COMPETENCE

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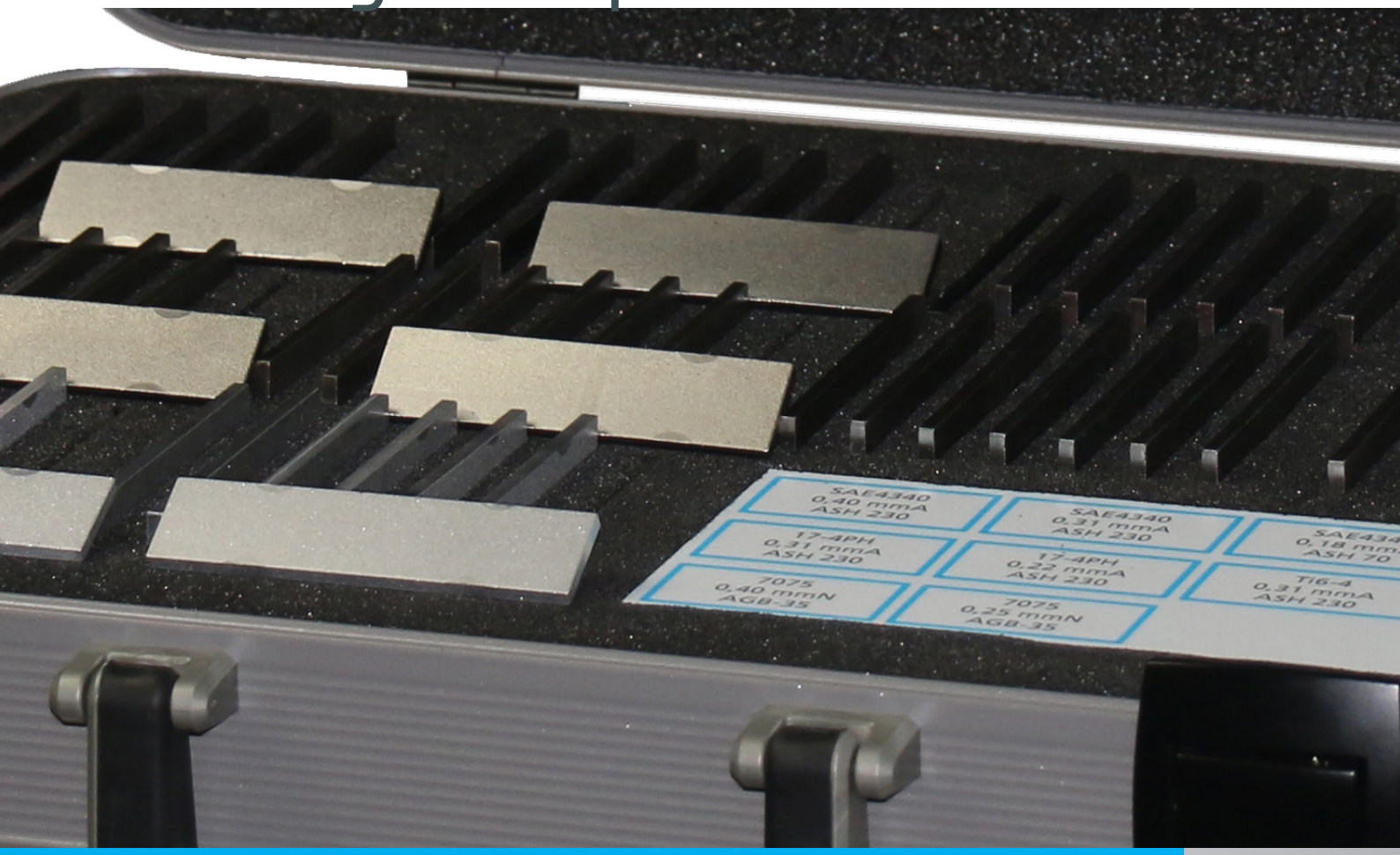
Coverage Samples



