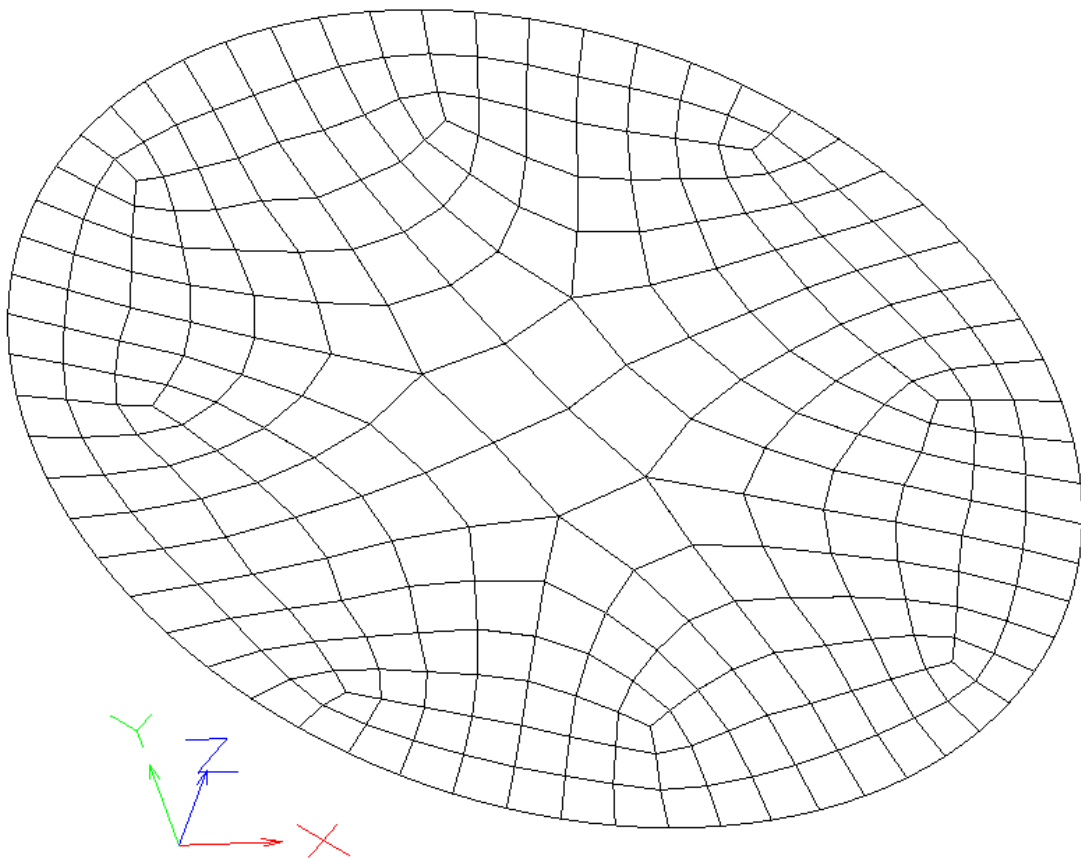


Z88 AURORA® EXAMPLE MANUAL

Example 11: Cycle plate

(Plate No. 20 with 8 nodes)




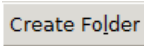
11. Example: Circle plate (Plate No. 20 with 8 nodes)


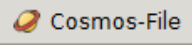
This example shall introduce to the plate computation. Z88 provides three alternatives of plates from the so called Reissner-Mindlin-type: 6-node Serendipity-elements (type 18), 8-node Serendipity-elements (type 20) and 16-node Lagrange-elements (type 19).


Handling plates is a little bit different to the other element types: Although the size of plates is given in x-and y-direction, the only physical interesting displacement is in z-direction. Torsions and rotations about x- and y-axis are important, too. Nevertheless a plate is a 2D element. Thus it's a bit complicated to integrate and calculate them into a FE-program.


input file:



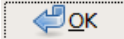
b17_g.cos → input file

At first a new project is created by using  and  - in this case for example *Example6*. The Dialog is confirmed with *Enter* and completed with *OK*. Now you have to import the COSMOS-file b17_g.cos.

With the button  the appending file *b2_x.dxf* can be imported. A context menu on the right side appears, it can be used to load the COSMOS-file . The target element type is *plate*.

The model is displayed in a shaded view. Switch to the *Surface mesh* with  to take a look at the structure discretisation. (plate No. 20 with 8 nodes, see also Z88 Aurora Theory Manual).

With the button  you can get to the preprocessor. In the load case window on the right side you can see, that there is already a load case with constraints imported. If you click on it, the nodes with constraints are displayed (*Figure 1*). To remove these labels from the screen just choose "--" instead of case_1.

To calculate the model, go to the solver menu with the  button. Use the direct Cholesky-Solver. By clicking  and  the calculation is started.

