

# **Stability of a Rotor Supported by Wave Journal Bearings as a Function of Oil Temperature**

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## **ABSTRACT**

The stability of the rotor supported on two identical wave journal bearings was investigated experimentally and theoretically. The rotor's diameter and length are 45 mm and 120 mm, respectively. The two wave journal bearings have 30 mm diameter and 27.5 mm length. The bearings are lubricated with synthetic hydrocarbon oil MIL-L-23699. The maximum speed of the rotor was 36,000 RPM. The oil temperature was varied from 93°C to 131°C and the stability thresholds were observed and recorded. One or two stability thresholds were found in the running speed range as a function of the oil temperature. A good agreement was found between the experimentally observed thresholds and predicted ones.