

# Data Sheet / Instructions

## Paint Inspection Kit



# *Paint Test Equipment*

Coating Thickness   Porosity   Adhesion   INSPECTION KIT   Surface Roughness   Surface Cleanliness   Gloss



## Paint Inspection Kit

The Paint Inspection Kit offers the industrial painter all the essential equipment needed for the testing of blast-cleaned steel prior to the protective coating application.

When steel has been blast-cleaned to a surface preparation of Sa 2½, the inspection of the steel to ISO Standards is required. This ISO Standard compliance ensures that blast-cleaned steel is correctly prepared for the application of protective coatings.

Poor preparation of blast-cleaned steel could result in corrosion of the steel and poor adhesion of the protective coating, resulting in coating failure. Prevention of corrosion on steel is essential to ensure the long life and low maintenance of steel assets and the reduction of shutdown for expensive maintenance work.

The equipment supplied in the Paint Inspection Kit will enable on-site testing for all five stages of blast-cleaned steel and coating inspection in the following stages:

**Stage 1 (ISO 8503-5).** Surface Profile measurement of the blasted profile.

**Stage 2 (ISO 8502-6, ISO 8502-9).** Surface Cleanliness testing for water-soluble salts and corrosion products.

**Stage 3 (ISO 8502-3).** Surface Cleanliness assessment for the quantity and size of dust particles.

**Stage 4 (ISO 8502-4).** Climatic Conditions for the estimation of the probability of condensation.

**Stage 5 (ISO 2808, ISO 19840).** Coating Thickness measurement to ensure the correct coating thickness has been applied.

The Calibration Certificates with traceability to UKAS are an optional extra. The Certificates are supplied as hard copy and are available online through the Calibration Portal (under Browse Categories) on our website.

The Calibration Portal lists all your equipment calibrated by Paint Test Equipment, showing the renewal dates and enabling Calibration Certificates to be viewed at any time.

## Paint Inspection Kit Specifications and Spares

Part No	Metric/Imperial	Cal Cert Part No	Conformance Cert Part No
K3001	Paint Inspection Kit Metric	NK002	
F2001	Spare Calibration Foils 0–1000µm (25, 50, 75, 125, 175, 250, 500, 750µm)	NC002	
Z1003	Spare Zero Disk Ferrous		
R1002	Spare Testex Tape X Coarse (50 impressions) 40–115µm (1.5–4.5mils)		NRC02
PS001	Spare Bresle Patches (pack of 50) Standard Adhesion		NPC04
PS003	Spare Deionised Water (500ml)		
PS004	Spare Syringes (pack of 3)		
PS005	Spare Conductivity Meter Calibration Solution		NP001
PS006	Spare Conductivity Meter Sensor		
PS006	Spare 25ml Beaker		
PS201	Spare Dust Test Tape 25mm (1") 60m Roll		NPC05
PS202	Spare Dust Test Comparator Charts (pack of 50)		NPC06
HS301	Spare Humidity Sensor 0–100%rh/-10 to 70°C (14 to 160°F)	NH101	
HS302	Spare Surface Temperature Probe -20 to 80°C (-4 to 176°F)	NH102	

### Stage 1 Surface Profile

**ISO 8503-5: Preparation of steel substrates before application of paints and related products. Surface roughness characteristics of blast-cleaned steel substrates. Part 5: Replica tape method for the determination of the surface profile.**



### Testex Tape (R1002) & Testex Gauge

A unique replica technique produces accurate, blast-cleaned surface profile measurements that ensures optimum blasting effectiveness.

Packing: Testex Tape X Coarse (50 impression roll), Testex Gauge and Burnishing Tool.

## Stage 2 Surface Cleanliness

**ISO 8502-6: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness.**

**Part 6: Extraction of soluble contaminants for analysis. The Bresle method.**

**ISO 8502-9: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness.**

**Part 9: Field method for the conductometric determination of water-soluble salts.**



## Bresle Test (P2005)

Blast-cleaned steel can be contaminated by water-soluble salts and corrosion products. If they are not removed prior to painting, chemical reactions can result in blister formation and accumulations of rust that destroy the adhesion between the substrate and the applied protective coating.

Contents: Standard Bresle Patches (pack of 50 Standard Adhesion), Conductivity Meter, 500ml Deionised Water, 5ml Syringe, Calibration Solution, Moistening Solution and 25ml Beaker.

## Stage 3 Surface Cleanliness

**ISO 8502-3: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness.**

**Part 3: Assessment of dust on steel surfaces prepared for painting. Pressure-sensitive tape method.**



## Dust Test (P4001)

Assess the quantity and size of dust particles on steel surfaces prepared for painting.

Dust particles on blast-cleaned steel surfaces may reduce the adhesion of applied coatings, and by absorbing moisture may promote the corrosion of the steel surface.

Contents: Dust Test Tape (60m roll), Dust Test Charts (pack of 50) and X10 Illuminated Magnifier.

## Stage 4 Surface Cleanliness

**ISO 8502-4: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness. Part 4: Guidance on the estimation of the probability of condensation prior to paint application.**



### Dewpoint Meter (H3001)

The Dewpoint Meter enables testing for the estimation of the probability of condensation on a surface to be painted and establishing whether conditions at the job site are suitable for painting or not.

Contents: Dewpoint Meter, Humidity Sensor and Surface Temperature Probe.

## Stage 5 Surface Cleanliness

**ISO 2808: Paints and varnishes. Determination of film thickness.**

**ISO 19840: Corrosion protection of steel structures by protective paint systems. Measurement of, and acceptance criteria for, the thickness of dry films on rough surfaces.**



### Coating Thickness Meter (C5001)

Measures all coatings on steel and iron substrates using the magnetic induction principle, ensuring the correct coating thickness has been applied.

Other models of the Coating Thickness Meter can be supplied for thick coatings or non-ferrous substrates.

Contents: Coating Thickness Meter (C5001), Flexible Lead Probe, set of 8 Calibration Foils and Zero Disk.



## Testex Tape

ISO 8503-5: Preparation of steel substrates before application of paints and related products. Surface roughness characteristics of blast-cleaned steel substrates. Part 5: Replica tape method for the determination of the surface profile.

A unique replica technique and a snap gauge enable accurate, blast-cleaned surface profile measurements.

Testex Tape makes surface replicas easy to obtain and produces average maximum peak-to-valley readings that ensure optimum blasting effectiveness. Replicas can be retained for future needs.

The Testex Gauge is used to measure the Testex Tape replica and determine the average maximum peak-to-valley height of the blasted profile.

Measurements are made by firstly zeroing the Gauge on  $-50\mu\text{m}$  (-2mils). This is to allow for the film backing. Place the replicated area between the anvils and gently lower the moveable anvil onto the film. The reading can now be taken, giving you the average peak-to-valley height of the blasted profile.

The Calibration Certificate with traceability to UKAS is an optional extra. The Certificate is supplied as hard copy and is available online through the Calibration Portal (under Browse Categories) on our website.

The Calibration Portal lists all your equipment calibrated by Paint Test Equipment, showing the renewal dates and enabling Calibration Certificates to be viewed at any time.

The Testex Gauge is supplied in an industrial foam-filled Carrying Case with Testex Tape X Coarse, Testex Tape Coarse and a Burnishing Tool.

