simufact forming

SOFTWARE FOR FORMING SIMULATION

well formed

PART OF
HEXAGON

simufact
Simulating Manufacturing

MSC Software Company

simufact forming

Simufact Forming addresses companies from the manufacturing industries which are specialized in the area of metal forming and joining processes. The software covers materials such as steels and non-ferrous metals, for example carbon steel, high and low alloy steels, stainless steels, aluminum, brass, copper, titanium, nickel base alloys, etc.
*Automobile manufacturers and their suppliers, vehicle construction, machinery and plant engineering, aviation and aerospace, electrical industries, energy generating companies, medical devices, and many other industries and branches employ Simufact simulation software in the production planning.*

Your responsibilities – our solutions

- Increase the efficiency of metal forming- and joining processes
- Find the right process chain depending on manufacturing technique, batch sizes, and existing manufacturing plants
- Shorten process development time (time-to-market-issue)
- Reduce your costs, due to alternative manufacturing processes
- Deepen your knowledge about the manufacturing processes at an early design phase (feasibility)
- Build up valuable knowledge (apart from personnel fluctuation and retirements)
- Meet the quality and performance requirements of your customers' specifications

Realistic results, short computational time, ease-of-use

Simufact Forming captivates with its capability, in displaying a unique broad physical spectrum with greatest accuracy in the simulation results (thermal/ materials/ mechanism). At the same time the software convinces with short computational time and with its ease-of-use.
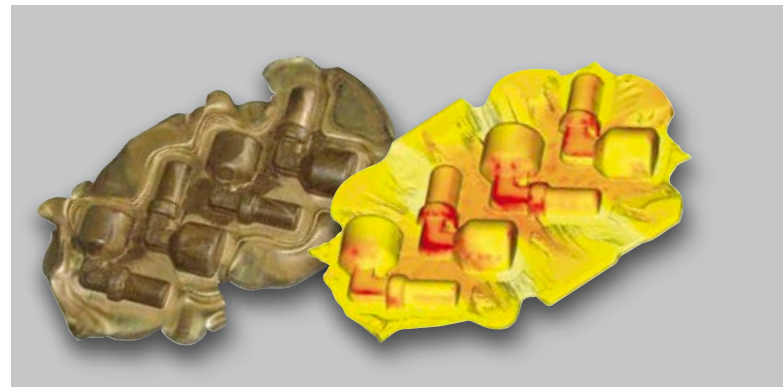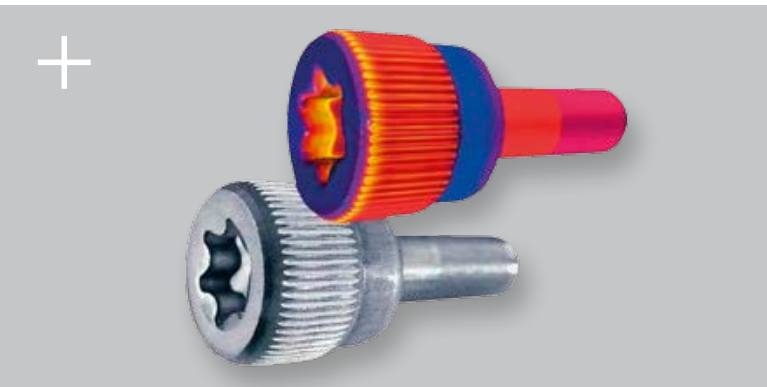
Simufact Forming is used as a modern simulation tool in the construction department, method planning or in the process development. In the hands of a manufacturing practitioner or a design engineer Simufact Forming leads to a better understanding of the process. It furthermore helps to reduce the number of expensive and complex tests. Optimized manufacturing processes by an increased product quality, shorter development cycles through a faster process development, faster performed feasibility studies, all this reveal the benefits of process simulation with Simufact Forming.

*Feasibility study for the design of a tool – multistage deep drawing process*

Simulating Manufacturing
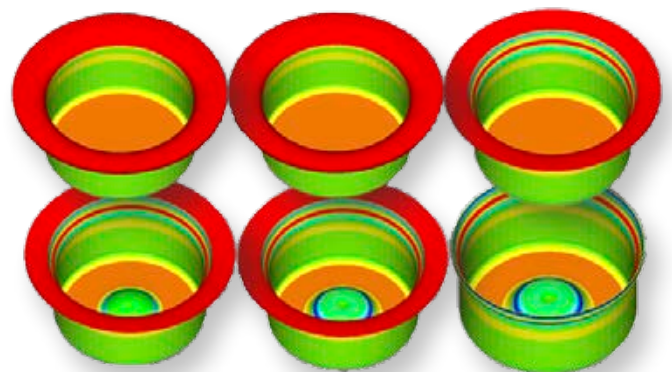
Ease-of-use
for the highest level of productivity

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

Simufact Forming's practice-oriented and user-friendly user interface allows for the software to be easily used. Therefore, it becomes an engineering tool for designers of dies or processes which supports and simplifies their daily work. With a few clicks, you can simulate and evaluate all standard-forming processes.

