



CASE STUDY

Successful European Start-Up Supports 3D Printing for Foundries and Beyond

A completely digital workflow built around the ExOne S-Max® enabled start-up Zalewa Tec to quickly establish itself as a premium manufacturer of sand molds and cores



Zalewa Tec uses innovative technologies such as 3D printing and 3D scanning to design, engineer, and manufactures solutions to serve customers primarily in the foundry, automotive, or heavy-duty machinery industries, as well as for private customers and small and medium-sized companies.

Thinking outside the box, treading different paths, breaking new ground: start-ups drive progress because they unlock new opportunities and technologies for other companies. This is precisely what Zalewa Tec has been doing successfully in the foundry industry, supported by ExOne as a reliable partner that knows how to energize start-ups. The cores and components produced using the S-Max® sand 3D printer at Zalewa Tec's facilities are not only setting new benchmarks in terms of profitability, response times, and quality demands, but they also boast an impressive design capability in-line with artistic expectations.

The strategy was deliberate and originally tailored to the foundry industry. Zalewa Tec's founders have extensive experience in the field and knew exactly what pain points for foundries they needed to address. This included the time-consuming storage and maintenance of patterns or the high costs associated with the sometimes unavoidable repairs needed, geometric design constraints, as well as the prevailing skills shortage. They were convinced that all of these problems could be solved using additive manufacturing. The business model and business plan were drawn up quickly and Zalewa Tec GbR was founded with support from the Development Bank of Saxony and the start-up for 3D-printed sand molds and cores launched operations in May 2021.

CUSTOMER

Zalewa Tec

LOCATION

Großschirma, Saxony, Germany

INDUSTRY

Foundry

APPLICATIONS

3D-printed sand molds, cores, and models

3D PRINTER

S-Max® with two job boxes

BINDER

Furan

WEBSITE

www.zalewatec.de



Founders of Zalewa Tec: Piotr Kramarczyk, Christoph Salewski, Stefan Meutzner

*“We manufacture for companies that already have some experience with printed cores as well as for companies that are simply **astonished** at how **quickly and cost-efficiently** we are working.”*

Stefan Meutzner, co-founder of Zalewa Tec



Extensive range of customers and products

Today, Zalewa Tec binder jet 3D prints with a highly efficient ExOne S-Max[®] with two job boxes, each measuring 1,800 × 1,000 × 700 mm. Larger products can also be realized by assembling parts that were printed separately. While a growing number of customers have come to appreciate the design freedom and considerably reduced manufacturing times, some still need some convincing to embrace the new opportunities. “We manufacture for companies that already have some experience with printed cores as well as for companies that are simply astonished at how quickly and cost-efficiently we can work,” explained Stefan Meutzner, co-founder of Zalewa Tec.



Post-printing;
vacuuming
non-bound sand

As is typical for start-ups, the company does not adhere to fixed working hours. In some cases, this meant that customers who placed an order on a Sunday were able to pick up a finished workpiece as soon as the next day, as Christoph Salewski recalls. As an foreman with more than 20 years of experience in the foundry industry, Salewski noticed that responsiveness and agility are increasingly important factors – and this is true for both sides. For this reason, nearby foundries support Zalewa Tec in casting and reverse engineering processes.

In less than 16 hours, Zalewa Tec produces even the most complex geometries with maximum precision. This includes molds and cores for foundries to cast, for example, delicate components for an engine manufacturer, unique pieces for prototyping, and sculptures for art installations. The range of products is just as extensive as the creative freedom that Zalewa Tec uses in its own projects to showcase the fantastic possibilities of binder jetting and to explore the limits of this technology.

Foundry customers can use the printed sand molds and cores with various casting materials, such as iron and non-ferrous materials. They are compatible with a wide range of molding and casting processes, including for lost molds in hand and machine molding processes and for complex cores of permanent molds used in permanent mold and low-pressure casting process.

From digitalization to finished parts

Zalewa Tec has created a seamless digital workflow with the ExOne S-Max® binder jetting system as its foundation. Before making an investment decision, the company thoroughly analyzed all solutions available in the market, taking into account performance data, service and communication, as well as in-house experience with various systems.

For the founders and creditors, ExOne and the S-Max® stood out thanks to the surface quality and high cost-effectiveness. "Using the total cost of ownership, we were able to calculate various configurations with the help of the ExOne team. For us, the S-Max® with double job box offered the best return on investment in the long term," explained Piotr Kramarczyk, the third member of Zalewa Tec's co-founding team.

The system prints the desired objects directly from 3D CAD data, eliminating the need for a physical pattern to create molds or core boxes for cores. The "raw data" supplied by customers ranges from flawless CAD data to physical components or all the way to pencil sketches. Using advanced 3D scanning technology, components and model tools of any material are digitized and 2D drawings and sketches are converted into an STL file for printing.



Starting a print job on the S-Max®



De-sanding a printed product

*“This rapid success is a great reward for Zalewa Tec’s entrepreneurial courage to invest in a **cutting-edge technology** and thus **gain a competitive edge** over established companies.”*

Eric Bader, Managing Director of ExOne



The actual printing follows in the second step. Products with dimensions that exceed the spacious job boxes in the S-Max® can be realized through assembly. The double job box makes the system particularly efficient, regardless of whether a single product or an entire series is to be printed. For example, production of a small batch of 50 parts is faster and up to 90% cheaper than with conventional technology.

The manufacturing process is continuously monitored and the product geometry measured using optical scanning to ensure maximum quality. In addition, everything is documented in detail to build confidence with customers who are still new to additive manufacturing.

Future growth

Establishing Zalewa Tec as a flexible and innovative service provider along the entire value chain of 3D printing – from consulting and planning to design and manufacturing – is such a great success in the market that the company has already plans for future growth. The company founders’ industry knowledge and visionary spirit, as well as the technological opportunities enabled by 3D printing and the S-Max®, have contributed considerably to this achievement. “This rapid success is a great reward for Zalewa Tec’s entrepreneurial courage to invest in a cutting-edge technology and gain a competitive edge over established companies,” said Eric Bader, Managing Director of ExOne. The team has set its eyes on organic growth, aiming for a total of 10 employees to allow the company to maintain the agility and speed of a start-up. Production capacities are to be doubled in the near future with a second S-Max® sand 3D printer. In addition, the company has already embarked on international expansion, with orders from the first customers in other European countries already in the books.

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