Usage of FEM Simulations in Design of Piping Systems

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Quality design is necessary prerequisite for correct and safe operation of all mechanical devices. This design has to consider all simulations and calculations. All boundary conditions have to be involved in this design. Ignorance of some of them can lead to overloading of structure or to the destruction of whole device, as shown in the example in this paper. Following design solutions can improve these mistakes, but this is technically difficult and costs are much higher. This article deals with calculations of air piping and with supporting structures for this system. This example from praxis shows importance both simple calculations and advanced structural simulations. Benefits of advanced FEM simulations are shown clearly using described structure. These benefits can be applied on all mechanical systems.

Keywords: FEM, piping systems, virtual simulation

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