## Testex Tape Specifications

Part No	Grade	Range Metric	Range Imperial	Number of Tests	Conformance Cert Part No
R1001	Coarse	20–64 $\mu\text{m}$	0.8–2.5mils	50	NRC02
R1002	X Coarse	38–115 $\mu\text{m}$	1.5–4.5mils	50	NRC02
R1004	Testex Gauge (metric) Includes Testex Coarse and X Coarse				NR001

# Operation

## Principle

The replica film in the Testex Tape consists of a layer of crushable plastic microfilm coated onto a polyester substrate of a highly uniform thickness 50µm (2mil). When compressed against a hard surface, the microfoam collapses to about 25% of its original thickness.



During compression the foam acquires an impression of the surface against which it is burnished. The highest peaks on the test surface displace the fully compressed foam and come to rest against the polyester substrate. The deepest valleys on the test surface create the highest peaks on the replica.

This method measures an average maximum peak-to-valley profile. The anvils of the Testex Gauge flatten the replica profile slightly so that the reading equates to an average maximum value (this is not the same as mathematical average).

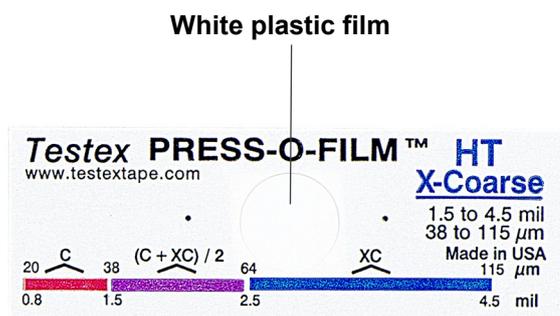
## Taking Measurements

Locate a representative area of the surface for measurement and select the appropriate grade of Testex Tape based on your target profile (Coarse or X Coarse). For 20 to 64µm (0.8 to 2.5mil) profiles use Coarse grade. For 38 to 115µm (1.5 to 4.5mil) profiles use X Coarse grade.

Prepare the Testex Gauge by cleaning the anvils and adjusting the zero point to read -50 (-2mil), the thickness of the polyester substrate. This initial adjustment automatically subtracts the thickness of the polyester substrate from all subsequent readings. Always ensure rust paper is placed between the anvils when the Testex Gauge is not in use.

Remove a single piece of Testex Tape from its release paper. The replica material is the square, white plastic film in the centre. A bulls eye circle of paper should remain behind on the release paper (this is not used in the measurement).

Apply the Testex Tape to the blast-cleaned surface and rub the Burnishing Tool over the replica film in the centre of the tape, using firm pressure. The circular cut-out will become darker as the surface is replicated. Make sure that the entire circular area has darkened uniformly.



Remove the Testex Tape from the surface and place the replica between the anvils of the Testex Gauge, making sure that it is centred properly. Release the Testex Gauge anvil gently onto the replica and measure the profile. The gauge reading is the average maximum peak-to-valley height of the blast-cleaned surface.

Testex Tape is able to produce accurate replicas on surface temperatures of -10 to +65°C.



# Operation

## Averaging

If a measurement with either Coarse or X Coarse grade is between 38 to 64 $\mu$ m (1.5 to 2.5mil) take a second reading with the other grade of tape and average the reading.

A graphic illustrating the ranges over which averaging should and should not be applied appears on each piece of tape.

## Definitions of Roughness

### Definitions of Roughness

Testex Gauge measurements of Testex Tape give Rz results, which is the average maximum peak-to-valley height of the profile. This is the form of measurement most commonly used by the painting and coating industries.

In some applications, Ra results are used, which are the arithmetic average roughness.

In most cases Rz has a value approximately 4 times Ra for a given surface.

### Sources of Error

One source of error is the presence of particles of dirt on either the replica or the Testex Gauge. Reasonable care should be taken to keep the Gauge anvils free of dirt.

Another is a poor burnishing technique, including incomplete compression of the test film.

### Shelf Life

The replica film on the Testex Tape has no expiry date. The only degeneration is the adhesive on the Tape if exposed to extremes of temperature.

We would recommend that the Tape is used within a 12-month period from date of purchase.





## Bresle Test

ISO 8502-6: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness. Part 6: Extraction of soluble contaminants for analysis. The Bresle method.

ISO 8502-9: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness. Part 9: Field method for the conductometric determination of water-soluble salts.

The Bresle Test will measure contamination of water-soluble salts and corrosion products on blast-cleaned steel. These compounds are almost colourless and are localized at the lowest point of the rust pits.

If they are not removed prior to painting, chemical reactions can result in blister formation and accumulations of rust that destroy the adhesion between the substrate and the applied protective coating.

Supplied in an industrial foam-filled Carrying Case with Bresle Patches (pack of 50 Standard Adhesion), Bresle Patches Plus (pack of 50 High Adhesion), Conductivity Meter, 500ml Deionised Water, 3 x 5ml Syringes, Calibration Solution, Moistening Solution and 25ml Beaker.

## Bresle Test Specifications and Spares

Part No	Patches Supplied	Conductivity Meter Range	Conductivity Meter Resolution	Conductivity Meter Accuracy	Conductivity Solution Cal Cert Part No	Bresle Patch Conformance Cert Part No
P2005	50 Standard Adhesion 50 High Adhesion	0–199 $\mu$ S/cm 0.20–1.99mS/cm	1 $\mu$ S/cm 0.01mS/cm	$\pm$ 2%	NP001	NPC04
PS001	Spare Bresle Patches (pack of 50) Standard Adhesion					NPC04
PS002	Spare Bresle Patches Plus (pack of 50) High Adhesion					NPC04
PS003	Spare Deionised Water (500ml)					
PS004	Spare Syringes (pack of 3)					
PS005	Spare Conductivity Meter Calibration Solution				NP001	
PS006	Spare 25ml Beaker					
PS007	Spare Conductivity Meter Sensor					

# Operation

## Safety



**The needles on the Syringes in the Bresle Test are blunt. Care must still be taken when carrying out the test.**

**When using the Syringes ensure the work area is well lit, be aware of people around you and assess any hazards. Ensure the protective cap is placed over the needle after use.**

**If the Calibration Solution comes into contact with exposed skin, wash with water. If the Solution comes into contact with eyes, rinse the eye immediately and seek medical advice.**

## Moistening Procedure

For first use on a new Conductivity Meter, moisten the Measuring Electrode with 3 to 4 droplets of the Moistening Solution and allow to sit for approximately 10 minutes, then the Measuring Electrode should be rinsed in tap water and dried



If the Measuring Electrode has not been used for a long period of time, or if the Electrode has been left extremely dry, then use this moistening procedure.

## Conductivity Meter Calibration

Place 3 to 4 droplets of the 1.41mS/cm Conductivity Solution into the Measuring Electrode, ensuring that the solution is in both sections of the Electrode with no air bubbles. Check the displayed reading which is shown when the smiley face comes on and if this is not 1.41 then calibrate as follows:

Press and hold the Cal button until a CAL indicator and smiley face flashes – the Conductivity Meter will now auto calibrate. When the CAL indicator and smiley face stop flashing, calibration is complete.

When you have finished calibrating the Conductivity Meter, the Measuring Electrode should be rinsed in tap water before taking any readings.

## Taking Measurements

Pour approximately 10ml of Deionized Water into the Beaker.

Completely fill the Syringe with the Deionized Water from the Beaker, and then empty the Syringe back into the Beaker.

Using the Syringe, withdraw approximately 1ml of Deionized Water from the Beaker and place 3 to 4 droplets into the Measuring Electrode on the Conductivity Meter, ensuring that the Deionized Water is in both sections of the Electrode with no air bubbles.

