

Adhesion

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 costly penalties or 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.

Elcometer offer a highly comprehensive range of Adhesion Gauges designed specifically to meet your requirements. The gauges can be split into three categories:

- Cross Hatch/Cross Cut Method The coating is cut into small squares, thereby reducing lateral bonding, and the adhesion assessed against ISO, ASTM or Corporate Standards.
- Pull Off Adhesion Method Tensile Dollies (or stubs) are glued to the coating and, when the adhesive has cured, the force required to pull the dolly off the surface is measured.
- Push Off Adhesion Method Similar to the Pull Off Adhesion Test, a dolly is glued to the coating. When the adhesive has cured, however, the dolly is pushed off the surface by the adhesion gauge.

HOW TO SELECT THE CORRECT ADHESION GAUGE

Cross Hatch Cutters

- Advantages: A fast, low cost, comparison method – see table below
- Possible Limitations: A subjective test for flat surfaces for a limited thickness range.
- Applications: For paint and powder coatings up to a thickness of 125µm (5mils)


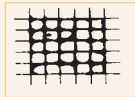
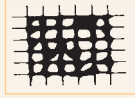
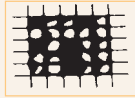
Pull Off Adhesion Testers

- Advantages: Simple to use, quantitative range – giving you a definitive adhesion value
- Possible Limitations: Time required for some adhesives to cure
- Applications: Ideal gauge for the laboratory or field – flat or curved substrate applications

Push Off Adhesion Testers

- Advantages: Fast cure time adhesives can be used, ideal for curved surfaces
- Possible Limitations: High forces exerted by gauge may cause thin substrates to deform
- Applications: Pipelines and metal spray coatings

CLASSIFICATION OF CROSS HATCH ADHESION TEST RESULTS

Description	Surface	BS/ISO/DIN	ASTM
The edges of the cuts are completely smooth, none of the squares of the lattice are detached	NONE	0.5	B
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 even be classified by classification 4/1B		5	0B

Elcometer 1541 Single Blade Cutter

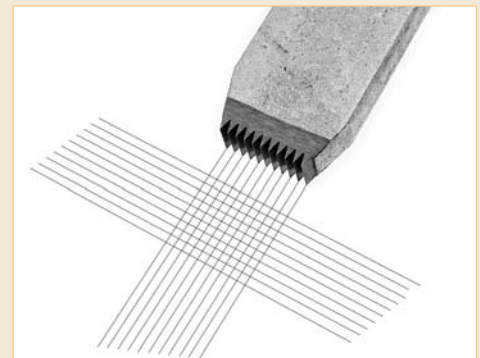
This instrument has a single-blade tool used to perform simple parallel or crossed cuts on plane or curved surfaces.



Model	Description	Part Number
Elcometer 1541	Elcometer 1541 Single Blade Cutter	K0001541M002

Elcometer 1540 Cross Cut Tester

Simple instrument for quickly determining the adhesion of a large variety of paints. Made from special steel, it has 11 tapered teeth with 1mm spacing. Two series of lines are cut at right angles to obtain a pattern of 100 squares.



Can be used in accordance with:	
ASTM D 3359	BS 3900 E6
DIN 53151	DIN EN ISO NF 2409

Model	Description	Part Number
Elcometer 1540	Elcometer 1540 Cross Cut Tester 10 x 1mm	K0001540M001

Elcometer 1542 Cross Hatch Adhesion Tester

Simple but effective method for determining the adhesion of a large variety of coatings. The instrument is ideal for thin coatings on flat surfaces, available with three different spacings, corresponding to the thickness of layer to be tested:

- 1mm spacing – for coating thickness less than 60µm
- 2mm spacing – for coating thickness less than 120µm
- 3mm spacing – for coating thickness more than 120µm

Three instrument types are supplied separately or combined in a kit case with standardized brush and magnifier.

