

# **Stress-strain analysis of hybrid connections using numerical simulation**

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Technical calculations can be considered a fundamental and integral part of the design process. The application of various calculation procedures and analyses leads to the design of safe and reliable technical equipment and structures that perform the required functions. The computer simulations and analysis based mainly on the finite element method have a leading position in predicting the stress-strain state arising in the designed construction due to the applied load.

Connections between components of technical structures or equipment are very important parts and must be given due consideration. These joints may be demountable or dismountable. Problem of stress-strain state of hybrid dismountable connection is analyzed in this paper. Presented hybrid connection is formed by the combination of the pressed fit connection and welded connection. For the application of such hybrid joints, dimensional parameters and material properties of the individual joints are important. Key parameters that affect the stress-strain state and strength of this type of connections are mainly the overlap size of the pressed fit connection as well as the type and geometric parameters of the weld connection. In the framework of computer simulations and analyses, the effects of different size of overlap of pressed fit connection and various design solutions of weld connection on the load capacity of hybrid connection under loading are investigated. The results and new knowledge resulting from these analyses are applicable in the design of similar types of connections in technical equipment and structures.

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