

Article Abstract

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| Title: | Transverse vibration of spinning disk with attached distributed patch and discrete point masses using finite element analysis |
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| Abstract: | Free and forced transverse vibration characteristics of a thin spinning disc attached to a rigid core have been investigated by finite element analysis using ANSYS software. The effect of discrete point masses and patches of distributed masses attached at the periphery of the plate on free and forced vibration behavior of a spinning disc has been investigated. Discrete point masses and distributed patch masses have been placed at higher strain regions to look into its influence on the natural frequencies, mode shapes and response of the plate to external excitation. Results for eight and sixteen point masses and patches on the vibration characteristics have been compared. It has been observed that discrete patches and point masses have significant influence on the modal frequencies and these can also act as dynamic vibration absorbers in reducing vibration of a spinning disc. It has also been shown that discrete patches of piezoelectric patches can also be used to actively control vibration of the spinning disc. |
| Keywords: | Free and forced vibration, discrete mass and patch, vibration control. |