- Powerful cross cutter, with 8 cutting faces.
- Anodized aluminium handle, with a wheel for stable operation, ideal for test panels and thin coatings
- Supplied with an adjustment gauge for accurate positioning of the cutter face



Can be used in accordance with:	
ASTM D 522	ASTM D 1737
BS 3900 E11	DIN EN ISO NF 6860
DIN EN ISO NF 2409	ECCA T6
ECCA T7	NFT 30-038
NFT 30-078	

Model	Description	Part Number
Elcometer 1542/1	Elcometer 1542 Cross Hatch Adhesion Tester 6 x 1mm	K0001542M001
Elcometer 1542/2	Elcometer 1542 Cross Hatch Adhesion Tester 6 x 2mm	K0001542M002
Elcometer 1542/3	Elcometer 1542 Cross Hatch Adhesion Tester 6 x 3mm	K0001542M003
Accessories	Elcometer 1542 6 x 1mm Cross Hatch Blade	KT001542P001
	Elcometer 1542 6 x 2mm Cross Hatch Blade	KT001542P002
	Elcometer 1542 6 x 3mm Cross Hatch Blade	KT001542P003
	Adjustment Gauge for Elcometer 1542	KT001542F006
	ASTM 03359 Adhesive Tape (2 rolls)	T1078894-
	ISO 2409 Adhesive Tape (2 rolls)	T1079358-

Elcometer 107 Cross Hatch Cutter

The coating may be continuous and look good, but how well is it connected to the substrate? The Elcometer 107 Cross Hatch Cutter provides an instant assessment of the quality of the bond to the substrate. Due to its rugged construction this gauge is ideal for thin, thick or tough coatings on flat or curved surfaces. An ideal field or laboratory test.

- Low cost
- Robust design
- Easy to change cutters
- Large, non slip grip
- Ideal for thick or hard coatings
- Large selection of cutters, each with four cutting faces
- Can be converted into the Elcometer 141 Paint Inspectors Gauge (P.I.G.)

The Elcometer 107 Cross Hatch Cutter is available in two versions.

- *The Basic Kit comes complete with:*

Robust handle, the cutter of your choice (see below), Allen Key (wrench), presentation storage case and instructions (together with the Classification of Adhesion Test Results Chart)

- *The Full Kit includes all that is supplied in the Basic Kit, and also includes:*

An eye glass, brush and adhesive tape (either ASTM or ISO tape), all in a plastic ABS carrying case.



Can be used in accordance with:	
ASTM D 3359-B	ASTM D 3002
BS 3900-E6	BS EN ISO 2409
DIN 53151	ISO 2409
NFT 30-038	

SELECTING THE APPROPRIATE TEST KIT

Cutter	Number of Teeth	Part Number		
		Full Kit with ISO Tape	Full Kit with ASTM Tape	Basic Kit
1mm	6	F10713348-6	F10713348-1	F10713222-1
1mm	11	-	F10713348-2	F10713222-2
1.5mm	11	-	-	F10713222-3
2mm	6	F10713348-9	F10713348-4	F10713222-4
3mm	6	-	-	F10713222-5

SELECTING THE APPROPRIATE ELCOMETER 107 CUTTER

Coating Thickness		Substrate Type	Cutting Teeth	Tooth/Slot Spacing	Test Method	Part Number
µm	mils					
0-50	2	Metal	11	1mm	ASTM D3359B	T10713700-2
0-60	2-4	Hard	6	1mm	BS EN ISO 2409	T10713700-1
0-60	2-4	Medium	11	1.5mm	-	T10713700-3
0-60	2-4	Soft	6	2mm	BS EN ISO 2409	T10713700-4
50-125	2-5	Hard and Soft	6	2mm	ASTM D3359B	T10713700-4
61-120	2.4-4.7	Hard and Soft	6	2mm	BS EN ISO 2409	T10713700-4
125-250	5-10	Hard and Soft	6	3mm	Quick Check Only	T10713700-5
Accessories		ASTM D 3359 Adhesive Tape (2 rolls)				T1078894-
		ISO 2409 Adhesive Tape (2 rolls)				T1079358-

Elcometer 106 Pull off Adhesion Tester

The Elcometer 106 Adhesion Tester - easy to operate and fully portable, provides a numerical value for adhesion. Applications include: paint or plasma spray on bridge decking, coatings on steel, aluminium or concrete, etc.

