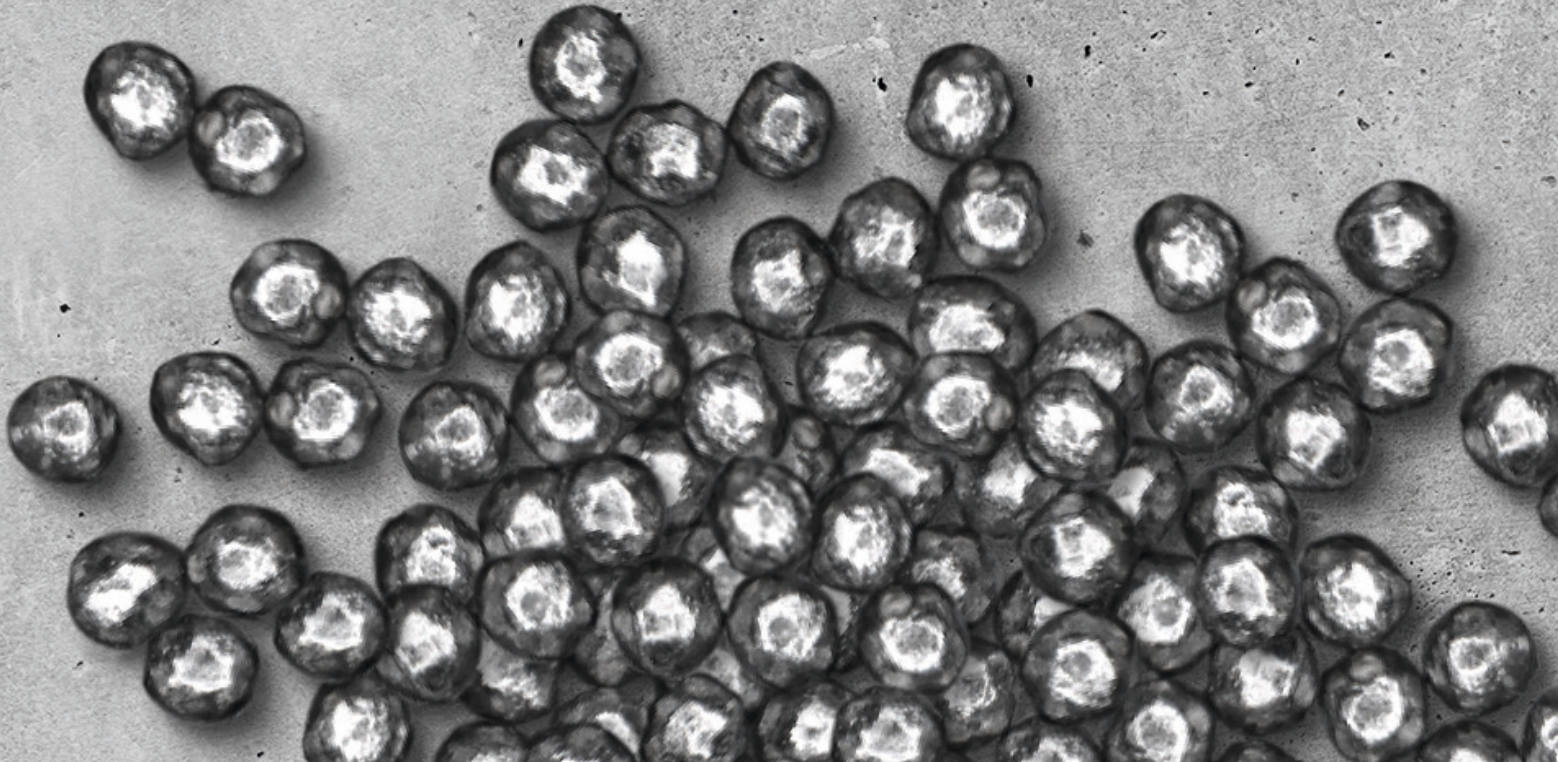


Process Optimisation

Lean Peening with Long-Life Media



Steps on the Way to Lean Peening

Lean and safe peening processes with cut wire media of high quality and service life as the tool open up optimisation potential for resource savings.

As part of our "PeenLean" concept, our experienced shot peening experts examine your existing peening processes or those to be newly implemented for their optimisation potential.

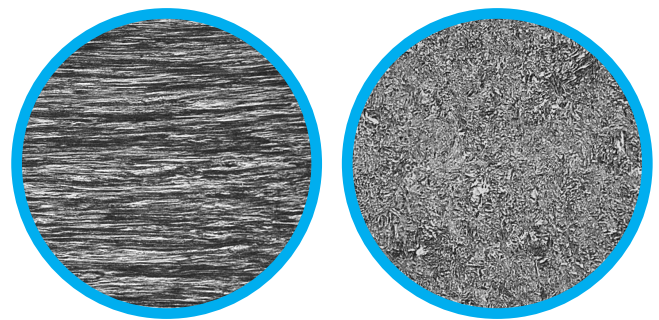
- By taking a closer look at the requirements for the properties of the peened surface and questioning the peening process, it is often possible to uncover potential for reducing the peening effort.
- The variation of the process parameters can usually be well simulated with the process-oriented peening machines in our technical centre, so that production does not have to be interrupted at our customers' machines.
- By optimising the media properties and by targeted implementation of process and quality management measures for efficient shot peening, consumption and downstream costs can be reduced.

Optimisation of Media Properties

Essential peening parameters are determined by size, shape and hardness of the peening media used. Therefore, the evaluation of the suitable peening media is a central element of process optimisation.

Peenox Perform Plus from the German manufacturer Krampe Harex has been available for some time now as a long-life media with special wear properties and adjustable hardness due to its heat treatment. For this purpose, the manufacturer subjects the high-quality, cold-drawn steel wire to a defined and controlled heat treatment in order to specifically influence its microstructure and hardness properties prior to rounding for its the use in production.

This creates an extremely fine-grained, homogeneous and low-stress microstructure, which brings considerable advantages in terms of fatigue strength. The cut wire media can thus be mechanically stressed extremely often by the elastic-plastic impact when striking surfaces, without life-limiting fracture occurring. The vast majority of the media become smaller in the course of the peening process due to frictional wear and are then discharged by the peening media separator. Thus the proportion of broken grains is significantly reduced.



Standard Cut Wire

Peenox Perform Plus

In the tests carried out at sentenso, an increase in service life of 50 to over 100% could be achieved compared to the classic steel wire media, depending on the process, media size and media hardness. Another advantage of the heat treatment is that the media hardness can be adjusted to a desired hardness between 640 and 800 HV (57 to 64 HRC) depending on the application.

The aforementioned properties allow adapted, more stable and more efficient, i.e. leaner shot peening processes. In addition to PeenLean, this achievement also supports the PeenGreen and PeenClean principles pursued by. For these reasons, sentenso switched its wire shot peening media for process development completely to Peenox Perform Plus two years ago.

In many cases, it is possible to change the type of media used for shot peening without any major testing. The experienced technologists at sentenso also provide support for higher requirements. This ranges from testing and simulation in our own technical centre to large-scale tests on the production machine and often ends with X-ray examinations of the peened surfaces for residual compressive stresses.

