

How to use a Surface Comparator

In order to maximise a coating's overall performance, it is essential to assess the surface profile of the blast cleaned substrate, as a profile that is too large or too small, can lead to costly premature coating failures.

If you are only required to quickly assess the surface profile of a blasted metal surface, then the easily transportable and easy to use Surface Comparators are the perfect choice. Put simply, comparators are a flat, steel plate which contain a number of reference surface profiles, formed on a corrosion resistant metal.

These reference profiles are then compared to the freshly blasted surface – many comparators have a hole in the middle to make this comparison easier - and a profile grade is then defined by the inspector. Due to the speed of the test, this method is especially useful when you want to go from blasting to painting as quickly as possible to avoid flash rust, or when measuring in hazardous areas where electronic equipment is prohibited.

Elcometer has a range of surface comparators for use with different standards and for different profile finishes, and they all work in the same way. Depending on which one you choose, the comparator will contain either four, five, or six reference profiles, with the profile values recorded in either microns, mils, or "classes"; again dependent on the comparator you are using.

For this test we're using the Elcometer 125 Surface Comparator, as it's designed to meet the requirements of several international standards.

First, select the appropriate type of surface profile comparator. There are primarily two types - Type G, for profiles blast cleaned with a grit abrasive, and Type S, for profiles blast cleaned with a shot abrasive.

With all loose dust and debris removed from the test surface, place the appropriate surface comparator against it, and compare, in turn, the test surface with each segment of the comparator. This can be done with the assistance of a magnifier if necessary. We recommend a x5 magnifier, as it allows you to easily compare the surface with a single segment of the comparator in great detail.

If visual assessment proves difficult, it is possible to do a tactile assessment – in other words, touch. While some standards do not specify the form of touch that can be used in order to assess the surface, others suggest using the back of a finger nail or a wooden stylus held between thumb and forefinger, likely in an attempt to avoid the transfer of contaminants from finger to surface.

Once you've assessed the profile against each segment of the comparator, you determine the grade. This is not a case of simply choosing which segment the profile is closest to – it is defined as follows:

If the profile is smoother than segment 1, the finest grade on the comparator, it is Finer-than-Fine.

If the profile is equal to segment 1 and up to, but excluding segment 2, it is Fine.

If the profile is equal to segment 2 and up to, but excluding segment 3, it is Medium.

If the profile is equal to segment 3 and up to, but excluding segment 4, it is Coarse.

And finally, if any profile is assessed as being rougher than segment 4, it is Coarser-than-Coarse.

Simply record your result, and then test another area of the surface.

However, if you require a less subjective method, there are test methods that produce a numerical value, so you can objectively inspect the surface profile.

To find out more, click on one of the links on-screen, or visit [Elcometer.com](https://www.elcometer.com).

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