

PRESS RELEASE

Simulate welding processes with Simufact.welding 5

The new version allows you to choose the type of welding process with process-specific defaults through the use of AFS technology

Extended application range: simulation of resistance spot welding.

Hamburg, Germany, November 16, 2015 – Simufact unveiled the new version 5 of its welding simulation software Simufact.welding. The main new features include the AFS technology for selecting the welding process types with process specific defaults and the introduction of a new module Resistance Spot Welding covering both types of simulation: structure simulation as well as process simulation. Furthermore Simufact.welding 5 allows for the import and export of welding parameters, offers even more efficient modelling through improved user friendliness and supports process optimization with the Process Control Center (interactive Gantt diagram).

Process type choice based on AFS technology – extended application range

With Simufact.welding 5, Simufact has laid the foundations for the introduction of **AFS technology (application function sets)**, which has already proven its worth in Simufact.forming. Simufact.welding users can now make an initial choice of welding process types and application scenarios. Depending on the process type chosen, different, practical defaults are set, e.g. for time stepping and other numerical parameters, and the corresponding tools. Simufact's AFS-technology aims at making the software even more user-friendly, so that the use of its applications becomes intuitive – an approach that quickly show its benefits in daily use.

Simufact has further extended the application range of the software: with the new version, users can simulate additional welding process types, process steps, and application scenarios, such as arc welding, beam welding, an analysis of the potential influence of different clamping and cooling concepts and the new process resistance spot welding.

Simulating resistance spot welding: both structure and process simulation

Until now, Simufact.welding has only considered the effects of heat in the welding process with the help of mathematical auxiliary sources ("equivalent heat sources"). Based on that, the user can compute residual stresses and distortions as well as observing the development of the material properties. With version 5, Simufact take things a significant step further and have included the ability to create initial welding process simulations, which include the parameters to be set up at the welding device and the process stability.

One example for this functional development is the simulation of resistance spot welding, a welding process often used in the automobile industry, with a new module under that name. With the new module, users can simulate resistance spot welding processes, in which the electrical, thermal, metallurgical and mechanical factors are interdependently simulated. With the included user-friendly definition of spatially freely moveable X and Y welding guns, it therefore becomes possible to minimize the stresses on complex resistance-spot welded structures. The user can also analyze the influences of coatings and welding sequences in the process, as well as being able to compute distortions.

Preserve competence and knowledge by importing and exporting welding parameters

The new welding parameter objects, and the new interface for importing and exporting, allow for the systematic development of welding databases. This in turn allows for the preservation of knowledge and competence independent of the expert knowledge of individual employees. Calibrated heat sources can also be transferred more easily to new projects, or they can be imported from external welding process simulations.

More efficient modelling through improved user-friendliness

Apart from the introduction of process types, Simufact's developers have made a number of improvements for the users of Simufact.welding 5. The **Creation and Assignment Wizards** for geometries, materials and marginal boundary conditions allow for a faster and automated assignment of objects to the chosen processes.

Wizards (or assistants) are software functions that support the user in data input with the help of dialogues. In Simufact.welding, they help to make the input of data more ergonomic during pre-processing.

Furthermore, Simufact.welding 5 supports automated process design based on already computed processes, and the automatic assignment of computation results.

As highly distorted elements are critical for computational stability, the new version of Simufact.welding enables these to be simulated as post-processing variables of their own. Therefore, critical areas can be identified even when that step of the computation cannot be completed.

Process optimization with Process Control Center (interactive Gantt diagram)

Simufact.welding employs Gantt diagrams to visualize process times. Gantt diagrams are used in project management to visualize the time sequence of process steps as bars on a time axis. With Simufact.welding 5, the former static Gantt diagram becomes an interactive **Process Control Center (PCC)**, which can be used to optimize welding sequences, cooling and clamping and release times. Within the PCC, the visualized tools and robots can be faded in and out, grouped, or sorted as required. The PCC

also provides a comparative function and an export function, which allow for the optimal documentation of process variants.

The new version of the software Simufact.welding 5 is available since November 16.

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 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 600 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, and welding. For more information about Simufact Engineering please visit www.simufact.com.

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