
On the influence of the profile of the check valve on the dynamic characteristics of the actuator

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Unbalanced forces and torques occur in pneumatic and hydraulic actuating devices with large nominal diameters and significant pressure drop on the shaft of regulators. That causes the necessity of using drives with enlarged power. It is necessary to significantly reduce the unbalanced forces and moments on the shaft of the throttle and rotary valves when using membrane actuators to improve the amplitude-frequency and phase response, as well as quality factor of automatic control systems. In the process it is expedient to use profiled regulators. The article presents results of experimental investigation of compacted disks on aerodynamic test bench, torque characteristics, allowing for application of pneumatic and hydraulic actuators with significantly decreased power, as well as practical recommendations on profiling drives of the throttle and check valves of the swing type.

Keywords: torque moment, dynamic characteristics, pneumatic and hydraulic actuators, hydraulic resistance.

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