
Vortex stage with the peripheral channel

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The paper presents the operational features of various design layouts for vortex stages with a peripheral channel. It describes the possibility of vortex compressor rotor unloading from axial and radial gas forces that enables to use a stage with a peripheral channel in high pressure installations. At the same time it emphasizes the main vortex machines demerit — relatively low efficiency. A design technique such as a shaped cutter designed in BMSTU for a stage with the peripheral channel, which allowed significantly to increase a stage efficiency is described. The shaped cutter mechanism is described on the base of the regenerative theory of working process in a vortex stage.

Research results are provided and recommendations about the cutter design providing an increase in a discharge head and vortex stage profitability are suggested.

Keywords: *vortex stage, peripheral channel, figurate cutter, facility effectiveness of a stage.*

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