

A B S T R A C T

The structure of Forming Presses is complex because of functional requirements. Press design methods have changed within a very short span of time from empiricism to rational design methods. In order to bring innovations in Press design increasingly accurate and sophisticated methods are being used. The analysis of these structures is an elastostatic problem.

In keeping with modern trends the present investigation has been taken up to develop a FEM technique for analysing press frames. Strain gauge measurements have been taken to verify the reliability of the FEM predictions. Within the limits of accuracies expected in experiments, a fair degree of agreement has been obtained between the theoretical and experimental results.

In order to reduce the high cost of computations a simplified plane stress model has been used to study the effect of structural parameters on deformation behaviour of a welded frame of 100-tonne hydraulic press.

Advantage of geometrical symmetry has been utilised while analysing the welded, column type and cast frames of the Press. Isoparametric elements of triangular, quadrilateral and hexagonal (solid) shapes have been used in the analyses. Meshes of various types and different gradings have been tried for the finite element analysis. Specific stiffness and cost have been used as criteria for selecting most favourable frame.

