

# SME partnership enables complete digitalisation of a melting shop

With the help of two innovative partner companies, Siempelkamp Giesserei GmbH, the Krefeld-based global market leader for hand-molded casting solutions, is digitalising its entire furnace operation. The foundry is working closely with Dortmund furnace manufacturer ABP Induction Systems GmbH and the Potsdam-based start-up Zorc Technology GmbH as technology and software providers.

A crucible induction furnace digitalisation of this scale and level of detail, planned as an end-to-end concept, has never previously been undertaken in Germany. With the planned modernisation of its induction furnaces, on which the foundry is working with ABP and Zorc, Siempelkamp Giesserei is venturing into new digital territory and setting new standards in its sector.

## The partnership

Siempelkamp Giesserei in Krefeld specialises in the manufacturing of hand-molded large cast components up to 320 tonnes made from ductile cast iron, and is one of the largest hand-molding foundries in the world. In the ambitious digitalisation project, Siempelkamp is the client and the operator of the furnace systems to be digitalised.

Dortmund-based ABP Induction Systems GmbH is a leading manufacturer of induction furnaces and systems for inductive melting and heating for the metals and metal processing industries. The company's objective is to establish more eco-friendly production processes in foundries, with the aim of significantly reducing energy consumption and scrap material production.

The basis of the system is the ABP gateway via which a whole raft of processes, such as the Foundry Cloud developed

by Zorc, and the myABP platform, are controlled. The gateway makes it possible not only to track processes in the foundry, but also to manage all equipment and systems, order spare parts or carry out service calls using augmented reality.

In an industry of systemic importance, the start-up Zorc Technology is contributing to security on an extra level: thanks to the integrated solution, the data obtained remain within the company. Industrial espionage is prevented. In the current project, ABP provides the infrastructure on which ZORC runs Foundry Cloud. This new software for monitoring, controlling and documenting the production process stores the foundry's operating parameters and sends recommendations for optimising production, based on experience and AI, directly to employees. By continuously documenting the foundry's operating parameters, thanks to the software a constantly expanding data set is built up with each casting, which enhances the quality of subsequent casting processes in the highly complex metallurgical procedure.

## The 'triangle team'

How do you organise a project like this with three partners? "It's particularly important to define clear responsibilities at the outset – as a team, we've



The project team (from left): Dirk Howe (Siempelkamp Giesserei), Till Schreiter (ABP Induction Systems), Markus Fournell (ABP Induction Systems), Stefan Schmitt (Zorc Technology), Dr Georg Geier (Siempelkamp Giesserei), Dirk Trippelsdorf (Zorc Technology).

devoted a great deal of attention to that issue", says Dr Georg Geier, Managing Director of the Siempelkamp Foundry, who played a key role in moving the digitalisation campaign forward. In several workshops, the three partners pooled their expertise, various perspectives and approaches, to help them grow together into a strong 'triangle team'. All three partners had already been associated with one another for varying lengths of time: Siempelkamp Giesserei and ABP Induction Systems have been working together for years, a relationship that is now being strengthened in the new project. Both had already established links with Zorc Technology prior to the current collaboration, which has now resulted in the group exploring new avenues as a threesome.

“We’re all united by a strong commitment to digitalisation in mechanical engineering, viewed from different perspectives, and by the desire to create and implement an innovative overall concept. We put a great deal of thought into setting the framework conditions for our triangle team, because it was important to us as three companies, each strong in its own right, to create

“We must take responsibility – for the future, for the world that we’ll be leaving behind for future generations”, says Till Schreiter, President and CEO of ABP Induction. “There are all sorts of aspects that we need to tackle together. Not tomorrow, but today – as we are doing in our project featuring a traditional foundry, an innovative start-up and an experienced furnace

do justice to the profiles of the three project partners. “For the Siempelkamp Giesserei, and for ABP Induction Systems, the challenges of digitalisation were not uncharted territory; we’ve already taken significant steps in the right direction. And the role as a start-up doesn’t rule out an SME at all. This mutual cooperation opens up tremendous progress for us, because we’re willing to learn from one another and grow with each other. This approach is succeeding because we defined a shared goal, we’ve created a shared mindset – and in every project phase we’re discovering: it works!”, says Dr Georg Geier.



Casting at the Siempelkamp foundry.

a new way of working together, a partnership of equals. Each of us brings a specific perspective into the joint project, and we find that extremely rewarding and exciting. So the whole project is more than the sum of our three parts”, says Dr Georg Geier.

For him, respect is an essential basis for cooperation: respect for the people and the personalities who make up the three companies, and who are now contributing their best to the shared mindset. “We are all SMEs, albeit with different positioning and founding histories. We measure ourselves jointly against the best solutions, that’s the key to our success.”

manufacturer. This is how to create a liveable future.”

**Cafeteria-goers versus table football players? Look out, cliché trap ahead!**

The project partners think it’s high time a common conception about the win-win effects of the synergies involved in SME vs start-up collaborations was debunked. On one side you have the conventional SME – entrenched, bogged down in tradition, staffed by people who eat their lunch in the corporate cafeteria; and on the other, you have the start-up founders – fresh, innovative, table football players in their lunch break. Such a polarising view doesn’t

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The value of this cooperative venture now lies mainly in taking a pioneering role in the digitalisation of melting operations. With the input and close collaboration of all three project partners, the complexity of a first-time undertaking such as this can be substantially reduced.

At present, various set-up and test stages are being run through. When the furnaces undergo their routine shutdown at the end of the year, the final setting-up will take place for a fully digitalised resumption of operations from January 2022. After that, regular optimisation loops involving all three project partners are scheduled into the newly digitalised normal operations.

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