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COMPARATIVE ANALYSIS OF A PRESSURE VESSEL

Finite Element Analysis versus Speckle Photography

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A detailed explanation and analysis are presented of the Finite Element Method used to solve the stress/strain situation in a small pressure vessel. A pressure vessel was modelled whose displacement characteristics were previously analysed using speckle photography. The Mystro/Lusas finite element software was used on a PC 486 computer system. A linear and static analysis was made. Contour plots of direct stress and shear stress distribution are presented which also show the highest stress areas. A comparison of the results from Finite Element Method and Speckle Photography Method as well as the pressure vessel design formulas are presented. Advantages of the Finite Element Method are discussed.
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