Record the conductivity of the contaminated water displayed by the Meter when the smiley face appears.

Take a Bresle Patch and remove the protective paper and the punched-out centre foam. Press the adhesive side of the patch against the test surface in such a way that the minimum amount of air is trapped in the circular test chamber.

Fill the Syringe with 2.5ml of Deionized Water from the Beaker and insert the Syringe needle at an angle of about 30° to the test surface near the outer edge of the Patch so it passes through the adhesive foam body and into the circular test chamber.

If the Patch is in a position which makes access to the Patch test chamber difficult, bend the Syringe needle as required.

Inject the Syringe contents ensuring that it wets the entire test surface, then without removing the Syringe needle from the Patch, suck the contents of the Patch back into the Syringe. Repeat until at least 10 injection-sucking cycles have been completed.

At the end of the 10th cycle retrieve the contaminated water from the Patch with the Syringe and place 3 to 4 droplets into the Measuring Electrode on the Conductivity Meter, ensuring that the Deionized Water is in both sections of the Electrode with no air bubbles.

Record the conductivity of the contaminated water displayed by the Meter when the smiley face appears.



# Operation

## Results

Subtract the initial Deionised Water conductivity reading from the contaminated water conductivity reading. The results are shown in  $\mu\text{S}/\text{cm}$ .

For results in  $\mu\text{g}/\text{cm}^2$  multiply the  $\mu\text{S}/\text{cm}$  value by 0.1 or use the conversion table on the following page.

If results in  $\text{mg}/\text{m}^2$  are required the  $\mu\text{S}/\text{cm}$  value is the same in  $\text{mg}/\text{m}^2$ .

The conversions listed are based on a test area of  $1250\text{mm}^2$  and using a 2.5ml volume of water. Expression of results are based on section 7 of ISO 8502-9

Example. The Deionized Water measurement taken is  $4\mu\text{S}/\text{cm}$ . The contaminated water measurement taken is  $54\mu\text{S}/\text{cm}$ . The difference is therefore  $50\mu\text{S}/\text{cm}$  which is equivalent to  $50\text{mg}/\text{m}^2$ . Multiply the difference ( $50\mu\text{S}/\text{cm}$ ) by 0.1 and the result is  $5.0\mu\text{g}/\text{cm}^2$ .

The Conductivity Meter will automatically take measurements when a solution is placed in the Measuring Electrode. If a further measurement is required press the Measure button and a MEAS indicator flashes. When the MEAS indicator stops flashing and a smiley face appears the measurement is complete.

## General

### Care

When you have finished using the Conductivity Meter, the Measuring Electrode should be rinsed in tap water and dried. Then place a small amount of Deionized Water in the Electrode and replace the sensor cap.

Also ensure the Syringe is cleaned to remove any contamination.

### Patch Shelf Life

The only degeneration on the Bresle Patches is the adhesive if exposed to extremes of temperature.

It is recommended that the Patches are used within a 12-month period from date of purchase.

### Replacing Batteries

To replace the batteries on the Conductivity Meter, slide off the sensor while lifting the catch located on the rear of the instrument. Replace with 2 lithium CR-2032 batteries, ensuring correct polarity.

When high adhesion strength Patches are required for testing on very corroded or coarse-grade blasted steel, use the Bresle Patches Plus as an alternative to the Standard Bresle Patches.

## Testing Abrasives

### ISO 11127-6: Preparation of steel substrates before application of paints and related products. Test methods for non-metallic blast-cleaning abrasives. Part 6: Determination of water-soluble contaminants by conductivity measurement.

The Bresle Test can also be used for testing non-metallic abrasives for water-soluble salts and corrosion products.

Record the conductivity of the Deionized Water using the same procedure under the section Taking Measurements.

Place 100gm of abrasive into a flask and add 100ml of the Deionized Water that you have recorded the conductivity of. Shake for 5 minutes and allow to stand for 1 hour. If the liquid does not clear, filter by any suitable method.

Using the Syringe, withdraw approximately 1ml of contaminated water from the flask and place 3 to 4 droplets into the Measuring Electrode on the Conductivity Meter, ensuring that the contaminated water is in both sections of the Electrode with no air bubbles.

Record the conductivity of the contaminated water displayed by the Meter when the smiley face appears.

Subtract the initial Deionized Water conductivity reading from the contaminated water conductivity reading. Record the results as shown in  $\mu\text{S}/\text{cm}$ .



