

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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<https://elcometer.nt-rt.ru/> || erj@nt-rt.ru

elcometer®
inspection equipment



Elcometer 510
Automatic Adhesion Gauge

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

Hand-held, waterproof rugged design equivalent to IP64

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

User definable measurement
range with an accuracy of $\pm 1\%$ 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

Adhesion - Pull-Off



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 $\pm 1\%$ of full scale

Accurate

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



† Compatible with iPod, iPhone and iPad.

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

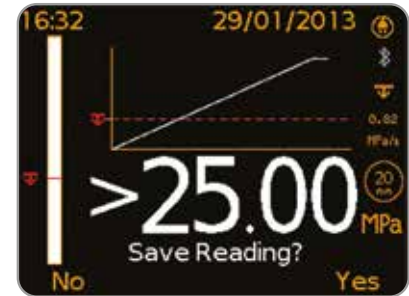
Key Features

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

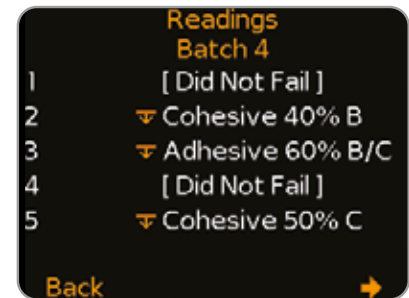
Individual user definable pull rate graphs can be saved with each reading.

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.

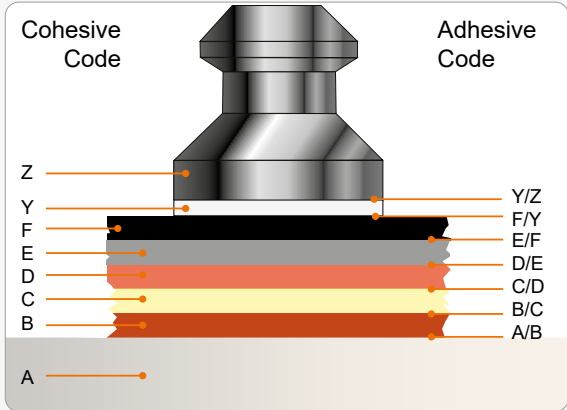
Dolly Face

Substrate

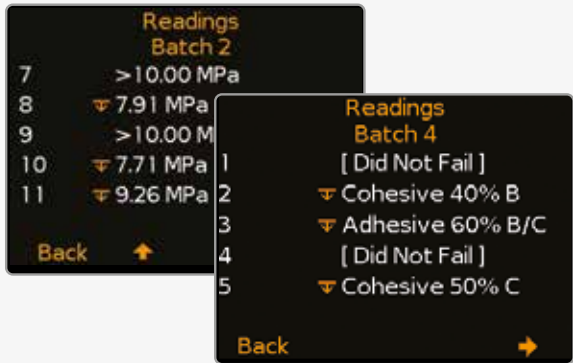
a) 50% Cohesive & 50% Adhesive failure

b) 100% Adhesive failure between two layers

c) Glue failure



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

###.## MPa² N% A, M% A/B, where;

###.## MPa² = Pull Force in MPa or other measurement units (psi, Newtons or Nmm⁻²)

N% = Cohesive failure percentage³

A = Cohesive failure layer

M% = Adhesion failure percentage³

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.

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.

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; <i>in multiple languages</i>	■	■
Tough, impact, waterproof & dust resistant; <i>equivalent to IP64</i>	■	■
Bright LCD colour screen; <i>with ambient light sensor</i>	■	■
Scratch & solvent resistant display; <i>2.4" (6cm) TFT</i>	■	■
Calibration certificate	■	■
2 year gauge warranty ¹	■	■
Automatic rotating display; <i>0°, 180°</i>	■	■
Data output via USB (Live readings - and batch)	■	■
Data output via Bluetooth®		■
PC command; <i>start & stop gauge from a PC with live readings (USB only)</i>		■
Switchable Units (MPa, psi, N, Nmm ²)	■	■
On Screen Statistics (η , \bar{x} , σ , Hi , Lo , $CV\%$, $N>hi$ limit ²)	■	■
Pull Rate Indicator	■	■
Trend Graph	■	■
Pull Rate Graph (<i>Load v Time</i>)		■
Interchangeable Dolly Selection; <i>10, 14.2, 20 & 50mm</i>	■	■
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; <i>maximum number of readings</i>	60	60,000 ³
Number of Batches (<i>Alpha Numeric - Model T</i>)	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; <i>Battery (B), AC Mains Power (M)</i>	B	B, M
USB Cable & ElcoMaster® Software CD	■	■
Power Cable with Multi International Plug Adaptor (<i>UK, EU, US, AUS</i>)		■
Plastic Transit Case	■	■
Date & Time		■
In Field Adhesion Calibration Verification Mode	■	■

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)
Pull Rate Range	0.4 - 5.6MPa/s (58 - 812psi/s)	0.2 - 2.8MPa/s (29 - 403psi/s)
Gauge Dimensions	260 x 100 x 66mm (6.3 x 3.9 x 2.6")	0.1 - 1.4MPa/s (15 - 203psi/s)
Actuator Height ¹	85mm (3.4")	85mm (3.4")
Instrument Weight ¹	2.9kg (6.4lb)	2.9kg (6.4lb)
Kit Weight	-	6.1kg (13.5lb)
Power Supply	8 x AA batteries (16 rechargeable batteries supplied complete with charger) or AC mains power (Model T only)	7.3kg (16.1lb)
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.

