materialise

innovators you can count on

Materialise 3-matic link with Altair HyperMesh



General workflow

- Create surface / volume / graph meshes in Materialise 3-matic
- Export meshes as .fem in Materialise 3-matic
- Import .fem in HyperMesh
- Finite Element Modeling / CAE in HyperMesh
- Export result as .fem
- Import .fem back in Materialise 3-matic



Create meshes in Materialise 3-matic



In this example: surface and graph meshes, no volume mesh made

 Graph nodes connected to surface or volume meshes



Create meshes in Materialise 3-matic



- Assign thickness to graphs before exporting
- Thickness options:
 - Gradient
 - Image-based
 - Uniform



Export meshes

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- 1. File
- 2. Export
- 3. FEM
- 4. Select part and output
- directory
- 5. Choose which meshes to
- export
- 6. Apply



Check .fem file (if needed)

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In this example:

- List of mesh nodes (GRID*)
- List of mesh triangles (CTRIA3)
- List of graph edges (CBEAM)
- List of graph sections and graph thickness (PBEAML)



1. File

2. Import

5. Import

3. Solver Deck

4. File type: OptiStruct

Import .fem in HyperMesh

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Inspect part in HyperMesh



Basic controls

- Ctrl+LMB: rotate
- Ctrl+RMB: move
- Ctrl+scroll: zoom



Detailed view and mesh info



1. Switch between solid and wireframe view

2. Toggle tags (CBEAM, BAR2,...)

3. Change mesh color mode



Export .fem in HyperMesh



After FEM / CAE, export to .fem

1. File

- 2. Export
- 3. Solver Deck
- 4. File type OptiStruct
- 5. Template: Long format

6. Export



Import .fem back in Materialise 3-matic

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Requires at least Materialise 3-matic 10.1 (part of Altair Partner Alliance) with Remesh module

1. File

2. Import Part

3. Import relevant meshes

4. OK



Finish design further in Materialise 3-matic



Shape and thickness information is preserved