



Producing Tolerance-Fit Automotive Assemblies First-Time-Right

An overview of ESI Assembly Solution 2022.0 for the industry

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Abstract

Joining (thermal or mechanical) of prefabricated components (stampings, extrusions, castings or other) are among the main culprits that significantly contribute to excessive deformation of assemblies and sub-assemblies during manufacturing and that also cause performance issues during service.

Understanding the impact of a joining process on an assembly (excessive gap, excessive deformation, mis-fit, weld spatter, clamp failure...), early in the design cycle and taking the right course of action to resolve deformation issues are very important to a customer. Numerical simulation can be very helpful for that purpose, however due to the size of automotive assemblies and time available for decision making and problem solving, refine modeling of the joining processes is not possible. ESI Assembly Methodology (integrated within ESI Visual Assembly) allows to represent to a good degree of accuracy the local effects of joining process on the global behavior of large assemblies. It also enables accounting of stamping effects (via analysis or scan) and deformation control through joining sequence, tool assessment and compensation...

In this presentation, we will share some of the key enhancements in the current Visual Assembly Solution and we will end our presentation by sharing a roadmap for the product.