

# EXPERIMENTAL FACILITY FOR SIMULATING HYDRODYNAMIC CONDITIONS OF SUBMERGING

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The article is devoted to the creation and study of an experimental facility designed for simulating hydrodynamic conditions of submerging underwater objects and testing various underwater equipment. Laboratory experiments are relevant in developing new technologies and improving reliability of underwater vehicles, allowing identification of physical and technical features of operation of underwater devices while saving time and financial resources. The constructed equipment includes a high-pressure station, booster pump, and experimental chamber. This setup enables reproduction of real operating conditions for deep-sea vehicles by providing a wide range of fluid flow velocities and pressures. The paper describes specifics of the installation, its technical characteristics, and capabilities. Additional features include connection of lighting, wired and wireless signal transmission into the chamber, acoustic measurements, as well as outfitting with strain gauge sensors, level indicators, and proximity alarms. The experimental setup was tested during a study of cavitation erosion and destruction of concrete samples. An assessment of the impact of cavitation at a depth of 20-100 m was made, the erosion rate and the force of jet pressure on the sample were determined. Results of experiments confirming effectiveness of this approach for evaluating functionality and reliability of underwater equipment have been presented. These data allow concluding that use of such facilities holds promise for optimizing designs and enhancing operational characteristics of marine technology products.

**Keywords:** experimental facility, hydrostatic pressure, simulation, hydrodynamics, cavitation, measuring instruments

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