



DSB EURO boosts its productivity with ProCAST and support from MECAS ESI

THE CHALLENGE

To enhance quality of castings and reduce scrap rate, in order to contribute to the company's competitive growth.

THE STORY

DSB EURO launched in 2006 a selective procedure for the purchasing of ESI's state-of-the-art casting simulation program ProCAST. It was chosen over three competing products based on its accurate prediction and performance which were verified in practice, and also with respect to the fact that ESI provided a high level of local technical support and training.

THE BENEFITS

"The objective of DSB EURO is to satisfy the requirements of our customers regarding the quality of our products at the highest level.

ProCAST helps us not only to enhance the quality of our castings but also to ensure a better competitiveness. Using ProCAST enables us to deliver castings on time and to cut back unnecessary and repeated rework operations.

Finally, thanks to ProCAST we received the "European Quality Award" in 2008 which opens up opportunities for new cooperation."

Ing. Pavel Veselý
Production Director, DSB EURO s.r.o.

DSB EURO has selected ProCAST for the simulation of casting filling and solidification to enhance parts quality and to improve yield. Success in achieving these goals has boosted the competitiveness of the company. Given the high technical profile of DSB EURO products, the chosen software solution had to demonstrate its capability to assess new and challenging steel casting.

DSB EURO's ongoing cooperation with Mecas ESI, ESI Group local subsidiary, has provided an obvious basis for confidence in ESI's solutions. This long-lasting collaboration, initiated in 2004, focuses on the simulation and optimization of steel valves' casting technology. Over twenty projects have already successfully demonstrated the possibilities of simulation. These accomplishments have convinced DSB EURO of the benefits of embedding numerical modeling within the company's castings development process.

In addition to the fact that the chosen software needed to be able to adjust the simulation model to the requirements of this company's specific technology and range of products, DSB EURO expected ProCAST to provide valuable data which only simulation could reveal early enough in the technical industrialization phase.

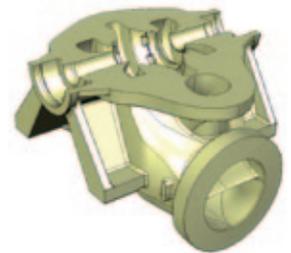
ESI's turnkey solution met the requirements by combining its powerful ProCAST and a highly appreciated dedicated on-site expert operational support from Mecas ESI which not only was immediately able to carry out the expected simulation work, but also trained three staff members to the simulation process.

"We try to avoid the commonly used "trial and error" approach because this kind of method usually leads to large financial and time losses. In this respect, simulation offered us a unique possibility to simply look inside our process on a computer screen before casting it right", points out Pavel Veselý.

Although the primary reason for DSB EURO to acquire ProCAST was to improve overall quality and customer satisfaction, it also proves to contribute significantly to the reduction of manufacturing costs. And indeed, the upstream simulation work results in a significant decrease in rework and metal costs. By anticipating defects which traditionally couldn't be detected by production, ProCAST participates in avoiding that casts are shipped to a final consumer with hidden defects. In this respect the software saves not only time but also additional costs of rework.

An analysis comparing manufacturing costs before and after the implementation of ProCAST proves a saving of €100k over 18 months, by improving yield and reducing costs of rework and repairs.

Thanks to ProCAST, production planning is progressively changing to allow the implementation of daring technological options that can first be validated through simulation. One example is the following casting which was actually an interesting part for DSB EURO but apparently too big to be produced in their foundry based on traditional rules.



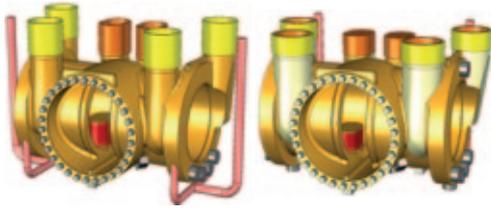
Example of a steel casting produced by DSB EURO



Porosity Defect inside the part & riser (top) which typically arises with traditional design, but which can be anticipated and corrected (bottom) with the use of a simulation solution such as ProCAST

Simulation helps re-design the gating, chilling and risering system for instance by implementing exothermic sleeves. The new challenging design led to an impressive reduction of liquid metal while actually improving material homogeneity.

ProCAST allowed a successful redesign (top right) compared with the original design (top left) ; shorter risers to significant cost-savings

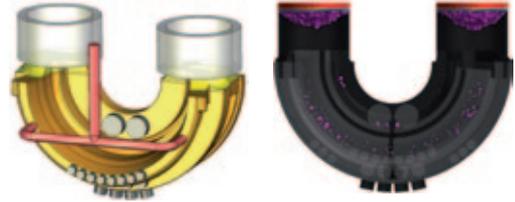


ProCAST simulation results showing soundness part as shrinkage porosity is only visible in the re-dimensioned risers

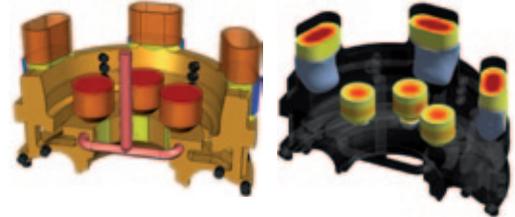


In the next example, ProCAST was used to improve part quality by optimizing the riser and chill design as well as the filling system. Indeed, chill position is crucial when using exothermic sleeves. The optimized and soundness part then showed some unexpected deformations which could also be predicted by simulation. Finally, the solution was to change the position of the casting from vertical to horizontal to avoid those undesired distortions.

Initial design with shrinkage porosity prediction



Final design after 5 iterations showing no more hot spot in the part.



Additional positive collateral effects of bringing ProCAST at the early design stage is a tighter collaboration with DSB EURO's customers. It allows constructive discussion and possible design change before pouring any real casting. This approach allows better quality part as well as higher yield stratifying the two parties, i.e. the foundry and the customer.

ProCAST is definitely contributing to the increase of DSB EURO's competitiveness while streamlining their development process.

To find out more on ESI's Casting Simulation Suite, visit: www.esi-group.com/casting

ABOUT DSB EURO S.R.O.

DSB EURO s.r.o. especially produces casts from grey, ductile, artistic cast iron and also from cast steels. Their target industries are petrochemical, machinery, automotive and power industry. Furthermore they are specialised in the production of lower weighing casts for water industry and we also have a lot experience with casting of larger artistic works. The company is located in Czech Republic with just one production plant involving three foundry plants and one pattern shop employing 486 workers. www.dsbblansko.cz

ABOUT ESI GROUP

ESI is a world-leading supplier and pioneer of digital simulation software for prototyping and manufacturing processes that take into account the physics of materials. ESI has developed an extensive suite of coherent, industry-oriented applications to realistically simulate a product's behavior during testing, to fine-tune manufacturing processes in accordance with desired product performance, and to evaluate the environment's impact on product performance. ESI's products represent a unique collaborative and open environment for Simulation-Based Design, enabling virtual prototypes to be improved in a continuous and collaborative manner while eliminating the need for physical prototypes during product development. The company employs over 750 high-level specialists worldwide covering more than 30 countries. ESI Group is listed in compartment C of NYSE Euronext Paris. For further information, visit www.esi-group.com.



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