

Press Release

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**SIGMA at Fakuma 2015:
Improved Calculation of Thermal Mold Behavior**

New SIGMASOFT® Virtual Molding includes flow simulation in cooling channels

At Fakuma 2015 SIGMA Engineering GmbH will present the latest version of its SIGMASOFT® Virtual Molding technology. SIGMASOFT® v5.1 makes it possible to combine for the first time the flow simulation of melt and tempering media. Through this improvement, the prediction of the thermal mold behavior will become even more precise.

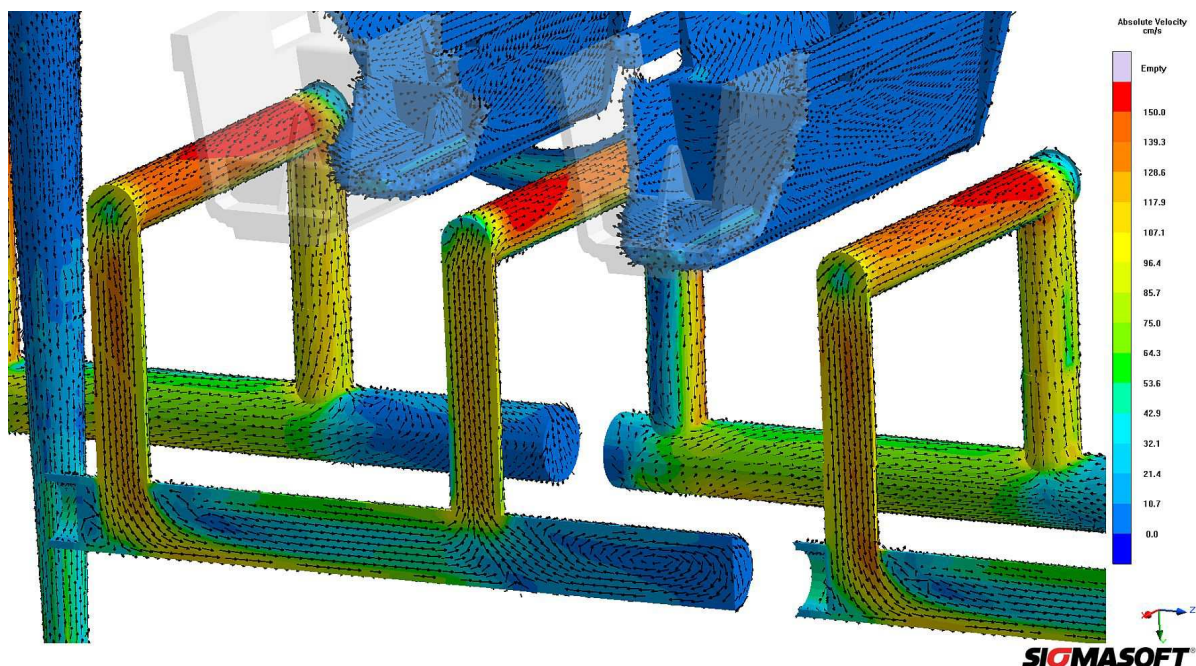


Figure 1 – Parallel flow simulation of tempering media and part filling in SIGMASOFT® v5.1

Improved Calculation of Thermal Mold Behavior

Aachen, July 28th 2015 – The thermal mold behavior plays a major role in the simulation of the plastics injection molding process. Until now, the tempering media was assumed as a fixed geometry with a defined global coefficient of heat transfer (HTC). This assumption about homogeneous performance of the tempering channel was accurate for simple tempering channels. However, for complex tempering layouts the effects of water flow were ignored. This simplification produces inaccuracy in the prediction of the part cooling behavior, and, in worst case, it also affects the prediction of the warpage behavior.

At Fakuma 2015, in Friedrichshafen (Germany), from October 13th to 17th, SIGMA Engineering GmbH (Aachen) will present the newest version of its SIGMASOFT® Virtual Molding technology in hall A5, booth A5-5105. This version 5.1 allows a simultaneous prediction of flow effects in the melt and the tempering media (as seen in Figure 1). In this way it is possible not only to calculate the local cooling performance, determined by the flow rate, but the user also clearly recognizes the poor tempered areas, which are caused by flow stagnation in the cooling channels (Figure 2). As a consequence, the user evaluates the whole process in a single simulation and thus exploits the optimization potential.

