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Evaluation of Dynamic Behavior of a Rotor-Bearing System in Operating Conditions

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Abstract : Most flexible rotors can be considered as beam-like structures. In many cases, rotors are modeled as one-dimensional bodies, made basically of beam-like shafts with rigid bodies attached to them. This approach is typical of rotor dynamics, both analytical and numerical, and several rotor dynamic codes, based on the finite element method, follow this trend. In this paper, a finite element model based on Timoshenko beam elements is utilized to analyze the lateral dynamic behavior of a certain rotor-bearing system in operating conditions.

Keywords : finite element method, Timoshenko beam elements, operational deflection shape, unbalance response
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