Design and optimize inductive heating processes

With Simufact Forming 15 users can design and optimize inductive heating processes and subsequent hardening processes. Simufact Forming helps design engineers gain a detailed insight into an inductive heating process. Users can identify errors, remove unwanted effects, and make optimizations. For example, designing the coil, which is the core challenge of inductive heating. Simufact Forming 15 presents users with the complexity of physical context. The required electromagnetic material properties can be imported by the extended JMatPro interface.

Simulate case hardening in Simufact Forming 15

Simufact Forming version 15 extends the functions of simulating heat treatment processes in order to make practical use of the diffusion effects in case hardening. With the new version, it is possible to calculate the adjusting carbon distribution that results during carburizing below the surface of the component, and to allow for the influence of this carbon profile on the transformation behavior during quenching. With this function, the user is able to make statements about expected case hardening depths, distortions and residual stresses on the basis of the simulation.

Improved contact positioning capabilities by redesigned positioner

The newly implemented contact positioner and the significantly improved positioning options simplify the positioning of the workpiece and the tools in the software solution. Individually users can position the respective components in the software and thus save time during model building.

Make simulation evaluation more intuitive and efficiently by Query results functionality

With the query results function, the user can selectively record and determine result quantities. Simply clicking on a point in the workpiece or in the tool, and the simulation software automatically opens a dialog with results in a clear and accurate table. The CSV file exports via the Excel connection, so users can then proceed with next steps such as the graphic preparation and evaluation of the results.
Top New Features in Simufact Forming 15

**Compare simulation and reference model**
With the newly implemented user coordinate system, users can compare their simulated component with the target design or with 3D measurement data as a reference model. For this, they import their measurement data from the measurement software of the CAD system into the user interface of Simufact Forming 15 and compare the simulated workpiece with the target design.

**Automatic fold detection feature**
With the current version, Simufact introduces a re-implemented fast and automated fold detection feature that greatly simplifies the detection of folds which is specifically useful for hot forging. During the simulation process, the software places markers on areas with possible folds. Users will be able to detect the possible folds during the analysis without increasing the simulation time.

**Automatic measurement of spot welds**
The automatic measurement of the weld nugget facilitates the evaluation of resistance spot welds of relevant joint parameters, such as measuring the welding nugget geometry. This function allows the engineer to check quickly and easily the quality criteria of this joint.

**Process chain: Interface between casting and forming simulation software**
A further new feature is the interface to the casting software Magmasoft 5.4 which, in addition to the already existing ProCAST interface, pushes forward the idea of process chain simulation. Results imported from the casting simulation via the Magma interface can be used in Simufact Forming 15 for subsequent forming processes.

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