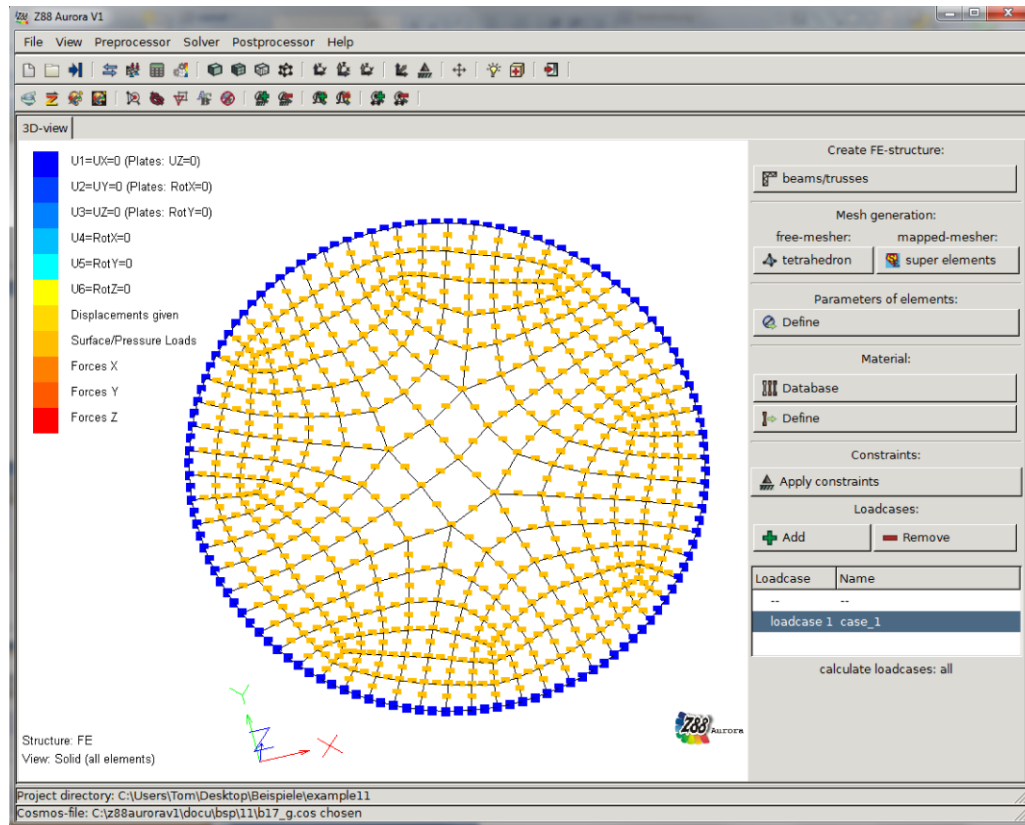



Figure 1: Imported structure with constraints

In the postprocessor  the *deflected* structure can be visualized (Figure 2).

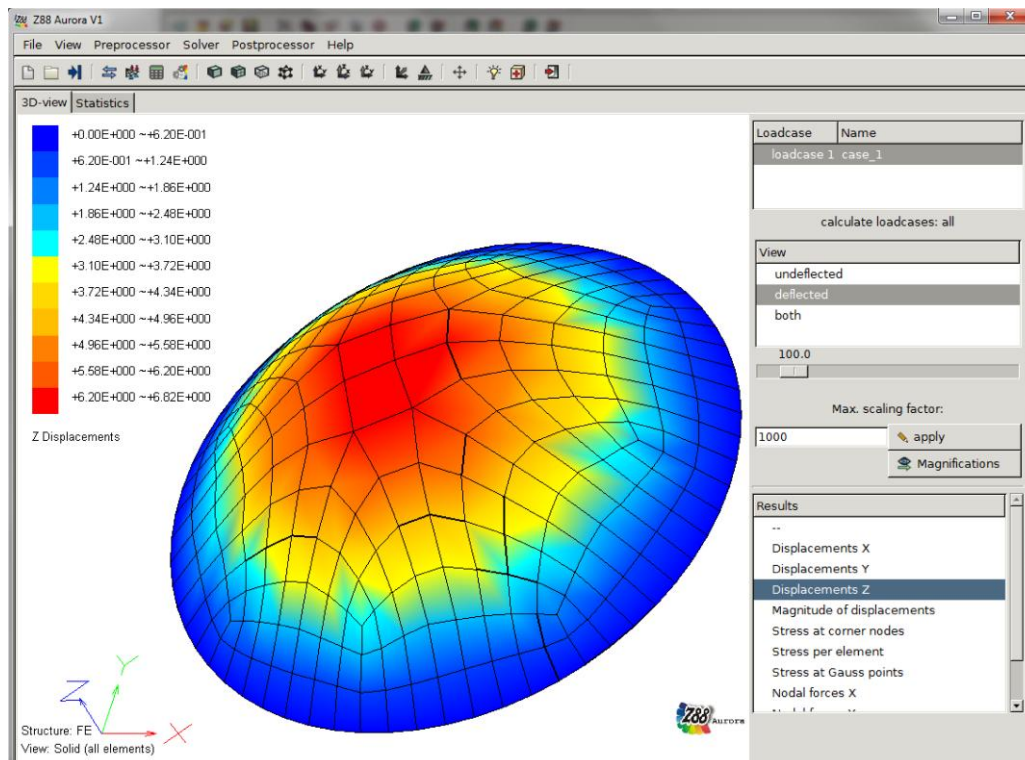


Figure 2: Calculated displacements of the plate model