

Features		
	Meshparts	Ansys WB Mechanical
Definition of FE assemblies	Available. An FE assembly consists of one or more FE parts or FE assemblies. FE assembly files only contain references to the contained FE parts and FE assemblies.	Not available. Assemblies exist only in the CAD software and are imported as a flat FE structure.
Re-use of assemblies	Available. An assembly can be reused and instanced within another bigger assembly with different positions and orientations.	Not available.
Re-use of single models	Available. There are no known limitations to the content of the reused model.	Available, but very limited. External models can be read in, but basically very limited data will be taken into account (e.g. meshes).
Re-positioning	Available, based on geometric constraints defined between surfaces, curves and points or by directly input of offsets and rotations.	Available, but very limited. The positioning of the mesh is only possible through direct offset input. Rotation is only possible for models that do not have orientation dependent properties.
FE format input	Ansys CDB (virtually everything), Abaqus INP (most structural elements supported).	Ansys CDB (very limited), multiple other FE input formats are supported but also very limited.
Joints	Available as generalized joint: linear/nonlinear stiffness and damping, added joint mass, added transmission ratio. Contact and joint behaviour are interchangeable.	Available as different specialized joint types. The bushing type permits only linear stiffness. Transmission ratios are not available. The different joint types are not interchangeable.
Contacts	Available with same contact options as in Ansys WB Mechanical. Contact and joint behaviour are interchangeable.	Available. Contact and joints are separate concepts. Contact and joint behaviour are not interchangeable. (delete contact, define joint).

A non-exhaustive comparison between Meshparts and Ansys Workbench Mechanical



Usability		
	Meshparts	Ansys WB Mechanical
Model libraries	Available. An extensive library of parametric structural models is accesible directly from the software.	Not available.
Undo/Redo changes	Available.	Not available.
Multiple models opened at the same time	Available. No limitation on the number of opened models/assemblies.	Just one model per license node can be opened at the same time.
Typical method to generate new models (geometry import, meshing, materials)	Direct parametrization of library components or use of predefined macros that automatically import geometry, define general mesh, assign materials.	Interactive (manual) model generation: Import geometry, generate mesh, assign materials.
CAD interfaces	Parametric interface to SolidWorks through Excel parameter tables. Names assigned to surfaces and curves are imported into Meshparts as nodal sets.	Multiple interfaces available. Names assigned to surfaces and curves are imported as named selections.
Model changes	Very efficient and robust thanks to the hierarchic organisation of the FE assemblies.	Unrobust. Small changes to one parts of the CAD geometry can require the new generation of the whole FE model.
3D model interaction/view	Zooming and rotation of the model relative to the mouse pointer.	Zooming and rotation of the model relative to the model origin. Difficult handling of long/slender models.
Exploded model	Direct drag and drop of single model parts to different locations.	Fixed exploded view of all parts. Distance from the origin can be scaled.
Model update when amplitude of loads and boundary conditions changes	Very fast since model data and loads data are saved in separate files (.cdb and .mpinp) for solving.	Very slow since model data and loads data are saved in same file (ds.dat) for solving.
Search in model tree	Available.	Not available. A filter can be applied instead.

DOE (Design Of Experiments)

	Meshparts	Ansys WB Mechanical
Designs generation/solving	First generate all designs then solve all designs.	First design is generated and then solved. Continue with next design.
Design generation/robustnes	Extremely robust when interactions are defined based on nodal sets. Pretty robust when interactions are defined based on surfaces, curves or points.	Not robust. Each design change can cause model update problems. Risk is higher with complex assemblies.
Design generation/speed	Extremely fast thanks to the component oriented modelling aproach.	Slow with complex assemblies due to the flat model structure even if multiple model components are repeating.
Designs analysis	Not available. Can be done with any external DOE software.	Available.
Designs analysis/optimization	Not available. Can be done with any external DOE software but automatic parameter range refinement not possible.	Available through e.g. surface response. Automatic parameter range refinement possible.



www.meshparts.de