# Bresle Test Conversion Table

Results $\mu\text{S/cm}$	Conversion into $\mu\text{g/cm}^2$	Results $\mu\text{S/cm}$	Conversion into $\mu\text{g/cm}^2$	Results $\mu\text{S/cm}$	Conversion into $\mu\text{g/cm}^2$
1 $\mu\text{S/cm}$	0.1 $\mu\text{g/cm}^2$	43 $\mu\text{S/cm}$	4.3 $\mu\text{g/cm}^2$	85 $\mu\text{S/cm}$	8.5 $\mu\text{g/cm}^2$
2 $\mu\text{S/cm}$	0.2 $\mu\text{g/cm}^2$	44 $\mu\text{S/cm}$	4.4 $\mu\text{g/cm}^2$	86 $\mu\text{S/cm}$	8.6 $\mu\text{g/cm}^2$
3 $\mu\text{S/cm}$	0.3 $\mu\text{g/cm}^2$	45 $\mu\text{S/cm}$	4.5 $\mu\text{g/cm}^2$	87 $\mu\text{S/cm}$	8.7 $\mu\text{g/cm}^2$
4 $\mu\text{S/cm}$	0.4 $\mu\text{g/cm}^2$	46 $\mu\text{S/cm}$	4.6 $\mu\text{g/cm}^2$	88 $\mu\text{S/cm}$	8.8 $\mu\text{g/cm}^2$
5 $\mu\text{S/cm}$	0.5 $\mu\text{g/cm}^2$	47 $\mu\text{S/cm}$	4.7 $\mu\text{g/cm}^2$	89 $\mu\text{S/cm}$	8.9 $\mu\text{g/cm}^2$
6 $\mu\text{S/cm}$	0.6 $\mu\text{g/cm}^2$	48 $\mu\text{S/cm}$	4.8 $\mu\text{g/cm}^2$	90 $\mu\text{S/cm}$	9.0 $\mu\text{g/cm}^2$
7 $\mu\text{S/cm}$	0.7 $\mu\text{g/cm}^2$	49 $\mu\text{S/cm}$	4.9 $\mu\text{g/cm}^2$	91 $\mu\text{S/cm}$	9.1 $\mu\text{g/cm}^2$
8 $\mu\text{S/cm}$	0.8 $\mu\text{g/cm}^2$	50 $\mu\text{S/cm}$	5.0 $\mu\text{g/cm}^2$	92 $\mu\text{S/cm}$	9.2 $\mu\text{g/cm}^2$
9 $\mu\text{S/cm}$	0.9 $\mu\text{g/cm}^2$	51 $\mu\text{S/cm}$	5.1 $\mu\text{g/cm}^2$	93 $\mu\text{S/cm}$	9.3 $\mu\text{g/cm}^2$
10 $\mu\text{S/cm}$	1.0 $\mu\text{g/cm}^2$	52 $\mu\text{S/cm}$	5.2 $\mu\text{g/cm}^2$	94 $\mu\text{S/cm}$	9.4 $\mu\text{g/cm}^2$
11 $\mu\text{S/cm}$	1.1 $\mu\text{g/cm}^2$	53 $\mu\text{S/cm}$	5.3 $\mu\text{g/cm}^2$	95 $\mu\text{S/cm}$	9.5 $\mu\text{g/cm}^2$
12 $\mu\text{S/cm}$	1.2 $\mu\text{g/cm}^2$	54 $\mu\text{S/cm}$	5.4 $\mu\text{g/cm}^2$	96 $\mu\text{S/cm}$	9.6 $\mu\text{g/cm}^2$
13 $\mu\text{S/cm}$	1.3 $\mu\text{g/cm}^2$	55 $\mu\text{S/cm}$	5.5 $\mu\text{g/cm}^2$	97 $\mu\text{S/cm}$	9.7 $\mu\text{g/cm}^2$
14 $\mu\text{S/cm}$	1.4 $\mu\text{g/cm}^2$	56 $\mu\text{S/cm}$	5.6 $\mu\text{g/cm}^2$	98 $\mu\text{S/cm}$	9.8 $\mu\text{g/cm}^2$
15 $\mu\text{S/cm}$	1.5 $\mu\text{g/cm}^2$	57 $\mu\text{S/cm}$	5.7 $\mu\text{g/cm}^2$	99 $\mu\text{S/cm}$	9.9 $\mu\text{g/cm}^2$
16 $\mu\text{S/cm}$	1.6 $\mu\text{g/cm}^2$	58 $\mu\text{S/cm}$	5.8 $\mu\text{g/cm}^2$	100 $\mu\text{S/cm}$	10.0 $\mu\text{g/cm}^2$
17 $\mu\text{S/cm}$	1.7 $\mu\text{g/cm}^2$	59 $\mu\text{S/cm}$	5.9 $\mu\text{g/cm}^2$	101 $\mu\text{S/cm}$	10.1 $\mu\text{g/cm}^2$
18 $\mu\text{S/cm}$	1.8 $\mu\text{g/cm}^2$	60 $\mu\text{S/cm}$	6.0 $\mu\text{g/cm}^2$	102 $\mu\text{S/cm}$	10.2 $\mu\text{g/cm}^2$
19 $\mu\text{S/cm}$	1.9 $\mu\text{g/cm}^2$	61 $\mu\text{S/cm}$	6.1 $\mu\text{g/cm}^2$	103 $\mu\text{S/cm}$	10.3 $\mu\text{g/cm}^2$
20 $\mu\text{S/cm}$	2.0 $\mu\text{g/cm}^2$	62 $\mu\text{S/cm}$	6.2 $\mu\text{g/cm}^2$	104 $\mu\text{S/cm}$	10.4 $\mu\text{g/cm}^2$
21 $\mu\text{S/cm}$	2.1 $\mu\text{g/cm}^2$	63 $\mu\text{S/cm}$	6.3 $\mu\text{g/cm}^2$	105 $\mu\text{S/cm}$	10.5 $\mu\text{g/cm}^2$
22 $\mu\text{S/cm}$	2.2 $\mu\text{g/cm}^2$	64 $\mu\text{S/cm}$	6.4 $\mu\text{g/cm}^2$	106 $\mu\text{S/cm}$	10.6 $\mu\text{g/cm}^2$
23 $\mu\text{S/cm}$	2.3 $\mu\text{g/cm}^2$	65 $\mu\text{S/cm}$	6.5 $\mu\text{g/cm}^2$	107 $\mu\text{S/cm}$	10.7 $\mu\text{g/cm}^2$
24 $\mu\text{S/cm}$	2.4 $\mu\text{g/cm}^2$	66 $\mu\text{S/cm}$	6.6 $\mu\text{g/cm}^2$	108 $\mu\text{S/cm}$	10.8 $\mu\text{g/cm}^2$
25 $\mu\text{S/cm}$	2.5 $\mu\text{g/cm}^2$	67 $\mu\text{S/cm}$	6.7 $\mu\text{g/cm}^2$	109 $\mu\text{S/cm}$	10.9 $\mu\text{g/cm}^2$
26 $\mu\text{S/cm}$	2.6 $\mu\text{g/cm}^2$	68 $\mu\text{S/cm}$	6.8 $\mu\text{g/cm}^2$	110 $\mu\text{S/cm}$	11.0 $\mu\text{g/cm}^2$
27 $\mu\text{S/cm}$	2.7 $\mu\text{g/cm}^2$	69 $\mu\text{S/cm}$	6.9 $\mu\text{g/cm}^2$	111 $\mu\text{S/cm}$	11.1 $\mu\text{g/cm}^2$
28 $\mu\text{S/cm}$	2.8 $\mu\text{g/cm}^2$	70 $\mu\text{S/cm}$	7.0 $\mu\text{g/cm}^2$	112 $\mu\text{S/cm}$	11.2 $\mu\text{g/cm}^2$
29 $\mu\text{S/cm}$	2.9 $\mu\text{g/cm}^2$	71 $\mu\text{S/cm}$	7.1 $\mu\text{g/cm}^2$	113 $\mu\text{S/cm}$	11.3 $\mu\text{g/cm}^2$
30 $\mu\text{S/cm}$	3.0 $\mu\text{g/cm}^2$	72 $\mu\text{S/cm}$	7.2 $\mu\text{g/cm}^2$	114 $\mu\text{S/cm}$	11.4 $\mu\text{g/cm}^2$
31 $\mu\text{S/cm}$	3.1 $\mu\text{g/cm}^2$	73 $\mu\text{S/cm}$	7.3 $\mu\text{g/cm}^2$	115 $\mu\text{S/cm}$	11.5 $\mu\text{g/cm}^2$
32 $\mu\text{S/cm}$	3.2 $\mu\text{g/cm}^2$	74 $\mu\text{S/cm}$	7.4 $\mu\text{g/cm}^2$	116 $\mu\text{S/cm}$	11.6 $\mu\text{g/cm}^2$
33 $\mu\text{S/cm}$	3.3 $\mu\text{g/cm}^2$	75 $\mu\text{S/cm}$	7.5 $\mu\text{g/cm}^2$	117 $\mu\text{S/cm}$	11.7 $\mu\text{g/cm}^2$
34 $\mu\text{S/cm}$	3.4 $\mu\text{g/cm}^2$	76 $\mu\text{S/cm}$	7.6 $\mu\text{g/cm}^2$	118 $\mu\text{S/cm}$	11.8 $\mu\text{g/cm}^2$
35 $\mu\text{S/cm}$	3.5 $\mu\text{g/cm}^2$	77 $\mu\text{S/cm}$	7.7 $\mu\text{g/cm}^2$	119 $\mu\text{S/cm}$	11.9 $\mu\text{g/cm}^2$
36 $\mu\text{S/cm}$	3.6 $\mu\text{g/cm}^2$	78 $\mu\text{S/cm}$	7.8 $\mu\text{g/cm}^2$	120 $\mu\text{S/cm}$	12.0 $\mu\text{g/cm}^2$
37 $\mu\text{S/cm}$	3.7 $\mu\text{g/cm}^2$	79 $\mu\text{S/cm}$	7.9 $\mu\text{g/cm}^2$	121 $\mu\text{S/cm}$	12.1 $\mu\text{g/cm}^2$
38 $\mu\text{S/cm}$	3.8 $\mu\text{g/cm}^2$	80 $\mu\text{S/cm}$	8.0 $\mu\text{g/cm}^2$	122 $\mu\text{S/cm}$	12.2 $\mu\text{g/cm}^2$
39 $\mu\text{S/cm}$	3.9 $\mu\text{g/cm}^2$	81 $\mu\text{S/cm}$	8.1 $\mu\text{g/cm}^2$	123 $\mu\text{S/cm}$	12.3 $\mu\text{g/cm}^2$
40 $\mu\text{S/cm}$	4.0 $\mu\text{g/cm}^2$	82 $\mu\text{S/cm}$	8.2 $\mu\text{g/cm}^2$	124 $\mu\text{S/cm}$	12.4 $\mu\text{g/cm}^2$
41 $\mu\text{S/cm}$	4.1 $\mu\text{g/cm}^2$	83 $\mu\text{S/cm}$	8.3 $\mu\text{g/cm}^2$	125 $\mu\text{S/cm}$	12.5 $\mu\text{g/cm}^2$
42 $\mu\text{S/cm}$	4.2 $\mu\text{g/cm}^2$	84 $\mu\text{S/cm}$	8.4 $\mu\text{g/cm}^2$	126 $\mu\text{S/cm}$	12.6 $\mu\text{g/cm}^2$



