



CADfix DX 13/SP2

“What’s new”

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CADfix Product Manager
Q3 2025

CADfix DX 13/SP2 Summary

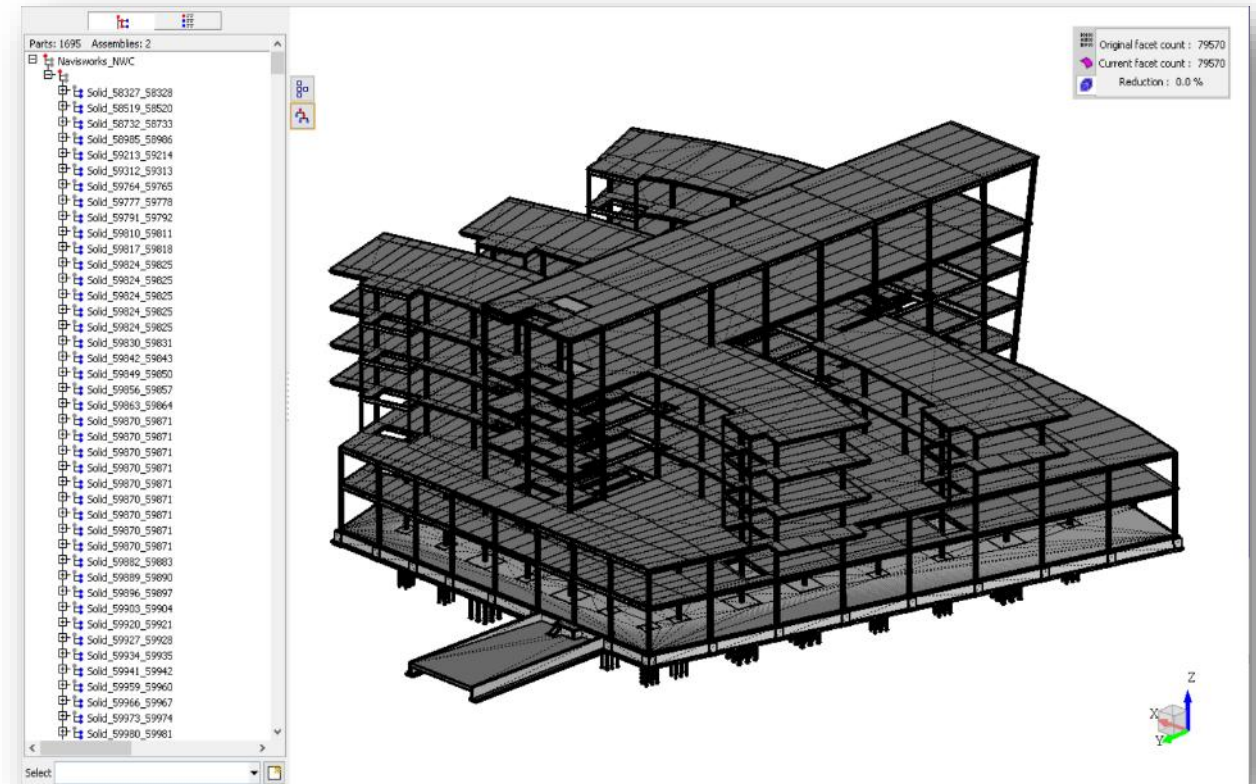
- Import/Export
 - Latest CAD versions supported
 - New BIM formats added:
 - Navisworks, Revit and IFC
 - Improved STL and MESH export
- Wizard
 - New Mesh-to-CAD diff
 - Extended cwi scripting support
- Morph
 - Improved quality, more accurate morphs and faster processing
- Scan-to-CAD
 - Improved comparison and difference detection and highlighting
- Defeature
 - New BREP Shrink-wrap tool
 - Major upgrade to fillet removal tool
- Splitting tools
 - New dynamic cutting planes
 - Easier and faster creation
- Hex-split
 - New explain tool & merge tool
 - Improved hex mesh quality
- Clipping plane overhaul
 - New dynamic preview
 - Clip to location of model

13/SP2: Import/Export

- CAD version support updates
 - CATIA V5-6 R2025
 - NX 2412
 - Creo Import 12
 - Creo Export: 10, 11 & 12
 - SolidWorks 2025
 - SolidEdge 2025
 - Inventor 2025
 - Parasolid 37.0
 - ACIS 2025
- New BIM formats
 - Navisworks, Revit & IFC
- STL export
 - New max. length control
 - Improved sag measurement
- Mesh export
 - Mesh recipes support quadratic elements

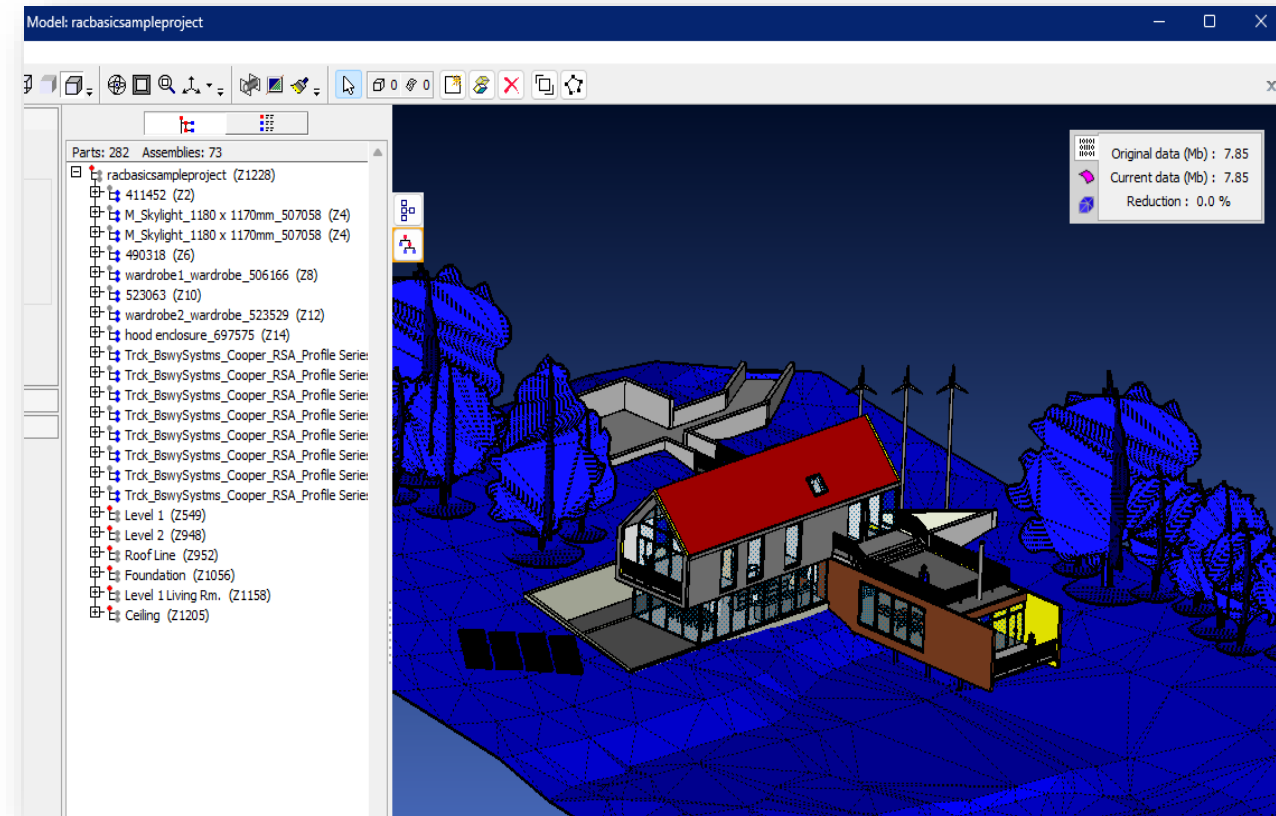
13/SP2 : Navisworks import

- Import
 - Facet import
 - Parts and assemblies
 - Attributes and meta data
 - .nwd, .nwc



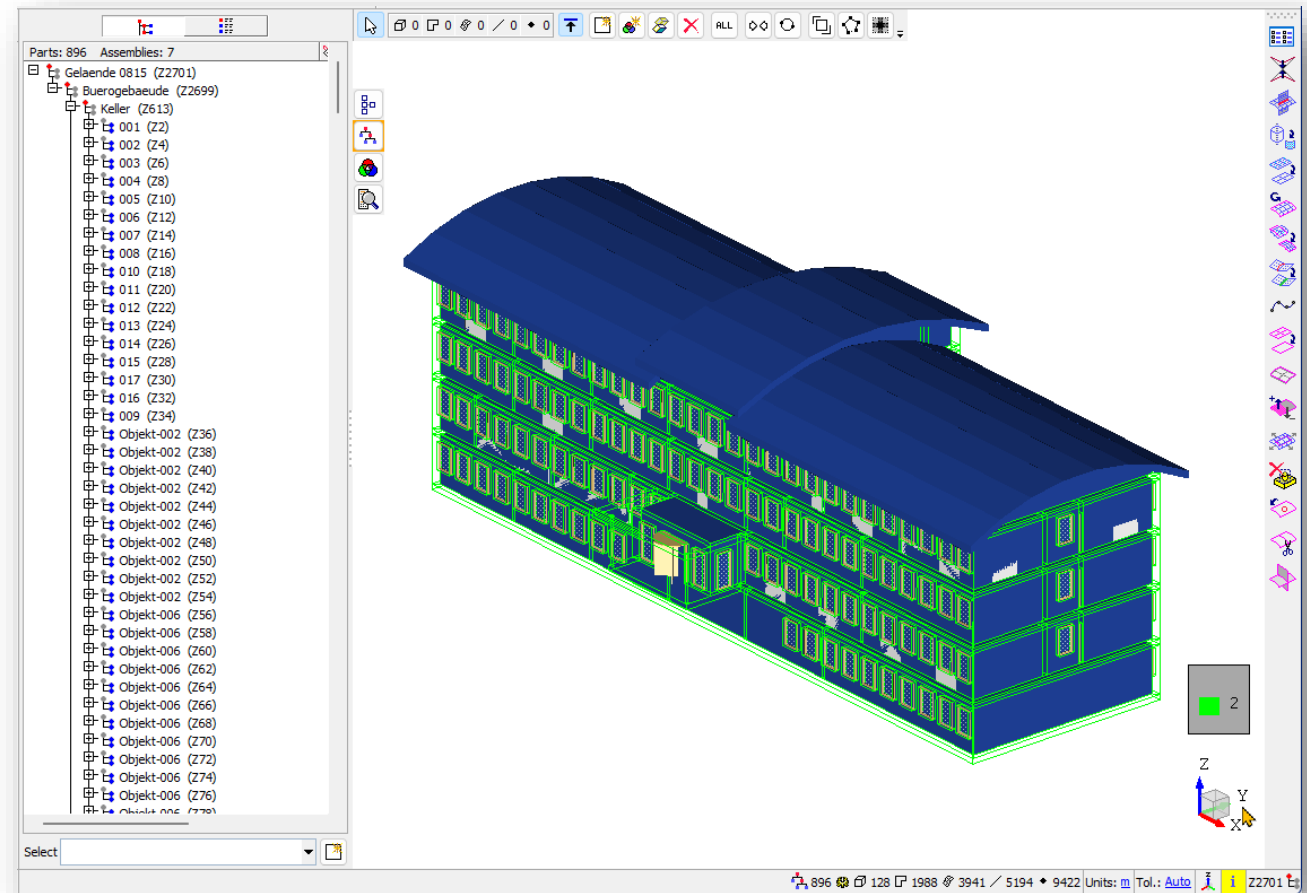
13/SP2 : Revit import / export

- Import
 - BREP and Facet import
 - Parts and assemblies
 - Attributes and meta data
 - .rvt, .rfa
- Export
 - Facet export supported
 - Parts and assemblies supported
 - .rfa



