
DYNAMICS OF SMALL OSCILLATIONS IN A LOW-INERTIA ROTOR OF A LOW-DISCHARGE CENTRIFUGAL PUMP WITH HYDROSTATIC BEARINGS

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Abstract

We studied oscillation dynamics for a low-inertia rotor of a low-discharge centrifugal pump with hydrostatic bearings and semi-open impellers so as to find the steady-state rotor angular velocity. We derived an equation for rotor angular velocity as a function of time from the equations of torques affecting the pump shaft. The steady-state angular velocity for preset parameter values was determined graphically. We also derived the steady-state angular velocity as a function of pump specifications

Keywords

Low-inertia rotor, hydrostatic bearings, mathematical model, steady-state rotor angular velocity, pump specifications

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