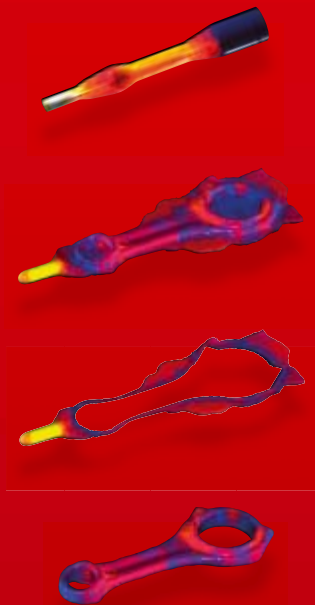
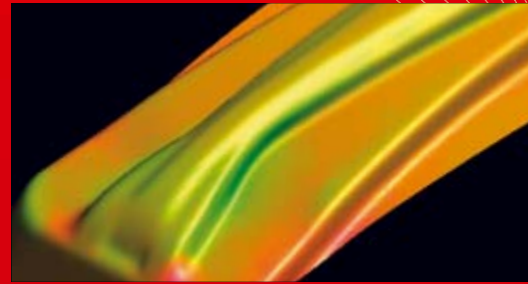
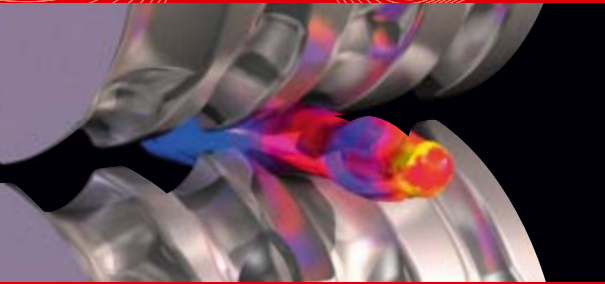




well formed

Simulating Manufacturing

Simufact Engineering GmbH is an international software house, located in the metropolis of Hamburg. We develop software for the optimization and design of manufacturing processes with the help of process simulation.



OUR CREDO

Our established software products of the simufact family are distributed world-wide and form the backbone of the development departments of many well-known companies.

The credo of Simufact Engineering GmbH is: innovative and efficient development and optimization of manufacturing processes. Behind this are quickness (time to market), process stability and product quality – the three pillars of every manufacturing company.

To meet these ambitions, we apply modern simulation methods.

We relocate in-house testing and expensive tryouts into the computer. We simulate manufacturing.

“Simulating Manufacturing” is not only our mission for years now but is also the heart and soul of the company.

From engineering consultants to international software house

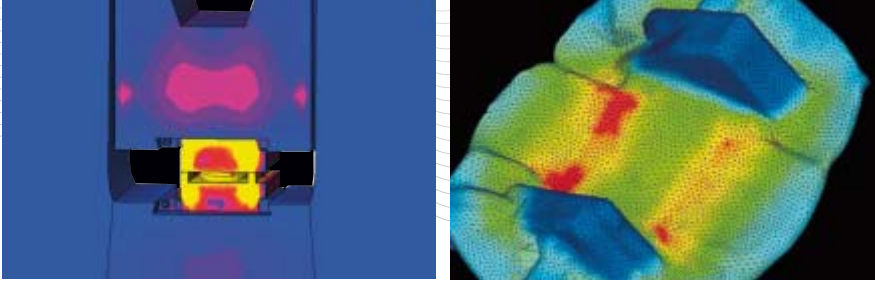
It all started more than 13 years ago as a consulting company for metal forming on the German-speaking market. The powerful American simulation software we used was continuously improved and enhanced by our own developers.

The young company, formerly known under the name FEMUTEC Engineering, soon became the exclusive distributor of MSC.Software for the German-speaking region and maintained the simulation solutions MSC.SuperForm and MSC.SuperForge. Based on high professional competence and years of experience in forming technology, the company proved to be an important partner for optimizing manufacturing processes. New locations were opened and the team was strengthened continuously.

At the beginning of 2007, we took over the complete department of manufacturing simulation from MSC.Software and since then played the role of an international software house in a highly specialized market.

In 2008, the company changed its name into Simufact Engineering to communicate the core competency already there: Simulating Manufacturing.

By courtesy of:
Leistritz Turbinenkomponenten Remscheid GmbH



From Process Simulation to Structural Analysis

BRANCHES AND CUSTOMERS

We work with all branches of the manufacturing industry including tool & die makers, machine manufacturers, suppliers and OEMs.