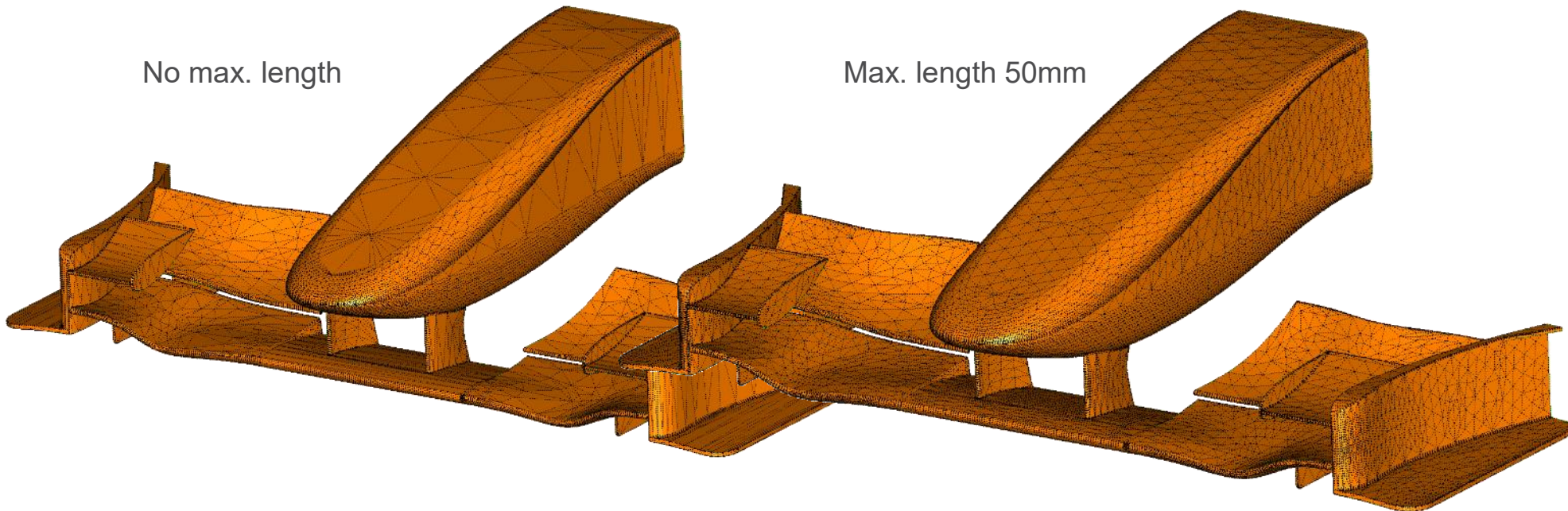
13/SP2 : IFC import / export

- Import
 - Added BREP import
 - Facet import already supported
 - Parts and assemblies
 - .ifc
- Export
 - BREP and facet export
 - Parts and assemblies
 - .ifc

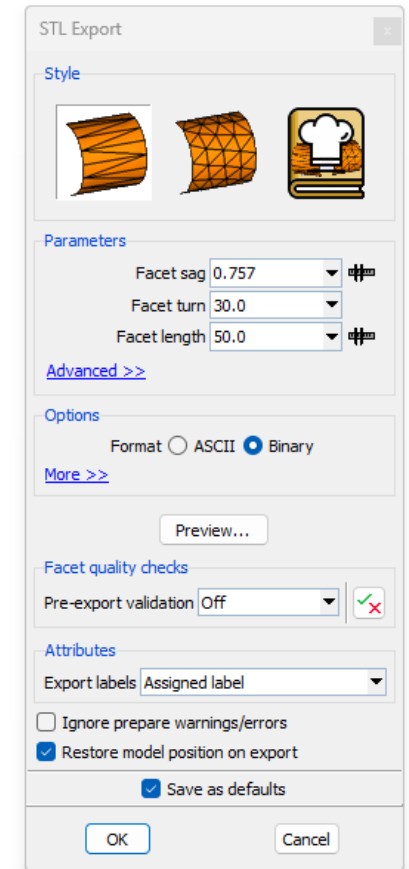


13/SP2: STL Export

- Max. length control for minimal meshes

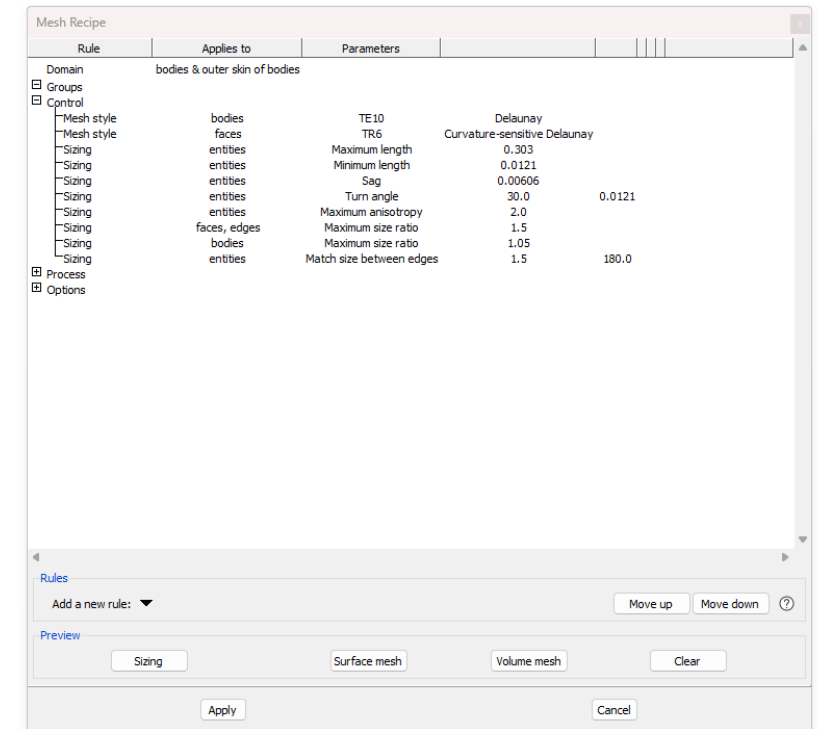
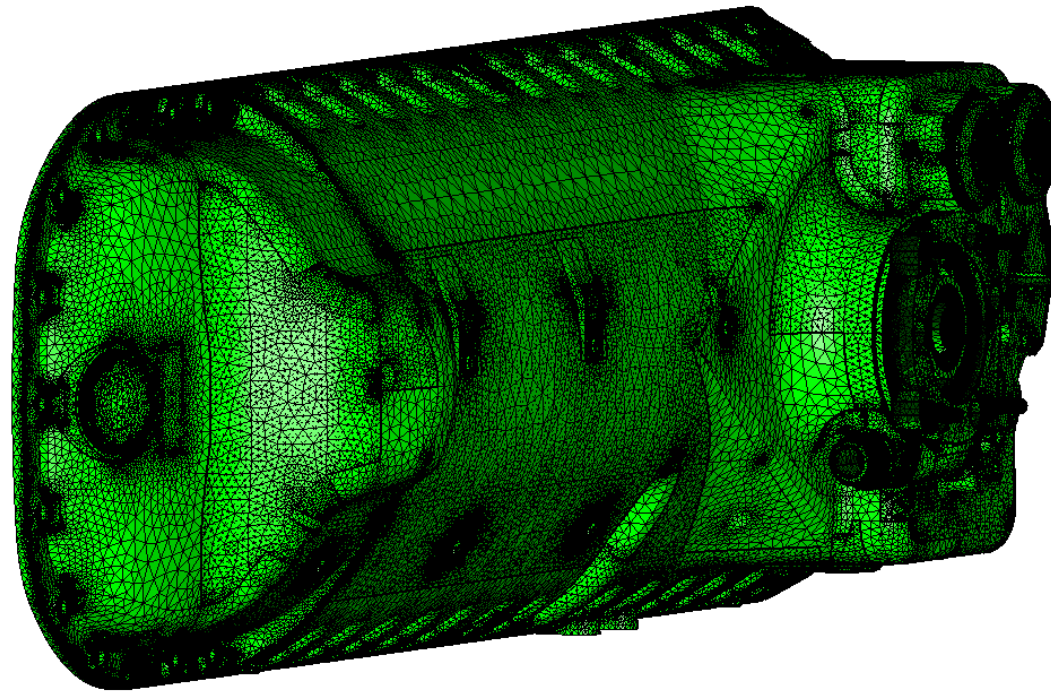
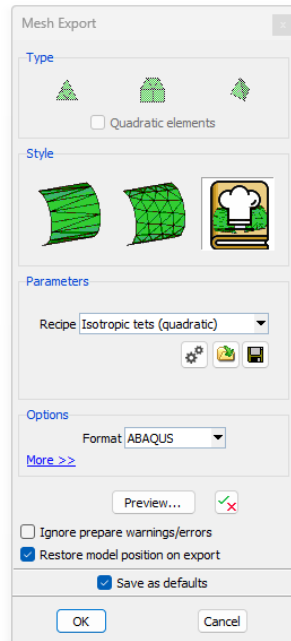


- Improved triangle sag measurement



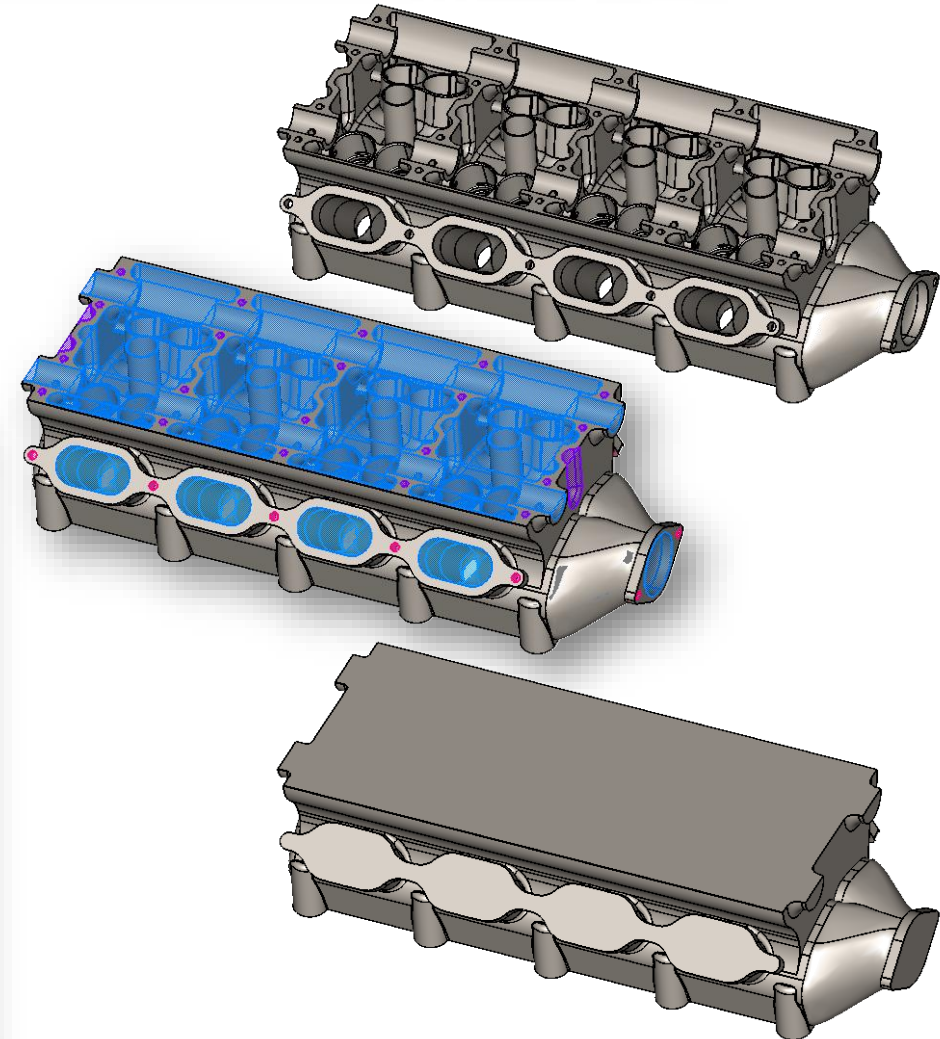
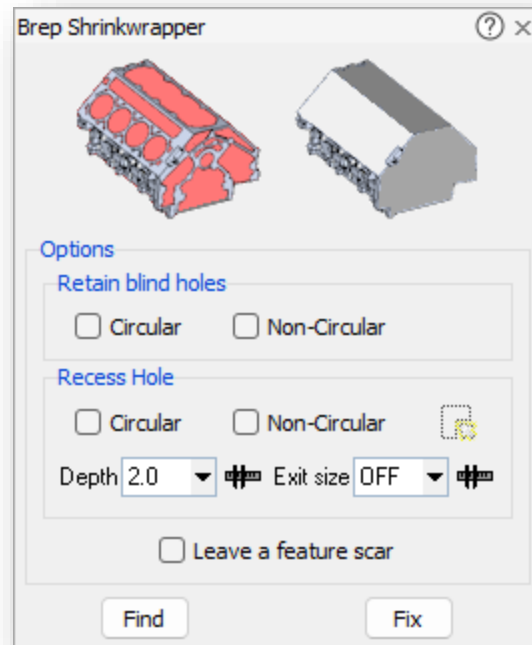
13/SP2: Mesh export

