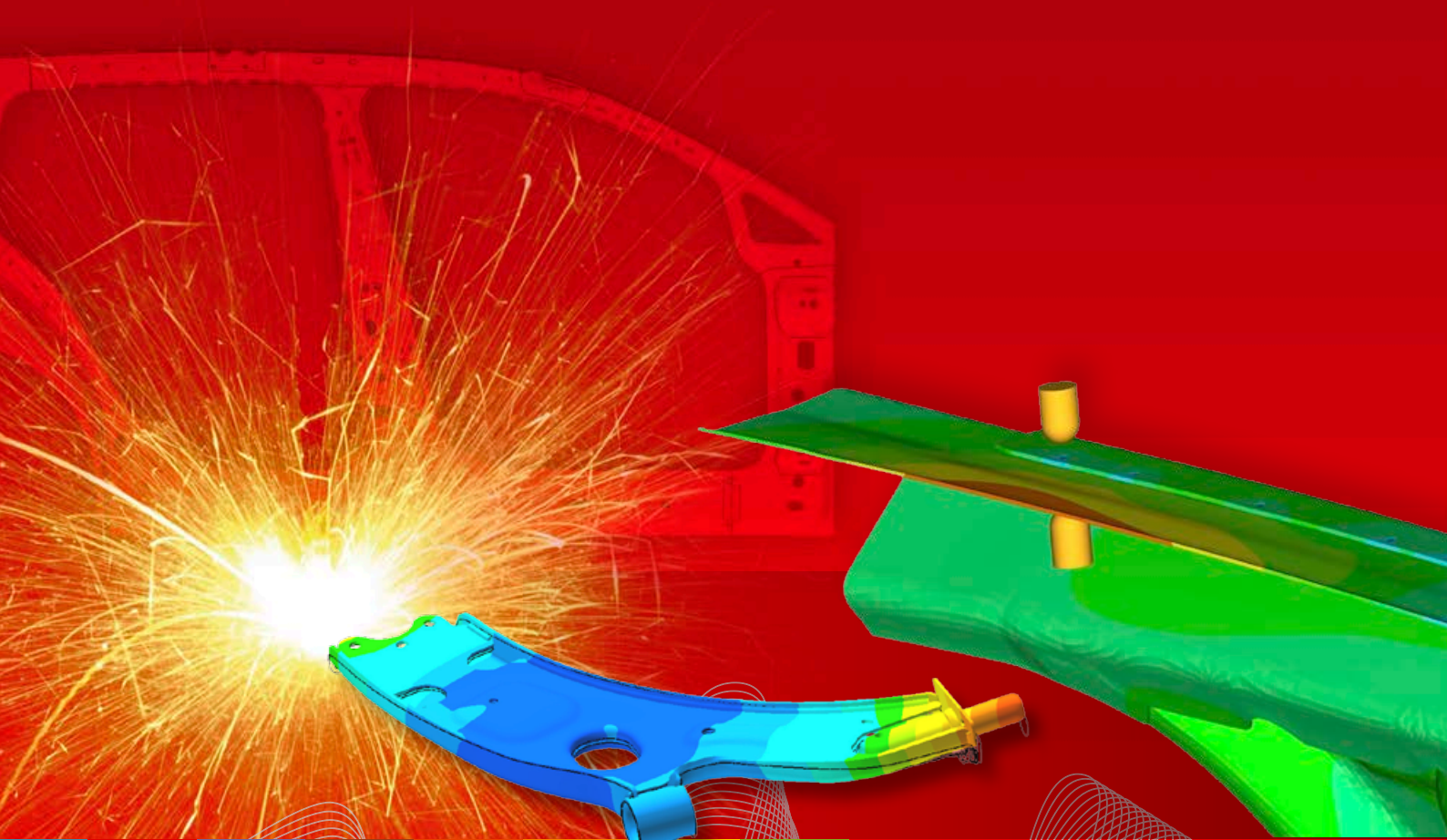


simufact welding

SOFTWARE FOR WELDING SIMULATION



best welded

- ➔ Identify the optimal process parameters
- ➔ Avoid welding distortions and stresses
- ➔ Find answers to process stability issues

Simufact Welding realistically predicts distortions and residual stresses and helps the user to determine appropriate strategies to minimize them. It is the only simulation software which automatically considers the complex contact situation between the components, which in turn allows conclusions about the properties of the weld seam, in particular its strength, to be drawn. Simufact Welding achieves this by calculating the microstructural properties within the heat-affected zone, which also gives the user a valuable insight into identifying welding defects, such as hot cracks in the simulation, and how to avoid them in practice.

