

# VIRTUAL MOLDING

LSR



**SIGMASOFT**<sup>®</sup>  
Virtual Molding

Develop innovative solutions for high performance LSR materials and bring your molds and processes to the next level

# SIGMASOFT® VIRTUAL MOLDING LSR

Imagine you could analyze all parameters of your injection molding process, before the first prototype of your mold is built. Utilize an entirely virtualized production process, enriched with special knowledge for processing liquid silicone rubbers (LSR). Together, you have the perfect solution to visualize, analyze, and optimize your mold concept, material flow, energy use, and various other parameters during production. A virtual injection machine provides the ability to make a difference in profitability for your LSR injection molding production. Make your imagination a reality: with SIGMASOFT® VIRTUAL MOLDING LSR.

Liquid silicone rubbers are complex materials that are constantly being used in new applications. SIGMASOFT® VIRTUAL MOLDING LSR supports you as a user to exploit the full potential of LSR applications. The advanced 3D technology – which allows you to virtually reproduce complex rheological behavior – helps you to test new concepts for precision tooling and innovative production technologies without risk. SIGMASOFT® VIRTUAL MOLDING LSR replicates curing reactions and polymer flow, even in thick walls, – with the help of realistic process parameters. Accuracy can be ensured by calculating several consecutive production cycles, simulating the venting concept and its influence on the filling, or by considering the tempering concept including its control system and power.

**With SIGMASOFT® VIRTUAL MOLDING LSR you can optimize every aspect of your injection molding process and find the most effective solution.**

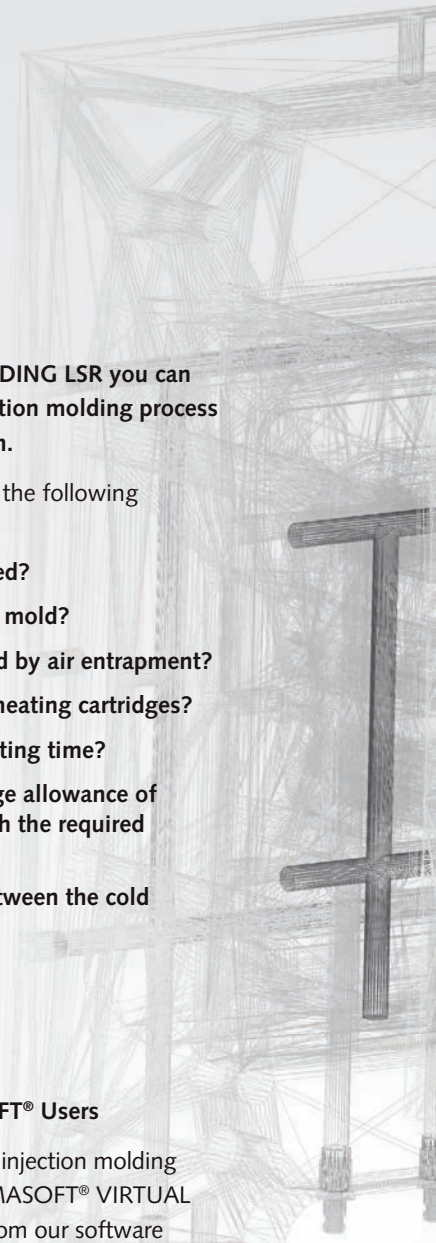
SIGMASOFT® LSR can help answer the following questions:

- **Where should venting be placed?**
- **Are there cold spots inside the mold?**
- **Is the part quality compensated by air entrapment?**
- **What is the ideal position for heating cartridges?**
- **Is it possible to reduce the heating time?**
- **What is the necessary shrinkage allowance of the cavity to produce parts with the required measurements?**
- **Is there effective insulation between the cold runner and hot mold?**