Our customers range from SME's with 100 employees to large automotive suppliers (among others Bosch, Schaeffler-Group, ThyssenKrupp, and ZF) to the automotive OEMs (Audi, BMW, Daimler AG, Ford, Porsche, Volkswagen AG) as well as the aviation industry (Airbus), general machinery, plant manufacturers and special branches, for example the medical and the clock-making industries.

We handle a variety of manufacturing technologies of metal forming as well as mechanical and thermal joining processes. We are neither limited by the dimensions of the work-piece nor the process conditions.

YOUR BENEFIT

Optimize material usage – increase tool life – optimal, efficient usage of machinery – minimize scrap – less trial runs – a view into the inside of a process for a better understanding of it. Don't you wish for that every day, to become even better at what you are doing? This is exactly what we achieve with virtual process optimization. Of course, simulation is an expense factor, but in reality you save money – through highly reduced costs for both new process developments and existing, running serial productions. Process simulation amortizes itself in a few months up to a maximum of two years. We or our partners would like to demonstrate this in an individual Return on Investment analysis.

If you start using process simulation with one of your existing projects in your day-to-day business, apart from the immediate technological advantages, the commercial benefit is realized directly upon finishing the project. **Process simulation is a competitive factor!**

CORE COMPETENCY

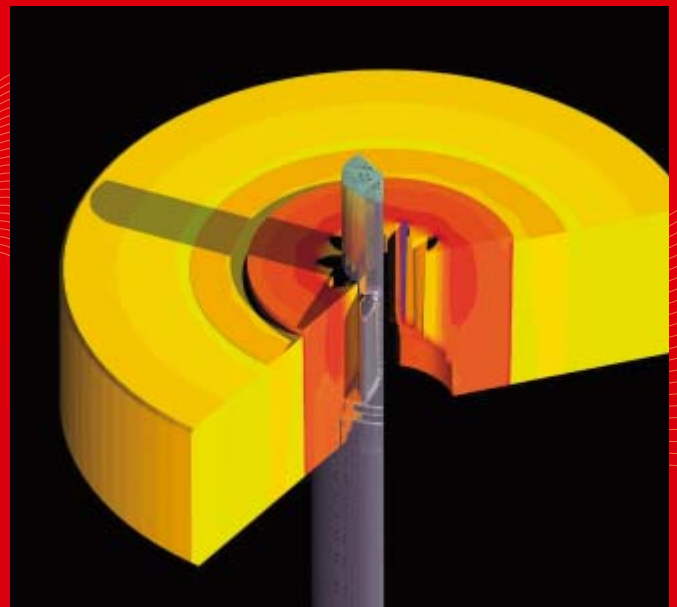
Have you heard of the prejudice that sophisticated, nonlinear simulation is not suited for the practice oriented manufacturing industry? That is no longer true. With many years of competence in process simulation and structural analysis, as software developers and manufacturing specialists, we bridge theory and practice. We connect the virtual world of simulation with the tough reality of manufacturing. We are capable of coordinating and optimizing whole value chains (Supply

Chain Simulation). This is made possible by connecting process simulation and structural analysis and because we are able to simulate almost all production methods.

Because Simufact can handle the complete spectrum of simulation, we can analyze manufacturing processes in terms of material properties, forming characteristics, kinematics, and force/energy requirements. Additionally, we measure the strain that the dies and the machinery are exposed to during the process.

In other words: Simufact guarantees a cost-efficient, process-reliable serial production within the shortest time. Our customers report a reduction of their in-house trial runs by 50 %.

Everyone does what he is best in and knows most about. Simufact Engineering looks for partners that are leading in their know-how and are able to improve the Simufact product family and its solutions.



BUNDLED COMPETENCE

It goes without saying that MSC.Software, the global market leader in Computer Aided Engineering (CAE), is among our strategic partners. Their powerful, nonlinear solver technologies MSC.Marc and MSC.Dytran provide the quality of the results and are the core of our software solutions.

Sophisticated state-of-the-art meshing technology is provided by our partner SimLab. The SimLab expertise brings unprecedented attention to detail in geometric modeling and is the basis of robustness and efficiency in the overall result.

With ITI TranscenData, we have found a specialist for the integration of CAD environments. With the support of this partner, direct CAD import is now available, together with powerful CAD repair and other useful tools.

The professional competence within the microstructure simulation in other highly specialized applications is guaranteed by further partners.

This competence network is rounded out by direct cooperation with reputable universities and colleges as well as our presence in various industry associations.

THE APPROACH

The solution to the manufacturing problems of our customers is the Simufact product family. It allows you to relocate the in-house tryouts from the shop floor into the computer. Specifically adapted to the needs of industrial practice, our software can do this, even before the first die is milled. Designed as a modern simulation tool, Simufact is perfectly suited to be used in engineering departments, for method planning or process development.

