AM solutions
3D post processing technology

Fast. Sustainable. Cost-efficient: How FORMRISE is transforming SLS post-processing with AM Solutions

Source: FORMRISE GmbH

Challenge

FORMRISE aimed to enhance its post-processing workflow to achieve higher efficiency, improved stability, and consistently high-quality results.

Solution

With its innovative 2-in-1 process, the S1 from AM Solutions combines cleaning and surface finishing in a single step – using only one processing medium.

Results

- 60% reduction in Polybeads consumption
- 87% reduction in glass bead usage
- 1.6 tons of CO_2 saved
- 50% shorter processing time
- Lower electricity and compressed air usage
- Significantly reduced disposal costs
- Consistently high processing quality

50%
Shorter processing time

72%
Process cost savings*

69%
Lower CO_2 footprint*

*Ø Mean value

EFFICIENT 2-IN-1 POST-PROCESSING FOR SLS COMPONENTS

FORMRISE uses Selective Laser Sintering (SLS) as its AM production process, serving industries ranging from automotive and aerospace to medical technology, luxury goods, and jewelry. In these sectors, where precision and reproducibility are non-negotiable, reliable post-processing is key.

www.formrise.com

Company Profile

FORMRISE is a leading German company with over 20 years of experience in additive manufacturing, supporting customers from a wide range of industries with everything from prototyping to small series production using 3D printing. The company positions itself as a "Quality Leader" – driving innovation and delivering high-performance production parts through the most advanced technologies on the market.

Problem Statement

In SLS manufacturing, post-processing plays a decisive role in achieving both economic and technical efficiency. It significantly influences cost per part, quality consistency, and process reproducibility. The resulting surface quality determines both the aesthetic appearance and the functional performance of the parts.

Until now, FORMRISE relied on a multi-step post-processing approach using three different blasting systems from a supplier based in southern Germany. Depending on the complexity and size of the parts, some manual work was required – up to two hours of hand blasting per batch were not uncommon. The individual steps included initial cleaning with glass beads, pre-compaction with Polybeads, and finally, dyeing, which involved a last blasting operation.

Shortly after the commissioning of the previous blasting systems, an unusually high consumption of Polybeads was noticed. This was due to the blasting media contacting paint residues in each cycle, becoming contaminated, and requiring disposal. During the pre-compaction step, a grayish tint quickly appeared in the blasting media, necessitating frequent, short-cycle replacements. In the post-compaction stage, abraded particles could not be fully separated from the media, causing further contamination. As a result, light-colored parts could only be processed at the start of the week, before the media gradually became discolored, and the system required a time-consuming deep cleaning at week's end. This situation demanded elaborate and rigid production planning, leaving little flexibility for short-notice customer requests. The root cause was traced to the technical design of the blasting media preparation system in the previously used equipment.

Another issue arose through the use of glass beads. Fine glass particles repeatedly embedded themselves in the surfaces and became visible during subsequent dyeing, as they did not absorb any pigment. As a result, color consistency suffered.

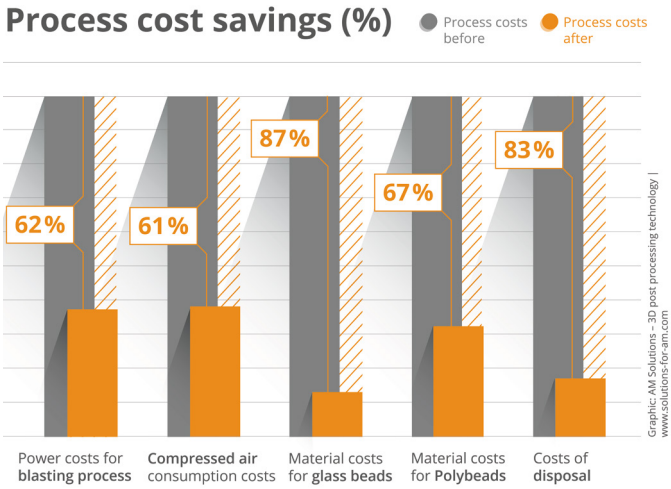
Determined to maintain its role as a quality leader, FORMRISE began implementing a more efficient post-processing workflow.

