ABSTRACT:

In this paper, the finite element analysis is used to investigate the effect of shape of dome ends on the buckling of pressure vessel heads under external pressure. The Finite Element Analysis (FEA) with the use of elastic buckling analysis was applied to predict the critical buckling pressure. The influence of geometrical parameters such as thickness, knuckle radius, and the ratio of minor axis to the major axis of dome ends, on the weight and the critical buckling pressure of hemispherical, ellipsoidal, and torispherical dome ends, was studied. The four-centered ellipse method was used to describe the geometry of the dome end.