

## MODELING AND TESTING OF GEAR POWER TRANSMISSION

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### **ABSTRACT**

The technical condition of heavy duty gear power transmission with roller bearings have been modeled, simulated and tested in situ. The experimental measurements data of rotors shafts vibration displacements were used in physical model of gear teeth meshing dynamics simulation. The modeling and simulation of rotating system and gears teeth meshing was provided by finite element method. The aims of this paper are: to protect unexpected failures of rotating system with gear power transmission running on antifriction bearings, to simulate contact stresses of gears teeth meshing versus rotor rotation axis position changes that caused by damaged bearings vibration displacements.

The experimental and simulation results used for identification and elimination of sources that caused bearings failures and gear teeth damages were implemented in industry.

**Keywords:** gear driver transmission, antifriction bearings, modeling and simulation, vibration, contact stresses