

The search for oil in deep water keeps leading to new innovative ideas for the support of export risers. One such innovation has been developed by PROSAFE which has designed an Articulated Riser Tower (ART) to support deep-water risers from the well head to an FPSO.

MARIN gets ART-ful in search for innovation

The ART, which was tested by MARIN, consists of several support pipes, stacked on one another which are connected by means of hinges in a bid to reduce stresses in the tower. A series of steel risers are attached along the support pipes. At the top of the tower, the steel risers are connected to flexible risers that lead towards the FPSO. Buoyancy of the tower is provided by means of a completely submerged top buoy. The system allows for multiple risers of various sizes with the possibility of heating the risers and also of in-situ change out, if required.

The ART was tested in the Offshore Basin in current and waves. Tests were carried out with the tower alone and with the tower connected to an FPSO by means of the flexible risers. The aim of the tests was to investigate possible Vortex Induced Vibrations (VIV) in the tower and to obtain the loads in the flexible risers and the riser tower. The tests proved that the concept works well. Further investigation will be carried out before the design of the tower is completed and the system can be put on the market. [MARIN](#)



Under water photo showing the top of the tower, the buoy and the flexible risers.

Tim Bunnik
T.Bunnik@marin.nl

02-3283