

FEA ANALYSIS OF MECHANICAL PRESS BED

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Abstract: In this paperwork are presented the steps needed in order to perform a FEA analysis for complex structures, such as frames for mechanical presses. The results show a continuous distribution of displacements and stresses that validate the model, also making possible knowing values in every point, and preparing the way for the optimization of such a structure.

The model of the complex structure analyzed, completed and prepared as shown in precedent paperwork, is now ready for analysis. For FEA analysis, either static or dynamic, must be followed the phases: defining the mesh; defining the environment bonds; defining the loads; performing analysis and result interpretation.

The model completed and prepared for analysis, was studied with COSMOS/M software, with solving option FFE (Fast Finite Element). The results show both *displacement* and *stress*, concerning maximum values and distribution on structure.

The maximum displacement is: $\delta_{\max}=0,94727$ mm. Also for symmetric nodes the displacement value are very similar, that confirms the model is correct.

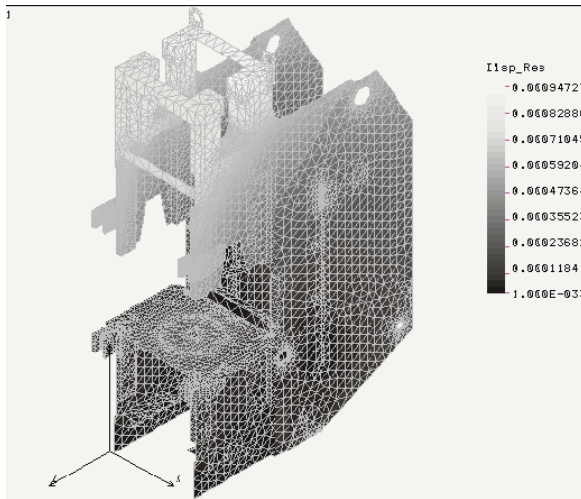


Fig.1. Displacement distribution

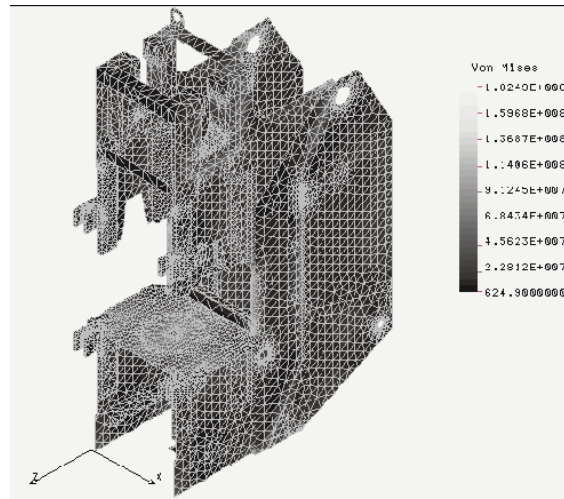


Fig.2. Stress distribution

CONCLUSIONS

After performing a static FEA analysis for mechanical press bed, it was shown that the results show a continuous distribution of displacements and stresses that validate the model, proving it correct. Also, with this type of analysis it became possible knowing values in every point of the bed that interest, and preparing the way for even the optimization of such a complex structure.

Bibliography (selected)

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