## Dust Test

ISO 8502-3: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness.  
 Part 3: Assessment of dust on steel surfaces prepared for painting. Pressure-sensitive tape method.

Assess the quantity and size of dust particles on steel surfaces prepared for painting. Dust particles on blast-cleaned steel surfaces may reduce the adhesion of applied coatings, and by absorbing moisture may promote the corrosion of the steel surface.

Accumulation of dust particles occurs more naturally on horizontal surfaces, the interior of pipes and in structural cavities. Inspection should be carried out to ensure that such areas are adequately cleaned and free from dust particles before painting.

The pressure-sensitive Dust Test Tape is pressed onto the steel surface prepared for painting. The Tape with the dust particles adhering to it is removed and placed on the Dust Test Chart in a section which contrasts to that of the dust particles and is examined visually. The quantity of dust particles adhering to the Tape and the dust particle size are then compared.

The Dust Test Comparator Chart shows 5 classifications of dust particles and 4 sections of contrasting backgrounds where the Tape can be applied. All details necessary to identify the surface tested can be written on the Chart.

All items are supplied in an industrial foam-filled Carrying Case with Dust Test Tape (60m roll), Dust Test Charts (pack of 50) and X10 Illuminated Magnifier.

## Dust Test Specifications

Part No	Product	Tape Adhesive Strength	Tape Width	Tape Length	Dust Test Tape Conformance Cert Part No	Dust Charts Conformance Cert Part No
P4001	Dust Test	190nN/metre	25mm/1"	60 metres	NPC05	NPC06
PS201	Spare Dust Test Tape	190nN/metre	25mm/1"	60 metres	NPC05	
PS202	Spare Dust Test Comparator Charts (pack 50)					NPC06

# Operation

## Application

At the beginning of each series of tests, remove and discard the first three turns of the Dust Test Tape from the roll.

Remove a piece of Tape about 250mm long. Holding the Tape only at the ends, press approximately 200mm of the freshly exposed Tape onto the blast-cleaned surface.



Place your thumb across one end of the Tape and move the thumb along the Tape whilst maintaining a firm pressure and constant speed along the Tape. Carry out this procedure three times in each direction.

Remove the Tape from the blast-cleaned surface and place it on the Dust Test Comparator Chart in a section which contrasts to the colour of the dust (adhere the Tape with thumb pressure). Excess Tape can be folded around the back of the chart or cut off.

## Assessment

Assess the quantity and size of dust particles on the Tape by visually comparing an area of the Tape with equivalent-sized areas of the pictorial references shown on the Chart. Record the rating corresponding to the reference that is the closest match.

It is not unusual after carrying out the test to find that the Tape displays an overall discolouration, usually reddish-brown or black, sometimes with the presence of discrete visible particles, depending on the abrasive used.

The discolouration is caused by microscopic dust particles from the blast-cleaned surface (particles less than 50µm) that can cause low paint adhesion.

Report any overall discolouration as quantity rating 5, size class 1.

For every surface of one particular type, carry out not less than three separate tests. If the results do not have a spread of 1 or less quantity rating, carry out at least two additional tests to establish the mean.

The Dust Test Comparator Chart form is titled "Paint Test Equipment" and "Dust Test Comparator Chart". It includes fields for "Date", "Time", "Dust Quantity", "Dust Size", "Job Number", and "Comments". Below these fields are five numbered boxes (1-5) showing increasing dust density. There are also three large rectangular areas for placing the test tape, with the bottom one partially filled with a dark, discolored sample. At the bottom, it states "In compliance with ISO 8502-3. Using Paint Test Equipment Dust Test Tape."

## Report

Record on the Dust Test Chart the following information:

All details necessary to identify the surface tested, with reference to specific features (ledges, beams, web or flange faces) and attitude of the test area (vertical, horizontal).

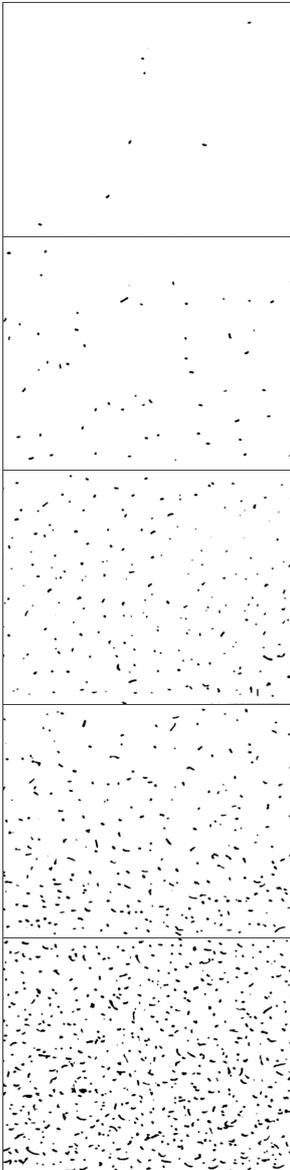
The dust particle quantity rating and dust particle size class.

Date and, if applicable, the time of each test.

The Dust Test Chart can be kept as a permanent record for the inspection carried out.

# Operation

## Dust Particle Size Classes



1. Particles not visible under X10 magnification.

2. Particles visible under X10 magnification but not with normal or corrected vision (usually particles less than 50µm in diameter).

3. Particles just visible with normal or corrected vision (usually particles between 50µm and 100µm in diameter).

4. Particles between 0.5mm and 2.5mm in diameter.

5. Particles larger than 2.5mm in diameter.

## General

### Practical Advice

The Dust Test is suitable for the assessment of dust particles retained after blast-cleaning on rust grades A, B and C. Because of the limited elasticity of the Tape, it is not possible to penetrate into the deep pits present on blast-cleaned steel rust grade D.

### Tape Shelf Life

Do not expose the Adhesion Test Tape to any extremes of temperature or daylight.

We would recommend that the Tape is used within a 12-month period from date of purchase.





## Dewpoint Meter

ISO 8502-4: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness. Part 4: Guidance on the estimation of the probability of condensation prior to paint application.

The Dewpoint Meter enables testing for the estimation of the probability of condensation on a surface to be painted and establishing whether conditions at the job site are suitable for painting or not.

Relative humidity of the air and the steel surface temperature are the basis for the estimation of the probability of condensation.

