

# PRESS RELEASE

## Simulate inductive heating and case hardening with Simufact Forming 15

*Segment-to-Segment calculation method stabilizes and accelerates the simulation*

**Hamburg, Germany, March 23, 2018** – [Simufact](#) – an [MSC software company](#) – has announced the release of the next generation of its software solution, Simufact Forming 15, for the simulation of forming manufacturing processes. Users will now be able to simulate inductive heating processes as well as case hardening. One key new feature is the interface to the casting software Magmasoft® 5.4, which, in addition to the already existing ProCAST interface, pushes forward the idea of the process chain simulation. Results imported from the casting simulation via the Magma interface in Simufact Forming 15 for subsequent forming processes in the design cycle. With the added parallelizable Segment-to-Segment calculation method in the new solver, Simufact Forming 15 is now able to simulate large models with deformable bodies faster and efficiently.

### Design and optimize inductive heating processes

Inductive heating is used in many areas of industrial manufacturing, which include, heating of workpieces to forming temperature, induction hardening, and induction welding. Users can now optimize and design parts with inductive heating processes and subsequent hardening processes.

Simufact Forming helps design engineers gain a detailed insight into an inductive heating process. Users can identify errors, remove unwanted effects, and make optimizations. For example, designing the coil, which is the core challenge of inductive heating. Simufact Forming 15 presents users with the complexity of physical context.

The required electromagnetic material properties needed for these types of workflow can be imported by the extended JMatPro interface.

### Simulate case hardening in Simufact Forming 15

Case hardening is one of the most widespread and important heat treatment processes. Dies, drive parts, or gear parts (gears) are often case hardened at the end of the manufacturing process to combine a wear-resistant surface with a tough behavior in the core. Thus optimally adjusting the component to the conditions of use.

Simufact Forming Version 15 extends the functions of simulating heat treatment processes in order to make practical use of the diffusion effects in case hardening.

With the new version, it is now possible to calculate the adjusting carbon distribution that results during the carburizing below the surface of the component, and allows for the influence of this carbon profile on the transformation behavior during quenching. With this function, the user can make statements about expected case hardening depths, distortions, and residual stresses without the physical testing.



## **Improved positioning capabilities and query results make the evaluation of simulation results more intuitive and efficient**

The newly implemented contact positioner and significantly improved positioning options simplify the positioning of the workpiece and the tools. Users can position their respective components in the software much more simply and individually, affectively save time during model building.

With the query results function (querying values), engineers can selectively record and determine result quantities. Simply clicking on a point in the workpiece or in the tool, and the simulation software automatically opens a dialog with results in a clear and accurate table. The CSV file exports via the Excel connection, so users can then proceed with next steps such as the graphic preparation and evaluation of the results.

With the newly implemented user coordinate system, users can compare their simulated component with the target design or with 3D measurement data as a reference model. For this, they import their measurement data from the metrology software or the CAD system into the user interface in Simufact Forming 15 and compare the simulated workpiece with the target design.

## **Simplified results evaluation with automated functions**

With the current version, Simufact introduces a re-implemented fast and automated fold detection feature that greatly simplifies the detection of folds, which is specifically useful for hot forging. During the simulation process, the software places markers on areas with possible folds. Users will be able to detect the possible folds during the analysis without increasing the simulation time.

The automatic measurement of the weld nugget facilitates the evaluation of resistance spot welds of relevant joint parameters, such as measuring the welding nugget geometry. This function allows the engineer to check quickly and easily the quality criteria of this joint.

Please find accompanying press pictures for download on the [Simufact website](#).

### **About Simufact**

Simufact Engineering – an MSC Software company – is a global operating software company providing process simulation solutions and services to manufacturing industries. More than 20 years' experience with providing simulation solutions for the design and optimization of manufacturing techniques in metal processing and a dynamically growing customer base exceeding a number of 800 customers have made the Hamburg (Germany) headquartered company a leader in this business area. The software primarily aims at the automotive industry, mechanical engineering, aerospace industry and their respective suppliers. Typical fields of application for Simufact software are hot forging, cold forming, sheet metal forming, rolling, ring rolling, open die forging, mechanical joining, heat treatment, different welding processes, and additive manufacturing. Learn more at [simufact.com](http://simufact.com) and follow us [@Simufact](#).

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### **Contact:**

Volker Mensing  
Director Marketing & Communications  
+49 (0)40 790128-160  
[volker.mensing@simufact.de](mailto:volker.mensing@simufact.de)

Penelope Friebe  
Public Relations & Social Media  
+49 (0)40 790128-164  
[penelope.friebe@simufact.de](mailto:penelope.friebe@simufact.de)