- Comes in a carrying case – ideal for site tests
- Hand operated so you don't have to worry about a power supply!

Test Method

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

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

Test from low adhesion values of 5-30PSI (0.05-0.2N/mm²) up to 500-3200PSI (5-22N/mm²)

For an approximate value in kg/cm² multiply N/mm² by 10.



Can be used in accordance with:	
ANSI N5.12	ASTM D 4541
BS EN 24624	ISO 4624
NFT 30-062	

The Elcometer 106 Adhesion Tester is available in 5 scale ranges, please take note of the appropriate adhesion value of the equipment before ordering.

Scale 1	Scale 2	Scale 3	Scale 4	Scale 5
Instrument Dimensions	Height: 152mm (6.0")		Diameter: 76mm (3.0")	
Dolly Size	Diameter: 20mm (0.76")		Area: 314mm ² (0.5sq inch)	
Gross Weight of Kit in Case	Scales 1, 2 and 5: 2.1kg (4.7lb)		Scale 3: 3.4kg (7.5lb)	Scale 4: 3.6kg (8.0lb)

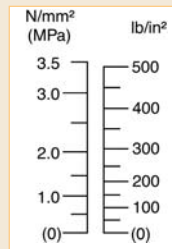
Model	Description	Range		Part Number
		N/mm ² (MPa)	PSI	
Elcometer 106/5	Elcometer 106 Adhesion Tester – Scale 5	(0)-0.2	(0)-30	F106----5
Elcometer 106/1	Elcometer 106 Adhesion Tester – Scale 1	(0)-3.5	(0)-500	F106----1
Elcometer 106/2	Elcometer 106 Adhesion Tester – Scale 2	(0)-7	(0)-1000	F106----2
Elcometer 106/3	Elcometer 106 Adhesion Tester – Scale 3	(0)-15	(0)-2000	F106----3
Elcometer 106/4	Elcometer 106 Adhesion Tester – Scale 4	(0) -22	(0)-3200	F106----4
Accessories	Spare Dollies (Pack of 100)			T1062895-
	Large Dollies 40mm diameter (Pack of 5)			T1062914-
	Large Base Ring			T1062915-
	Araldite Epoxy Adhesive			T99912906

Elcometer 106/6 Coatings on Concrete Adhesion Tester

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

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

- Fully portable and comes in a carrying case – ideal for site tests
- Hand operated so you don't have to worry about a power supply!



Can be used in accordance with:
 ACI 503R | BS 1881 part 207

Model	Description	Range		Part Number
		N/mm ² (MPa)	PSI	
Elcometer 106/6	Elcometer 106 Adhesion Tester – Scale 6	(0)-3.5	(0)-500	F106----6
Accessories	Spare Dollies (Pack of 5)			T10618570
	Araldite Epoxy Adhesive			T99912906

Elcometer 109 Tensile Adhesion Tester

The Elcometer 109 Push off Tensile Adhesion Tester provides the operator with a means of carrying out a simple pass/fail test of the adhesion of the coating against a specification limit.

- Non-destructive*
- Easy to use
- No calibration required
- Colour coded certified tensile dollies
- Robust and lightweight
- Adapter available for use with the PAT tester according to (Norwegian) NORSOK Standard M-501

* Non-destructive if coating is within specification and the tensile dolly breaks. Only a small button remains on the surface which can be sheared off.



Can be used in accordance with:
 ASTM D 4541 | BS EN 24624
 NORSOK M-501

Assembled Pull-Off Unit Dimensions	Metric	Imperial
Height	150mm	6"
Width (including handle)	80mm	3"
Kit Weight	1.7kg	3.75lb

Description	Test Element Value	Accuracy	Colour Code	Part Number
Elcometer 109/1 Adhesion Tester	5MPa (725PSI)	±5%	Red	F109----1
Elcometer 109/2 Adhesion Tester	7MPa (1015PSI)	±5%	Blue	F109----2
Elcometer 109/3 Adhesion Tester	9MPa (1304PSI)	±5%	Yellow	F109----3
Accessories	5MPa Tensile Dollies (Pack of 25)			T10913952
	7MPa Tensile Dollies (Pack of 25)			T10913953
	9MPa Tensile Dollies (Pack of 25)			T10913954
	Araldite Epoxy Adhesive			T99912906

Elcometer 108 Hydraulic Adhesion Testers

The Elcometer 108 is an extremely versatile hydraulic adhesion tester which will cope with many adhesion test requirements. Test can be made on flat or curved (concave and convex) surfaces.

