



International Standards
ISO 8503-5 ASTM D 4417-C

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 accuracy of Testex Tape measurements is due to an innovative two-level film that can produce virtually exact replicas of the abrasive blasted surfaces. The film is available in two different thickness grades to cover the most common range of blasted profiles.

Measurements can be taken in internal pipe diameters and grooves – locations that are not accessible using conventional stylus devices.

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	20–64µm	0.8–2.5mils	50	NRC02
R1002	X Coarse	38–115µm	1.5–4.5mils	50	NRC02
R1004	Testex Gauge (metric) Includes Testex Coarse and X Coarse				NR001
R2004	Testex Gauge (imperial) 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.

Averaging

If a measurement with either Coarse or X Coarse grade is between 38 to 64µm (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

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.

