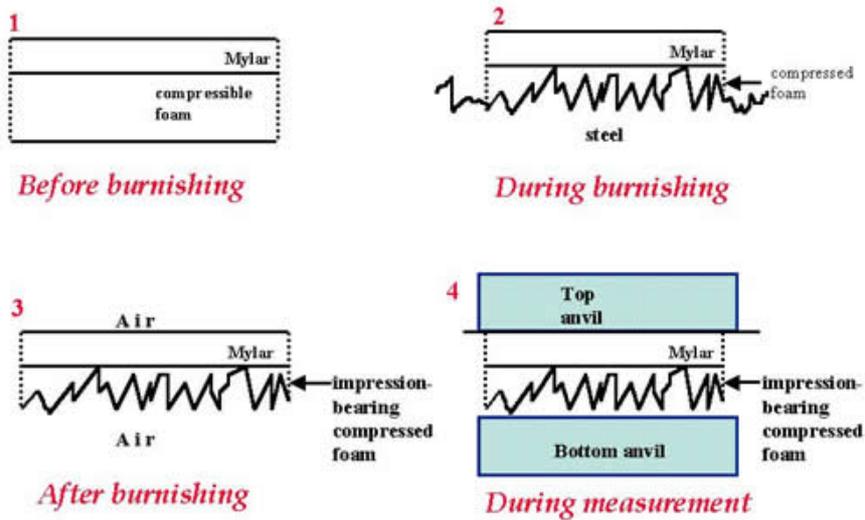


How TQC TQC Replica tape Works



1. TQC Replica tape consists of a layer of compressible foam affixed to an incompressible polyester substrate.
2. When pressed against a roughened (steel) surface, the foam collapses...
3. Acquiring an impression of the surface.
4. Placing the compressed tape between the anvils of a micrometric thickness gage, and subtracting the contribution of the incompressible substrate (50 micrometers or 0.002 inches), gives a measure of the surface profile.

Sources Of Error In Gage Profile Measurement

A human hair is about 2 mils (50 microns) thick and individual bacteria are 0.1 mil (2.5 microns) in size. Field profile measurements to accuracies in this range will be influenced by very subtle effects.

The four major sources of error in determining the profile of a blasted surface using TQC Replica tape and a micrometer gage are:

1) Inherent variation in point-to-point profile over the surface being measured,

SSPC - The Society for Protective Coatings, recommends a minimum of three measurements of profile per 100 square feet (10 square meters).

2) Presence of particles of dirt on either the TQC Replica tape or gage,

Reasonable care should be taken to keep the gage anvils free of dirt or grit. Questionable measurements should be double checked.

3) Gage accuracy,

Suitable micrometric thickness gages commonly cite an accuracy of ± 0.2 mil (5 microns). In addition to gear errors of this magnitude, we have observed that they commonly read approximately 0.1 mil high at room temperature and 0.1 mil low at freezing. **Only gages specifically designed for use with TQC Replica tape such as the [TQC SP1570](#) will have the correct accuracy, closing force, anvil/contact point dimensions and parallelism specifications.**

4) Rubbing technique,

Including excessive or inadequate burnishing force.

Bear in mind that "profile" is always a function of how it's defined (Ry, Rz, Rt, evaluation length, sampling length, deadband, how curvature is handled, etc.). Just as it's important to specify these parameters, tape users should always indicate the grade they used to obtain a measurement.

Tape Grades

Testex Press-O-Film TQC replica tape is available in a variety of thicknesses to facilitate profile measurement in differing ranges.

The primary range for measurement with replica tape is 1.0 to 4.5 mils (25 to 115 μm). Use of Coarse Minus grade (<1.0 mil or <25 μm) or X-Coarse Plus grade tape (>4.5 mil or >115 μm) should be restricted primarily to checking measurements at the lower and upper ends of the primary range.

Grade (descriptive)	Range When Used With Gage (mils) / (μm)
Fine / Medium	not applicable
Coarse Minus	0.5 to 1.0 / 12 to 25
Coarse	0.8 to 2.5 / 20 to 64
X-Coarse	1.5 to 4.5 / 38 to 115
X-Coarse Plus	4.6 to 5.8 / 116 to 147

Testex TQC replica tape can be used with a gage to measure the surface roughness ("profile") of blast-cleaned steel in the roughness range 0.8 to 4.5 mils (or 20 to 115 micrometers). Because inspectors, as a rule, have a target profile in mind, it is always best to start measurements with the grade of tape that has the target profile closest to the centre of its range.

Each grade of TQC replica tape is most accurate near the centre of its specified range.

Always confirm measurements near the ends of a given grade's range using the next higher or lower grade of tape.

Standards Compliance

STANDARDS GOVERNING USE OF TQC REPLICA TAPE TO MEASURE PROFILE

ASTM - (American Society for Testing and Materials) D 4417:

Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel

NACE - International (National Association of Corrosion Engineers) RP0287:

Standard Recommended Practice: Field Measurement of Surface Profile of Abrasive Blast Cleaned Steel Surfaces Using a TQC Replica tape

SSPC - the Society for Protective Coatings: SSPC-SP 5, SP 6, SP 10, SP11-87T

ISO - International Organization for Standards: Draft Standard ISO8503-5 Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast-cleaned steel substrates - Part 5: TQC Replica tape method for the determination of the profile

In cases where standards compliance is required, the full original current standard should be consulted.