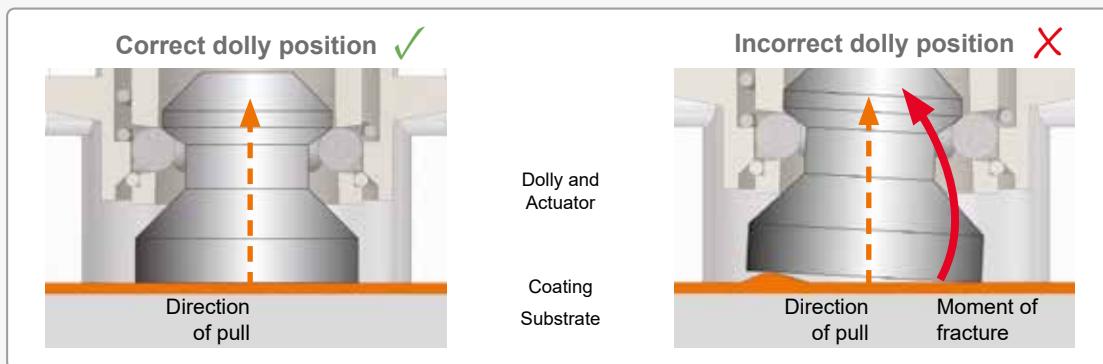
² 50mm (2") dollies are supplied in packs of 4.

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.

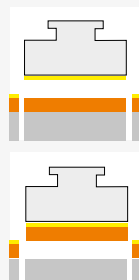
**Assessment of the Adhesion Test**

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*'.

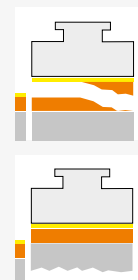
'*Adhesive failures*' occur when either the coating has failed at the interface with another coating (leaving a coating on the dolly and another coating on the substrate), or when the coating has failed at the substrate (leaving the coating on the dolly and the substrate bare).

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

Adhesive Failure

Coating Failure



Partial Coating Failure

Concrete Failure

elcometer®
inspection equipment



Elcometer 506
Pull- Off Adhesion Gauge

Adhesion - Pull Off

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 $\pm 1\%$ 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 $\pm 1\%$ of full scale



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

* 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

Adhesion - Pull Off

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					

elcometer®
inspection equipment



Elcometer 508
Push Off Adhesion Tester

Adhesion - Push Off

Elcometer 508

Digital Push Off Adhesion Tester

STANDARDS:

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

The Elcometer 508 Push Off Adhesion Tester is an extremely versatile Type III* adhesion gauge which can be used for many adhesion testing requirements. Tests can be made on flat or curved (concave and convex) surfaces.

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

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

Quick connect coupling for easy connection to the dolly

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



Digital Push Off Adhesion Tester

Elcometer 508

Standard, convex and concave dollies can be used with the Elcometer 508, ideal for testing the adhesion of coatings on flat or curved surfaces such as pipelines and tanks.

Powerful

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

Flexible

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

Durable

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

Accurate

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



The rubber protected backlit digital LCD displays the reading in MPa or psi. Maximum hold feature displays the highest value reached.



Flexible cable design allows the coupling to be positioned easily over the dolly. The pin is pushed through the centre against the substrate providing accurate repeatable results.



Supplied in a robust plastic carry case the kit includes the Elcometer 508 and five dollies which can be cleaned with the heated tongs and reused.

*Type III in accordance with ASTM D 4541

Elcometer 508

Digital Push Off Adhesion Tester

Technical Specification			
Part Number		Description	Certificate
UK 240V/EUR 220V		US 110V	
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, 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 106 Pull-Off Adhesion Tester

This easy to operate and fully portable Type II adhesion gauge provides a numerical value for adhesion.

Applications include paint or plasma spray on bridge decking, coatings on steel, aluminium, concrete etc.

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

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.



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

Technical Specification

Part Number	Description	MPa (N/mm ²)	Range	psi	Certificate
			kg/cm ²		
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	314mm ² (0.49 sq 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 (0.76") Diameter (Pack of 10)
T1062895-	Spare Dollies 20mm (0.76") Diameter (Pack of 100)
T1062914-	Large Dollies 40mm (1.52") Diameter (Pack of 5)
T1062915-	Large Base Ring for 40mm (1.52") Dollies
T99912906	Araldite Standard Two Part Epoxy Adhesive, 2 x 15ml Tubes
T99914009	20mm (0.76") Dolly Cutter

Elcometer 106/6 Adhesion Tester for Coatings on Concrete

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 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.