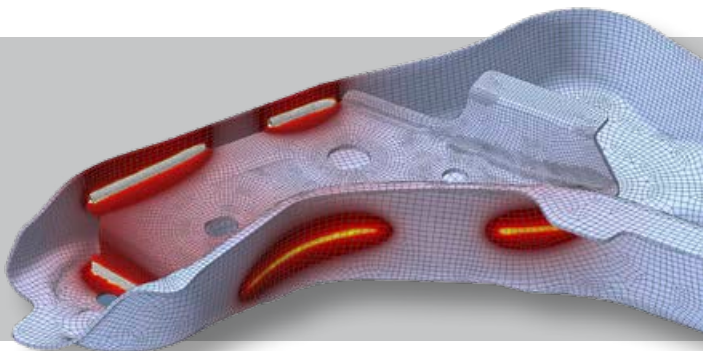
Simufact Welding assists in finding the optimal clamping devices based on the implementation of real tool geometries, while considering clamping forces and clamping stiffness. Besides the clamping concepts, also the suitable welding sequences can be identified with Simufact Welding. The software predicts the final contour of

the workpiece and helps to achieve serial production with minimum tolerances. A new visualization concept ensures that the entire welding process, with all its process steps, can be reviewed immediately, influencing factors can be visualized and different variants are comparable at a single glance.

Simufact Welding does not only consider the heating effects in the welding process, but also includes the ability to create initial welding process simulations e.g. the simulation of resistance spot welding. Even questions which include the parameters to be set up at the welding device and the process stability can be answered. Also the influences of coatings and point sequences in the process can be analyzed.

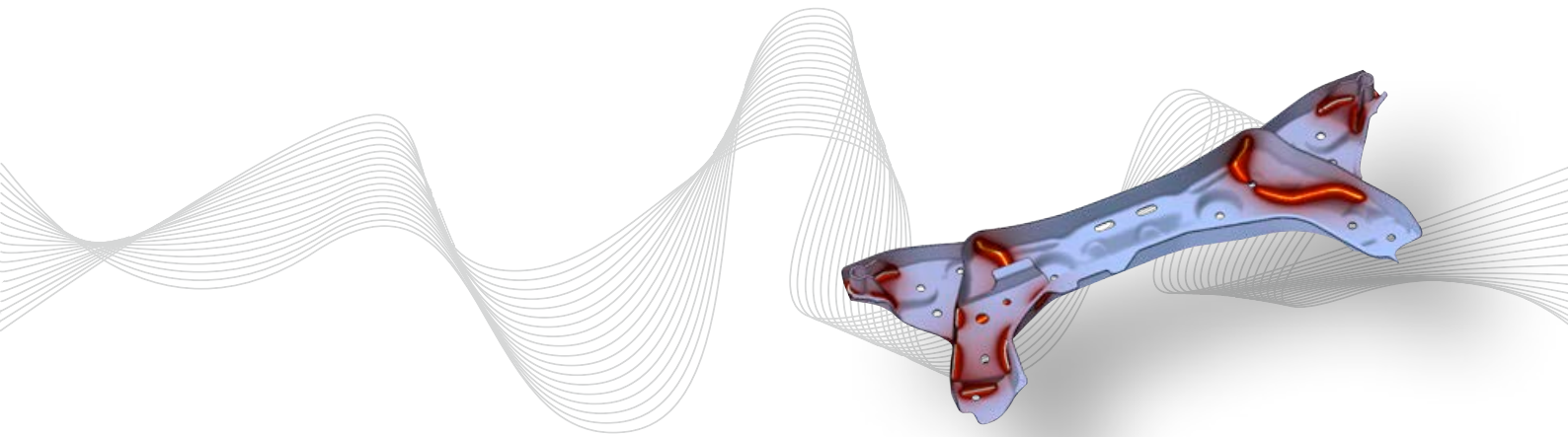
Speeding-up the design of optimal welding processes

As a modern simulation tool, Simufact Welding has been designed for use in design departments, method planning, or process development. Simufact Welding in the hands of a welding production expert or of a development engineer not only leads to a better understanding of the processes but also helps reducing the number of expensive and time-consuming trial runs. Optimized production processes with higher product quality, shorter development cycles thanks to a faster process development, faster conducted feasibility studies, these are the advantages of process simulation with Simufact Welding.