Solution

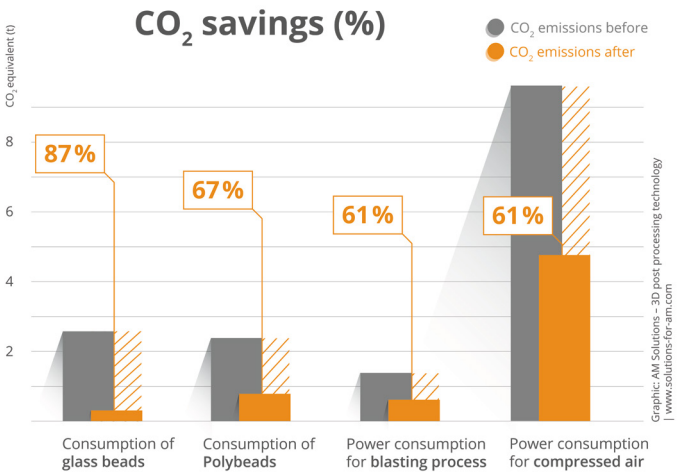
The existing post-processing solutions did not meet the company's stringent requirements, necessitating a significantly more efficient blasting media preparation system. The **S1 from AM Solutions** was discovered by the company at Formnext 2023, after which FORMRISE was given the opportunity to test the system. FORMRISE found the purchase decision an easy one, thanks to the innovative 2-in-1 process (cleaning and homogenising in a single step) and the design, which is specifically tailored to the demands of additive manufacturing. The company was particularly impressed by the well-thought-out blasting media preparation process: a powerful cyclone combined with a vibration sieve ensuring that clean blasting media remains reliably in circulation. Contamination, as experienced with previous systems, is virtually eliminated.

Result

Since 2024, FORMRISE has used three S1 systems from AM Solutions for SLS post-processing. It quickly became clear that this had a positive impact not only on blasting media consumption, but also on optimising the entire post-processing workflow. In the first year of operation alone, Polybeads consumption dropped by over 60 % – a figure which significantly reduced operating costs and resulted in savings of almost 1.6 tons of CO_2. The use of glass beads was reduced by around 87 %. Additionally, disposal costs decreased considerably as the reduced use of glass beads resulted in less waste.



Even more surprising was the performance of the new systems in practice. Thanks to their higher output, the total processing time was almost halved. This resulted in measurable savings in electricity and air consumption, as well as significantly reducing the overall CO_2 footprint of the entire post-processing workflow. The unexpected benefits in terms of working time for employees were particularly striking: tedious, time-consuming manual blasting and labor-intensive weekly cleaning of the systems were almost completely eliminated. As a result, employees not only gained valuable time for other tasks but also experienced noticeable relief from mundane tasks, which has a positive impact on their job satisfaction.



The quality of the components has also been improved. The homogenised and densified surfaces now have an even smoother, premium appearance, which is particularly appreciated by customers in sensitive industries such as medical technology. "Even in their raw state, our customers tell us that the parts almost look as if they've been polished, even though they've only been blasted," says Peter Spitzwieser, FORMRISE's Managing Director.

Conclusion

AM Solutions has developed the S1, a post-processing system precisely tailored to the demands of additive manufacturing. The combination of well-designed blasting media preparation, high processing performance, and a practical 2-in-1 process reduces costs and resource consumption while ensuring consistently high component quality. FORMRISE has achieved annual savings of almost € 35,000, with over half of this attributable to reduced compressed air consumption alone. At the same time, CO_2 emissions were cut by over twelve tonnes.

"For SLS part post-processing, the S1 from AM Solutions is unmatched, consistently delivering exceptional results. It clearly demonstrates the potential of optimally aligning the blasting process with the requirements of additive manufacturing and, specifically, with blasting media preparation. Rösler and AM Solutions have recognised and fully exploited this potential, giving us the opportunity to optimize our post-processing in ways we could never have imagined before". Peter Spitzwieser, FORMRISE GmbH

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