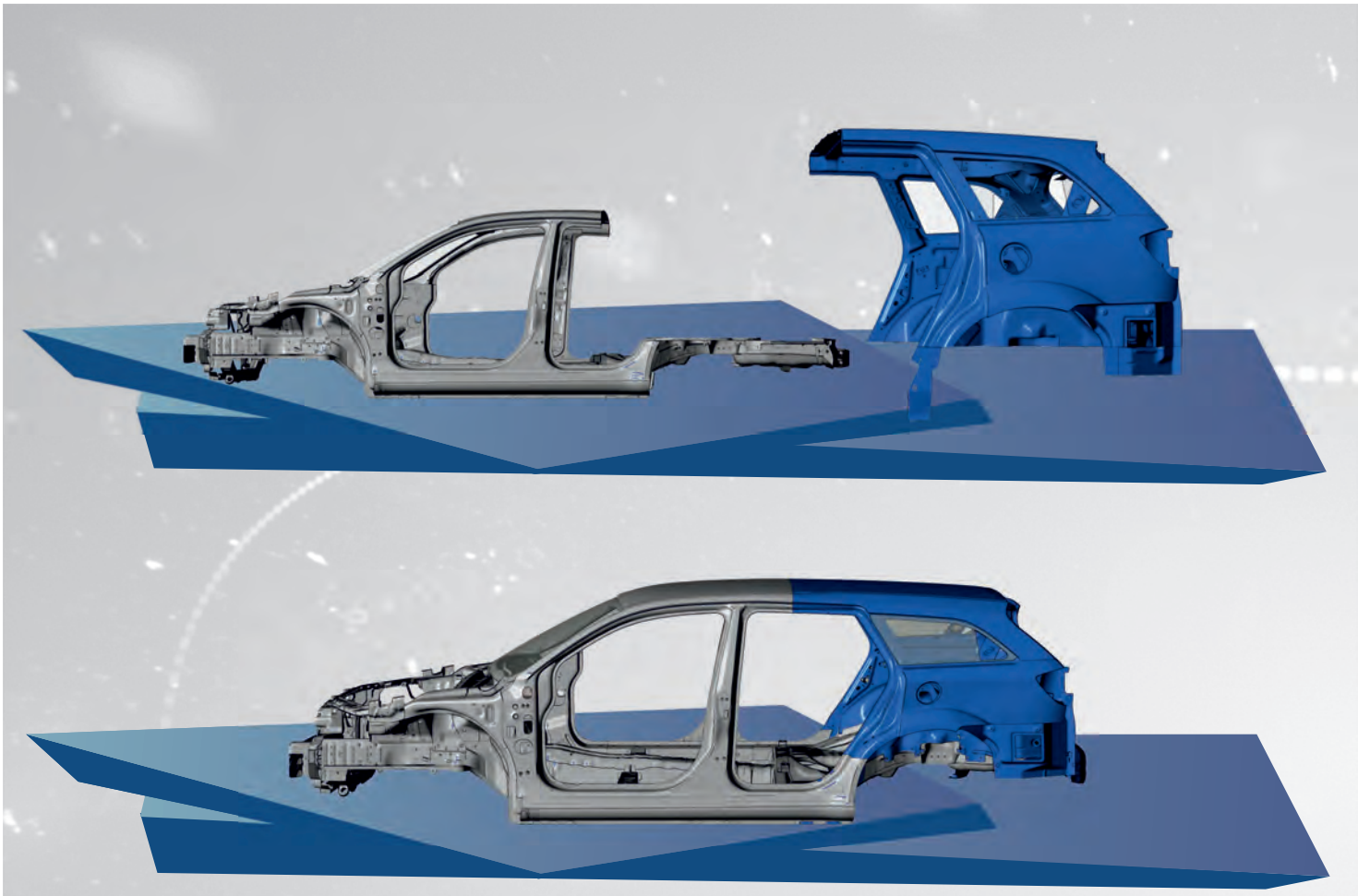
BETA
SIMULATION SOLUTIONS

physics on screen



Morphing and Design

Investigate alternative designs with innovative and robust tools

Deploy the powerful tools for interactive parametric modifications in concept and detail design stages

The ANSA pre-processor provides a complete tool for model modifications. The Morphing tool offers specialized, precise, and user-friendly functionality and methods. The capability to modify model's form, reconstruct with high quality mesh, after while preventing intersections makes the tool unique.

Minor or major design changes can be applied quickly without the assistance of the CAD designers. ANSA offers powerful tools to perform local changes and on-the-spot component definition to improve model behavior. Additionally, the design changes can be controlled through parameters enabling the effortless conductance of optimization studies.

Designer Tools

- Creation of local features, such as beads, stamps, ribs, flanged openings and openings of various shapes in a fully parameterizable way.
- Definition of specific meshing parameters for features.
- Feature recognition, scaling and sliding onto a surface.
- Shape maintenance of features during the re-meshing a FE model.
- Creation of feature copies in patterns.
- Parameterization of features characteristics and position.
- Bulkhead and reinforcement patch generation.
- Relocation and adaptation of existing reinforcements.
- Creation of cross members with automatic flanges generation and adaptation.
- Elongation of existing members with automatic flanges adaptation.
- Easy modification and regeneration of members.
- Connection of existing members with neighboring parts by creating joints.
- Cross member attachment on neighboring parts.
- Translation of members and any connected parts, respecting the connectivity of their flanges and avoiding intersections.
- Depression definition.