- Mesh recipes now supports quadratic elements



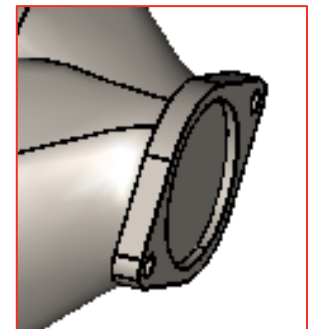
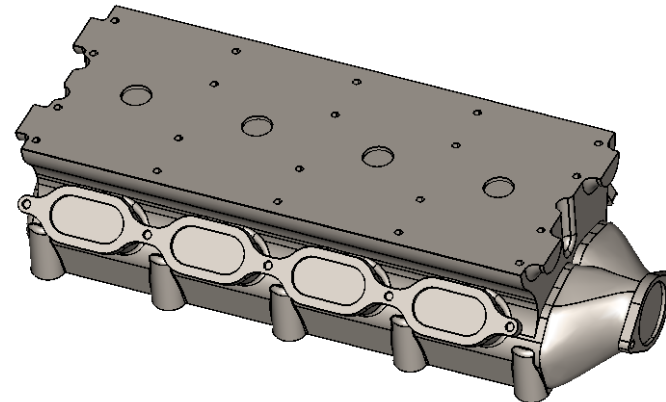
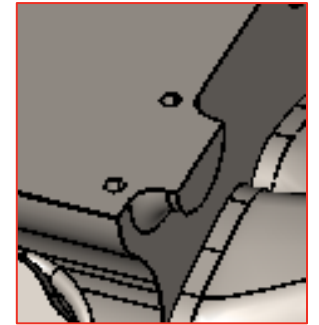
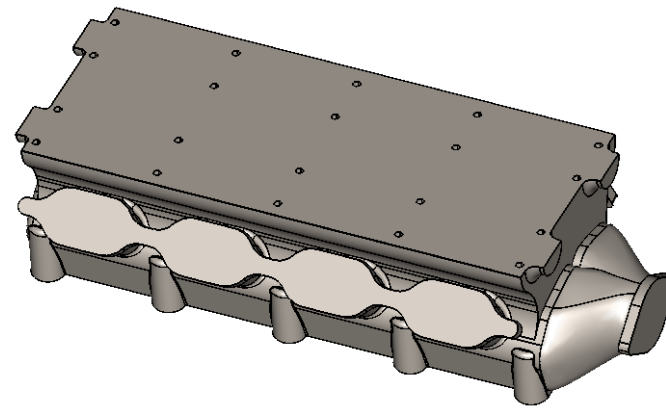
13/SP2: BREP Shrink-wrap Tool

- Advanced IP protection
- Gross simplification
- Options:
 - Retain holes
 - Recess holes
 - Leave a scar



13/SP2: BREP Shrink-wrap Tool

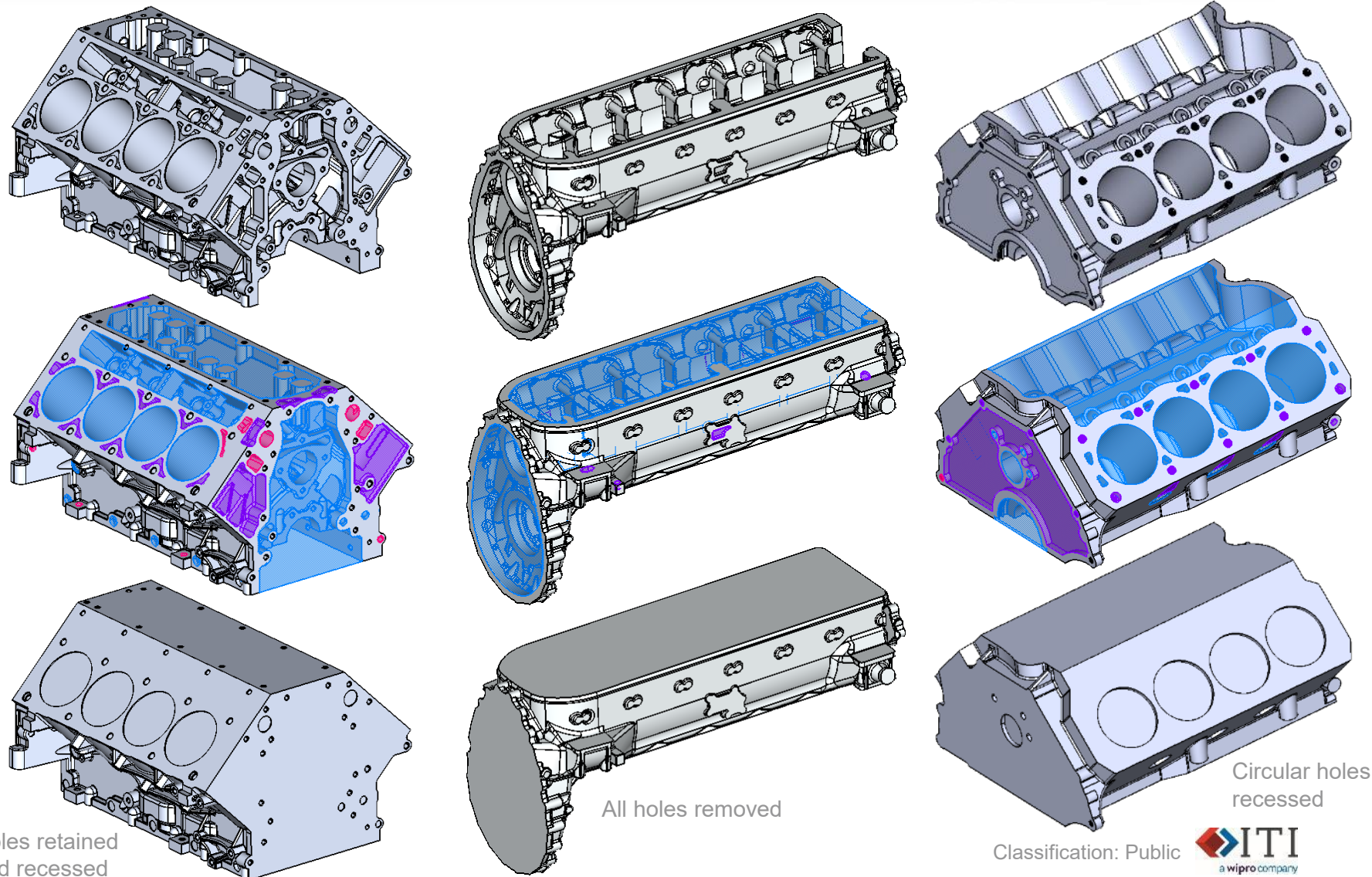
- Retain blind-holes
 - Circular/non-circular
- Recess through-holes
 - Circular/non-circular
 - Filter on hole size
 - User defined depth



Hole profile retained and recessed 4mm

13/SP2: BREP Shrink-wrap Tool

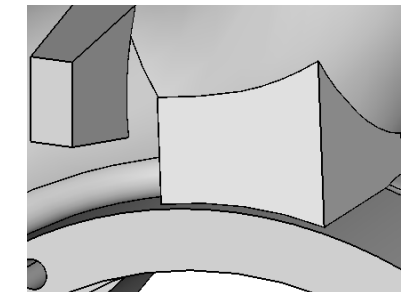
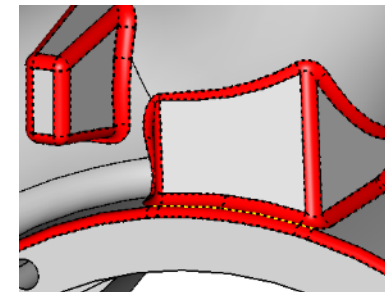
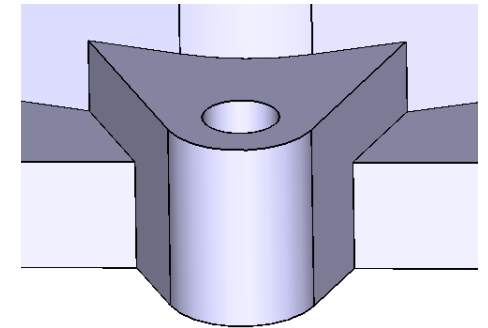
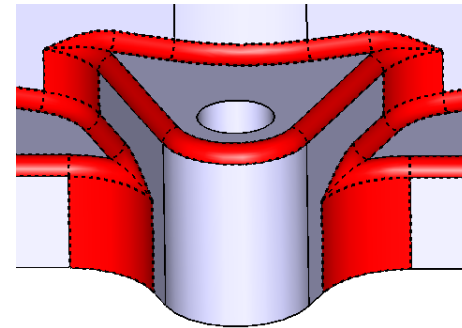
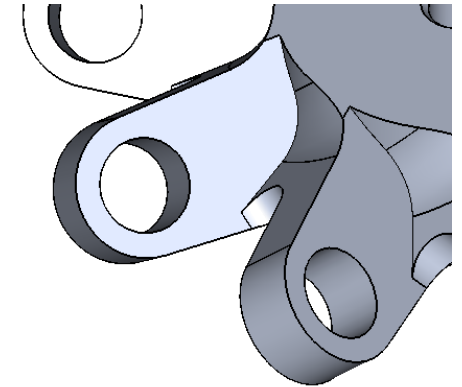
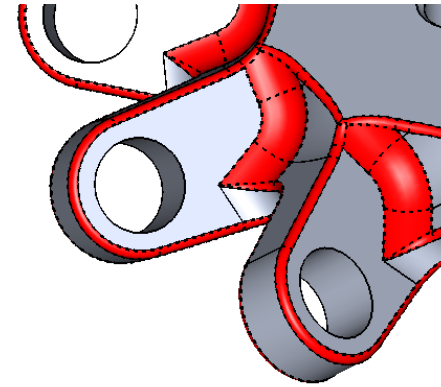
- Automatic closure of complex openings
- Blind-, through- or complex-



13/SP2: Fillet Removal Tool

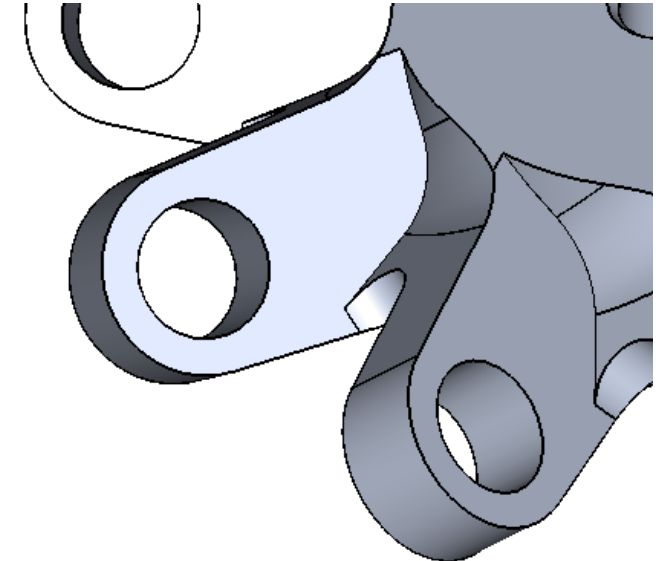
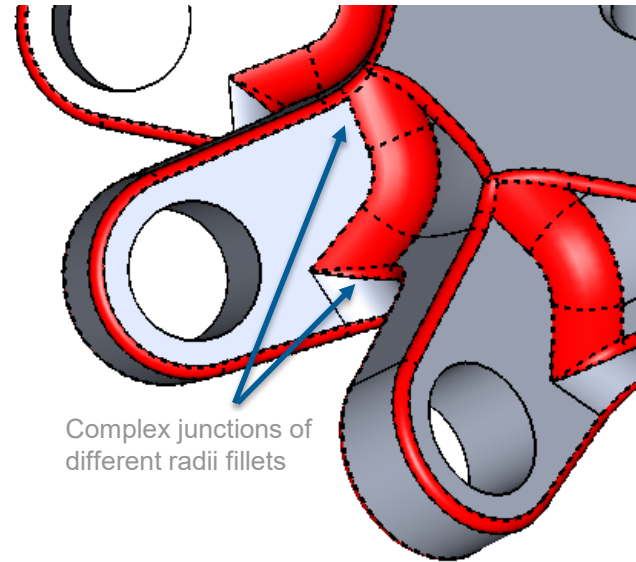
Major overhaul:

- New complex network detection
- Fillets chains identified
- Intersecting fillets removed
- Conjoined fillets removed
- Faster removal

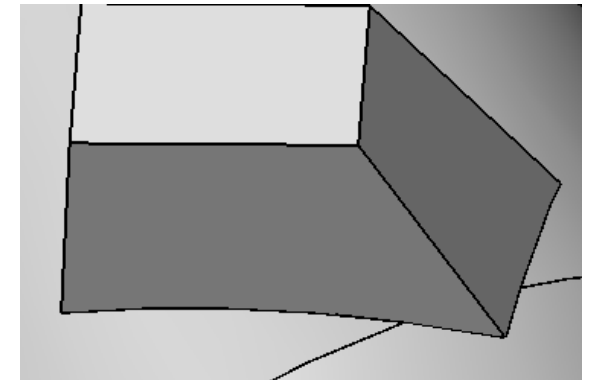
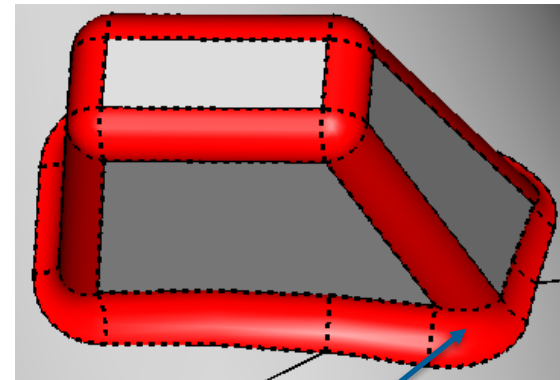
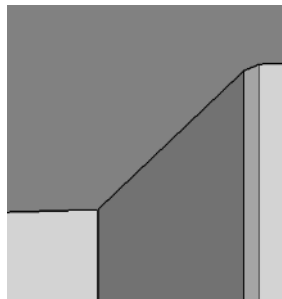
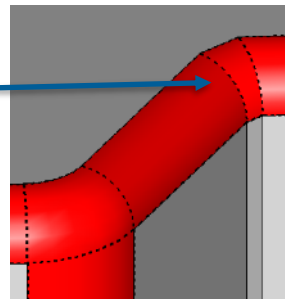


13/SP2: Fillet Removal Tool

- Complex junctions now removed
 - Different radii
 - Concave vs convex
 - Non-smooth junctions

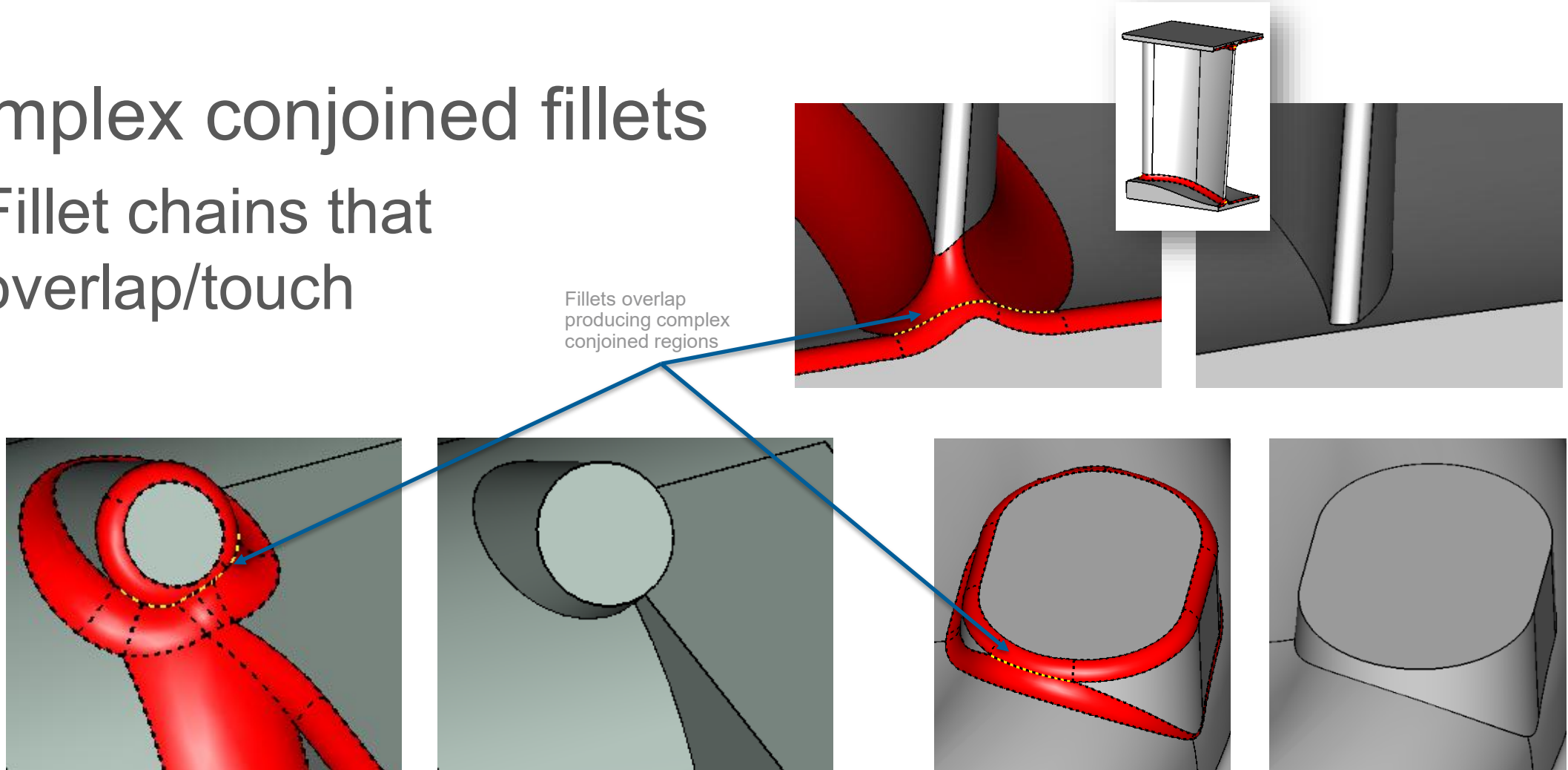


Not-smooth junctions



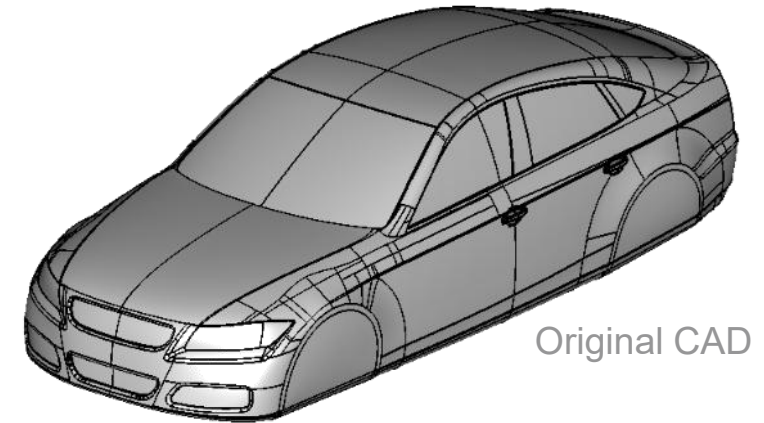
13/SP2: Fillet Removal Tool

- Complex conjoined fillets
 - Fillet chains that overlap/touch

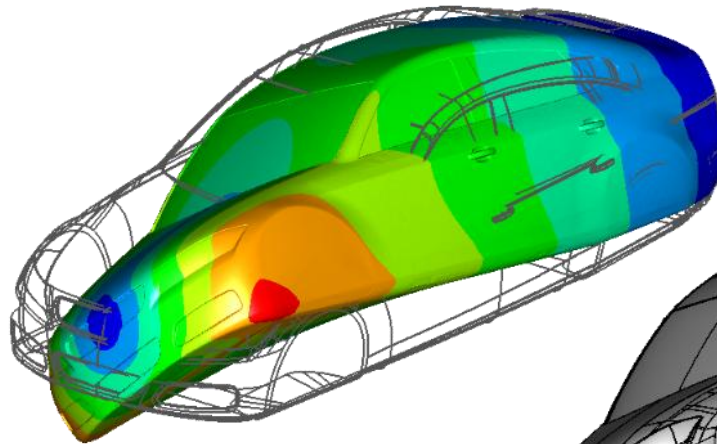


13/SP2: CAD Morphing Tool

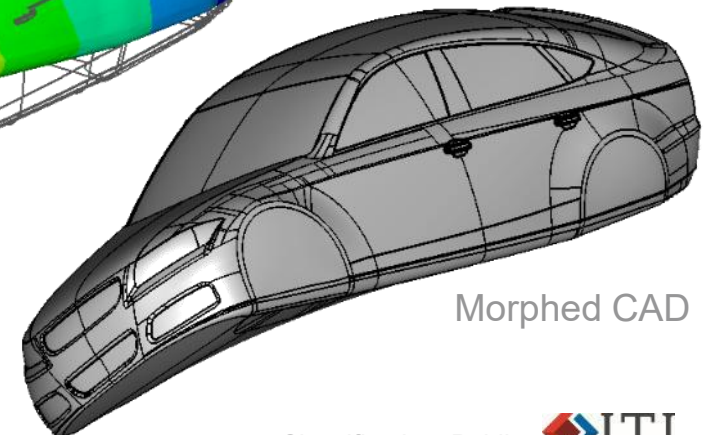
- Improved accuracy
- Larger deformations
- Faster morphing
- Higher quality surfaces
 - New ripple-suppression
- GUI improvements
- Batch improvements



Original CAD



Target morphed shape as deformed mesh (extreme!)

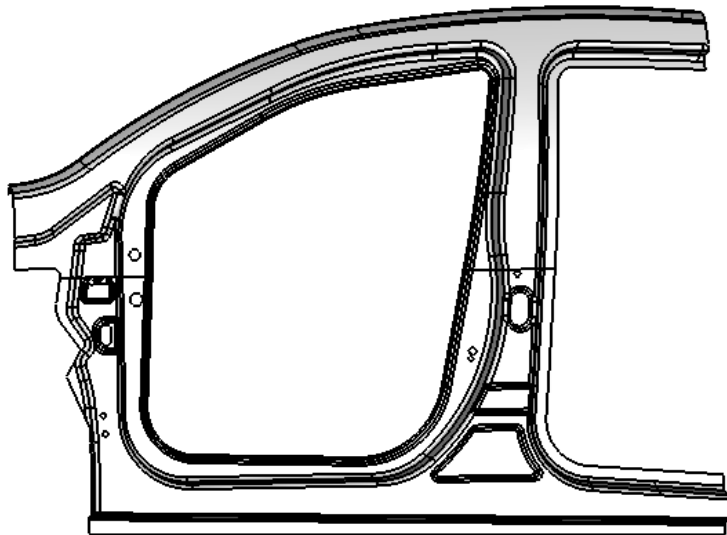


Morphed CAD

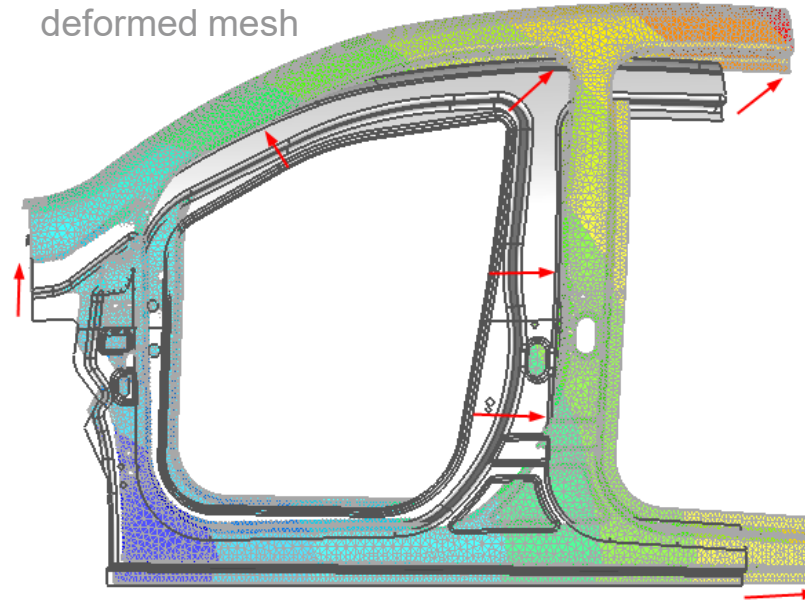
13/SP2: CAD Morphing Tool

- Morphing of complex CAD much improved
- Rapid prototyping of derivative designs