Eight reasons why Simufact Welding can innovate your manufacturing: Employ Simufact Welding and ...

- 1.** ... identify critical distortions, i.e. with respect to assembly, bulging, imbalances, and clearances
- 2.** ... investigate and optimize clamping tools even before an investment in tools has been made
- 3.** ... identify optimal welding directions and welding sequences
- 4.** ... investigate the influence of unclamping on welding distortions and residual stresses
- 5.** ... gain knowledge about the development of the heat affected zone
- 6.** ... use a tool which supports you during planning of welding processes
- 7.** ... innovate your process design:
 - Virtually test and evaluate different variables without and avoid extremely expensive real tryouts
 - Examine the material behavior during the welding process
- 8.** ... verify the quality of welding seams, i.e. by calculating nugget sizes, brittle metallurgical phases, hardness, and effects of preheating.



More efficient modelling through improved user-friendliness

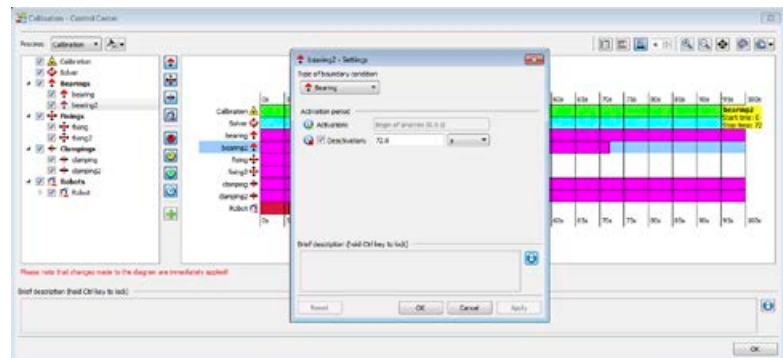
Simufact Welding is a simulation tool for hands-on professionals working with welding technology. The software is aligned to the practical needs of our users. Simufact Welding is practice-oriented, fast and easy to learn. The user can focus on the engineering-related details of the welding process instead of dealing with the software.

It is possible to do every simulation step **from a single user interface**: modeling, calculation and evaluation.

The practice-oriented and user-friendly user interface of Simufact Welding enables the ease of use of the software. Therefore, it becomes an engineering tool for processes designers which supports and simplifies their daily work.

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. The wizards help to make data input more ergonomic during the pre-processing for the definition of the welding process. Simufact Welding supports automated process design based on already computed processes as well as the automatic assignment of computation results.

Process optimization with Process Control Center (interactive Gantt diagram)



Simufact Welding employs Gantt diagrams to visualize process times. Gantt diagrams visualize the time sequence of process steps as bars on a time axis. With Simufact Welding 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 functions to compare and export results allowing for the optimal documentation of process variants.



simufact welding

+ The modular concept of the **Simufact Welding product line** offers specific modules which enable you to simulate a wide range of welding processes.

Application Modules



Transfer of simulation results to subsequent processes

The process specific application modules allow you to simulate single production steps. If you combine the modules across applications and products, it enables you to connect various manufacturing steps to entire process chains and to simulate these as a whole. The results of previous manufacturing processes are passed to subsequent processes leading to an increased accuracy in the simulation results. It is even possible to export the simulation results to third-party products, for example for fatigue and crash simulations.

Additional Modules

Reach your aim more quickly with process specific functions

Simufact Welding has a modular architecture. The modular concept helps you choose the relevant functions that most exactly fit to your manufacturing processes. Simufact Welding consciously sets apart from competitor's products by offering deeper process specified functions, rather than following the approach of having 'general-purpose-tools' that cover all functions.

The **dedicated Application Modules** provide you process specific functionalities for all areas of welding processes. The modules allow for the simulation of single manufacturing steps and can be combined to simulate entire process chains. **Additional modules** offer you a wide range of further valuable functions for the daily use of the software.



Please find a detailed description of the product functionalities on our website:
simufact.com