Direct Morphing

- Powerful morphing algorithm for direct morphing on geometry or FE model.
- Easy and accurate application on the model.
- Great variety of movement types such as translation, rotation, and surface fitting.
- Retain key geometrical characteristics through the use of constraints.
- Parameterization of direct morphing actions.
- Local mesh improvement after any modification.
- Auto generation of symmetrical parameters.
- Consideration of spotweld density during morphing.
- Parametric control of holes and tubes diameters.
- Shape morphing via cross section modification.
- Definition of contact restrictions among morphed regions to prevent intersections.
- Automatic flanges adaptation on underlying parts.
- Interactive bending, twisting, tapering, extension or elongation of regions and parts, retaining their cross sectional profile.
- Local tube depenetration from neighboring parts.
- Previewing of multiple morph designs.
- Automatic migration of Design parameterization entities between similar models.
- Accurate fitting of nominal models to real ones, produced by scanning process.
- Automatic generation of model modifications video.

Features

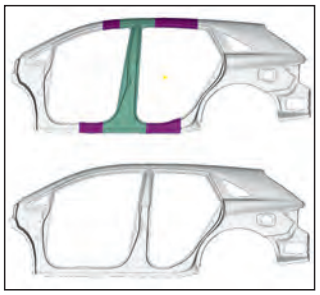
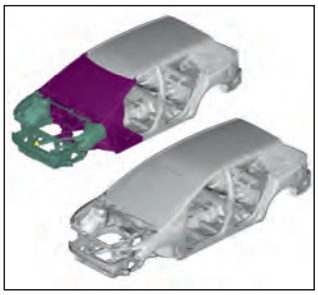
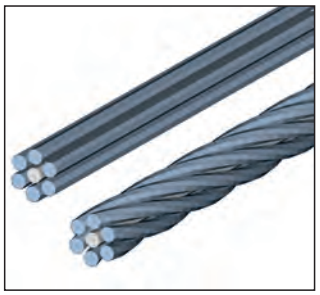
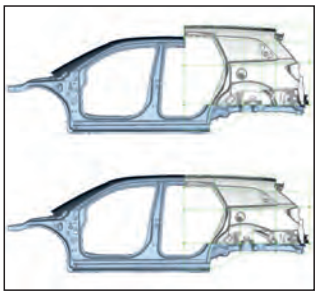
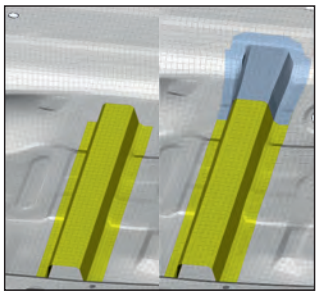
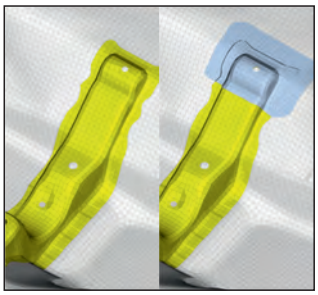
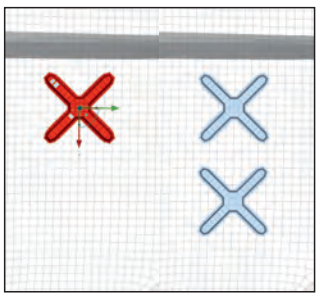
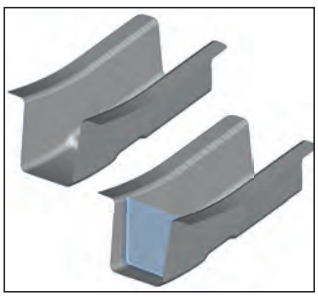
- FE & geometry morphing
- Shell and solid morphing
- Parametric morphing
- Surface fitting
- Direct morphing
- Vector morphing
- Cross member generation
- Small component generation
- Local feature copies
- Spotweld density preservation and parameterization
- Preview of multiple morph actions
- Process automation
- Integrated script libraries
- Morphing actions recording

Benefits

- Efficient morphing using Direct Morphing functionality
- Powerful morphing of CAD geometry
- High standard mesh after morphing
- Precise prevention of Intersections during morphing
- Fast investigation of stiffness improvement with the designer tools
- Automated coupling of model changes with shape and parametric optimization

Advanced Box Morphing

- Shaping of complex models using block structures.
- High accuracy and linear morphing.
- FE and CAD geometry morphing for global changes.
- Flexibility for last minute's changes.
- Morphing parameters to control model shaping.
- Recording of morphing states for easy recovering of any previous shape.
- Morphing according to vectors.
- Automatic reconstruction to improve mesh quality after
- morphing.
- Visualization of the node displacement via fringe bar.
- Massive Manipulation of symmetric or similar parts.
- Control of the morphing actions through the Optimization Tool.

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