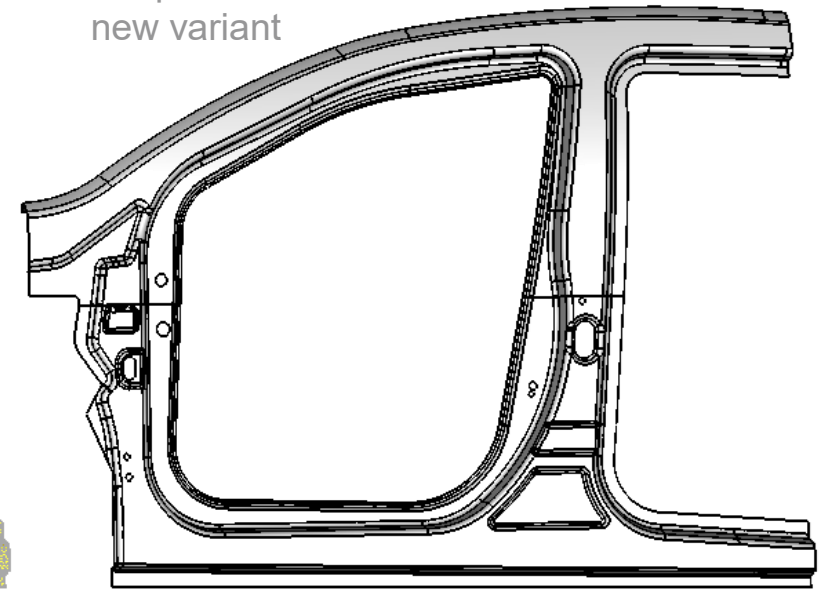
Original CAD
Existing design



Target morphed shape as
deformed mesh



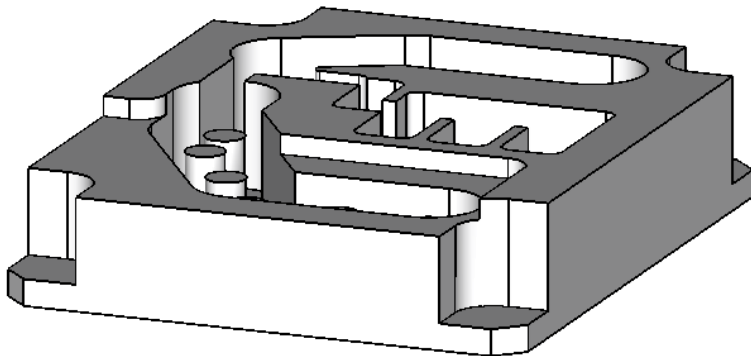
Morphed CAD
new variant



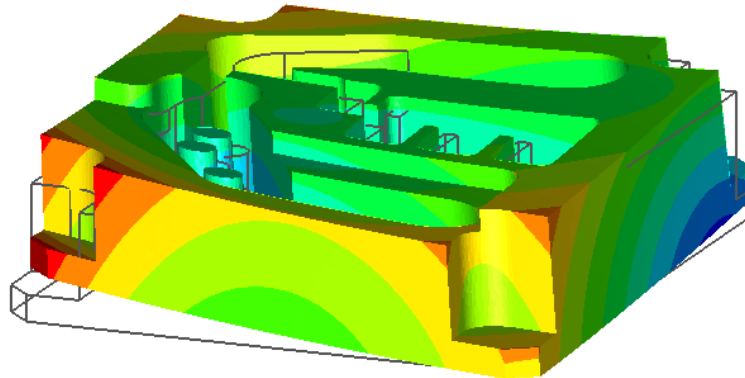
13/SP2: CAD Morphing Tool

- Use case: Warp/age/shrinkage compensation
- Simulation tool predicts deformations
- Morph tool accurately applies to original CAD

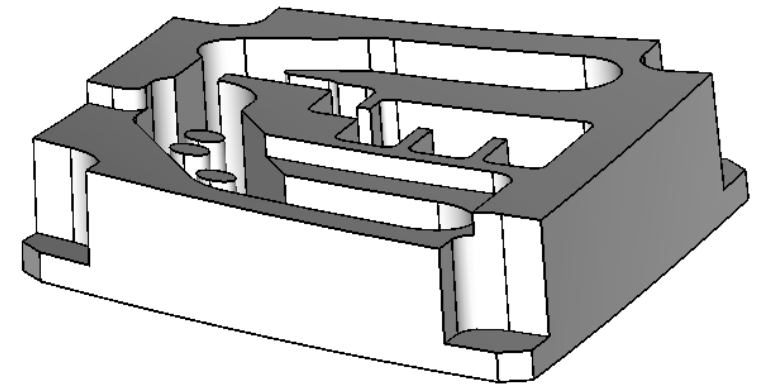
Original CAD



Manufacturing simulation result giving shape to compensate for warpage

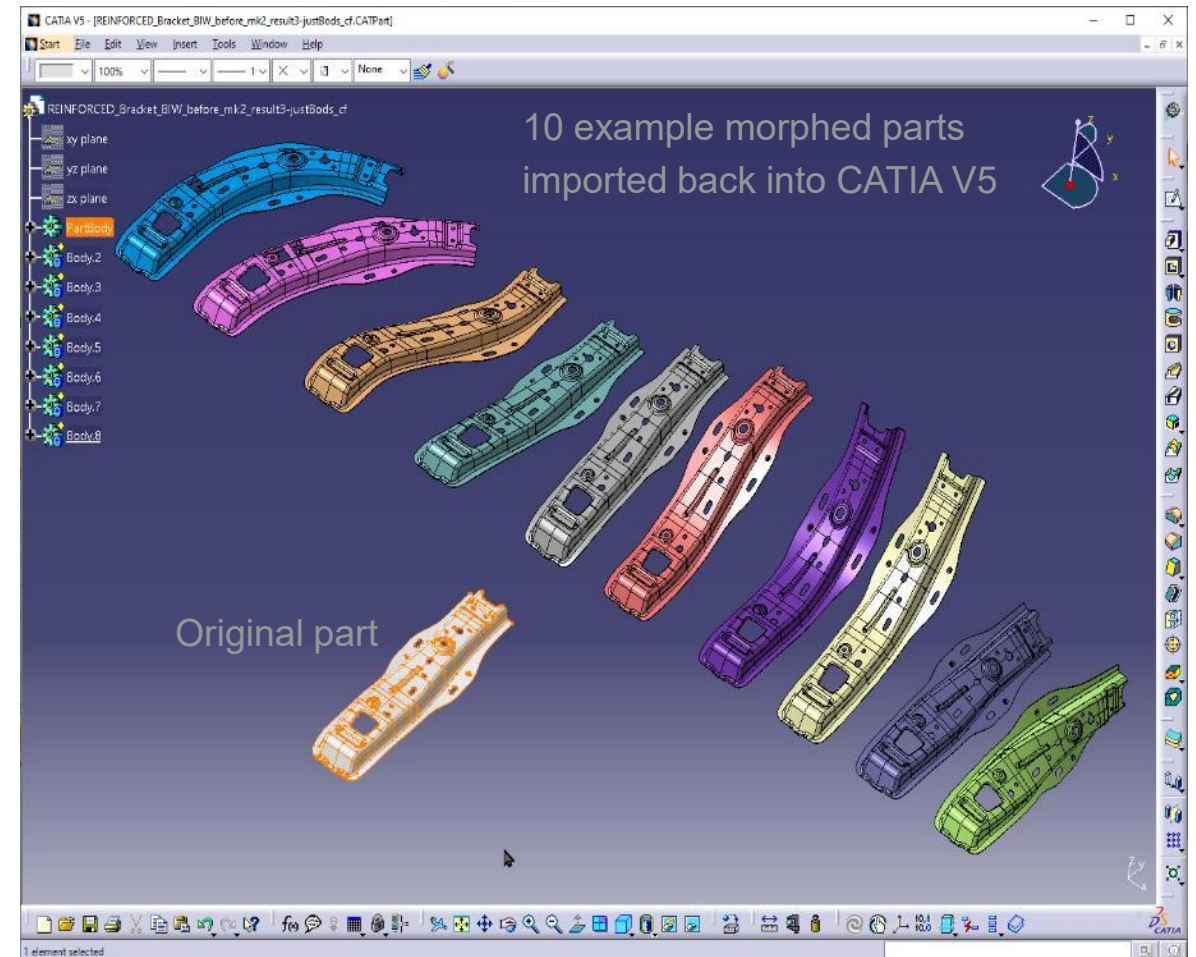


Original CAD morphed to include compensation



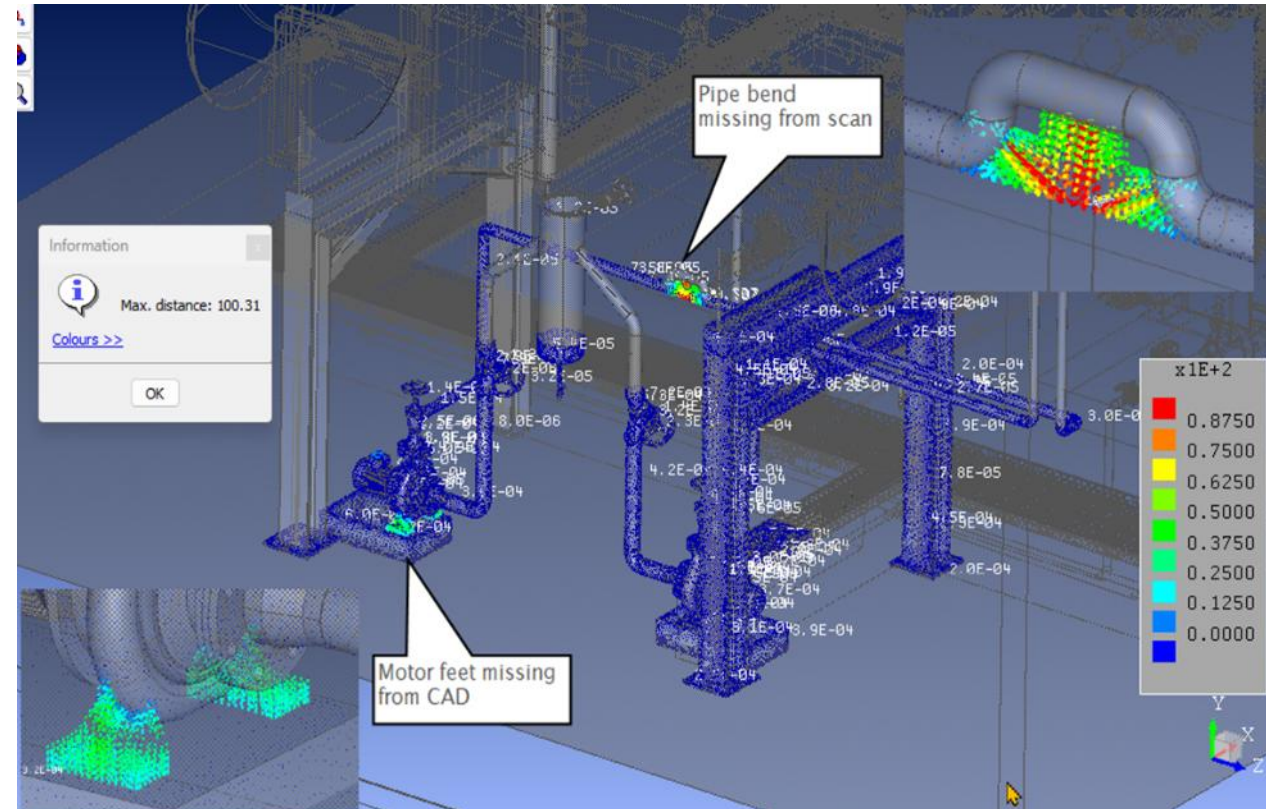
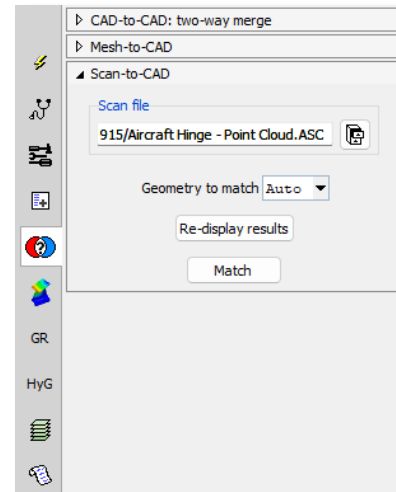
13/SP2: CAD Morphing Tool

