

# PRESS RELEASE

## **Simufact Welding 6: Simulate welding of larger and more complex components**

*Faster: The next generation of welding simulation solutions promises practical, short calculation times for longer welding seams and multiple welding points*

*Wider: The software now includes brazing and stress relief applications, as well the introduction of electron beam welding and laser beam welding processes*

*Easier: New post-processing functions give the user a new range of possibilities for evaluating simulation results*

**Hamburg, Germany, November 15, 2016** - Simufact has launched an advanced version of their welding simulation solution: Simufact Welding 6. One of the most important novelties in the new simulation software is the addition of simplified calculation methods, which allow significantly shorter calculation times for thermal and thermal-mechanical welding processes. This has enabled the software to pave the way for the simulation of longer welding seams, multiple welding points and larger, more complex assemblies to be calculated within a practical simulation time.

Through the continuous further development of the solver, the 'calculation core' of the software, users of Simufact Welding 6 can now considerably shorten simulation times while being assured of an increased computational stability.

The new software version also covers a wider range of applications for the simulation of joining processes: Simufact Welding now differentiates between the methods of electron beam welding and laser beam welding, as well as expanding the arc welding and resistance spot welding processes to cover brazing and stress-relief heat treatment.

### **New calculation methods extend the application spectrum of the software**

Within the aerospace, automotive, shipbuilding, plant engineering and machine construction industries, large complex assemblies are often created during production with, for example, meter-long welding seams and multiple welding points being common place. The simulation of such joining processes, with fully-transient calculation methods, involves a long computation time to produce a highly-accurate simulation result, as a large number of physical effects need to be taken into account. In industrial practice, often questions of feasibility or trend statements are at the center of interest. Here Simufact Welding 6 serves as a reliable tool for the user which provides statements for instance on distortions and residual stresses of complex structures within practical short calculation times.

The use of Simufact Welding has now become more scalable. In addition to the well-known, high-precision calculation methods already used, the welding simulation

software offers simplified calculation methods, which can quickly provide statements on e.g. distortion directions during thermal and thermal-mechanical joining processes, such as resistance spot welding.

These simplified simulation methods enable design departments to examine their models with regards to production issues. Such a 'model check' helps the users to adapt their models, according to the simulation result, and to optimize them prior to production.

### **New process types for Simufact Welding 6**

The new product version Simufact Welding 6 expands the range of process types that can be simulated to include brazing and stress relief, as well as now being able to differentiate between the methods of electron beam welding and laser beam welding. All of these new process types are on top of the processes of arc welding and resistance spot welding already available in the software.

Brazing simulations are used for prediction of distortions and stresses during brazing. Those processes typically employ heat sources with lower heat input, compared to welding processes, often limiting the heat input to soldering material. The new 'Brazing' application module lets the user limit the heat input to the filler material during a standard brazing process. Users who work with laser brazing processes can also apply the heat source to the whole model.

The 'Stress Relief' application module allows simulation of stress relief heat treatment after welding, common post processing step used to reduce the residual stresses within the work piece.

The new application module 'Electron Beam' provides functional improvements to the application field of electron beam welding, such as allowing the welding process to be modelled in a vacuum chamber so that the user can calculate the heat loss before and after welding.

### **Post-Particle Tracking and THS plots ease the evaluation of the results**

These new functions help the user to evaluate the simulation results:

'Post-Particle tracking' allows the user to customize the measuring point settings, used for a comparison of the simulation results with the measurement data, ultimately making the simulation model and its results much easier and faster to evaluate and optimize.

During the welding process the engineer can measure and evaluate the forces on the clamping tools with the help of the 'Time History Plot' function. The measurements given by this function provide the engineer with information about forces experienced by clamping tools, tool displacement and other important information for the optimization of the clamping devices.

Software users can look forward to a great number of further improvements. These include, a revision of the heat sources, flexible temperature objects, a complete revision of the time step control system, a CAD import function for tools and a comprehensive revision of the modelling process and the results management system regarding the preview functions, revised color coding, UNV export function, heat source database and assemblies among other features.

The new software version Simufact Welding 6 is available now.

**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 products and services to manufacturing industries. Today, after more than 20 years of developing and supporting simulation solutions for the design and optimization of manufacturing techniques in metal processing, the Hamburg (Germany) headquartered company has established as one of the leaders in this business area. Simufact succeeds in extending its global market share backed up by a dynamically growing customer base exceeding a number of 700 customers. A strong and continuously growing network composed of local offices and channel partners ensures global support. 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 most recently additive manufacturing.

For more information about Simufact Engineering please visit [www.simufact.com](http://www.simufact.com).

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