

ELASTIC METAL-PLASTIC THRUST BEARINGS FOR COMBINED HYDRAULIC UNITS OF PUMPED STORAGE HYDROELECTRIC POWER STATIONS

©2009 Yu. I. Baiborodov

Samara State Aerospace University

The paper presents an analysis of serviceability of heavily-loaded elastic metal-plastic (EMP) segments with zero circular eccentricity at hydroelectric unit No. 5 of Ust-Ilim hydroelectric power station. The design of EMP segments suggested and tested by the authors was used in the thrust bearing design of hydraulic-turbine generators by the “Uralelectrotyazhmash” research-and-production association at the Zagorsk pumped storage hydroelectric power plant where they proved to be completely reliable and are still successfully used.

Generator-motor, thrust bearing, segment, hydrodynamic pressure.

Baiborodov Yuri Ivanovitch, candidate of technical science, associate professor of the department of machine design foundations, Samara State Aerospace University, e-mail: byui@ssau.ru. Area of research: contact hydrodynamics, sliding bearings.

References

1. Address of the production association “Uralelectrotyazhmash” named after V. I. Lenin No. 75/7-521-233 of June 30, 1978 to Kuibyshev Aviation Institute.
2. Resolution of USSR State Committee on science and technology No. 21 of January 24, 1979.
3. Record of proceedings at the Institute “Gidroproect” on the problem of producing thrust bearings of hydroelectric units for Yenisey hydroelectric power stations for the load of up to 7000 t of January 23-25, 1980.
4. Resolution of the Scientific Council of USSR State Committee on science and technology on the problem “Development of electrical engineering and electrical power engineering” No. 1-8 of April 5, 1984.
5. Author’s Certificate No. 1321958, USSR. Technique for producing elastic damping antifriction thrust bearing coating / Baiborodov Yu. I., Yezhov A. N., Kodnir D. S. et al.
6. Author’s Certificate No. 1352103, USSR. Technique for producing elastic damping thrust bearing coating / Baiborodov Yu. I., Litvinov Ye. V., Manenkov Yu. A. et al.
7. Author’s Certificate No. 649898, USSR. Elastic self-aligning bearing segment / Baiborodov Yu. I., Kodnir D. S., Savinov A. P. et al.