

ABRASIVE BLASTING, SURFACE PROFILE

Not only inorganic zinc coatings and solventfree coatings, but most paint systems require a roughened substrate surface to obtain proper adhesion. The **surface profile** of the roughened substrates is characterized by a **surface roughness** and a **roughness profile**, which must be itemized separately in specifications for surface preparation.

During field work the anchor pattern is conveniently assessed by visual or tactile comparison, using standardized comparators. Such comparators are e.g. Rugotest No. 3, Keane-Tator Surface Profile Comparator, and ISO 8503 surface profile reference comparators.

SURFACE ROUGHNESS:

In connection with surface preparation, roughness is defined as the irregularities in surface texture, which are caused by blastcleaning.

The roughness can be characterized by several roughness values. Most often the roughness is designated by the **maximum height of the profile** (peak-to-valley height), R_z . Sometimes the **arithmetical mean deviation of the profile** R_A , previously known as CLA- and AA-values (**C**entre **L**ine **A**verage and **A**arithmetical **A**verage, respectively), is used. Designations in boldface are according to ISO Standard.

Because these values may have very different numerical values assigned to them for a given surface, it is very important to distinguish between them.

It is also important to note that roughness comparison specimens may use different roughness values. Rugotest No. 3 uses roughness numbers according to ISO 1302 and 2632/II, which are assigned to R_A values. Keane-Tator Surface Profile Comparator uses the maximum average peak-to-valley height, which resembles R_z , while ISO surface profile reference comparators uses the designations "Fine", "Medium", and "Coarse".

Although it is not possible to calculate R_A values from R_z and vice versa, a working group of the international Standards Sub-Committee TC 35/SC 12 has established that a good approximation for R_z is $R_A \times 6$.

ROUGHNESS PROFILE:

Roughness profiles can be characterized as round or sharp edged. Steel shot produces a round profile, while not worn down steel grit as well as most mineral abrasives give a sharp edge.

When a roughness profile is given in Hempel's Product Data Sheets it is normally a sharp profile.

Because optical effects play a role when judging a surface by means of comparators, both Rugotest No. 3, Keane-Tator Surface Profile Comparator, and ISO surface profile reference comparators have different scales for different profiles.

Rugotest No. 3 has specimens for round and sharp profiles collected in one comparator. For greater roughness values there is even a division in fine and coarse grained finish.

Keane-Tator Surface Profile Comparator has three different discs, designed by S (sand), G/S (steel or metallic grit), and SH (shot), respectively. ISO Comparators are obtainable either as a "G" version or a "S" version for use on gritblasted and shotblasted surfaces, respectively.

The disc corresponding to the abrasive used must be selected for comparison.