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DYNAMIC DESIGN OF RING FRAME BEAM USING FRF CORRELATION

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Abstract

Increasing operating speed of machines with better quality output is a requirement of present day industrial machinery design. In this paper a methodology using Frequency Response Function Correlation is used to implement the design changes in ring frame beam so as to modify the design to operate at higher speed. The methodology is useful for general machine tool structures also. A correlation similar to Frequency Response Assurance Criteria is used for updating the Finite element model. The algorithm suggested is useful in both updating and modification of the model. The algorithm is tested with few numbers of measurement points and random updating parameters. The effectiveness increases with more number of measurement points are considered for correlation. Proper selection of updating parameters is a key to obtain better results in the updating the finite element model of the structure. Both updating and dynamic modification of ring frame beam is achieved by using same algorithm.

Keywords : Structural Dynamic Modification, Model Updating, Frequency Response Function Correlation.