A reusable stainless steel dolly is adhered to the coating's surface and the force required to push the dolly from the surface is applied using the handle. The value of the force applied is displayed either on a digital display or with an analogue dial. For areas susceptible to explosion (e.g. inflammable areas), the analogue version should be chosen.

The Elcometer 108 is the ideal gauge for coatings on Tanks, Pipelines, etc.

- Hand-powered and portable
- Ideal for site work
- Reusable stainless steel dollies
- Complete kit and carrying case

Elcometer Digital Adhesion Gauge Features include:

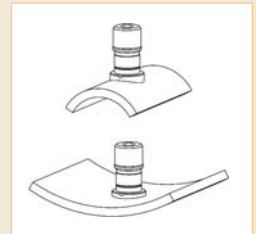
- Maximum hold – displays the highest value reached
- ±1% Reading accuracy
- Backlight display for dark areas
- Rubber protective casing
- Switchable Metric/Imperial units

The Elcometer 108 can be used with curved dollies, making this the gauge for adhesion on pipelines, tanks and other curved surfaces.

A wide range of curved dollies are available, each designed for a specific range of curvature. Convex (top illustration) and concave (bottom illustration) dollies are for use on external and internal curvatures respectively. For more information on curved dollies please contact Elcometer.



Can be used in accordance with:	
ASTM C 633	BS EN 24624
ISO 2063	



Dial Adhesion Gauge Range	Operating: 0-18MPa (0-2600PSI)		Full Scale: 0-25MPa (0-3500PSI)
Dial Pressure Gauge Accuracy	±0.5MPa (Metric Scale); ±50PSI (Imperial Scale)		
Digital Adhesion Gauge Range	Operating: 0-18MPa (0-2600PSI)		Full Scale: 0-34MPa (0-5000PSI)
Digital Pressure Gauge Accuracy	±1%		
Dolly Size	Outside Diameter	Inside Diameter	Area
	19.39mm (0.76")	3.73mm (0.15")	284mm² (0.44 sq. inch)

Each Elcometer 108 comes in a plastic ABS carrying case, containing:

- 5 Flat Dollies
- 5 Nylon Plugs
- M2000 Quick Curing Adhesive
- Dolly Cleaning Tool
- Heating Tongs to remove adhesive – allowing you to reuse the dollies

Model	Description	Part Number		
		UK 240V	EUR 220V	US 110V
Elcometer 108/1	Elcometer 108 Hydraulic Adhesion Tester – Dial Gauge	F108---1A	F108---1B	F108---1C
Elcometer 108/2	Elcometer 108 Hydraulic Adhesion Tester – Digital Gauge	F108---2A	F108---2B	F108---2C
Accessories	M2000 Adhesive	T99911135		
	Standard Flat Dolly 20mm	T1089646-		
	Curved dollies – by request, contact Elcometer for further information			

Elcometer 110 Pneumatic Adhesion Tester

The Elcometer 110 Patti® is a portable pneumatic adhesion tester which uses compressed gas from either a canister or the compressed air feed.

Due to the controlled force being applied, the resultant adhesion value is highly repeatable. This provides the User with an ideal testing instrument.

- Simple to use
- Large LCD
- ±1% Accuracy*
- Repeatable and Reproduceable

The Elcometer 110 has a wide range of pistons, providing the User with a maximum adhesion test of 70MPa, 10,000PSI.