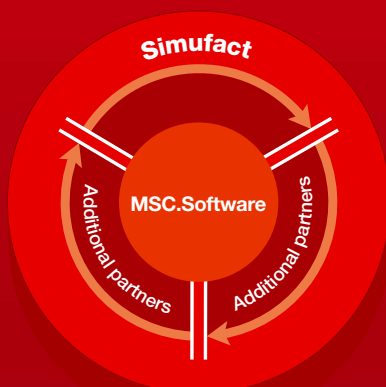
Simufact in the hands of a manufacturing practitioner leads to a better understanding of the process. Optimized processes – together with a higher product quality – within the shortest time, this is the solution to many challenges our customers face in international competition.

bytes, but a custom solution to their individual problem.

The introduction to the simulation is accompanied by competent training courses, given by experienced instructors. They speak the language of the production engineers and know the processes that are to be analyzed.

We see the partnership with our customers as a long-term relationship. This is emphasized by qualified support. Again: We speak your language and understand your problems. We want to support you in a way that allows you to fully concentrate on your production issues.

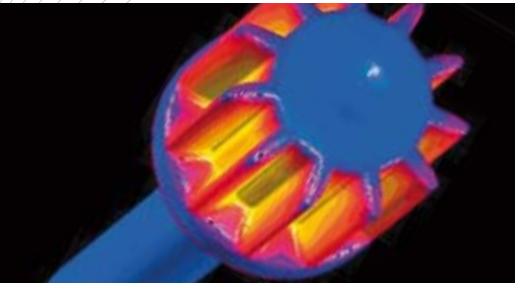
This applies to our direct customers as well as many users worldwide who are supported by our competent solution partners. The distributors in the Simufact network participate in and contribute to our competence and our support – for the benefit of every single user.



OUR RECIPE FOR SUCCESS

Sophisticated business solutions, like process simulation, are only successful if all gears fit together perfectly. Simufact Engineering considers the application of simulation software as a consultation on the strategic step towards modern, innovative engineering processes. Our customers do not buy bits and

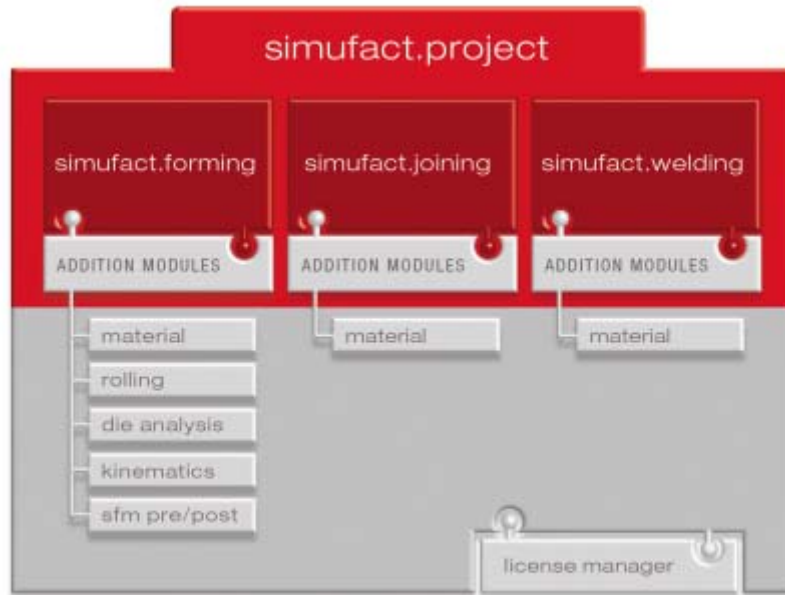
Perfect Manufacturing Processes through Practice Oriented Simulation



OUR PRODUCT PHILOSOPHY

Manufacturing engineering is a matter of trial and error – some say it's like 'magic' expressing the practice oriented nature of manufacturing engineering requiring experience – and it is our reference against which we measure our software developments.

Simufact is a product family intended for practitioners, but at the same time it does not lack the flexibility and performance required by experienced engineers with a theoretical background. We were able to translate the sophisticated physics of complex manufacturing processes so that the user sees at his computer screen exactly what he knows from the real process in the production plant. Our high standards demand that process simulation must not be more difficult than the handling of a CAD system. A modern, intuitive user interface for MS Windows allows for quick familiarization through the easiest usability.



THE PRODUCT FAMILY

Simufact is a modular system that can be customized for your individual requirements. Under the umbrella of Simufact are different application modules for a wide variety of different production areas: solid forming, sheet metal forming, mechanical joining as well as welding. Their functionality – according to your needs – can be scaled flexibly or supplemented by additional modules for special tasks. It is good to know that only necessary investments have to be made.

