

SIGNATURE CONTROL FOR NAVAL SHIPS, COMMERCIAL VESSELS & OCEAN ENGINEERING STRUCTURES

Improvement of tools and methods intended to protect ships from weapons and sensors detecting various physical ship signatures (acoustic, magnetic, thermal, etc.) remains one of the most important tasks in shipbuilding science. Acoustic signature is of critical importance for submarines and in the foreseeable future it will remain one of the main governing factors for operational stealth, protection against hostile detection systems and weapons, as well as overall combat efficiency of submarines. Drastic reduction in the number of warships and submarines constructed nowadays is accompanied by increasingly stringent specification of signature levels, first of all, acoustic signatures of submarines. The signature reduction goals can be achieved on the basis of research studies in the following two priority fields:

- Improvement of existing techniques and development of new methods and ways for reducing signatures;
- Development and optimization of modern instruments and methods for measurement of signature characteristics, as well as for processing of measured data.

The results of Krylov's research studies in an effort to achieve the above goals are described below.

DESIGN AND PRODUCTION OF ACOUSTIC PROTECTION SYSTEMS

The Krylov Institute have commissioned, certified and licensed a manufacturing shop for production of large-size 1x1m rubber tiles of hydroacoustic coatings. The total area of this shop is 1100m². The core production facility is a unique vulcanization press manufactured by a German company Siempelkamp according to Krylov's specifications. The press has three heating plates and two tiers for simultaneous use of two press molds. The total effective press force is 1250t. The temperature of heating plates is +200°C. Temperature variations across the plate area are kept within $\pm 2^\circ\text{C}$. Average press capacity is 12 tiles per shift. The press is outfitted with blank forming station including rollers, calender roll, cooling doubler to produce a continuous 1200mm-wide sheet of uncured rubber of different thickness. The production process itself meets all modern environment, sanitary and

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Vulcanization press

design requirements. It sets a good example of modern production level for the domestic rubber engineering industry and combines optimum human engineering solutions with excellent working environment for employees.



Station for forming tile blanks