

Determination of stress intensity factor for a pressure vessel with two holes arranged longitudinally

Determinarea factorului de intensitate a tensiunii pentru un vas de presiune cu două orificii dispuse longitudinal

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Abstract

Pressure vessels are part of very important, state-of-the-art and currently growing scientific research due to the variety of applications that they are used in.

The exploitation at high temperatures and pressures of pressure vessels leads to impairment of their stress strain state due to several factors, but the most important is the effect of stress concentration. Thus it is necessary to study stress concentration. This can be achieved by experimental methods using static and dynamic testing machines as well as finite element methods.

In the present study the stress intensity factor (KI) is determined for a pressure vessel with two holes arranged longitudinally. Numerical analysis was performed by finite element method using the professional software ABAQUS.

Keywords

Pressure vessels, stress concentration, finite element analysis, multiple holes.