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PROSPECTS FOR DEVELOPMENT OF UNDERWATER HYDRAULIC SEAWATER

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ABSTRACT

Fresh water is widely used in industrial hydraulic systems. A logical development of this trend is the use of sea water in hydraulic subsea engineering. Sea water is fundamentally different not only from traditional mineral fluids, but from fresh water by its physical, chemical properties, and biological activity. The problems of development of innovative underwater hydraulic actuation systems are formulated based on the analysis of the most important properties of sea water. Rational selection of structural materials and coatings is among the key concerns. Experimental studies on model samples of basic hydraulic elements proved that ceramic materials and polymers such as polyether ether ketone have the most promising results. The great emphasis is placed on sea water preparing as the working fluid. Original conceptual design of filtration and biological decontamination system is proposed.

Keywords: seawater, hydraulic system, hydraulic drive, slide valve, pump, filtering, biological disinfection.

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