Part 38: FEM Analysis of a Conical Flange with the FEM System MEANS V13

A conical flange assembly is to be simulated using the FEA system MEANS V13 (www.femcad.de). The CAD model had to be adapted for mesh generation using the CAD System Bricscad (www.bricsys.com) as follows:

- The symmetrical CAD model can be halved.
- All drill holes are deleted so that the mesh generator does not generate FEA models that are too large. The drill holes can be added later.
- Since the weld seams are missing, the open joints must be filled.
- A test analysis with MPC elements must be performed to check whether there are any unconnected components in the CAD model (such as the bracket bolts).
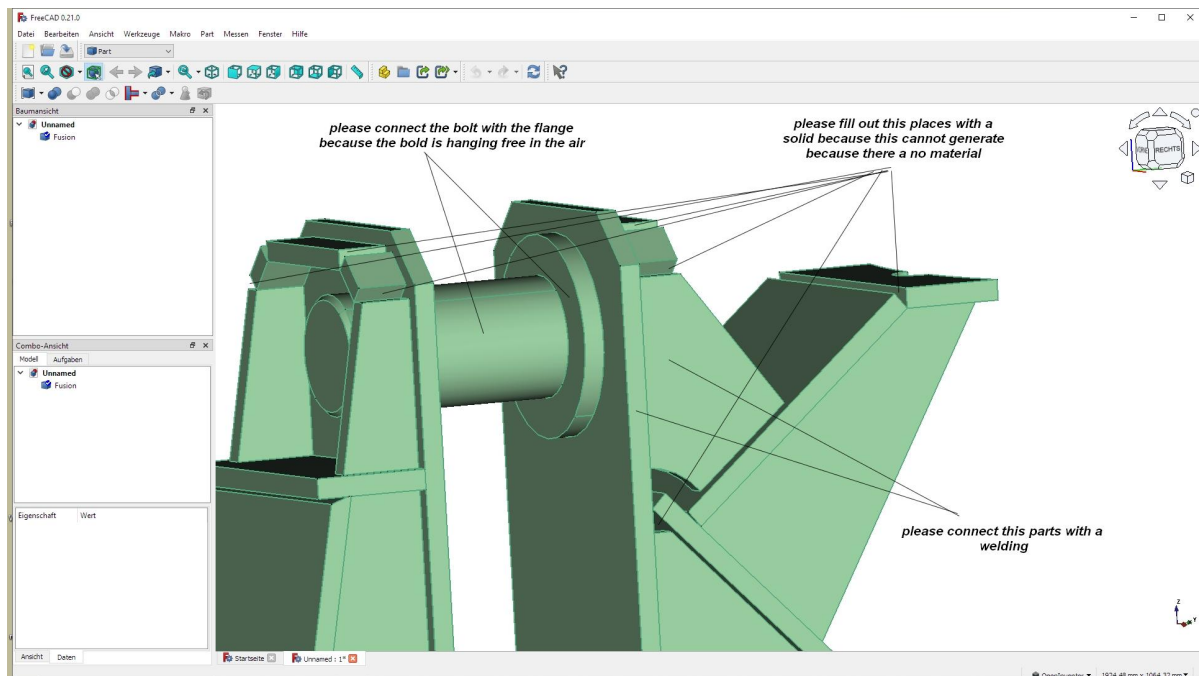- Finally, all single parts must be combined into one main part.
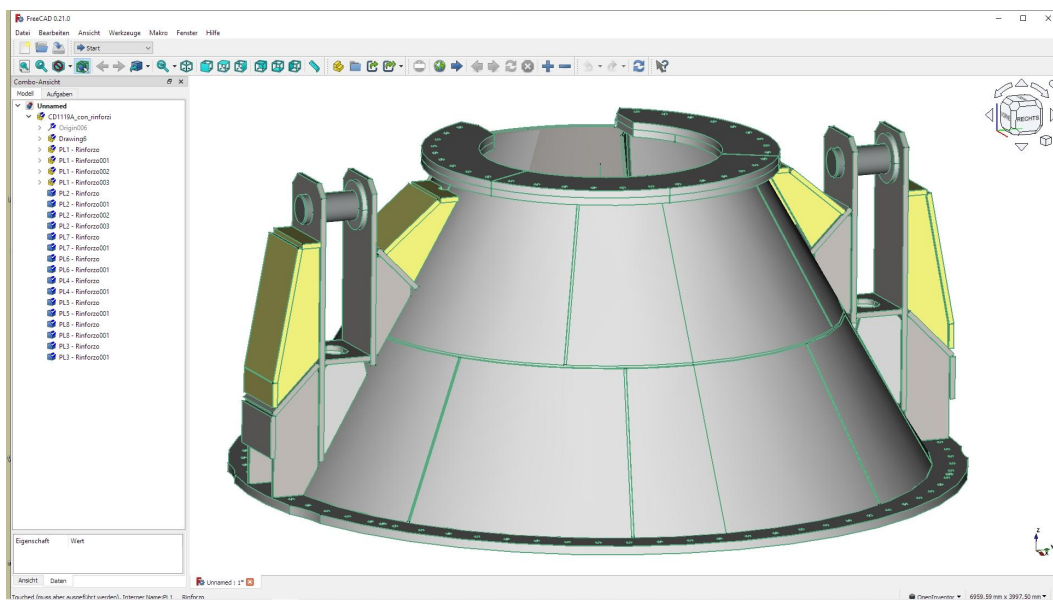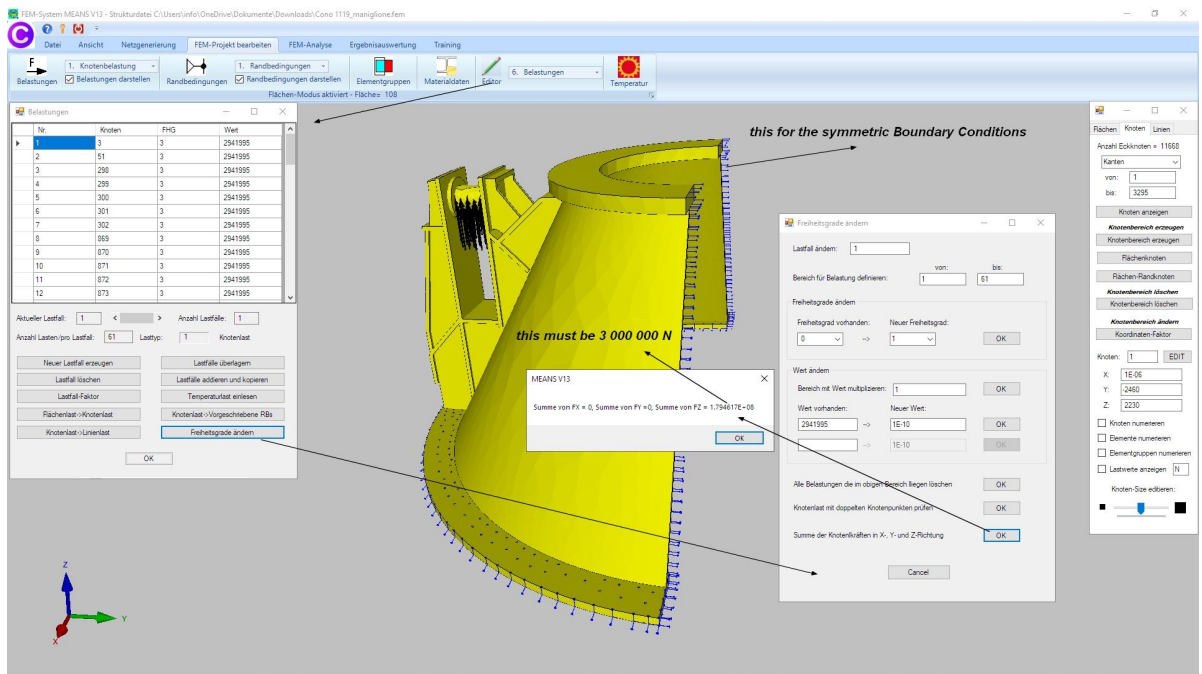