# Operating advantages of Simufact Forming

- Easy, intuitive user-friendly interface (e.g. drag & drop)

- Very easy and quick to learn

- Metal forming terminology is used

- AFS technology (application function sets) supports the user in creating a simulation whilst:
    … Uses a pre-configured simulation model and thereby decreases several adjustments for the user
    … Expert settings are made
    … Thus the usage of the software is downsized and simplified

- Clear structure according to the object area (dies, machines, material etc.), process area (forming operations) and graphic model / results area

- All commonly used objects which define process characteristics of the simulation model can be stored for later use in the database
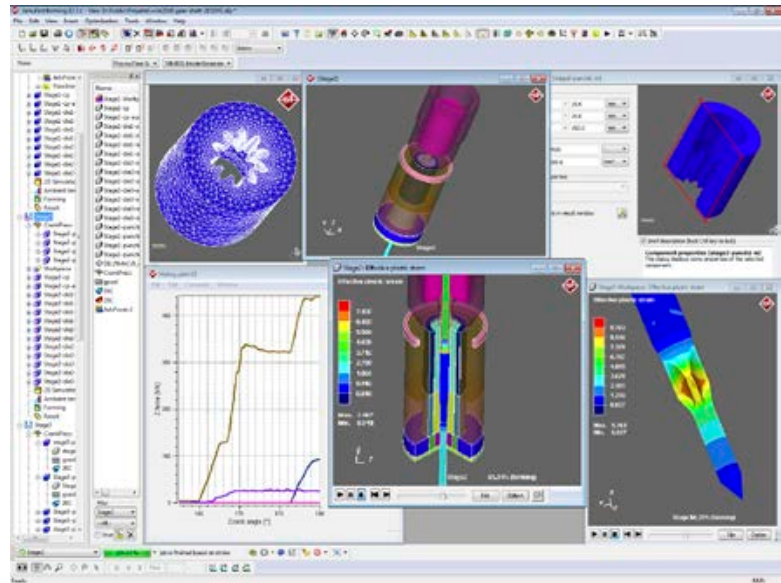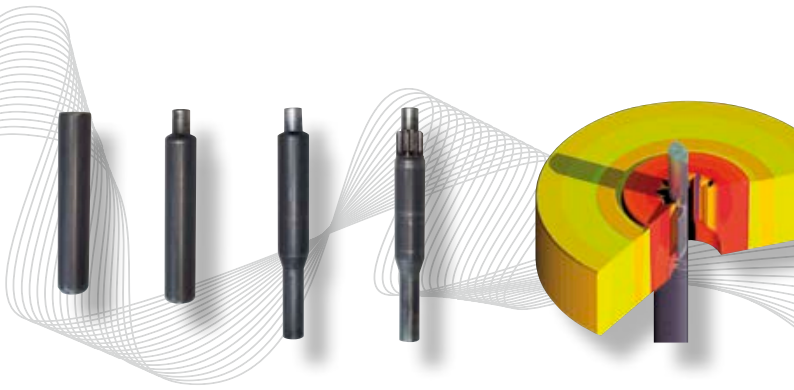
Saarschmiede GmbH Freiformschmiede

simufact forming

The modular concept of the **Simufact Forming product line** helps to choose the suitable function for every forming process.

