coatings on conductive substrates, the high voltage technique can be used to test coatings up to more than 7mm (275mils) thick. This method is ideal for inspecting pipelines and other protective coatings. Coatings on concrete can also be tested using this method.

A power supply generates a high DC Voltage which is supplied to a suitable probe with an earth return connected to the substrate. As the probe is passed over the coated substrate, a flaw is indicated by a spark at the contact point which sets off the alarm.

This technique is suitable for identifying all of the flaws described above, however care is required on thin coatings.

ELCOMETER 236 PROBE ACCESSORIES

The Elcometer 236 has a wide range of accessories and adaptors to allow you to test wherever you are. If you do not see the accessory that you require, please contact Elcometer.



TELESCOPIC PROBE HANDLE

Glass fibre, fully insulated behind the ring, this low cost telescopic probe handle has been designed to allow the user to reach high areas from the ground or a platform. Using a simple twist and lock procedure the user can extend the handle to any length between the minimum and maximum lengths.

Description	Part Number
Telescopic Probe Handle 0.6 – 1.2m (2 – 4 feet)	T236155971
Telescopic Probe Handle 1.8 – 3.6m (6 – 12 feet)	T236155972

EXTENSION PIECES

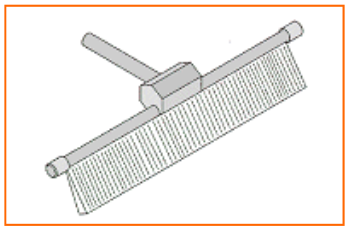
To extend the probe for applications where a long reach is required, ideal for internal pipe diameter inspection. Simply screw in the two pieces into the coupling piece and extend as far as you need to.

Description	Part Number
Probe Extension Piece 250mm (9.8”)	T2362663A
Probe Extension Piece 500mm (19.7”)	T2362663B
Probe Extension Piece 1000mm (39.4”)	T2362663C
Coupling Piece – *to link to Extension Pieces together*	T2362666-

BAND BRUSH PROBE

Provided as standard when an Elcometer 236 is purchased, it is an ideal accessory for complex shapes, small products, and for accessing drill holes, eyes, etc

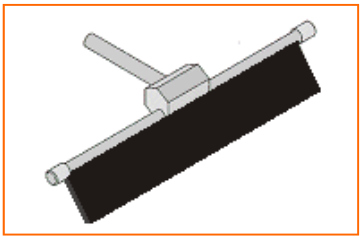
Description	Part Number
Band Brush Probe	T2362669-



RIGHT ANGLE WIRE BRUSH PROBES

Manufactured out of Phosphor Bronze these wire brush probes are ideal for testing large, flat surfaces. A range of widths are available.

Description	Part Number
Right Angle Wire Brush Probe - 250mm (9.8”)	T23638071
Right Angle Wire Brush Probe - 500mm (19.7”)	T23638072
Right Angle Wire Brush Probe - 1000mm (39.4”)	T23638073
Replacement Wire Brush – Electrode Only - 250mm (9.8)	T23626621
Replacement Wire Brush – Electrode Only - 500mm (19.7	T23626622
Replacement Wire Brush – Electrode Only - 1000mm (39.4”)	T23626623



RIGHT ANGLE CARBON INFUSED RUBBER PROBES

Ideal for testing large, flat surfaces with either thin or delicate coatings. A range of widths are available.

Description	Part Number
Right Angle Rubber Probe - 250mm (9.8”)	T23638081
Right Angle Rubber Probe - 500mm (19.7”)	T23638082
Right Angle Rubber Probe - 1000mm (39.4”)	T23638083
Replacement Rubber – Electrode Only - 250mm (9.8”)	T23626731
Replacement Rubber – Electrode Only - 500mm (19.7”)	T23626732
Replacement Rubber – Electrode Only - 100mm (39.4”)	T23626733

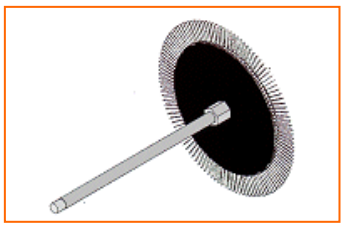
ELCOMETER 236 PROBE ACCESSORIES (continued)

EXTERNAL PIPE ROLLING SPRING PROBES

Designed specifically to measure the external diameter of pipes. A range of external diameters are available.

Diameter		Part Number	
mm	Inches	Full Assembly Spring, Holder & 250mm Extension Piece	Spring Only
50	2	T2362649A	T2366197A
75	3	T2362649B	T2366197B
100	4	T2362649C	T2366197C
150	6	T2362649D	T2366197D
200	8	T2362649E	T2366197E
250	10	T2362649F	T2366197F
300	12	T2362649G	T2366197G
350	14	T2362649H	T2366197H
400	16	T2362649I	T2366197I
450	18	T2362649J	T2366197J
500	20	T2362649K	T2366197K
600	24	T2362649L	T2366197L
750	30	T2362649M	T2366197M
1000	36	T2362649N	T2366197N

INTERNAL PIPE WIRE BRUSH PROBES



Designed specifically to measure the internal diameter of pipes. A range of internal diameters are available.

Diameter		Part Number	
mm	Inches	Full Assembly Wire Brush, Holder & 250mm Extension Piece	Brush Only
38	1.5	T2363907A	T2363766-
51	2.0	T2363907B	T2363767-
64	2.5	T2363907C	T2363768-
76	3.0	T2363907D	T2363769-
89	3.5	T2363907E	T2363770-
102	4.0	T2363907F	T2363771-
114	4.5	T2363907G	T2363772-
127	5.0	T2363907H	T2363773-
152	6.0	T2363907I	T2363774-
203	8.0	T2363907J	T2363775-
254	10.0	T2363907K	T2363776-
305	12.0	T2363907L	T2363777-

EXTERNAL DIAMETER PIPE TESTING KIT

The Elcometer External Diameter Pipe Testing Kit has been created specifically to allow the pipeline inspector to create a range of inspection accessories in order to fit most external pipe-line diameters.
Each kit allows the user to create either 1 external spring for use on a 635mm (25”) diameter pipe, or up to 3 springs of user defined diameters.
Larger diameters can be made by connecting additional spring lengths together.
Spring lengths can be purchased separately using the part numbers listed above.

Description	Part Number
Pipe Testing Kit	T23515579