**accuracy is dependent on the positioning of the dolly - ±1% when tested under factory conditions.*



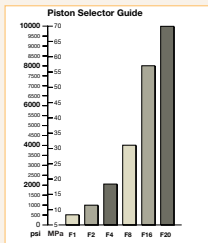
Can be used in accordance with:	
ASTM D 4541	BS EN 22063
BS EN 24624	

Gas Supply	Rechargeable internal reservoir via gas canister or internal air line
Power Supply	9V (PP3, 6F22)
Dimensions (of control module)	Height: 100mm (4") Width: 255mm (10 1/2") Depth: 255mm (10 1/2")
Weight	2.7kg (5.9lbs) without carrying case
Carrying Case	Padded nylon case with shoulder strap
Rate of Load Application	Adjustable up to 150PSI per second

Model	Description	Standard Piston Supplied*	Part Number
Elcometer 110/1	Elcometer 110 Pneumatic Adhesion Tester	F-1	F110----1
Elcometer 110/2	Elcometer 110 Pneumatic Adhesion Tester	F-2	F110----2
Elcometer 110/3	Elcometer 110 Pneumatic Adhesion Tester	F-4	F110----3
Elcometer 110/4	Elcometer 110 Pneumatic Adhesion Tester	F-8	F110----4
Elcometer 110/5	Elcometer 110 Pneumatic Adhesion Tester	F-16	F110----5
Elcometer 110/6	Elcometer 110 Pneumatic Adhesion Tester	F-20 (F8 and F12)	F110----6

*Except for the Elcometer 110/6, each unit comes complete with two pistons. The F-20 Piston is counted as 2 pistons (F8 and F12). When placing your order, please select the additional piston, using the appropriate part number below.

Piston	Load Range		Piston Diameter		Part Number
	MPa	PSI	mm	inches	
F-1	0-3.4	0-500	44.5	1.75	T11013400
F-2	0-6.9	0-1000	57	2.25	T11013401
F-4	0-13.8	0-2000	76	3	T11013402
F-8	0-27.6	0-4000	98	3.875	T11013403
F-16	0-55.2	0-8000	127	5	T11013404
F-20 (F8/F12)	0-70	0-10000	146	5.75	T11013405
Accessories	Pull Stubs (Pack of 25)				T11013388
	Araldite Epoxy Adhesive				T99912906



Elcometer 1910 PAThandy™ Adhesion Tester

This lightweight, portable, hydraulic adhesion tester has built in hydraulic safety devices for smooth and drift proof accuracy.

The special test head allows adhesion tests on both internal and external curved surfaces, making this an ideal gauge for pipelines and protective coatings applications.



Can be used in accordance with:	
ASTM D 4541	EN 24624
ISO 4624	

Maximum Pull Force	6.3kN	Weight of Tester	1250g (45oz)
Accuracy	±1% of full scale	Case Dimensions	340 x 270 x 80mm (12 x 8 x 3")

The Elcometer 1910 is supplied complete with a Calibration Certificate and:

- Crank handle driven pull mechanism
- PAT™ Testing Head 6.3kN (1416lbf)
- 5 Test Elements – 20mm (0.79") Diameter
- HSS Cutting Tool for 20mm (0.79") Diameter Test Elements
- Hydraulic Cable
- Carrying Case with Protective Interior

Model	Description	Part Number
Elcometer 1910	Elcometer 1910 PAThandy™ Adhesion Gauge	K0001910M001

For a complete range of accessories and Test Elements - See Page 163.

Elcometer 1930 PAT™ MICRO Adhesion Tester AT101/1kN

This automatic tester has been designed specifically for testing in confined areas, particularly on small components of irregular and awkward shape, and with very low pull force.

Operating in a similar way to other pull off testers, a test element (dolly) is adhered to the coating. The testing head is connected to the element and the force required to remove it is recorded.