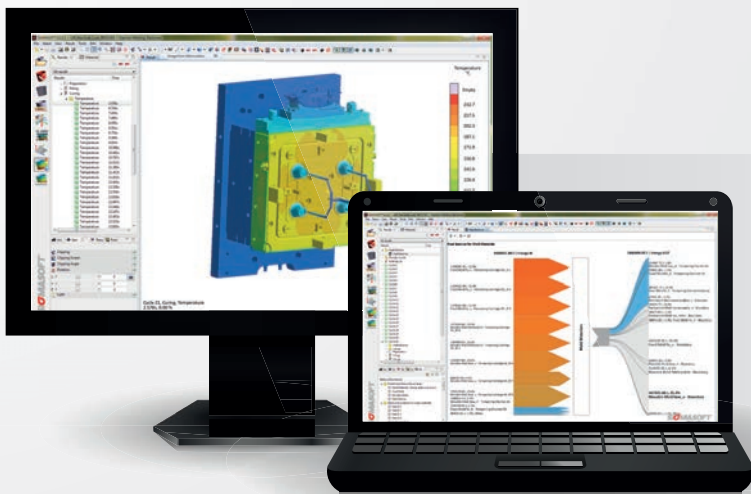
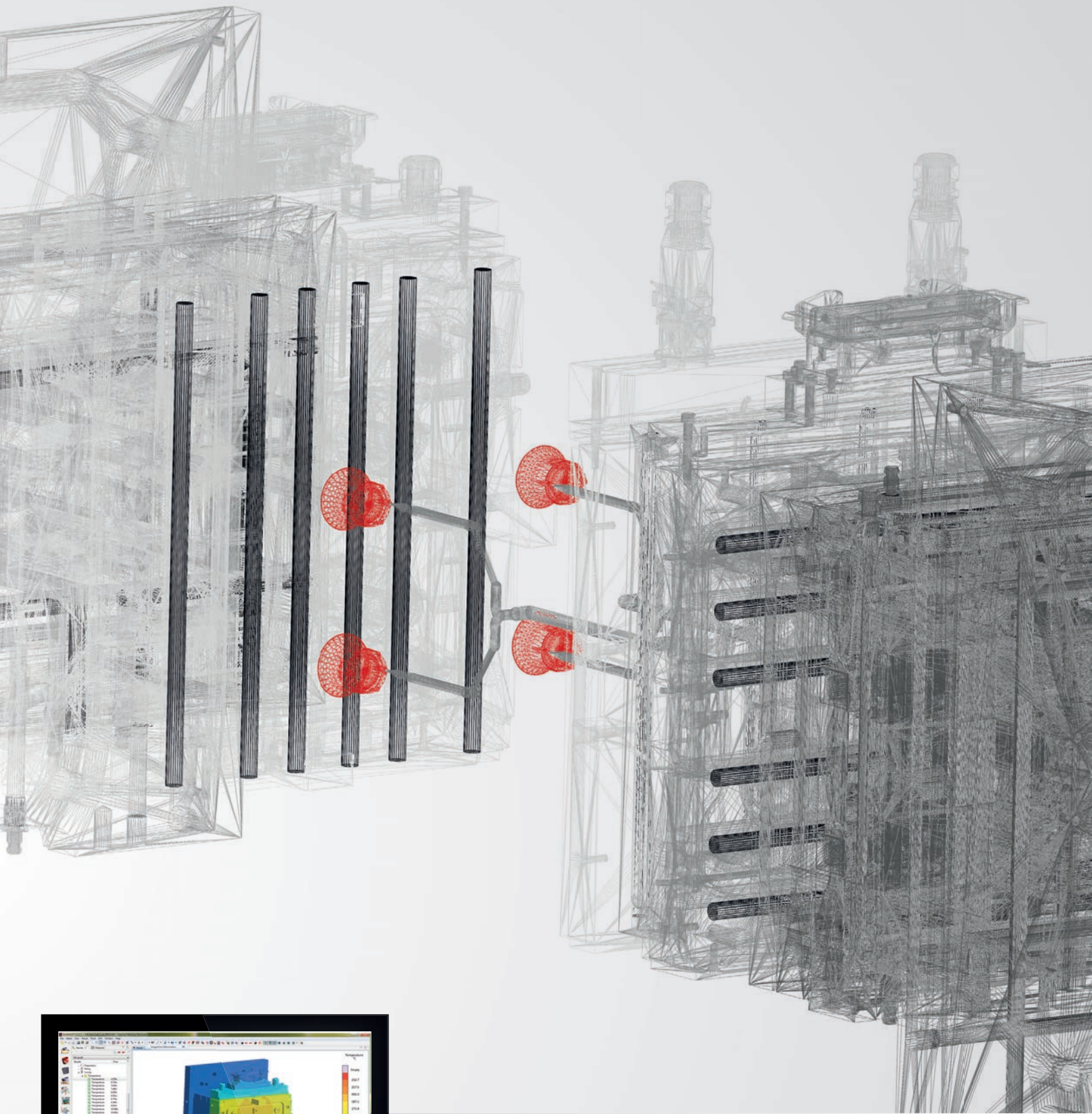
## Analysis included:

**Our engineers are there for you  
SOLUTION SERVICE for SIGMASOFT® Users**

Almost three decades of plastic and injection molding know-how are included in our SIGMASOFT® VIRTUAL MOLDING solutions. Every result from our software provides reliable and useful information for the design of the optimal mold and process. To reach their maximum potential using SIGMASOFT® VIRTUAL MOLDING, the user has the SOLUTION SERVICE at hand – a team of engineers and technicians with profound experience in processes, materials and modelling. Additionally, our SOLUTION SERVICE offers you competent support whether it is with the setting up a project or assistance in the evaluation and analysis of different results.







The intuitive graphical user interface of SIGMASOFT® leads you step-by-step through all process phases. Mesh a complete mold in a few minutes using the automatic algorithms, with no need for mesh healing, triangle manipulation, or removal of rounded or chamfered corners. SIGMASOFT® VIRTUAL MOLDING LSR offers mold and process transparency throughout production.

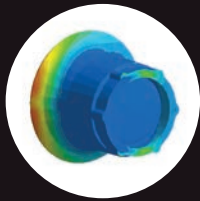
Permission to use the part and mold geometries was generously granted by Rico Elastomer Projecting GmbH

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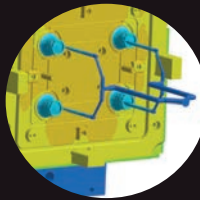
## Accurately predicts part filling ...

... because the advanced model considers extensional viscosities, relaxation effects, and pressure induced heating.



## Provides an efficient method for the evaluation of part quality ...

... as it considers the influence of local temperature gradients on the curing reaction.



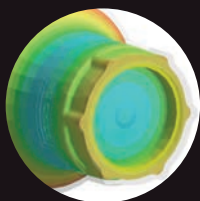
## Determines the optimum thermal layout & energy efficient process ...

... by evaluating various tempering concepts before the mold is built – including innovative concepts for serial production.



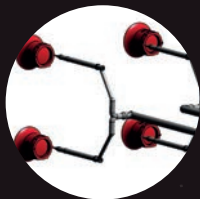
## Optimizes processes ...

... by accounting for all process times over multiple cycles – even time-outs between cycles.



## Determines the required shrinkage allowance ...

... because all material characteristics are taken into account, the influence of the process on part shrinkage is accurately determined.



## Reduces material waste ...

... by efficiently comparing different gating systems (cold runner calculation, cascade injection, etc.) for serial production.