The steel surface temperature generally should be at least 3° C above the dew point when paints are applied.

Measurements of relative humidity, dew point and ambient temperature are shown on a split display at the touch of a button. Surface temperature and surface temperature proximity to dew point are shown when using the surface temperature sensor.

Interchangeable Humidity Sensor and Surface Temperature Probe allow the user to replace damaged or out-of-calibration-date Sensor and Probe.

The Calibration Certificates with traceability to UKAS are an optional extra. The Certificates are supplied as hard copy and are available online through the Calibration Portal (under Browse Categories) on our website.

The Calibration Portal lists all your equipment calibrated by Paint Test Equipment, showing the renewal dates and enabling Calibration Certificates to be viewed at any time.

Supplied in an industrial foam-filled Carrying Case with a Humidity Sensor and Surface Temperature Probe.

## Dewpoint Meter Specifications

Part No	Range %rh	Range Temperature	Resolution %rh	Resolution Temp	Accuracy %rh/Temp	Accuracy Temp	Humidity Sensor Cal Cert Part No	Surface Temp Probe Cert Part No
H3001	1–100%	Air -10–70°C (14–160°F) Surface -20–80°C (-4–176°F)	0.1%	0.1°C 0.2°F	10–90% ±2% 0–10/90–100% ±3%	±1%	NH101	NH102
HS301	Spare Humidity Sensor 0–100%rh/-10 to 70°C (14 to 160°F)							NH101
HS302	Spare Surface Temperature Probe -20 to 80°C (-4 to 176°F)							NH102

# Operation

## Functions

The following picture shows the display symbols and button functions on the Dewpoint Meter.



## On Button

Switch the Dewpoint Meter on by pressing the On button briefly. To switch off, press and hold the button until the display shows OFF. Alternatively, the instrument will switch itself off after two minutes from the last button press.

To hold the reading, quickly press and release the On button – the Pause symbol indicator will be shown on the display. To remove the hold reading, quickly press and release the On button again – the Pause symbol indicator will then disappear.

## Single Arrow ►

Press the single arrow ► successively to display relative humidity (%rh), dew point (TD), or mixing ratio/absolute humidity (ppmw/gpp) on the top display.

## Double Arrow ►►

Press the double arrow ►► successively to display air temperature (TA), surface temperature (TS), surface to dew point difference ( $\Delta T$ ), Probe serial number and time and date. (Probe serial number and time and date are functions for Paint Test Equipment use only.)

TS and  $\Delta T$  will only be displayed if the auxiliary Surface Temperature Probe is connected to the socket on the right side of the instrument and is set to ON. Otherwise the display will show OFF changing to - - - after three seconds.

To set the Surface Temperature Probe to ON press the On button and the double arrow ►► button simultaneously and the lower display will show ON and the surface temperature symbol indicator will disappear from the display. The surface temperature function reverts back to the default OFF mode when the instrument is switched off.

## Engineers Arrow ◀

This will allow you to scroll through engineers mode to set the instrument to read in °F.

To enter engineers mode press the On button and the single arrow ► button simultaneously for two seconds – the engineers mode symbol indicator will be shown on the display. You then scroll through the menu using the engineers arrow ◀ to find the deg°C function. Use the single arrow ► to select °F and then carry on scrolling through the menu until the display shows normal measurement mode with no engineers symbol indicator.

## General

### Practical Advice

When using the Dewpoint Meter it is good practice to monitor the display for temperature stability.

The Humidity Sensor should be given sufficient time to equilibrate with the environment to be measured. The larger the initial temperature difference between the Sensor and the environment to be measured, the more time temperature equilibration requires to provide a valid measurement.

### Replacing Batteries

The battery status will be shown for three seconds each time the instrument settings are changed. Replace the batteries immediately when one bar is shown.

To replace, remove the cover located on the rear of the instrument. Replace with two alkaline AA batteries, ensuring correct polarity.



## Coating Thickness Meter

ISO 2808: Paints and varnishes. Determination of film thickness.

ISO 19840: Corrosion protection of steel structures by protective paint systems. Measurement of, and acceptance criteria for, the thickness of dry films on rough surfaces.

ISO 2360: Non-conductive coatings on non-magnetic electrically conductive basis materials. Measurement of coating thickness. Amplitude-sensitive eddy-current method.

ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.

ISO 2063: Thermal spraying. Metallic and other inorganic coatings. Zinc, aluminium and their alloys.

The Paint Test Equipment Coating Thickness Meter easily measures all coatings on metallic substrates using the magnetic induction or eddy-current principles, ensuring the correct coating thickness has been applied.

It is one of the most advanced Coating Thickness Meters on the market, using up-to-date technology in a robust portable instrument and incorporating all the following user functions through a menu-driven back-lit display.

**Calibration.** Calibrate on any blasted profile or any shape of substrate using the Calibration Foils supplied.

**Calibration Memories.** The calibration settings for different substrates and shapes can be stored and recalled when required.

**Statistics.** Continually shows Mean, Number of Readings, Max/Min, Coefficient of Variation and Standard Deviation.

**Limits.** Pass and fail with audible and visual alarm.

**Metric/Imperial.** Select the measurement units that you require.

**Batching.** Measurements that are taken can be stored into batches which incorporate batch number, unique job number, and date and time. You can also go back to previous batches and look at the statistics and add or cancel readings from previous batches.

**Download.** Enables all measurements, statistics and out-of-limit readings to be downloaded to a computer either by batch number or job number into Microsoft Word or Excel.

The Calibration Certificates with traceability to UKAS are an optional extra.

The Certificates are supplied as hard copy and are available online through the Calibration Portal (under Browse Categories) on our website.

The Calibration Portal lists all your equipment calibrated by Paint Test Equipment, showing the renewal dates and enabling Calibration Certificates to be viewed at any time.

## Coating Thickness Meter Probe Specifications

Probe	Probe Diameter	Working Headroom	Minimum Convex Radius	Minimum Concave Radius	Minimum Sample Area
Ferrous 0–1000µm	9mm (360mils)	75mm (3")	4mm (160mils)	25mm (1")	4mm (160mils)
Ferrous 0–2000µm/0–5mm	15mm (600mils)	75mm (3")	10mm (400mils)	50mm (2")	10mm (400mils)
Ferrous 1–20mm	50mm (2")	150mm (6")	100mm (4")	500mm (20")	100mm (4")
Non-Ferrous 0–1000µm	10mm (400mils)	75mm (3")	5mm (200mils)	25mm (1")	5mm (200mils)
Non-Ferrous 0–2000µm	10mm (400mils)	75mm (3")	5mm (200mils)	25mm (1")	5mm (200mils)
Ferrous Right Angle 0–1000µm	9mm (360mils)	40mm (1.5")	4mm (160mils)	25mm (1")	4mm (160mils)
Non-Ferrous Right Angle 0–1000µm	10mm (400mils)	40mm (1.5")	5mm (200mils)	25mm (1")	5mm (200mils)