Can be used in accordance with:	
ASTM D 4541	EN 24624
ISO 4624	

Accuracy	±1% of full scale
Power	230/110V AC
Battery	Optional
Hydraulic System Drive	Two-step servo motor
Weight Complete in Case	8.2kg (18lb)
Case Dimensions	430 x 325 x 145mm (17 x 13 x 6")

The Elcometer 1930 is supplied in an aluminium carrying case, complete with a Calibration Certificate and:

- Automatic hydraulic pump unit with control display
- Adapter for mains power
- PAT™ Testing Head 1kN
- Hydraulic cable

Model	Description	Part Number		
		UK 240V	EUR 220V	US 110V
Elcometer 1930	Elcometer 1930 PAT™ MICRO Adhesion Tester – AT101/1kN	K0UK1930M001	K0001930M001	K0US1930M001
Accessories	Replacement 1kN Testing Head	KT001910P504		

For a complete range of accessories and Test Elements - See Page 163.

Elcometer 1920 PAT™ Adhesion Tester AT101E

This automatic adhesion tester is designed for measuring the bond strength of all types of paints, thermal sprayed coatings, thin films, concrete coatings and much, much more, on any shaped substrate.

A dolly is adhered to the surface and once the test head is connected, a tensile force is applied. The rate of application can be adjusted by the User.

The Elcometer PAT™ AT101E is available in 6.3kN (1416lbf), 20kN (4496lbf), 40kN (8992lbf) and 80kN (17984lbf) versions.

- Portable and simple to use
- Produces comparable test results in the laboratory and on site
- Precision gauge with both MPa and PSI readings
- 110/230V mains power (battery power optional)
- All AT101E models can have a data logging module built in when new or retro-fitted into existing testing machine
- Supplied in a solid aluminium case



Can be used in accordance with:

ASTM D 4541	ASTM C 633
EN 24624	ISO 4624

Accuracy	±1% of full scale	Hydraulic System Drive	Two-step servo motor
Power	230/110V AC	Weight Complete in Case	8.2kg (18lb)
Battery	Optional	Case Dimensions	430 x 325 x 145mm (17 x 13 x 6")

Elcometer 1920 PAT™ AT101E is supplied in an aluminium carrying case complete with a Calibration Certificate and:

- Automatic hydraulic pump unit with control display
- Hydraulic cable
- PAT™ testing head
- Adapter for mains power

Model	Description	Scale Range	Part Number		
			UK 240V	EUR 220V	US 110V
Elcometer 1920/1	Elcometer 1920/1 PAT™ Adhesion Tester – AT101E	6.3kN, 1416lbf	KOUK1920M001	K0001920M001	KOUS1920M001
Elcometer 1920/2	Elcometer 1920/2 PAT™ Adhesion Tester – AT101E	20kN, 4496lbf	KOUK1920M002	K0001920M002	KOUS1920M002
Elcometer 1920/3	Elcometer 1920/3 PAT™ Adhesion Tester – AT101E	40kN, 8992lbf	KOUK1920M003	K0001920M003	KOUS1920M003
Elcometer 1920/4	Elcometer 1920/4 PAT™ Adhesion Tester – AT101E	80kN, 17984lbf	KOUK1920M004	K0001920M004	KOUS1920M004
Accessories	Additional/Replacement 6.3kN Testing Head (not for use with Elcometer 1920/4)	6.3kN, 1416lbf	KT001910P501		
	Additional/Replacement 20kN Testing Head (not for use with Elcometer 1920/4)	20kN, 4496lbf	KT001910P502		
	Additional/Replacement 40kN Testing Head	40kN, 8992lbf	KT001910P503		
	Additional 1kN Testing Head (not for use with Elcometer 1920/4)	1kN, 225lbf	KT001910P504		
	PC Data-Logging Module and Software		KT01920P006		
	Battery Power Unit		KOUK1920P005	K0001920P005	KOUS1920P005

For a complete range of accessories and Test Elements - See Page 163.

Elcometer 1980 PAT™ Coating Fracture Tester

Comprising of two cylinders of 25mm (1") diameter, the Elcometer 1980 is designed to measure the force required to fracture a coating.

One cylinder is coated with the sample coating, and the two cylinders are glued together.

The cylinders are then pulled apart in order to measure the pull stress (in N/mm² or PSI) required to fracture the coating.

