MAGMA GmbH press release

"MAGMASOFT® - Autonomous Engineering!"

Aachen, August 2019 - MAGMA introduces its new release MAGMASOFT® 5.4.1, which offers numerous new capabilities and improvements for virtual prediction and optimization for all casting processes, including continuous casting and core production.

View, Act, INTERACT

MAGMAinteract® is a new and innovative software for the visualization of MAGMASOFT® results (Fig. 1). The free 3D viewer allows the intuitive visualization of information exported from MAGMASOFT® 5.4.1. The fast and easy presentation promotes communication between interested parties within a company as well as between suppliers and customers.

MAGMAinteract® offers the following key functionality: interactive display of all MAGMASOFT® 3D results, animations of mold filling (also with tracer particles) and the solidification process, visualization of all results and criteria including distortion for previously defined cross-sections, and the interactive evaluation of virtual designs of experiments in a parallel coordinate diagram. All results can be rotated, zoomed and panned by the user.

With the current release, MAGMASOFT® users can export results selected by them and make these results available to third parties in the compressed MAGMAinteract® format. MAGMAinteract® can be downloaded free of charge by anyone interested in viewing exported MAGMASOFT® results from

the MAGMA website (www.magmasoft.com/interact) for use on computers running Microsoft Windows 7 or higher.

New Capabilities and Benefits

For die casting processes, temperature, velocity and pressure results as well as the gate from which the melt originated can be displayed and animated directly on virtual particles (tracer particles). This simplifies the judgment of complex, flow-relevant questions (Fig. 2). For the design of the shot profile, various options are now available for evaluating curves for plunger speeds and the pressure curve reduced by the PQ² function.

MAGMA C+M users can now also use the new possibilities for evaluating the flow with virtual particles for the design and optimization of core production. Typical application examples include the assessment of different flow velocities of gas and sand flow or the investigation of the cooling behavior of air for drying inorganically bound cores (Fig. 3).

In cooperation with DISA, the database for the MAGMAdisa module was updated for all current molding lines. Together with FOSECO, new datasets for SCK risers were added to the geometry database. For users of MAGMA C+M, there is now the possibility to interactively place nozzles from the parametric database onto the surface of the core geometry in a few simple steps. In the Result Perspective, numerous improvements have been implemented for fast display and evaluation of project results. The picking function can now be used to display different results at defined locations.

New optimization objectives are available for users of stress simulations. For example, distortion predictions can be evaluated and optimized with regard to their deviations from defined points, lines or angles. For heat treatment simulations, significant improvements have been realized for the automatic

determination of contact between the component and the heat treatment rack (Figure 4). All contact pairings are automatically detected and continuously updated based on the part and rack distortion. In this way, the realistic contact situation is modelled and it is ensured that the predicted distortion corresponds to reality at all times (Fig. 4).

Advanced Simulation of Continuous Casting Processes

MAGMA CC, the program for simulation and optimization of the continuous casting process, has been extended by various thermal criteria. At the same time, a new, independent mode for modelling the horizontal continuous casting process simplifies the modelling of this process for the user (Fig. 5).

About MAGMA

MAGMA is a worldwide leader in developing and providing software for casting process simulation and virtual optimization. MAGMA stands for robust, innovative cast solutions and for reliable partnerships with the metal casting industry, including casting designers and buyers. MAGMA's products unite the complexity of the casting process with user-friendliness to create economical solutions for its customers. MAGMA partners with its customers in the integration and effective use of the software, helping them to realize clear cost advantages.

MAGMA's range of products and services includes the simulation software MAGMASOFT® autonomous engineering, for virtual designs of experiments and autonomous optimization of casting processes, as well as comprehensive engineering services for casting design and process optimization. Today, MAGMA's software is used by more than 2000 companies all over the world for cost-effective casting production, reduced quality costs and for establishing robust processes for all applications, particularly in the automotive industry and mechanical engineering.
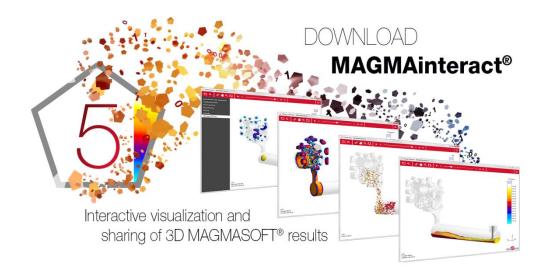
With the MAGMAacademy, MAGMA provides extensive implementation and educational offerings for all topics associated with casting process simulation. MAGMASOFT® users, together with their colleagues and managers, learn in trainings, workshops and seminars how they can use simulation and virtual optimization for improving casting design processes, lowering production costs and increasing resource efficiency.
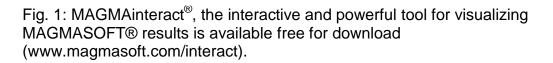
MAGMA Gießereitechnologie GmbH was founded in 1988 and is headquartered in Aachen, Germany. A global presence and support are guaranteed by offices and subsidiaries in the USA, Singapore, Brazil, Korea, Turkey, India, China and the Czech Republic. Additionally, more than 30 qualified partners represent MAGMA around the world.

Contact

You are welcome to use the information to update and inform your readers about MAGMA, free of charge. For feedback, comments and more information, please contact:

Ms. Pia Sonntag

E-Mail: p.sonntag@magmasoft.de

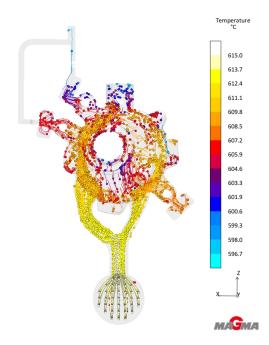Phone: +49 241 8 89 01 - 9613

Fax: +49 241 8 89 01 - 62

Fig. 1: MAGMAinteract[®], the interactive and powerful tool for visualizing MAGMASOFT® results is available free for download (www.magmasoft.com/interact).

Fig. 2: Visualization of temperatures by virtual particles during the flow in die casting.
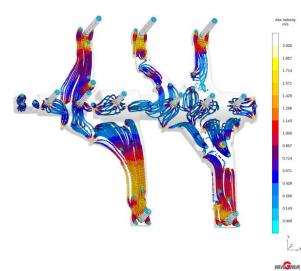

Fig. 3: Representation of air and sand velocities during core shooting using virtual particles.
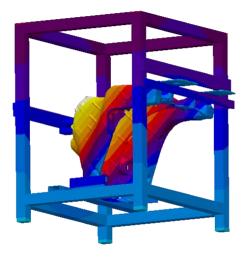
Fig. 4: Fully automatic determination of contact locations between component and frame at any time during heat treatment.
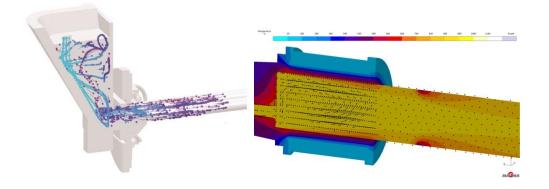

Fig. 5: A new process mode for horizontal continuous casting in MAGMA CC allows easy project definition for the entire process.