- Robust export to CAD
- Re-usable parts with accurate morphed geometry
- Export to native CAD or neutral files (STEP)



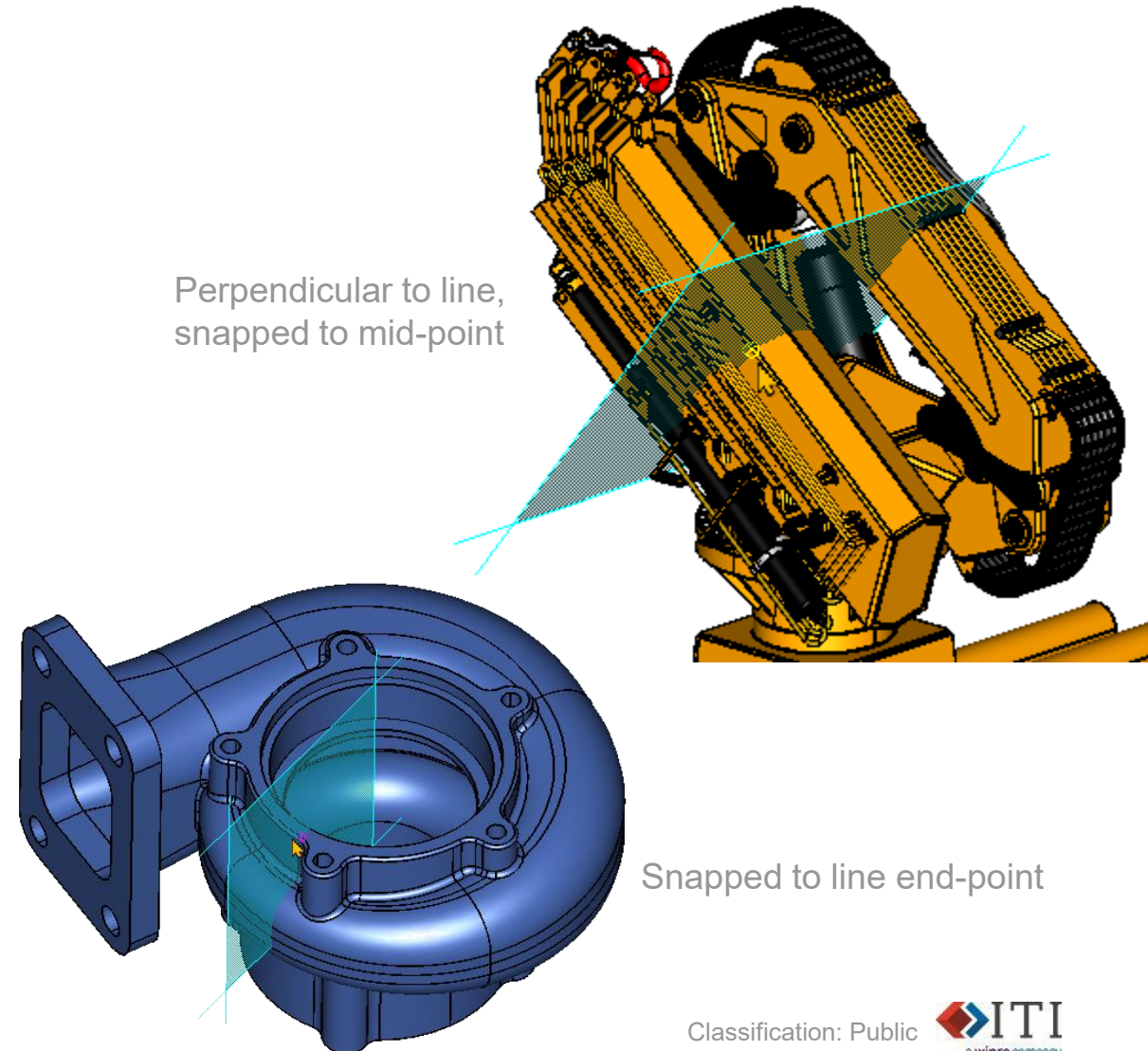
13/SP2: Scan-to-CAD Comparison Tool

- 3D Compare
 - Identify missing or modified components
 - Filter out minor changes to reveal only large significant differences
 - Graphically highlight hot-spots



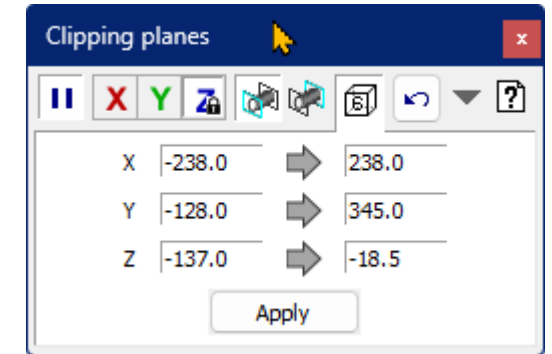
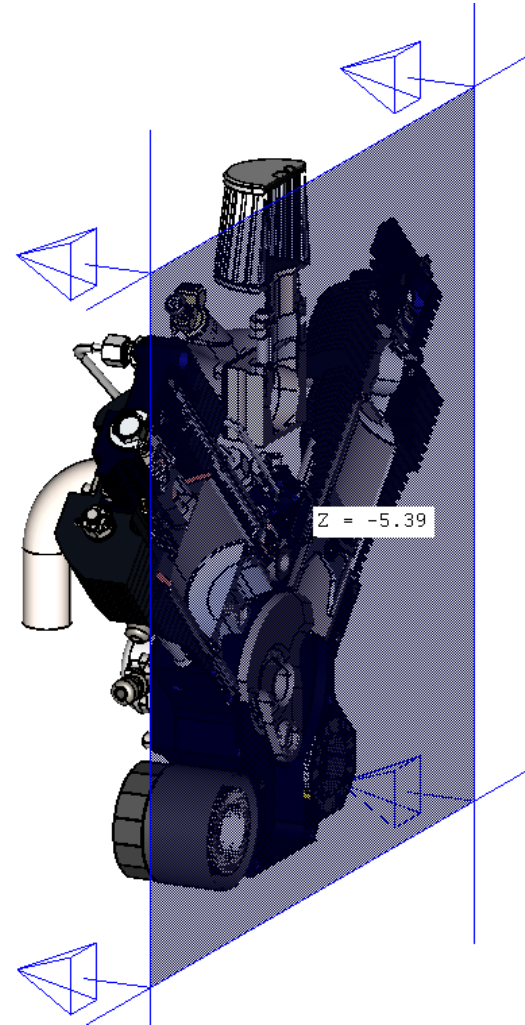
13/SP2: Planar Splitting Tools

- Dynamic preview of cutting plane
- Perpendicular to selected line
- Smart snapping to line ends or mid point



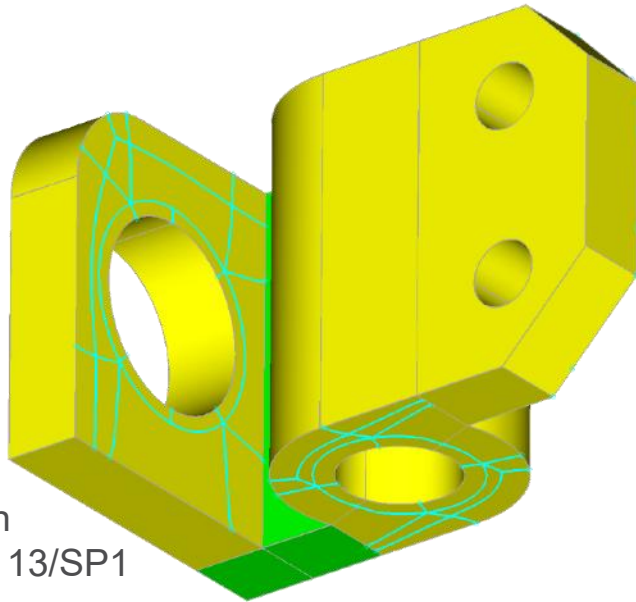
13/SP2: Clipping Plane Control

- New dynamic preview of clipping plane
- Pick location from model
- Quickly toggle between axes and front/back
- Keyboard shortcuts
- Precise placement of all 6 planes

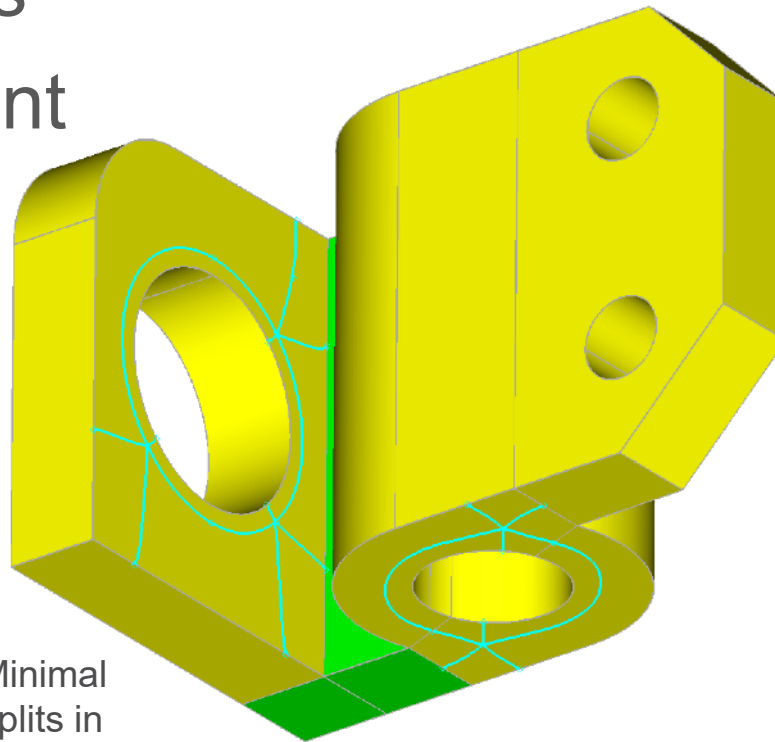


13/SP2: Hex split

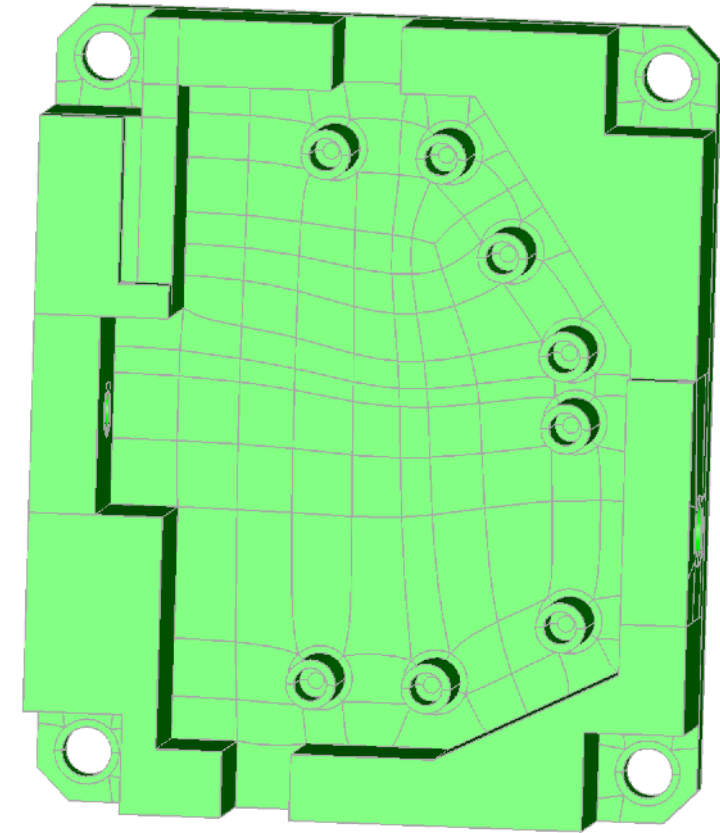
- Improved “Split to quad regions”
 - More robust
 - Fewer short edges
 - Reduced split count



