



Bereznichenko V.O., Zaitsev E.O. Design of capacitive sensors of shaft runout of powerful generators in the Comsol Multiphysics environment. Kyiv: Naukova Dumka, 2024. 132 p., 50 copies, ISBN: 978-966-00-1919-5. DOI: <https://doi.org/10.15407/978-966-00-1919-5>

A review of modern methods and tools used in world practice when monitoring the technical condition of hydrogenerators is conducted. The results of calculations and research of capacitive runout sensors in the Comsol Multiphysics environment are presented, which allow for higher accuracy of sensor parameter

calculations, taking into account the features of real structures, minimizing the influence of the working environment on the characteristics of the sensors, and forming criteria for selecting their optimal topology depending on the design parameters of the object being diagnosed.

The results of experimental studies on physical models are presented, which confirm the correctness of the theoretical provisions used in the development of computer models and mock-up samples of capacitive runout sensors. Defects of hydraulic unit assemblies are analysed, for the determination of which data on the results of measurement of radial shaft vibration parameters and criteria for assessing runout and shaft vibrations of powerful hydraulic units are used. Methods and means of monitoring shaft runout parameters, as well as systems for monitoring and diagnosing the technical condition of hydraulic units in which they are used, are described.

Intended for scientific and engineering and technical staff involved in the design, manufacture, and operation of control and diagnostic equipment for powerful hydrogenerators.