Application Modules

Forming Hub

Cold Forming

Rolling

Hot Forging

Additional Modules
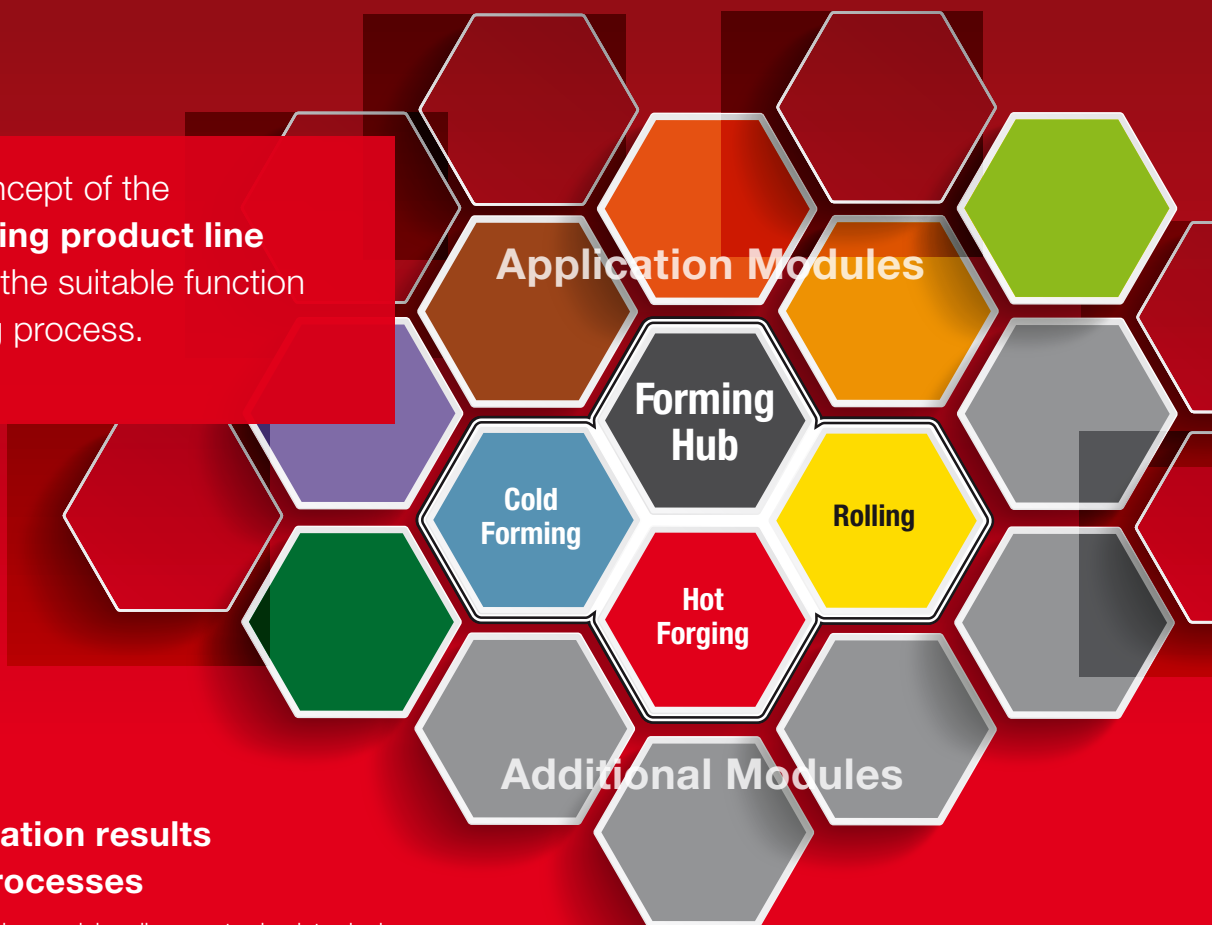
Transfer of simulation results to subsequent processes

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

Reach your aim more quickly with process specific functions

Simufact Forming has a modular architecture. The modular concept helps you to choose exactly the relevant functions for your manufacturing processes. This approach saves you costs and gives you the flexibility to adapt to changing requirements. Therefore, we consciously set ourselves apart from competitor's products, as they follow the approach to cover all application fields as "general-purpose-tool", but do not offer deeper process specified functions.

The **dedicated Application Modules** provide you process specific functionalities for all areas of forming processes. They enable 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**

simufact
Simulating Manufacturing

MSC Software Company

Tempowerkring 19 · 21079 Hamburg, Germany · Phone: +49 (0) 40 790 128-000 · Fax: +49 (0) 40 790 128-199 · info@simufact.com · simufact.com

Application Modules

Simufact Forming product line
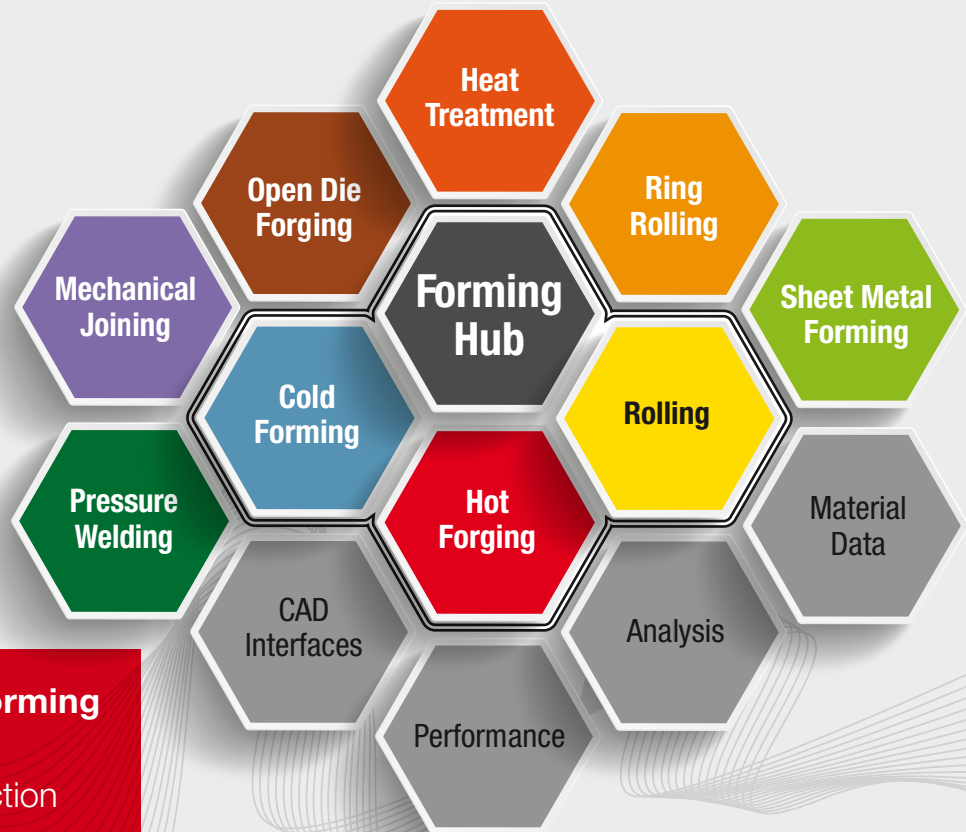
+ The modular **Simufact Forming product line** helps you to choose the suitable function for every forming process.