## Coating Thickness Meter Specifications

Part No	Substrate	Range Metric	Range Imperial	Resolution Metric	Resolution Imperial	Accuracy	Cal Cert Part No	Foil Cert Part No
C5001	Ferrous	0–1000µm	0–40mils	1µm	0.1mil	±1 to 3%	NC101	NC002
C5002	Ferrous	0–2000µm 0–5mm	0–80mils 0–200mils	1µm 0.01mm	0.1mil	±1 to 3%	NC101	NC002
C5003	Ferrous	1–20mm	40–800mils	0.1mm	0.1mil	±1 to 3%	NC101	NC002
C5004	Non-Ferrous	0–1000µm	0–40mils	1µm	0.1mil	±1 to 3%	NC201	NC002
C5005	Non-Ferrous	0–2000µm	0–80mils	1µm	0.1mil	±1 to 3%	NC201	NC002
C5006	Ferrous & Non-Ferrous	0–1000µm	0–40mils	1µm	0.1mil	±1 to 3%	NC101 NC201	NC002
C5007	Ferrous & Non-Ferrous	F 0–2000µm F 0–5mm N 0–2000µm	0–80mils 0–200mils 0–80mils	1µm 0.01mm 1µm	0.1mil	±1 to 3%	NC101 NC201	NC002
CA101	USB PC Download Cable							
CS301	Spare Ferrous Probe 0–1000µm (to fit Coating Thickness Meter C5001 & C5006)						NC101	
CS302	Spare Ferrous Probe 0–2000µm & 0–5mm (to fit Coating Thickness Meter C5002 & C5007)						NC101	
CS303	Spare Ferrous Probe 0–20mm (to fit Coating Thickness Meter C5003)						NC101	
CS304	Spare Non-Ferrous Probe 0–1000µm (to fit Coating Thickness Meter C5004 & C5006)						NC201	
CS305	Spare Non-Ferrous Probe 0–2000µm (to fit Coating Thickness Meter C5005 & C5007)						NC201	
CA201	Ferrous Right Angle Probe 0–1000µm (to fit Coating Thickness Meter C5001 & C5006)						NC101	
CA203	Non-Ferrous Right Angle Probe 0–1000µm (to fit Coating Thickness Meter C5004 & C5006)						NC201	

Ferrous models measure all non-ferromagnetic coatings on steel and iron. Non-Ferrous models measure all non-conductive, non-ferromagnetic coatings on conductive non-ferrous substrates.

All models are supplied in an industrial foam-filled Carrying Case with flexible lead Measuring Probe (Ferrous and Non-Ferrous instruments have two Measuring Probes), set of 8 Calibration Foils and Zero Disk (Ferrous and Non-Ferrous instruments have two Zero Disks and C5003 Model has 3 Foils).

The USB PC Download Cable is available as an optional extra.

## Instrument Model Selection for Different Coatings and Substrates

Coating	Substrate								
	Aluminium	Brass	Bronze	Copper	Magnesium	Steel	Stainless	Titanium	Zinc
Aluminium	—	—	—	—	—	Ferrous	—	—	—
Anodizing	Non-Ferrous	—	—	—	Non-Ferrous	—	—	—	—
Brass	—	—	—	—	—	Ferrous	—	—	—
Bronze	—	—	—	—	—	Ferrous	—	—	—
Cadmium	—	—	—	—	—	Ferrous	—	—	—
Ceramic	—	—	—	—	—	Ferrous	—	—	—
Chrome	—	—	—	—	—	Ferrous	—	—	—
Copper	—	—	—	—	—	Ferrous	—	—	—
Eloxal	Non-Ferrous	—	—	—	—	—	—	—	—
Epoxy	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	—	Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous
Galvanizing	—	—	—	—	—	Ferrous	—	—	—
Metal Spray	—	—	—	—	—	Ferrous	—	—	—
Lacquer	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	—	Ferrous	Non-Ferrous	—	Non-Ferrous
Paint	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous
Plastic	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous
Rubber	Non-Ferrous	—	—	—	—	Ferrous	—	—	—
Tin	—	—	—	—	—	Ferrous	—	—	—





## Calibration Foils

Calibration Foils are required for the calibration of Coating Thickness Meters.

Each individual Calibration Foil is measured in the centre and the value is printed on the attached label.

Supplied in packs of eight in a protective Wallet.

All values shown are nominal values.

Ferrous and Non-Ferrous Zero Disks (Plates) are also available.

The Calibration certificate with traceability to UKAS is an optional extra. The certificate is supplied as hard copy and is available online through the Calibration Portal (under Browse Categories) on our website.

The Calibration Portal lists all your equipment calibrated by Paint Test Equipment, showing the renewal dates and enabling Calibration Certificates to be viewed at any time.

## Calibration Foils Specifications

Part No	Range	Values	Accuracy	Foil Cert Part No
F2001	0–1000µm	25, 50, 75, 125, 175, 250, 500, 750µm	±2%	NC002
F2002	0–40mils	1, 2, 3, 5, 7, 10, 20, 30mils	±2%	NC002
F2003	0–2000µm	50, 250, 500, 750, 1000, 1250, 1500, 2000µm	±2%	NC002
F2004	0–80mils	2, 10, 20, 30, 40, 50, 60, 80mils	±2%	NC002
F2005	0–5.00mm	50, 250, 500, 750, 1000, 1500, 2000, 3000µm	±2%	NC002
F2006	0–200mils	2, 10, 20, 30, 40, 60, 80, 120mils	±2%	NC002
F2007	1–20.0mm	5, 9.5, 15mm	±2%	NC002
F2008	1–800mils	200, 360, 600mils	±2%	NC002
FV001	Special Range Select 8 values	12, 25, 50, 75, 100, 125, 150, 175, 190, 200, 225, 250, 275, 300, 350, 375, 500, 625, 750, 1000, 1250, 1500, 2000, 3000µm (also available in mils on request)	±2%	NC002
Z1003	Zero Disk Ferrous			
Z1004	Zero Disk Non-Ferrous			
Z1005	Zero Plate Ferrous (1–20mm Coating Thickness Meter)			

# Operation

## General

### Switch On/Off

To switch the Coating Thickness Meter on, press the on/off keypad for approximately 1 second. The display will show the last reading taken.

The Coating Thickness Meter will automatically switch off after approximately 5 minutes if no readings have been taken.

The instrument can also be switched off by pressing the on/off keypad again.

### Connecting Probe

With the Coating Thickness Meter switched off, plug the Probe into the connector located on the bottom of the instrument. Take care to align the red dots before pushing the plug in.

On combined Ferrous and Non-Ferrous instruments the display will show Setting up Probe when the Probes are changed.

On the Non-Ferrous Probe the display will ask you to place the Probe on the Non-Ferrous Zero Disk. Hold the Probe on the Zero Disk until Zero Detected is shown.

When changing Ferrous and Non-Ferrous Probes the display will ask you to enter a job number. This will enable the readings taken with the last Probe to be stored. If you do not require the readings to be stored, press Enter.

### Taking Readings

Ensure that the correct Probe for the substrate is selected. If you have a combined Ferrous and Non-Ferrous Coating Thickness Meter, the display will show if a Ferrous or Non-Ferrous Probe is connected.

Place the Probe onto the surface to be measured – there will be a double beep and the reading will be displayed. This reading will be retained on the display until replaced by the next reading.

### Replacing Batteries

When the batteries require replacement, Low Battery will flash on the display and the instrument will switch off.

To replace, remove the cover located on the rear of the instrument. Replace with two alkaline AAA batteries, ensuring correct polarity.

## Menu

All functions are accessed through a menu-driven display. To scroll through the menus use the up and down arrows and enter where indicated.



To exit from the menu, press the Menu button again and the Coating Thickness Meter will revert back to normal measurement mode.

# Operation

## Calibration Menu Functions

Calibration of the Coating Thickness Meter can be checked at any time by using the Calibration Foils and Zero Disks supplied.



