

CASE STUDY

FLUIDCODES

 SOFTWARE  SUPPORT  TRAINING  CUSTOMIZATION

CONTACT OUR LOCAL OFFICES

UNITED ARAB EMIRATES +971 4330 8666
SAUDI ARABIA +966 13 8318182
EGYPT +971 4330 8666
BULGARIA +359 88 8813820
UNITED KINGDOM +44 20 3753 4607

 sales@fluidcodes.com
 consulting@fluidcodes.com
 fluidcodes.com

EXTERNAL FLOATING ROOF TANK SIMULATION

CHALLENGES

This simulation was carried on a Floating Roof Tank, in order to check the maximum deformation of the Guide Pole due to the lift force generated by the internal pressures while filling the tank with oil. Also the force generated by the internal mixers, which are continually rotating and generating disturbance in the fluid, were directly transmitted to the roof and later on to the Guide Pole.

ENGINEERING SOLUTION

A simplified geometry was built and mesh was generated by Fluid Codes technical team as shown in the figure 1.

Fluid Structure Interaction (FSI) Analysis was performed to verify the internal pressures and, then, the results from CFD were transferred to the Structural analysis as the initial conditions, in order to analyze the maximum deflection and stress on the guide pole.

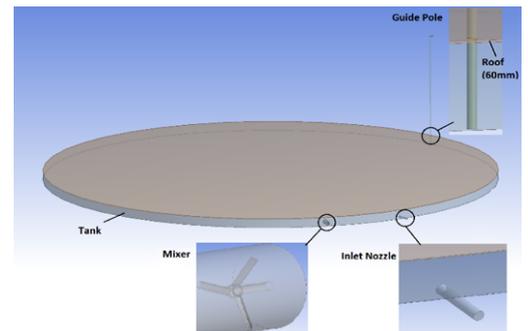


Figure 1. Simplified geometry of External Floating Roof Tank

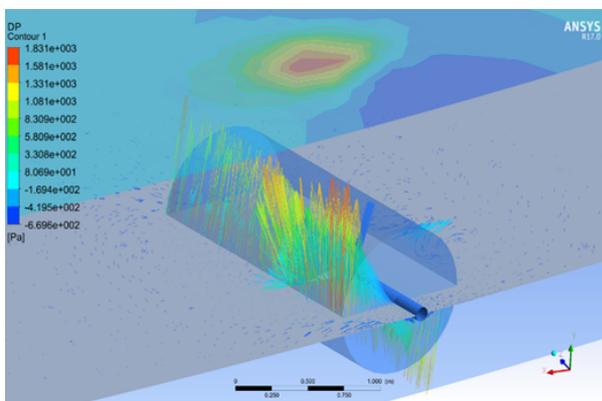


Figure 2. Dynamic Pressure acting on the Roof

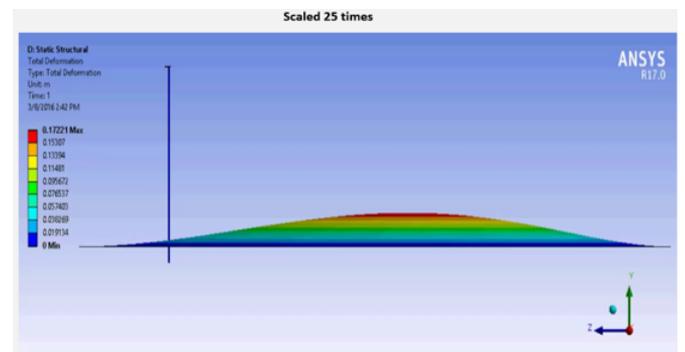


Figure 3. Maximum deformation and stresses acting on roof