STANDARDS:

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

Technical Specification

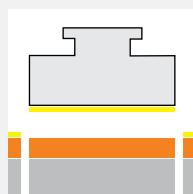
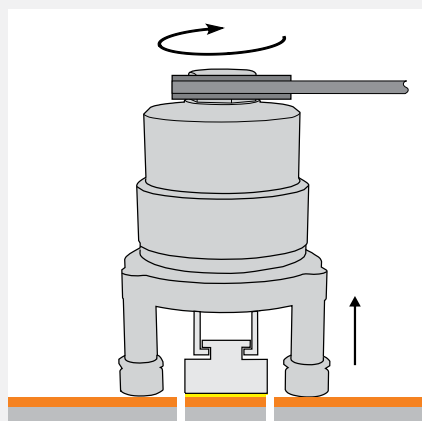
C

Part Number	Description	Certificate
F106---- 6	Elcometer 106 Coatings on Concrete Adhesion Tester - Scale 6	○
Range	0 - 3.5MPa (N/mm ²) 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	

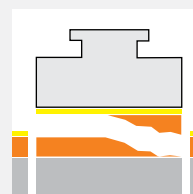
Accessories

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

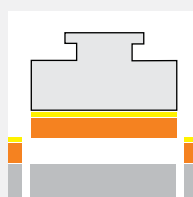
Coating Adhesion Testing on Concrete



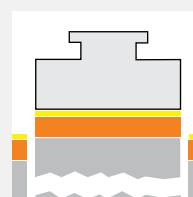
Adhesive Failure



Partial Coating Failure



Coating Failure



Concrete Failure

Elcometer 108 Hydraulic Adhesion Tester

The Elcometer 108 Hydraulic Adhesion Tester is an extremely versatile Type III adhesion gauge which can be used for many adhesion requirements. Tests can be made on flat or curved (concave and convex) surfaces.

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

Elcometer Digital Adhesion Gauge features:

- Maximum hold - displays the highest value reached
- Backlit display for dark areas
- Rubber protective casing
- Switchable Metric/Imperial

The Elcometer 108 can be used with convex and concave dollies, making this the gauge for adhesion of coatings on all pipelines including those with small diameter, tanks and other curved surfaces. There is a wide range of curved dollies available, each designed for a specific range of curvature.



STANDARDS:

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

Technical Specification

Part Number		Description	Certificate
UK 240V/EUR 220V US 110V			
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, Cyanoacrylate Adhesive, dolly cleaning tool, 2x LR6 (AA batteries) (Digital gauge only) and operating instructions	

○ Calibration Certificate available.

Elcometer 108 Hydraulic Adhesion Tester

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

Elcometer 107 Cross Hatch Cutter

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 all surfaces. An ideal field or laboratory test.

- Robust design
- Large, non slip grip
- Ideal for thin, thick or hard coatings
- A quick change, four sided cutter allows adhesion testing on a wide range of coating thicknesses (1mm, 1.5mm, 2mm and 3mm)

The Elcometer 107 Cross Hatch Cutter is available as a Basic or Full Kit.



STANDARDS:

AS 3894.9, AS 1580.408.4, ASTM D 3359-B, BS 3900-E6, ECCAT6, EN 13523-6, ISO 2409, ISO 16276-2, JIS K 5600-5-6, NF T30-038

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 ¹	0 - 3.5mils ¹	○
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 (x8), brush and adhesive tape (either ASTM or ISO tape), all in a plastic ABS carry case				

¹ Approximate Thickness

○ Optional Calibration Certificate available.

Elcometer 107 Cross Hatch Cutter

Accessories

C

Part Number	Description	Methods			Certificate
		ISO	ASTM	AS	
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	•			

○ Optional Calibration Certificate available.

Elcometer 1542 Cross Hatch Adhesion Tester

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.



STANDARDS:

AS 3894.9, AS 1580.408.4, ASTM D 3359-B, BS 3900-E6, ECCAT6, EN 13523-6, ISO 2409, ISO 16276-2, JISK 5600-5-6, NF T30-038

Technical Specification

C

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 - 2.0mils	○
K1542M002-I	Elcometer 1542 Full Kit - ISO Tape	6 x 2mm	50 - 125µm	0 - 2.0mils	○
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: 1 x Elcometer 1542 Cross Hatch Tester ¹ , cutter angle adjustment tool, hexagonal wrench, transit case & user guide Full Kit: Basic Kit plus: brush, magnifier (x8) & 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 (x8), ISO or ASTM adhesive tape, transit case & user guide				

Elcometer 1542 Cross Hatch Adhesion Tester

Accessories

C

Part Number	Description	Methods			Certificate
		ISO	ASTM	AS	
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 (x8)	T99913357	Cross Hatch Brush		

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

Elcometer 1540 Cross Cut Tester

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

C

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.

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