

PROBLEMS OF MAKING AUXILIARY GAS TURBINE ENGINES WITH GAS BEARING ROTORS

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The paper deals with the topical issue in the area of developing and producing gas turbine engines on gas bearings. The use of non-conventional types of bearings – gasodynamic ones – in gas turbine engines is of practical interest as it will make it possible to give up oil systems completely and to create a “dry” engine in future. This will considerably simplify the engine structure, improve its mass-dimension parameters, increase the reliability and reduce the cost of producing and maintenance.

Analysis of the state and level of the above-mentioned technologies in Russian Federation and abroad is given. Examples of high-temperature turbomachines produced (supercharging turbine-driven set, gas turbine engines, mini-turbojet engines) using gas bearings are given.

The paper presents the results of designing and investigations carried out at the Central Institute of Aircraft Engine Design, of a model rotor using gas bearings for a small-size auxiliary gas turbine engine (equivalent capacity 50 kWt) developed at the joint-stock company “Aerosila” jointly with the Central Institute of Aircraft Engine Design.

Auxiliary gas turbine engine, rotor, gasodynamic bearing, lobe bearing, foil bearing, high-temperature antifriction coating.

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