Splits in
CADfix 13/SP1



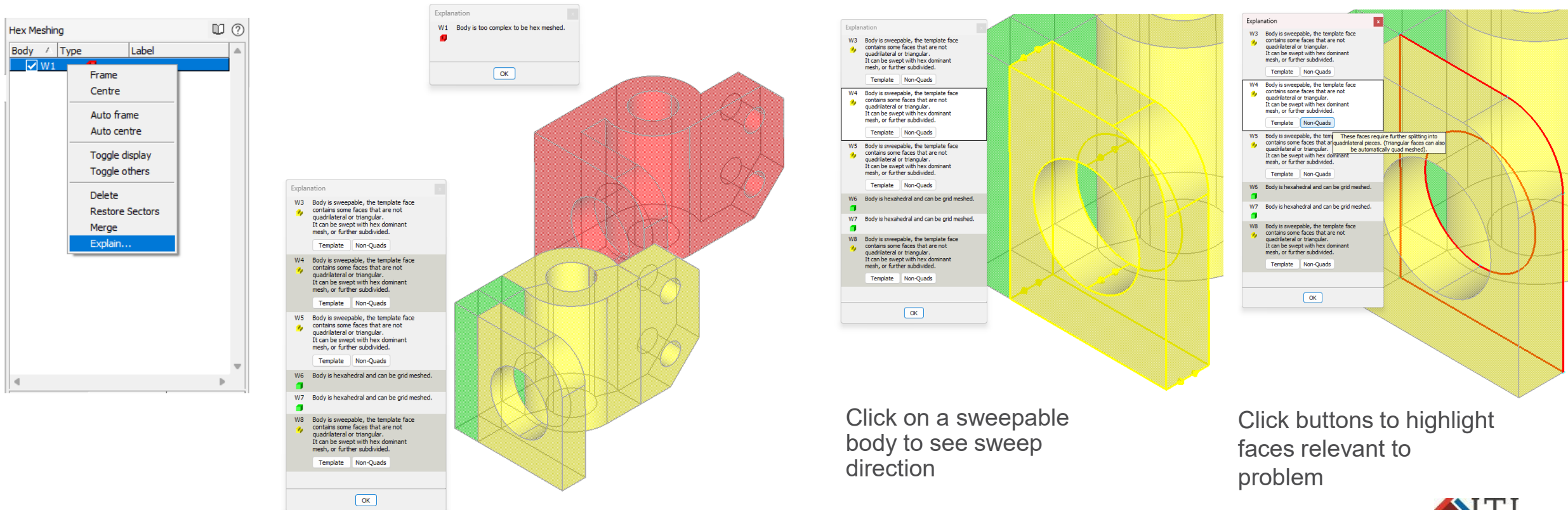
Minimal
splits in
CADfix 13/SP2



Successful quad splitting
around interacting features

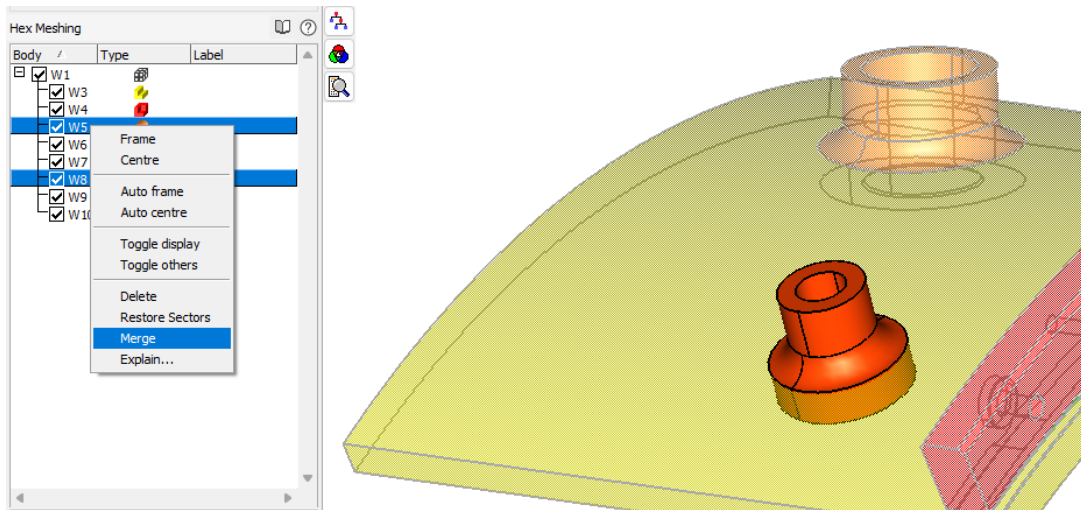
13/SP2: Hex split

- New Explain tool
 - Indicates why a body is not hex meshable

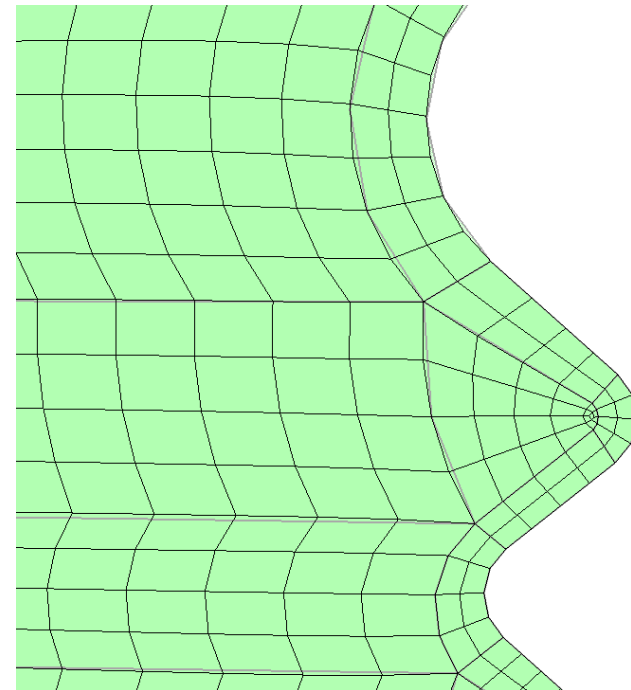


13/SP2: Hex split

- Merge bodies tool
 - Join two connected bodies back together

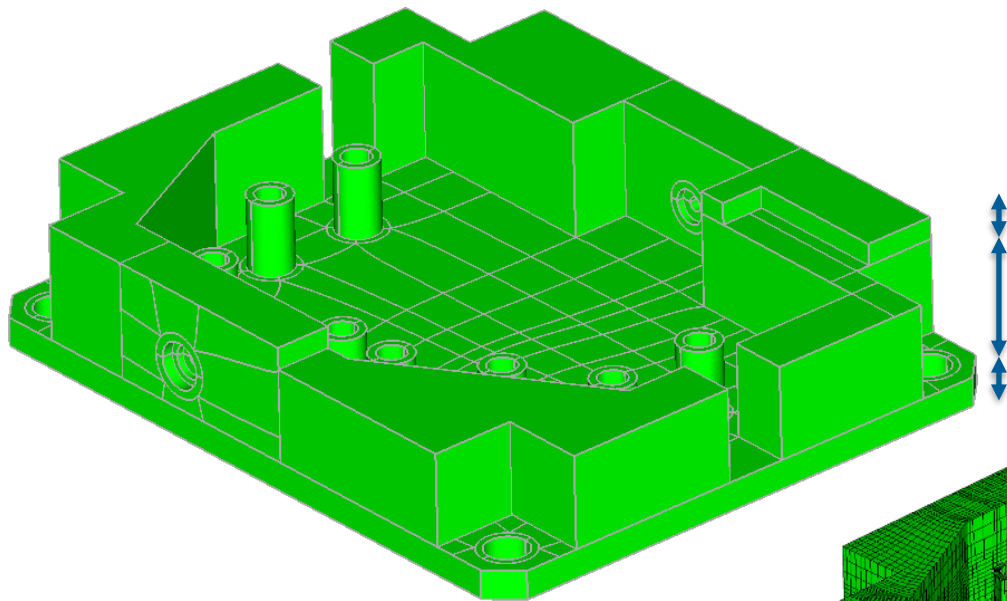


- New mesh style for 2-sided faces

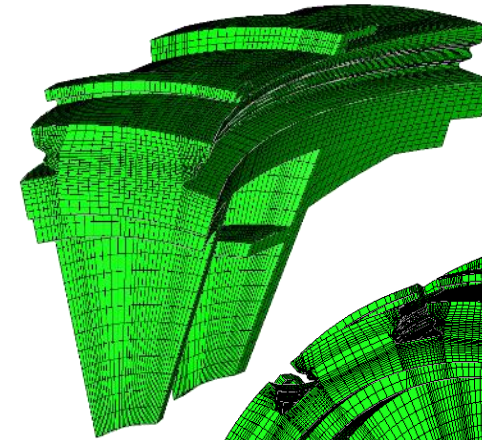
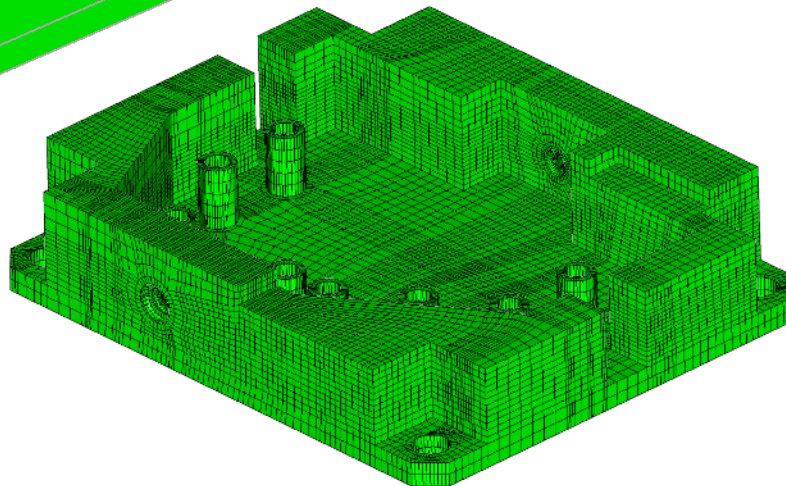


13/SP2: Hex split

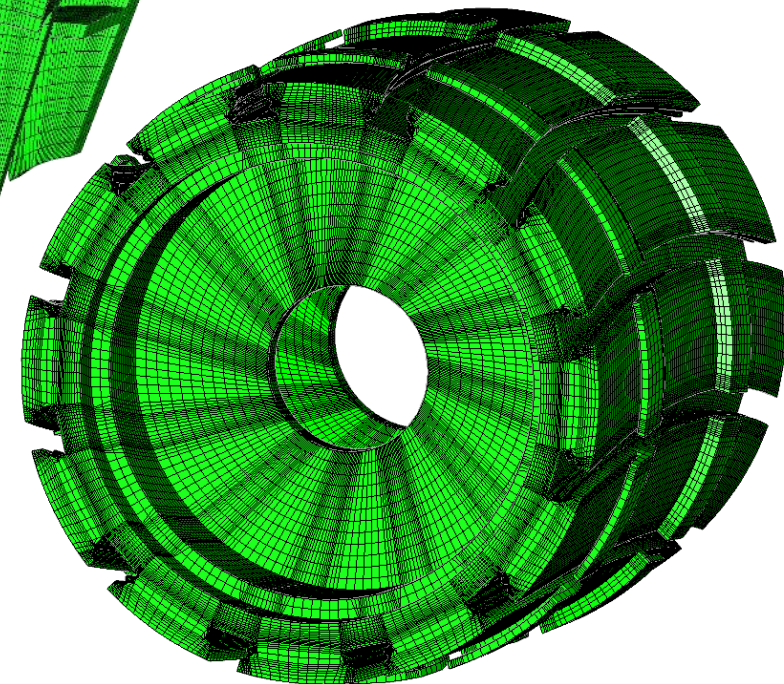
- Improved ordering of stacked and cyclic bodies