Further improvements available in SIGMASOFT® v5.1 contain the implementation of new material models, besides a totally renewed user interface. On the one hand these models allow the prediction of material degradation for elastomer applications. On the other hand the particle segregation prediction in powder injection molding will be substantially improved and its evaluation made easier through new results.

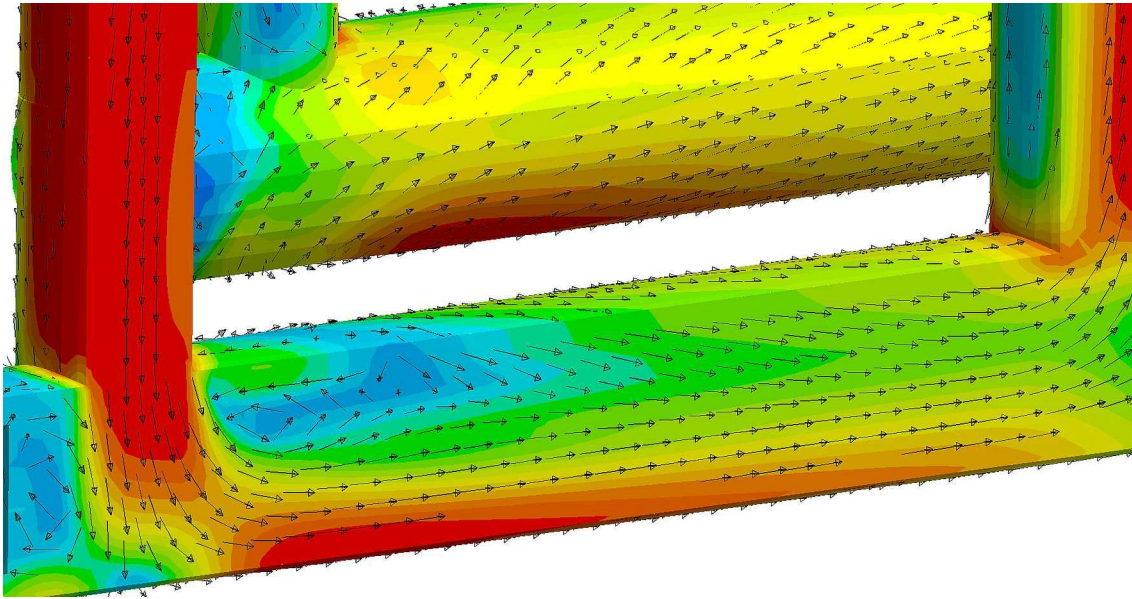


Figure 2 – Flow simulation in tempering channels: red marks areas with high flow velocity, blue and green are areas with lower flow rates. The arrows indicate the flow direction of the tempering media.

SIGMA® (www.sigmasoft.de) is 100% owned by MAGMA® (www.magma-soft.de), the world market leader in casting process simulation technology based in Aachen, Germany. Our SIGMASOFT® Virtual Molding technology optimizes the manufacturing process for injection molded plastic components. SIGMASOFT® Virtual Molding combines the 3D geometry of the parts and runners with the complete mold assembly and temperature control system and incorporates the actual production process to develop a turnkey injection mold with an optimized process.

At SIGMA® and MAGMA®, our goal is to help our customers achieve required part quality during the first trial. The two product lines – injection molded polymers and metal castings – share the same 3D simulation technologies focused on the simultaneous optimization of design and process. SIGMASOFT® Virtual Molding thus includes a variety of process-specific models and 3D simulation methods developed, validated and constantly improved for over 25 years. A process-driven simulation tool, SIGMASOFT® Virtual Molding provides a tremendous benefit to production facilities. Imagine your business when every mold you build produces required quality the first time, every time. That is our goal. This technology cannot be compared to any other simulation approach employed in plastics injection molding.

New product success requires a different communication between designs, materials, and processes that design simulation is not meant for. SIGMASOFT® Virtual Molding provides this communication. SIGMA® support engineers, with 450 years of combined technical education and practical experience, can support your engineering goals with applications specific solutions. SIGMA® offers direct sales, engineering, training, implementation, and support, by plastics engineers worldwide.

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