Use of specific comparison samples for coverage development
Process-specific radiated reference samples for a simplified assessment of coverage rates in process development, verification and training

Although the degree of coverage is clearly defined as the percentage of the component surface hit in relation to the total surface, there are some challenges for its determination. In the case of hard component surfaces or low peening intensities, the impacts on the surface are difficult to evaluate using a magnifying glass or a light microscope. Annealing colours and residues on the surface can also influence the impression of the degree of coverage. In addition, changing light conditions and the influence of the inspector's daily constitution should not be underestimated.

For aviation-specific materials, sentenso has created Coverage Samples for different peening processes with coverage levels of 20%, 40%, 60%, 80%, 98% and 200%. The process engineer can use these as reference samples when developing the coverage for correct peening time at 98-100% coverage. The samples facilitate the assessment and standardise the results of different testers.

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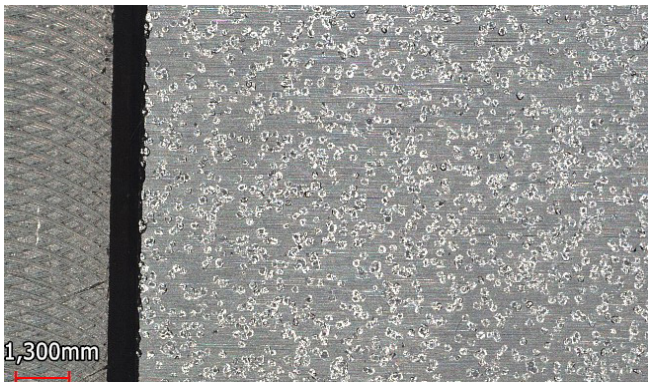
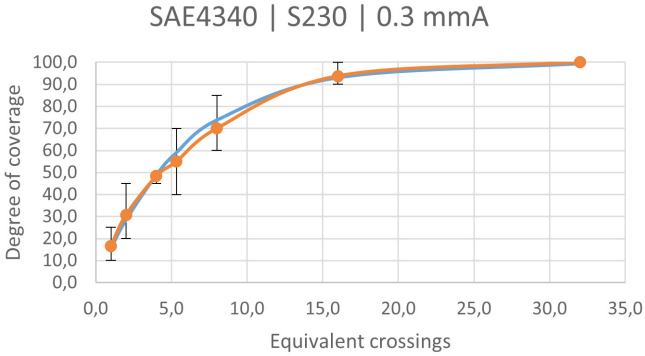
The Benefits of Coverage Samples

The specimens for the Coverage Samples are manufactured from the same material and in the same pre-processed state as the components to be peened. A reproducible peening process is then applied, the media and Intensity of which correspond to the real processes the samples are later compared to. This creates a visual impression on the sample surface that can also be found on the peened component.



In order to determine the degree of coverage of the samples as accurately as possible despite the above-mentioned limitations, sentenso consulted several experienced shot peening experts of training levels 2 and 3 and formed mean values of the respective assessments. In doing so, the gradually increased degrees of coverage were also analysed using the asymptotic coverage formula acc. to SAE J2277. Instead of the individual values of the orange-coloured curve, which are subject to relatively large errors, the values of a mathematically smoothed curve were used. This leads to a significantly improved accuracy in determining the degree of coverage.

The Coverage Samples have a handy format and are supplied in a foam-lined case in which the samples are sorted according to material, shot peening Intensity and degree in order to determine the respective degree of coverage on the component in direct comparison side by side.



The Coverage Samples can also be used for internal training of new process engineers. This significantly reduces the time required to familiarise themselves with the coverage determination and enhances its quality. Experienced inspectors can also use the samples for regular self-monitoring.

Coverage comparison samples are fully customisable in terms of material, abrasive and process and process and can therefore be used for reliable process development and verification as well as for training purposes.

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