

## Elcometer 106 Pull off Adhesion Tester



Elcometer 106  
Pull off Adhesion  
Tester

**At a glance**

- Simple, low coat range of adhesion gauges for measuring coating adhesion.
- Dependant on model, the adhesive from "0"-22 MPa / "0"-3200 PSI can be measured quickly & reliably.

**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 5-30 PSI (0.05 - 0.2 N/mm<sup>2</sup>) up to 500 - 3200 PSI (5 - 22 N/mm<sup>2</sup>)

For an approximate value in kg/cm<sup>2</sup> multiply N/mm<sup>2</sup> by 10.

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

**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 during 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 also 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. These 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, once 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, once the adhesive has cured, however, the dolly is pushed off the surface by the adhesion gauge.

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# data sheet



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
<b>Instrument Dimensions</b>		Height: 152mm (6.0")		Diameter: 76mm (3.0")
<b>Dolly Size</b>		Diameter: 20mm (0.76")		Area: 314mm² (0.5sq inch)
<b>Gross Weight of Kit in Case</b>		Scales 1, 2 & 5: 2.1kg (4.7lb)		Scale 3: 3.4kg (7.5lb) Scale 4: 3.6kg (8.0lb)

## 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:**  
Paint and powder coating adhesion up to a thickness of 125µm (5 mils).

Model	Description	Range		Part Number
		N/mm <sup>2</sup> (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
<b>Accessories</b>	Spare Dollies (Pack of 100)			T1062895-
	Large Dollies 40mm Diameter (Pack of 5)			T1062914-
	Large Base Ring			T1062915-
	Araldite Epoxy Adhesive			T99912906

### Pull Off Adhesion Testers

**Advantages:**  
Simple to use, quantitative range – giving you a definitive adhesion value

**Possible Limitations:**  
Time required for adhesive 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.

## Related products



Elcometer 108

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 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 on an analogue dial.



Elcometer 110

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, together with the gauge's suitability on thin substrates provides the User with an ideal testing instrument in the laboratory or the field.



Elcometer 1910

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.



Elcometer 1940

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. A portable, precision gauge with both MPa and PSI readings which gives accurate and comparable test results both in the laboratory and on site.



Elcometer 1941

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.



Elcometer 1970

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.



Elcometer 107

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.

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