### Zero and Calibration

This function will work from Factory Calibration (standard calibration) or Operator Calibration (special calibration).

For the highest accuracy of measurement, the instrument has a variable calibration facility, enabling precise measurements to be obtained on virtually all substrate types.

The zero is carried out by placing the Probe onto an uncoated substrate or Zero Disk – this will set the zero value.

The calibration is carried out by placing a Calibration Foil on the same uncoated substrate or Zero Disk (select the Calibration Foil value to be just above the coating thickness value to be measured). Place the Probe on this Calibration Foil and enter the Foil value into the instrument.

Measurements can now be made in the range from 0 to the Calibration Foil value.

### Factory Calibration

When selected this will reset the Coating Thickness Meter to a standard calibration.

If you are using a combined Ferrous and Non-Ferrous instrument, the calibration is only reset to the Probe fitted.

Calibration Foils are not required for this calibration.

Calibrations stored in Calibration Memories are not affected. Limits, if selected, will be cleared.

### Operator Calibration

This calibration enables the operator to access a special calibration curve that has been set up under Control in the menu. This will assist in overcoming inaccuracies due to slight probe wear.

When selected, the operator can still use the other functions under Calibration.

Factory Calibration will revert the instrument back to the standard calibration.

### Profile

This facility enables a special zero calibration that will assist in calibration on blast-cleaned surfaces and will also enable a top coat to be measured in a multiple-coating application – for example, if a coating of 25 microns has another coating of 50 microns applied then the profile feature will allow the operator to zero the Coating Thickness Meter on the 25 micron coat, and the instrument will measure the top coat only.

To use this facility, the operator must first select Factory Calibration.

### Calibration Memories

For specific calibrations that have to be retained on a temporary basis the Coating Thickness Meter has nine calibration memories which will retain any special calibrations.

These can be recalled when required – for example, the current calibration can be stored under Calibration Memory 1, then the calibration can be changed for another job and saved under Calibration Memory 2. Then if required the first stored calibration can be recalled from Calibration Memory 1.

## Clear Memory Menu Function

Clears the Coating Thickness Meter memory of all batches and stored readings. Does not affect calibration values and Calibration Memories.



# Operation

## Statistics Menu Function

At any time the appropriate statistics can be displayed on the lower line of the display. The statistics will be automatically updated when additional readings are taken.



### Mean

Average of all readings.

### Number Readings

Number of readings taken.

### Standard Deviation

Standard Deviation of readings taken.

### Coefficient of Variation

Coefficient of Variation of readings taken  $(SDV/Mean)*100$ .

### Maximum Reading

Maximum reading.

### Minimum Reading

Minimum reading.

### Statistics Off

Removes the displayed Statistics.

## Batching Menu Functions

Multiple batches can be stored to a maximum of 10,000 readings.



Multiple batches can be stored to a maximum of 10,000 readings.

### Batch Store

Readings taken can be stored in a batch and a job number allocated (up to 6 digits). Multiple batches can be stored with a maximum of 100 readings per batch. The 100th reading taken will automatically enter into a batch and you will be asked to enter the job number.

### Batch Recall

Previous batches stored can be recalled either by batch number or by job number, so that further readings can be added, statistics viewed or job number changed.

### Auto Batch

A batch quantity can be allocated and the Coating Thickness Meter will automatically enter the batch and you will be asked to enter the job number when this quantity of readings has been taken (the maximum batch limit is 99 readings).

### Batching On/Off

Always ensure that batching is on if you need to store readings. When you do not need to store readings switch the batching off. This will enable you to take readings above 100 without automatically being stored into a batch.

When changing Probes on combined Ferrous and Non-Ferrous instruments with batching on, your readings will automatically be entered into a batch and you will be asked to enter the job number.

# Operation

## Computer Download Menu Function

This enables the stored batches to be downloaded to a computer directly into Microsoft Word and Excel.

Connection is made using the optional USB PC Download Cable to the download socket on the Coating Thickness Meter and the USB port on the computer. Ensure the Coating Thickness Meter is switched off when connecting the cable.

Switch the Coating Thickness Meter on and USB Connected will show on the display. Locate the PteMeter storage device on the computer and view the files.



# Operation

## Control Menu Functions



### Check Bat Life

Battery Life can be accessed to check the percentage of battery life available. Low Battery will appear on the display when the batteries require replacement.

To replace, remove the cover located on the rear of the instrument. Replace with 2 alkaline AAA batteries, ensuring correct polarity.

All readings and calibrations stored in the memory will not be affected by the battery change.

### Set Limits

Limits can be set to establish a high and also a low pass/fail threshold.

For out-of-limit readings an error display will be shown and the alarm will be sounded. The error amount will be shown as a percentage, which is the difference between the set high or low limit and the particular reading.

To remove Limits press Clear Entry instead of entering numbers when setting limits.

### Set Date/Time

The date and time can be set. This will be recorded with every batch stored, and appear on all batches downloaded.

### Operator Calibration Set

Enables the operator to create a special calibration curve by entering 8 Calibration Foil values. This will assist in overcoming inaccuracies in the calibration due to slight probe wear.

The zero is carried out by placing the probe onto the Zero Disk – this will set the zero. The values of the 8 Calibration Foils can then be entered by placing the lowest value Calibration Foil onto the Zero Disk, place the Probe on this Calibration Foil and enter the Foil value into the instrument. Then enter the other Calibration Foils in order of value. The instrument will revert to normal measurement mode when the last Foil value has been entered.

Once set up, the calibration curve can be accessed through Operator Calibration under Calibration in the menu.

### Micron/Thou

Enables the instrument to operate either in metric or imperial measurements.

### Engineers Mode

This function is for Paint Test Equipment use only.

### Install Name

The Coating Thickness Meter can be personalised with your company, department or operator's name. This will appear on every download and on the display when the instrument is switched on.

By entering the following Ascii codes the name can be entered:

A-65, B-66, C-67, D-68, E-69, F-70, G-71, H-72, I-73, J-74, K-75, L-76, M-77, N-78, O-79, P-80, Q-81, R-82, S-83, T-84, U-85, V-86, W-87, X-88, Y-89, Z-90.

a-97, b-98, c-99, d-100, e-101, f-102, g-103, h-104, i-105, j-106, k-107, l-108, m-109, n-110, o-111, p-112, q-113, r-114, s-115, t-116, u-117, v-118, w-119, x-120, y-121, z-122.

Space character is 32.

When Enter is pressed without a character input, then the display will exit to normal measurement mode.

### Select Probe

This function is only available on instruments with the ferrous range of 0–2000µm/0–5mm. On other models this function will not be shown.

This gives the operator the option of selecting either a 0 to 2000µm measurement range with a display resolution of 1 micron, or a 0 to 5.00mm measurement range with a display resolution of 0.01mm.

### Probe Speed

Select a fast or slow reading speed when the Probe is placed on the surface.

Paint Test Equipment is a global leader in the manufacture of specialist test equipment specifically for the industrial painting and coating industries for the protection of steel assets from corrosion, mainly in the oil, renewables and steel construction sectors. With over 30 years experience and extensive knowledge in delivering practical and cost effective solutions in supporting our customers with world class products for corrosion prevention.

Prevention of corrosion on steel is essential to extend the asset lifetime, optimise performance and minimise downtime for expensive maintenance work. Using Paint Test Equipments technologies and innovations in our unrivalled portfolio of products ensures that industrial coatings are applied to the highest achievable quality standards of ISO compliance.

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