Converse for Consumer Goods and Electronics

Bridge the gap between injection molding simulation and mechanical simulation

CONVERSE is an easy-to-use software that bridges the gap between injection molding simulation and mechanical simulation by interfacing with both types of software. It leads to significant more reliable results with regard to stiffness and strength of short-fiber-reinforced injection molded parts as well as more realistic simulation of the thermo-mechanical behavior of molds and inserts. Converse has a variety of mapping capabilities including but not restricted to fiber orientation, weld lines, pressures, temperatures, thickness and stresses. It exports the data in a ready-to-use FE input deck for the particularly supported solver and for the built-in material model of that solver.

"The coupling of fill studies and FE analysis makes the predicted results more reliable. A detailed knowledge of the plastic material properties is important to design the products closer to the limits."

Dipl.-Ing. Christian Bresser
Senior Manager Processes Mechanics – Mechanical Simulation
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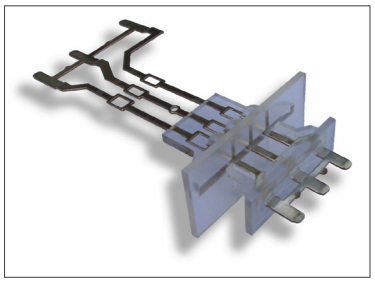
CONVERSE can be used in all branches of industry who have to mold plastics parts and/or evaluate the mechanical properties of the manufactured components.

Besides reinforced plastic components for consumer goods and electronic products unreinforced plastics are used often. Still there is helpful information coming from the injection molding simulation that can be used. For example the mapping of shrinkage, warpage and residual stresses makes it possible to conduct structural analyses with the actual part geometry opposed to the ideal CAD geometry. With the pressure mapping capability an assessment of mold deformations, e.g. core shifts, and also of the mechanical stresses within inserts during the filling phase can be made. The temperature mapping capability provides the possibility to consider the thermal loading of temperature-sensible inserts.

The weld line mapping capability helps to find the weak spots in injection molded parts. In the case of fiber reinforced plastic components the anisotropic mechanical behavior can be considered. Hence part stiffness as well as failure can be predicted more accurate, because conventional isotropic approaches do not consider the influences of fiber orientations.

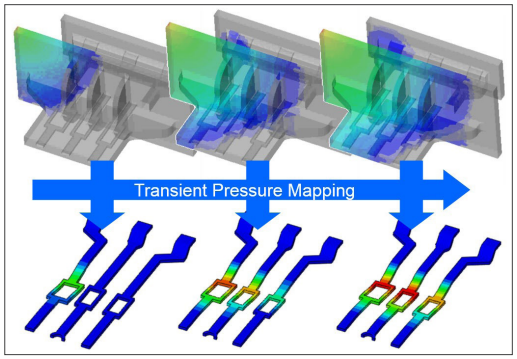
Solution Highlights

- Evaluation of stiffness and strength of fiber-reinforced plastics parts
- Evaluation of thermo-mechanical stresses in inserts or over-molded electronic devices
- Evaluation of mold deformations and stresses



Benefits

- Improved mold and part design for parts with pressure- and temperature-sensitive inserts or molds with easy deformable cores
- More accurate simulation of part stiffness and strength assessment compared to isotropic approaches
- Consideration of the influence of gate positions onto the mechanical behavior (position of weld lines)
- Consideration of the influence of residual stresses onto the mechanical behavior
- Taking into account the real part shape by using shrinkage and warpage results
- Easy to use also for occasional users
- See-through and open data handling
- Fast and stable
- High scalability (multi-processor capability)



Interfaces

- Molding simulation solver interfaces to: Moldex3D, CADMOULD, MOLDFLOW, SIGMA SIMPOE, 3D TIMON
- Flexible ASCII data import via CONVERSE Data Exchange Interface
- Mechanical simulation solver interfaces to: OptiStruct, ABAQUS, ANSYS, NASTRAN, MARC
- CFD solver interface to FLUENT
- Fatigue analyzer interfaces to FEMFAT and nCode DesignLife