Can be used in accordance with:

ASTM C 633



Model	Description	Part Number
Elcometer 1980/1	Elcometer 1980/1 PAT™ Coating Fracture Tester for 8.2mm Test Elements (for use with 6.3kN Testing Head with 8.2mm Adaptor)	K0001980M001
Elcometer 1980/2	Elcometer 1980/2 PAT™ Coating Fracture Tester for 25mm Test Elements (for use with 20 & 40kN Testing Head)	K0001980M002
Accessories	8.2mm Adaptor for 6.3kN Testing Head	KT001910P401

Elcometer 1940 PAT™ GM01 Adhesion Tester 6.3kN

The most popular in the Elcometer PAT™ tester range, a manual hydraulic tensile adhesion tester for measuring the bond strength of all types of paints, thermal sprayed coatings, thin films, concrete coatings, ceramics, etc.

- Portable, precision gauge with both MPa and PSI readings
- Accurate and comparable test results both in the laboratory and on site
- Testing of coatings on any shaped substrates, e.g. inside and outside pipe surfaces



Can be used in accordance with:

ASTM D 4541	ASTM C 633
EN 1542	ISO 4624

Maximum Certified Pull Force	6.3kN	Weight of Tester	1250g (45oz)
Accuracy	±1% of full scale	Case Dimensions	400 x 300 x 170mm (16 x 12 x 7")

The Elcometer 1940 is supplied in an aluminium carrying case, complete with a Calibration Certificate and:

- PAT™ GM01/6.3kN Hydraulic Pull-Force Pump
- PAT™ Testing Head 6.3kN
- HSS Cutting Tool for 20mm (0.79") Diameter Test Elements
- Hydraulic Cable

Model	Description	Scale Range	Part Number
Elcometer 1940	Elcometer 1940 PAT™ GM01 Adhesion Tester	6.3kN, 1416lbf	K0001940M001
Accessories	Additional/Replacement 6.3kN Testing Head	6.3kN, 1416lbf	KT001910P501
	Additional 20kN Testing Head	20kN, 4496lbf	KT001910P502
	Additional 40kN Testing Head	40kN, 8992lbf	KT001910P503

For a complete range of accessories and Test Elements - See Page 163.

Elcometer 1941 PAT™ GM04 Adhesion Tester - 20 & 40kN

A 20 or 40kN manual hydraulic tensile adhesion tester for testing of coatings (including thermal sprayed coatings), on test panels, sprayed components.

Designed for testing with 50mm (2") diameter test elements and with the square 50 x 50mm (2 x 2") test element for adhesion testing of tile adhesives and other cementitious materials.

The gauge, in conjunction with a test fixture, can also be used in accordance with ASTM-C633 (two test cylinders glued together).

- Portable and simple to use
- Produces comparable test results in the laboratory and on site
- Precision gauge with both MPa (N/mm²) and PSI reading
- Testing of coatings, concrete tensile strength, ceramic tile adhesives, road surface materials, linings



Can be used in accordance with:

ASTM D 4541	ASTM C 633
EN 1542	ISO 4624

Maximum Certified Pull Force	Elcometer 1941/1: 17kN Elcometer 1941/2: 34kN	Weight Complete in Case	11kg (24.25lb)
Accuracy	±1% of full scale	Case Dimensions	400 x 300 x 170mm (16 x 12 x 7")

The Elcometer 1941 is supplied in an aluminium carrying case, complete with a Calibration Certificate and:

- Hydraulic Pull-Force Pump
- Testing Head 20kN or 40kN (depending on gauge)
- Adapter for 50mm (2"), 70.7mm (2.78") and 50 x 50mm (2 x 2") diameter elements
- Quick Release Type Testing Head
- Testing Support Platform
- Hydraulic Cable

Model	Description	Scale Range	Part Number
Elcometer 1941/1	Elcometer 1941/1 PAT™ GM04 Adhesion Tester	20kN, 4496lbf	K0001941M001
Elcometer 1941/2	Elcometer 1941/2 PAT™ GM04 Adhesion Tester	40kN, 8992lbf	K0001941M002
Accessories	Additional/Replacement 20kN Testing Head	20kN, 4496lbf	KT001910P502
	Additional/Replacement 40kN Testing Head	40kN, 8992lbf	KT001910P503
	Additional 6.3kN Testing Head	6.3kN, 1416lbf	KT001910P501

For a complete range of accessories and Test Elements - See Page 163.