Complex CAD Assembly with Holes and No Welds
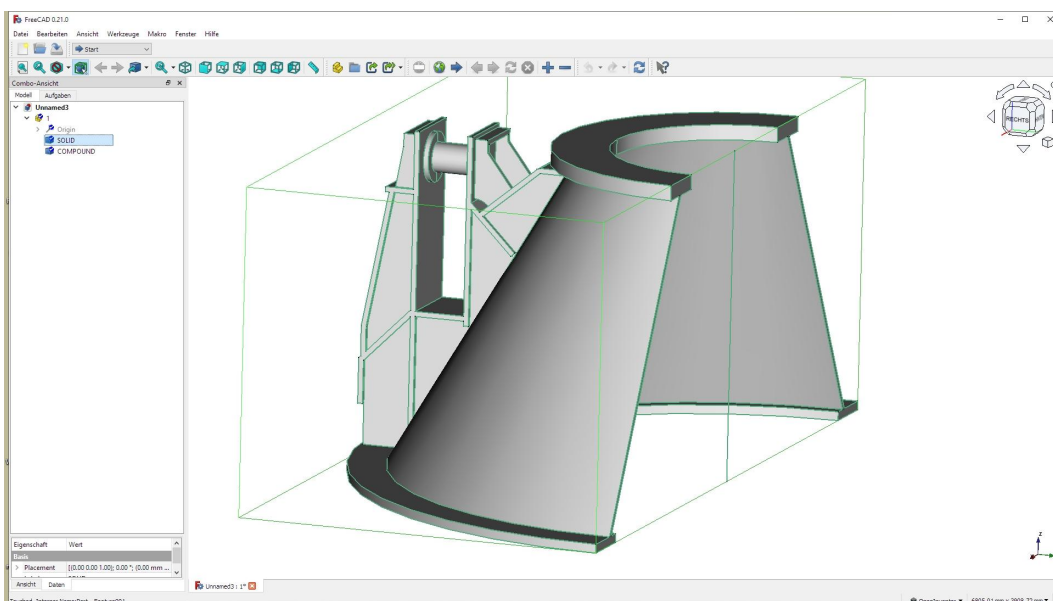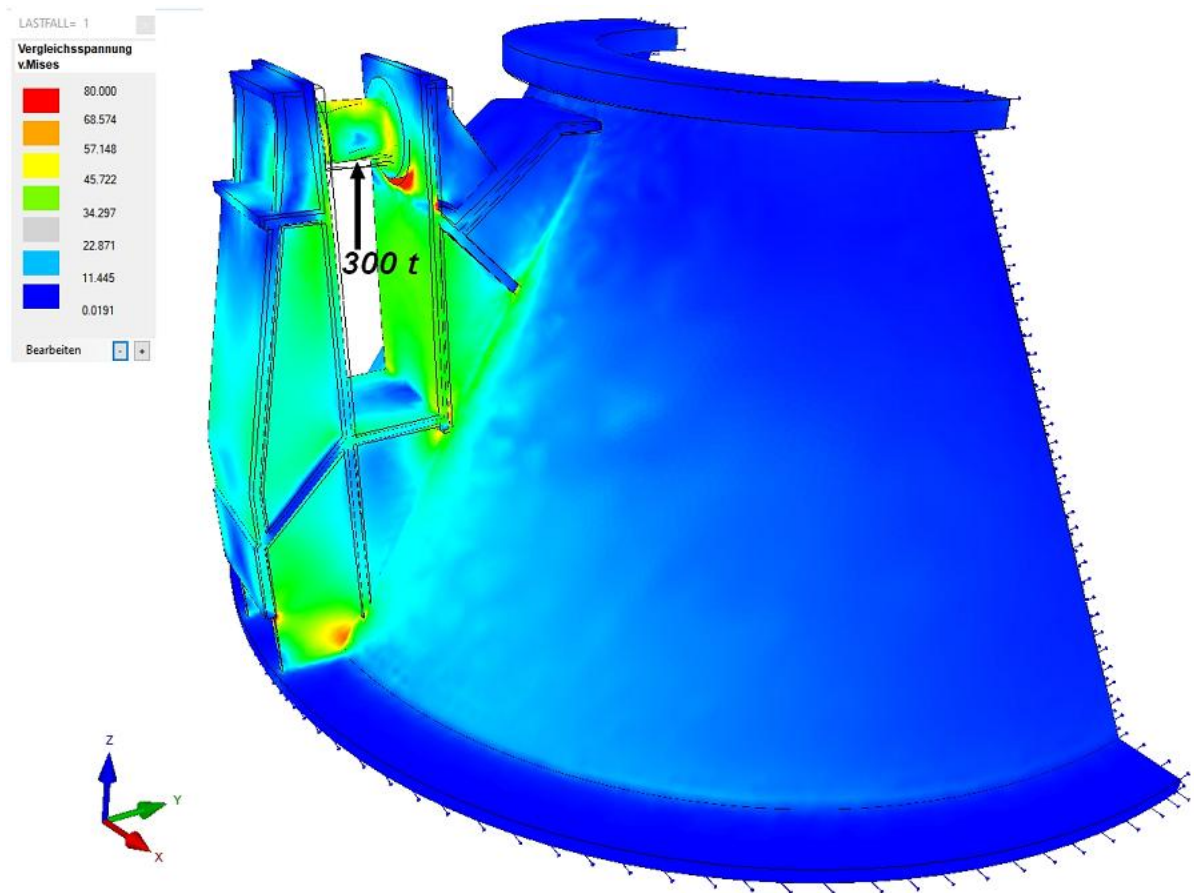

