
Investigation of a ball seat resilient seals application range

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The article presents the research results for an application range of the ball seat resilient seals made of polymeric, elastomeric materials and thermosetting polymers. Experimental data of endurance test for various sealant materials and their durability depending on working fluid pressure and temperature and seat guide design as well (a conventional one, produced by Italian company “Gasket” and a design produced by OOO “EK Enerpred-Yardos”) are provided. On the basis of these experiments a material selection guideline for ball seat seals production is provided. The increase in sealant explosive decompression resistance is paid a special attention. To analyze and to be aware of experimental data the hydrodynamic calculations of working fluid flow in a ball valve flow cavity were made. The article is based on the many years authors experience material collected in the field of shutoff and control valves fundamental research, design, production and operation, including ball valves.

Keywords: ball valve, seal, polymer, elastomeric material, seat, endurance, durability, experiment, hydrodynamic calculation.

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