World Academy of Science, Engineering and Technology
International Journal of Aerospace and Mechanical Engineering
Vol:10, No:08, 2016

Structural Analysis and Detail Design of APV Module Structure Using Topology Optimization Design

Authors : Hyun Kyu Cho, Jun Soo Kim, Young Hoon Lee, Sang Hoon Kang, Young Chul Park

Abstract : In the study, structure for one of offshore drilling system APV(Air Pressure Vessle) modules was designed by using topology optimum design and performed structural safety evaluation according to DNV rules. 3D model created base on design area and non-design area separated by using topology optimization for the environmental loads. This model separated 17 types for wind loads and dynamic loads and performed structural analysis evaluation for each model. As a result, the maximum stress occurred 181.25MPa.

Keywords : APV, topology optimum design, DNV, structural analysis, stress
Conference Title : ICFMFA 2016 : International Conference on Fluid Mechanics and Flow Analysis
Conference Location : Copenhagen, Denmark
Conference Dates : August 15-16, 2016