3 layers of stacked bodies with different templates are correctly ordered

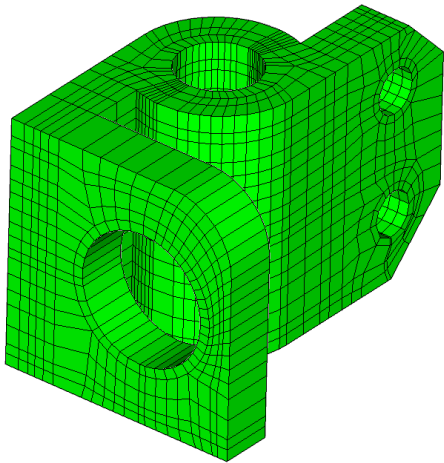


Complete sets of cyclic bodies can now be meshed

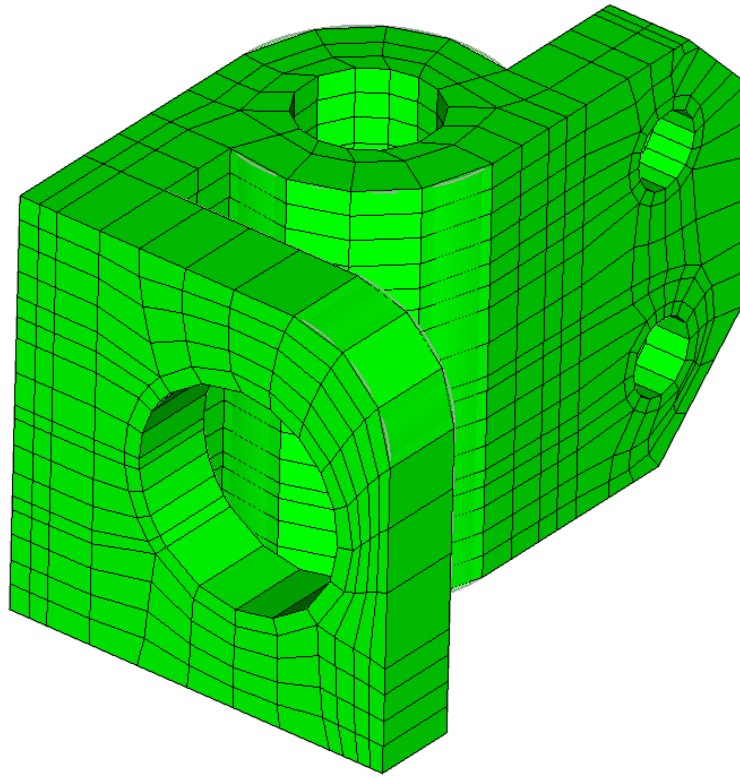


13/SP2: Hex split

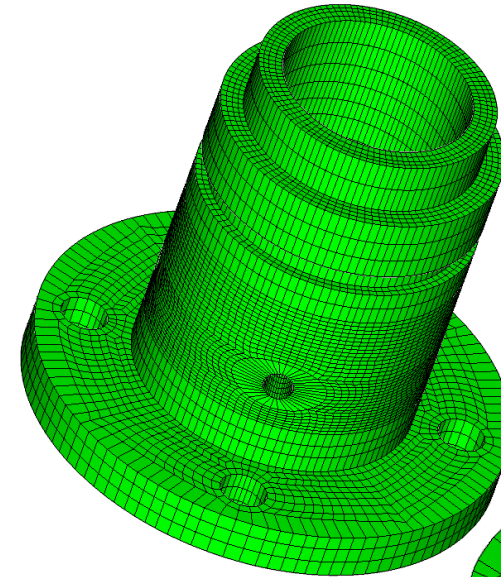
- Improved mesh sizing, alignment & quality



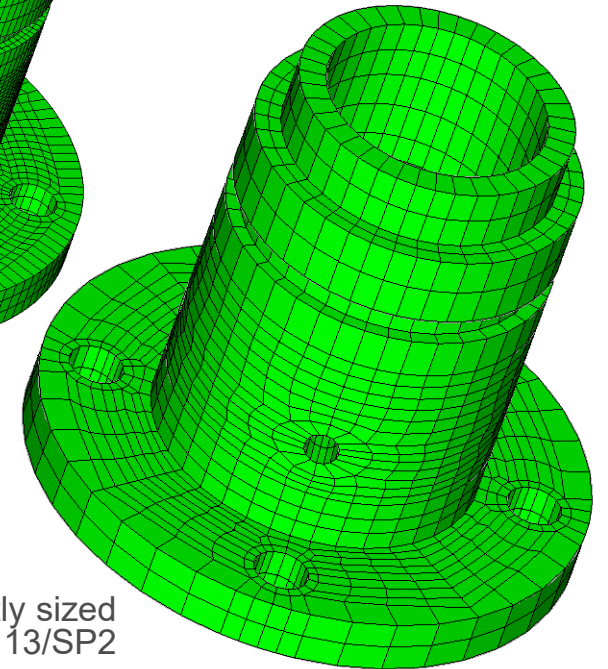
Sizing at 13/SP1 was limited in how sparse it could be



Sizing at 13/SP2 can be made much more sparse



Mesh over-refined in 13/SP1



Mesh correctly sized in 13/SP2

13/SP2: CADfix Wizard Interface

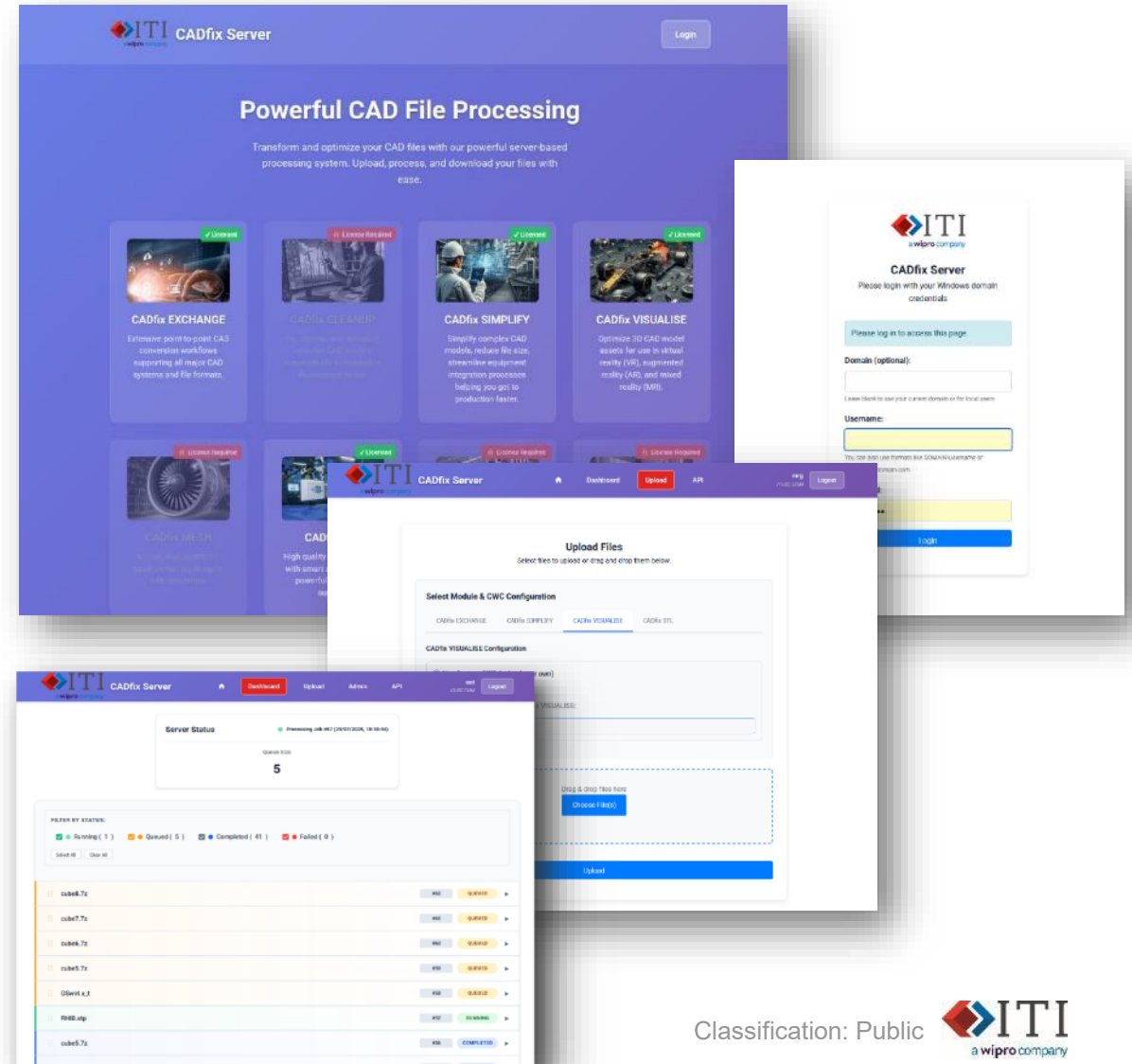
- Improved CWI documentation
- Implemented `cwi:model:merge` to merge geometry
- Added `cwi:model_cleanup` to tidy up temporary entities
- Added `cwi:display` and `cwi:display:wipe` to allow CWI scripts to display parts
- Allow access to more attributes in `cwi:set:add_aspect` and `cwi:ask:entity_aspect`
- Add entities to sets using CQL queries using `cwi:set:add_cql`
- Calculate values using `cwi:ask:cql`

13/SP2: CADfix Query Language

- Allows selection of CADfix entities using query language
 - For example: `face[label = “wing” && attr:area < 10]` selects all faces with label “wing” and area less than 10 units
- Extended language to include user-defined functions
- Added support for attributes EMBG, EMBO, SPNT, EPNT, LTYP, BBMD, ABMD, OBMD, GNUS

Launching soon: CADfix Server (Q4 2025)

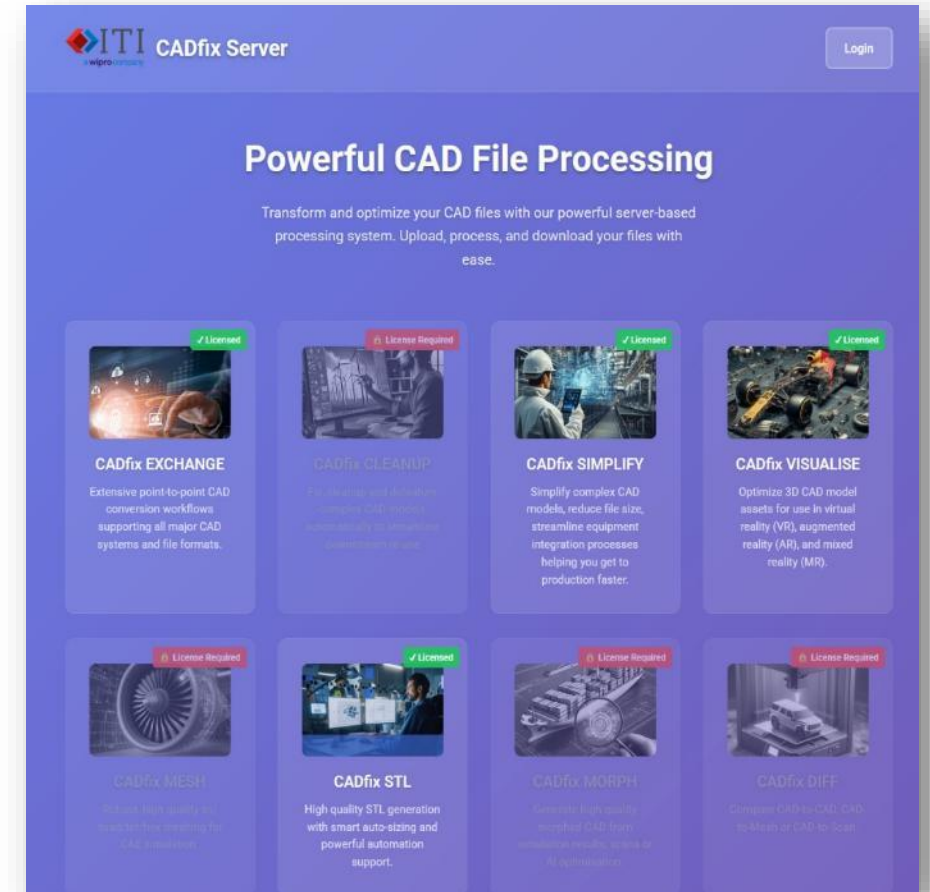
- Enterprise web-based access
 - Multiple CADfix technologies accessed from a browser
 - Automatic job queue management
 - Maximise licence utilisation
 - Drop-folder or web upload
 - Dashboard for users & admins
 - Customisable workflows
 - Usage logs and statistics



Launching soon: CADfix Server (Q4 2025)

Select from 8 CADfix services:

- Exchange – A-to-B file translation
- Clean-up – Repair and healing
- Simplify – Reduce CAD complexity
- Visualise – Digital twin support
- Mesh – Advanced CAE meshing
- STL – High quality STL
- Morph – Geometry optimisation
- Diff – Compare CAD/Mesh/Scan





Thank you!

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