



SOFT STEEL SHOT – IDEAL FOR MOULD CLEANING

Non-Damaging Shot Blasting

The process of blast cleaning delicate moulds must not make any change to the structure or the roughness of the surface. This is where soft steel shot comes into its own. It not only cleans the surface effectively and without causing damage, but it also results in significantly reduced blasting times.

Most industrial blasting processes, such as desanding cast parts or deburring and derusting steel, change the surface structure of the workpieces. Finishing can also create small or large indentations in the surface of the workpieces. However, this is just what is not required when cleaning mould surfaces.

Poor Results from CO₂ Blasting

Beckenbach GmbH, which is based in the town of Schönau in the Odenwald region of western Germany, needs to clean moulds used for rubber and plastic mouldings. Burnt-on primer and release agent residues, together with

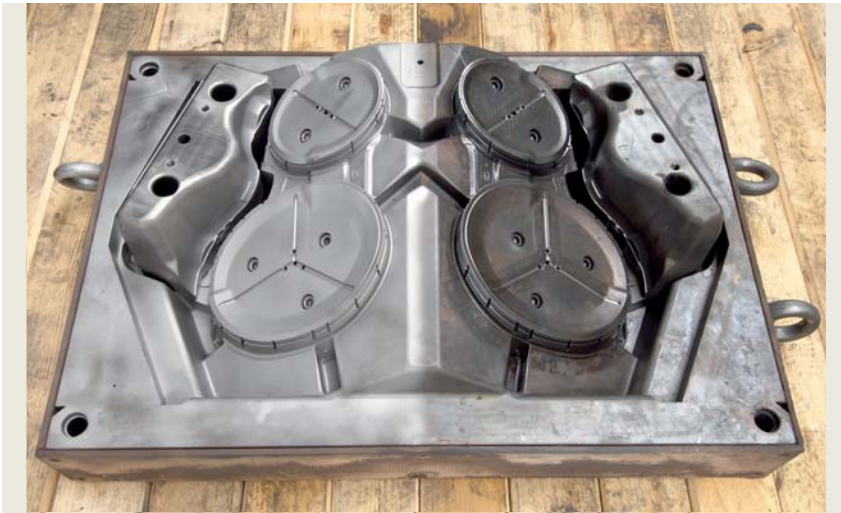
outgassing residues from rubber compounds, need to be completely removed from the surface of the moulds. The company tried out different technologies, including CO₂ blasting, in an attempt to find the best solution. However, the results of the tests were not satisfactory. The moulds could not be blasted in position in the machines as employees could not be subjected to the accompanying noise and flying CO₂ pellets. If the moulds were cleaned at the weekend after production had finished, they had cooled down and the cold shock effect was not sufficient to produce adequate surface cleaning results. For this rea-

son, the company chose a conventional blasting process.

Tests with glass beads also produced poor results in the long term as they had a detrimental effect on the surface of the moulds and the edges of the moulds became rounded.

Blasting Time Reduced from 12 to 2 Hours

For the last five years Beckenbach, a mould and tool manufacturer, has been using the special "Vera-Soft" soft steel shot from Eisenwerk Würth in Bad Friedrichshall. The company's original concerns about mould wear proved in



This mould (the blasted area is on the left and the unblasted area on the right) is used to make injection-moulded rubber seals for the front lights of Mercedes E-Class models. The mould has been used in a production environment for 10 years and has been cleaned with soft steel shot for 5 years. As the enlargement demonstrates, it shows no signs of damage.



Unblasted (macro)

Blasted (macro)

Finished moulded component for Mercedes

pared with the previous Duroplast plastic abrasive with a Mohs hardness of 4, mould wear did not increase. This meant that, just as before, no wear on the moulds could be identified. However, the blasting times, which were previously between 10 and 12 hours for a mould surface area of around 1 m², could be reduced to only 2 hours.

The use of the soft steel shot has also paid off in other respects. The blasting pressure in the booth using the previous plastic abrasive was between 6 and 7 bar, whereas with "Vera-Soft" a pressure of 2 to 2.5 bar is perfectly adequate. Consumption levels of the abrasive are now so low as to be almost impossible to measure for an individual mould. The assumption is that consumption is around 0.1 kg per m² for each mould. In contrast, Beckenbach was using around 10 kg per m² of the plastic abrasive.

The reason behind the gentle and yet effective cleaning results from the soft steel shot is its high specific weight (7.40 kg per litre) and the very high number of grains per kilogram (around 55 million in 1 kg). The hardness of the soft steel shot is comparable with the plastic abrasive used previously.

As this has proved to be the best option for mould cleaning in terms of both wear and cost-effectiveness, Beckenbach will continue to use only the soft steel shot.

BECKENBACH – MODUL AND TOOL MANUFACTURER

Beckenbach GmbH in Schönau has been manufacturing moulds and tools since 1965, primarily using tool steel (1.2311 and 1.2312) and aluminium. The company produces customised moulds for the rubber and plastics industries, but also manufactures components for its own use. These are one-part and two-part moulds for sealing systems. The main emphasis is on the production of complex two-part moulds for applications in the automotive industry.

THE RIGHT BLASTING ABRASIVE FOR EVERY OCCASION

Eisenwerk Würth GmbH in Bad Friedrichshall has been developing and producing metallic blasting agents for surface treatment since 1912. In 1953, the company developed "Vera" low carbon steel shot. As blasting technology developed, the company's product range expanded to include, for example, glass beads, corundum, plastics, ceramic beads and nut shells. As a result, the Würth brand now has a blasting abrasive for every application. "Vera-Soft" soft steel shot is a product specially developed by the company and has been available since 1999.

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