An integral member of the Simufact product family is a simulation data and project management system. What has become common in the CAD environment nowadays will also become standard within the professional simulation environment.

Simufact.forming is a simulation tool that has been developed especially for the forming industry. As a consistent advancement of the long-established simulation solutions MSC.SuperForm and MSC.SuperForge from our partner MSC.Software, both complementary technologies were integrated in a single, powerful product that is up to all the challenges of forming technology.



THE FLAGSHIP PRODUCT

Simufact.forming is designed to support all forming procedures: die forging and extrusion but also every rolling technique, hammer and radial forging, drawing, upsetting, bending and many more.

Any process kinematics can be represented, whether by pre-defined models or based on individual specifications. It goes without saying that variable spring concepts are also supported.

When it comes to the material of the formed workpieces, we know no restrictions – be it steel or high-grade steel, copper, brass, or aluminum alloys – everything is possible in every temperature range. We support cold, semi-hot and hot forming processes. Additionally, a word on microstructure simulation: phase transformation, re-crystallization and grain size classification become more and more the center of attention of process optimization for the production of sophisticated components. Simufact offers a solution for this as well.

THE GOAL

The days where forming simulation was solely concentrated on material flow are long over. Of course, it is still the goal to early on identify and correct forming errors like laps, wrinkles, and under-fill. But performing a tool & die analysis allows you to further improve an already good manufacturing process.

Simufact.forming allows for a widespread and detailed tool & die analysis in terms of die wear and die fracture. Here it is important if the subject of the analysis is a simple die or a complex, multi-reinforced, axially braced die assembly. Die analysis is always about increasing tool life.

Bottom line, Simufact.forming will help you achieve

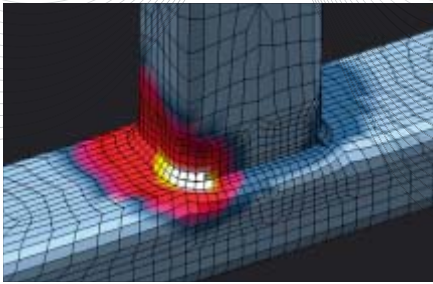
higher machine uptime,

improved process stability,

decreased material usage,

in other words: less development expenses and considerably reduced costs in high volume production.

This is confirmed by hundreds of customers, from small forging companies to large tier 1 suppliers and automotive OEMs.



Simulation solutions for a broad array of manufacturing technologies

THE COMPLETE LINEUP

Forming technology is only a small part of the total manufacturing technologies available. According to our motto "Simulating Manufacturing", we offer simulation solutions for other manufacturing technologies as well.

For these we benefit from various synergistic efforts. Many years of experience with forming simulation enables us to develop efficient and hands-on simulation tools for other branches of manufacturing.

Simufact.joining

Simufact.joining is especially designed for mechanical joining. Whether blind rivets, solid rivets, drive rivets, bolts or clinching: all these techniques can be modeled semi-automatically with Simufact.joining.

The main focus lies on the rivet installation process: rivet installation forces, the molding of the mechanical interlock, the deformation of the sheet metal, while rivet clamping forces and much more is included in the analysis spectrum. Also the stability of a join connection can be analyzed with Simufact.joining. The virtual cross and shear tension tests are standard functions available.

Simufact.welding

Simufact.welding is the most recent member of the Simufact product family and will be used especially for welding processes. The practice oriented user interface lets the welding specialist interact with the complex simulation technology. The modular design and the combination of analytical approaches and nonlinear numerical simulation lay the foundations for a customization according to the needs of the user. A variety of available solvers is supported.

Simufact.welding will become available for general use towards the end of 2008.

Simufact.project

"Only a genius can master chaos" – this will not help you when it comes to reviewing a large amount of simulation data that has been gathered in weeks, months or even years. The complete know-how of manufacturing technology is included in a vast number of result files of numerous projects and project varieties. It is critical to be able to keep the overview, to structure everyday work and remain efficient in what you do.

Today, there is virtually no CAD environment that is not integrated with a data management system. This is also demanded from manufacturing simulation. With Simufact.project, we offer structured project management as well as efficient data management. This increases the benefit of the simulation software many times over.

Running and previously completed simulation projects can be easily organized, managed and archived with Simufact.project. The data can be supplemented by valuable additional information and key figures from the actual manufacturing to help the user validate his calculation results. Of course, other documents relevant to the project, like Excel charts, project reports or presentations can be assigned to the simulation project.

Simufact.project offers the user a consistent work environment for his simulation work in which he can do his everyday work even more efficiently and more structured.



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