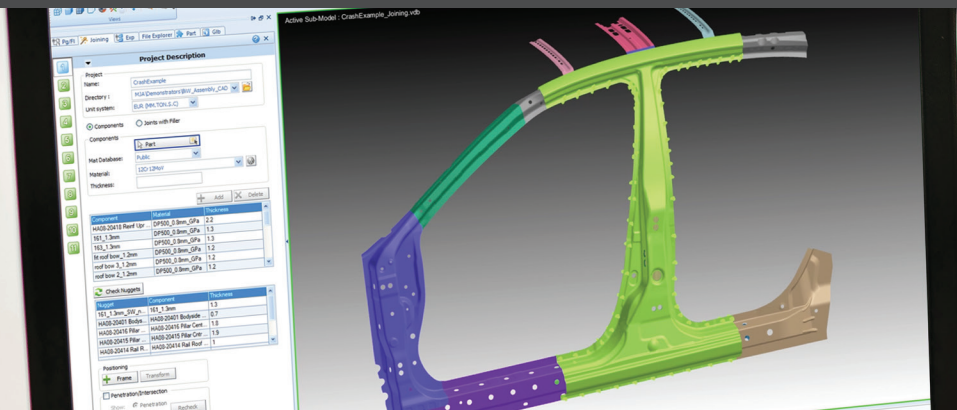


SYSWELD WELDING & ASSEMBLY - SIMULATION SOFTWARE



Simulate welding devices and sequences to avoid distortions. Engineers all over the world have been applying the SYSWELD simulation software for virtually validating multi-material joining processes.

It's time to digitalize your manufacturing process

Higher efficiency and repeatability, increased quality and safety, and shorter development cycles with a lower cost are key driving factors for product designers, manufacturing process planners, and welding engineers in modern welding & assembly body shops. Moreover, industries are shifting to lighter high-strength steels and aluminum, which pose additional challenges with regards to spring back and heat control.

Welding simulation facilitates virtual testing in early development stages. This is key to ensure cost-efficient production planning and profitability.

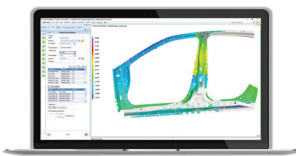
Get new welding and assembly designs right the first time

ESI SYSWELD offers a unique and comprehensive virtual assessment of material characteristics, microstructure, residual stresses and distortions in welded structures and assemblies. By coupling different manufacturing processes, engineers simulate various process chains with upstream and downstream welding processes. Plus, users can predict all relevant manufacturing effects and transport simulation results smoothly to the next manufacturing step.

With SYSWELD engineers assess the right manufacturing and assembly process to get the right product quality and machine operational performance - "as built, as-designed".

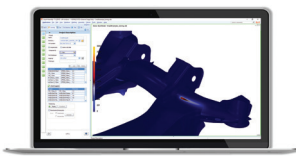
SYSWELD WELDING & ASSEMBLY - SIMULATION SOFTWARE

GESTAMP achieved very good results thanks to the accuracy of the simulation [and could...] evaluate die compensation despite 3 different thicknesses and 3 weld lines.



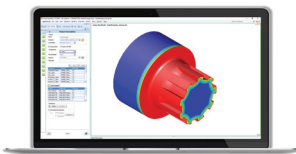
Control Geometrical Distortions

Virtually manufacture, assemble, and test physically realistic assemblies early to ensure geometrical quality of hot and cold joined assemblies by accounting for mechanical load and heat effects.



Ensure Weld Quality and Performance

Use the most accurate Finite Element Analysis (FEA) multi-physics software on the market to simulate thermal joining (arc, electron beam, laser, friction stir, spot welding). Develop and optimize your welding plan in a short time frame. Control high residual stresses in the welding structures and improve crash and fatigue performance.



Accurately Control Heat Treatment Processes

Effectively address heat treatment processes (carburizing, carbonitriding, quenching etc.) and consider all thermal, metallurgical, and mechanical phenomena. Avoid component distortion and high material hardness during or after heat treatment. Ensure high wear resistance of the contacting surfaces and achieve the required distribution of residual stresses.

SIGNIFICANTLY REDUCE MANUFACTURING COST AND TIME

- Reduce the need for physical prototyping & fixture modifications
- Explore lower cost assembly process alternatives
- Keep distortions within specified tolerances
- Enhance product performance and overall service life of welded structure



Learn More:
esi-group.com/products/welding-assembly