Elcometer 1970 PFCV – Portable Field Calibration Verification Unit

For use with the Elcometer PAT™, Elcometer 106, and Elcometer 108 Adhesion Testers, this Portable Field Calibration Verification Unit is ideal for confirming your adhesion gauge calibration.

Connect the appropriate pull stub to the unit, pull your adhesion tester and compare the adhesion tester reading to the reading on the Portable Calibration Unit's Display.



Calibration Range	0-17MPa (5.3kN) on 20mm (0.79") diameter dolly
Accuracy	Within ±1% of full scale
Instrument Weight	2.4kg (5.3lb)

Model	Description	Part Number
Elcometer 1970	Elcometer 1970 PFCV Unit	K0001970M001
Accessories	Elcometer 106 Adapter	KT001970P001
	Elcometer 108 Adapter	KT001970P002

ELCOMETER PAT™ ADHESION GAUGE TEST ELEMENTS, SUPPORT RINGS AND HAND CUTTING TOOLS								
Test Element Diameter		Range		Valid for Elcometer Model	Part Number		Support Ring	Hand Cutting Tool
mm	inches	MPa	psi		Pack of 10	Pack of 100		
2.8	0.11	160	23200	Elcometer 1930	KT001910P001	KT001910P201	KT001910P105	KT001910P113
4	0.16	80	11600	Elcometer 1930	KT001910P002	KT001910P202	KT001910P106	KT001910P114
5.7	0.22	40	5800	Elcometer 1930	KT001910P003	KT001910P203	KT001910P107	KT001910P115
8.2	0.32	120	17400	Elcometer 1910*, 1920/1*, 1940*	KT001910P004	KT001910P204	KT001910P108	KT001910P116
14.2	0.56	40	5800	Elcometer 1910, 1920/1, 1940	KT001910P005	KT001910P205	KT001910P109	KT001910P117
20	0.79	20	2900	Elcometer 1910, 1920/1, 1940	KT001910P006	KT001910P206	KT001910P110	KT001910P118
25	0.98	40	5800	Elcometer 1920/2, 1941/1	KT001910P007	KT001910P207	-	KT001910P119
28.2	1.11	10	1450	Elcometer 1910, 1920/1, 1940	KT001910P010	KT001910P210	KT001910P111	KT001910P120
40	1.57	5	725	Elcometer 1910, 1920/1, 1940	KT001910P011	KT001910P211	KT001910P112	KT001910P121
50	2.0	3.2	460	Elcometer 1910**, 1920/1**, 1940**	KT001910P012	KT001910P212	-	KT001910P122
50 x 50	2.0 x 2.0	7.85	1140	Elcometer 1910***, 1920/1***, 1940***	KT001910P016	KT001910P216	-	-
50 x 50	2.0 x 2.0	7.85	1140	Elcometer 1920/2, 1941/1	KT001910P016	KT001910P216	-	-
70	2.76	5	725	Elcometer 1920/2, 1941/1	KT001910P018	KT001910P218	-	-

* must be used with part number KT001910P401 ** must be used with part number KT001910P402 *** must be used with part number KT001910P403

ELCOMETER PAT™ ADHESION GAUGE MISCELLANEOUS ACCESSORIES	
Description	Part Number
8.2mm Adaptor for use with 6.3kN Testing Head	KT001910P401
Support Ring & Adaptor for 50mm Diameter Test Elements for use with 6.3kN Testing Head	KT001910P402
Support Ring & Adaptor for 50 x 50mm Diameter Test Elements for use with 6.3kN Testing Head	KT001910P403
Support Ring & Adaptor for use with 20kN Testing Head	KT001910P404
Support Ring & Adaptor for use with 40 & 80kN Testing Head	KT001910P405
E900S Single Part Epoxy 5ml	KT001910P600
M2000G Adhesive, 20g Bottle	T99911135