Hexagon diagram labels: Heat Treatment, Open Die Forging, Ring Rolling, Mechanical Joining, Forming Hub, Sheet Metal Forming, Cold Forming, Rolling, Pressure Welding, Hot Forging, Material Data, CAD Interfaces, Analysis, Performance

Cold Forming

Forming processes significantly below the recrystallization temperature of the material. These processes include typical upsetting and extrusion processes (e.g. for the production of bolts, nuts and rivets), but also coining, cold hobbing, thread rolling and last but not least drawing processes (e.g. wire drawing, tube drawing and profile drawing).

Sheet Metal Forming

Forming of sheet metal. Sheet metal forming includes: Drawing processes (e.g. deep drawing, reverse drawing, collaring, tapering and stretching), wall ironing, blanking, stamping and bending, fine blanking, coining, roll forming, draw bending, molding, pressure forming, roller spinning, pull-through drawing and more.

Hot Forging

Forming processes above the recrystallization temperature of the material. A typical process is hot forging, including closed die hot forging, auxiliary processes such as heating and cooling, cutting processes and preform operations (e.g. upsetting, bending, forge rolling and cross wedge rolling) as well as extrusion processes.

Open Die Forging

Forming processes in which the shape of the workpiece is changed incrementally (i.e. step-by-step) by repeated, local forming using geometrically simple dies which move typically relative to the workpiece. Open-die forging includes among others cogging, radial forging, rotary swaging, shell forging and rotational partial forging.

simufact
Simulating Manufacturing

Application Modules

Product line Simufact Forming

Rolling

Forming processes in which the material is formed between two or more rotating dies (rollers). Examples of rolling processes include; flat and profile rolling, cross rolling, spinning, flow forming and reduction rolling.

Ring Rolling

Special rolling method for the manufacturing of seamless rings with related sub-processes such as; radial ring rolling, radial-axial ring rolling and axial closed die rolling.

Heat Treatment

Processes in which metallic workpieces (mainly steel pieces) are temporarily heated for the targeted improvement of the material's properties.

Mechanical Joining

Forming process that causes a mechanical interlock between the pieces. Mechanical joining includes riveting methods such as; punch riveting, self-piercing riveting and blind riveting, as well as clinching technologies such as pressure joining, clinching and toxing.

Pressure Welding

Pressure welding is a joining process in which components are joined by heating and compression. Heat can be generated either via current (resistance welding) or by using friction (friction welding).

Additional Modules

Simufact Forming offers a wide range of further valuable functions for the daily use of the software.

Analysis with Simufact Forming Die Analysis allows for a detailed insight into the stresses in dies. Simufact Forming Microstructure Matilda is a special module for the microstructure computations of steel and nickel-based alloys, based on "MatILDa".

Performance covers additional technologies that increase the performance of your simulation solution. The Simufact Forming Parallel Core module allows parallel computations that increase the simulation speed, while the Simufact Forming Additional Job module enables you to run simulations simultaneously. With the Additional GUI and Additional GUI mobile modules, we offer you more Simufact Forming GUIs for pre- and post-processing.

CAD Interfaces helps you to import geometries easily from native CAD files. It provides interfaces for major CAD systems and file formats such as STEP, VDA, DXF, ACIS, Parasolid, CATIA V4, CATIA V5, PTC Creo, NX, SolidWorks and Inventor.

Material Data offers more material data sets, in addition to the material data included in the Simufact Forming Hub; among them we offer JMatPro data sets.

PART OF HEXAGON

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

simufact
Simulating Manufacturing

MSC Software Company