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Res. Agr. Eng.

M. Nad'

Structural dynamic modification of circular

disc using pre stressed fields

Res. Agr. Eng., 51 (2005): 79-84

Dynamical properties of circular discs are investigated in this paper. One of the techniques of the disc modifications to achieve the required dynamic properties is to initiate pre-stress in disc plane. To obtain appropriate in-plane stress either roll-tensioning of disc surface or volume transformation of disc segment can be used. The role of in-plane stresses is assessed from the change in natural frequencies and modal shapes. The natural frequency characteristics for various rolling position and various rolling depth of the annulus are obtained by modal analysis using Finite Element Method (FEM).

Keywords:

vibration; circular disc; in-plane stress; natural frequency; finite element method

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