Adapted Half CAD Model for FEA Meshing
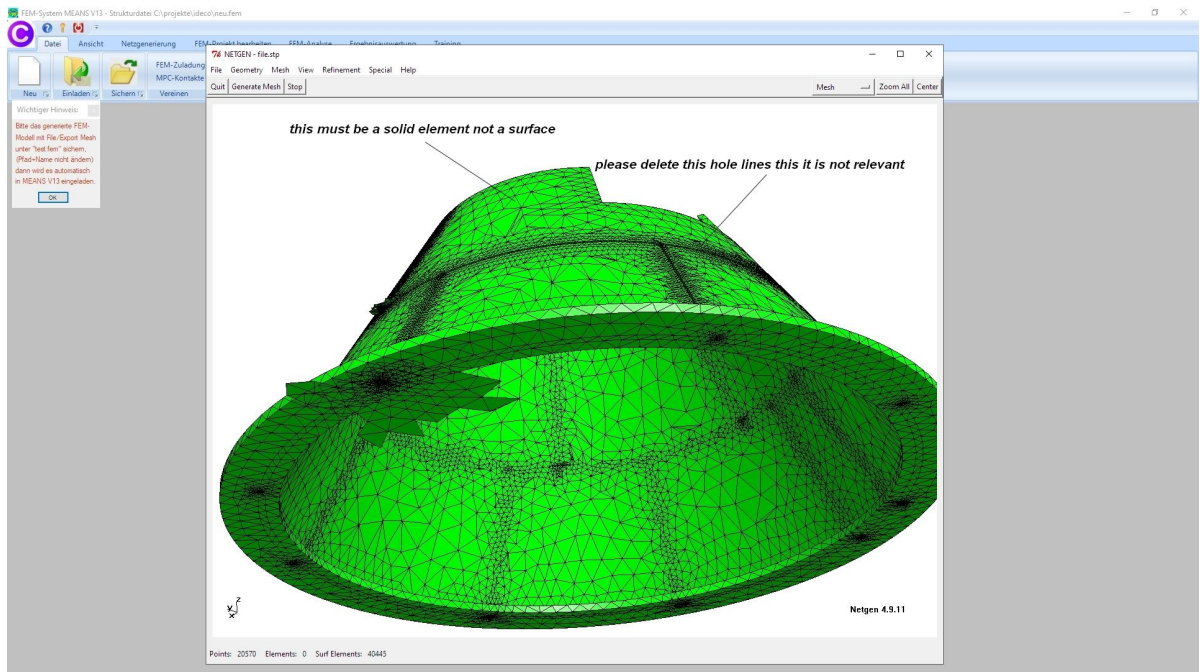
Delete non-meshed lines and surfaces on the flange

Remove open weld seams

Check the total load of 300t or 3 000,000 N

v.Mises-Stress on the bracket bolts