Software for turbomolecular vacuum pumps key parameters optimization

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Parameters optimization of any technical object demands sufficient providing with mathematical models describing operation processes proceeding in them and with calculation programs as well. This circumstance becomes especially essential when optimization must be implemented by several optimality criteria.

The whole complex of mathematical models and calculation methods for turbomolecular vacuum pumps (TMP), which are sufficient software to calculate optimum TMP parameters and characteristics, is developed in BMSTU. However, the calculation programs based on them can't be formalized on the modern computer facilities.

Therefore a development of adequate programs to calculate the optimum parameters and characteristics of turbomolecular vacuum pumps is an actual problem for modern high-vacuum mechanical pumps development. In the work, the created new software, calculation algorithms for the turbomolecular vacuum pumps optimum parameters are considered and some results of calculations are given. Various constructive diagrams applications of a TMP flowing part are analyzed and practical recommendations have been suggested.

Keywords: *turbomolecular pump, flowing part, displacement speed, gas pressure, optimization, optimality criterion, software, flowchart.*

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