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**ВОЕННОЕ
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**ТЕХНОЛОГИЯ
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ИСТОРИЯ



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/SHIPBUILDING/

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AT SHIPBUILDING YARDS

YANTAR SHIPYARD, RUSSIAN MARITIME REGISTER OF SHIPPING, ZVEZDOCHKA SHIPYARD, NORTHERN SHIPYARD, VYBORG SHIPYARD, KRASNOYE SORMOVO SHIPYARD, ASPO, OKA SHIPYARD, VYMPPEL SHIPYARD, VOSTOK SHIPYARD, VARIYAG SHIPYARD

CIVIL SHIPBUILDING

Polyakov Yu. N. Software systems for creating 3D modes of ship at early design stages

Developed are software systems for 3D graphics which constitute conceptual research system for ship design (Optimum-1). This software can create and modify 3D model of ship hull, estimate separate parameters of 3D model of ship being designed, interact with designed modules, make preliminary optimization of ship hull before basin trials.

Lyubimov V. I., Hlutchin I. V. Actual issues in justification of high-speed ships design

Reviewed are issues on justification of high-speed vessel design together with creation of ship's virtual model at design stage. Design analysis is also provided.

NAVAL SHIPBUILDING

Sagaidakov F. R., Chernetsova N. A., Guryanov S. K. Frigates and corvettes: current state and development prospects

This article is part of topical series highlighting current state and development prospects of foreign navy. It is devoted to frigates and corvettes.

SHIP POWER PLANTS

Stasenya K. A., Lazarevsky N. A. Electric power system at oceanographic ship «Yantar»

This article describes unified electric power system installed on oceanographic ship «Yantar».

Bashurov B. P., Skiba A. N., Sharik V. V. Functional reliability of ship power plants in terms of system approach and lifecycle concept

Ship power plants have many complicated structural and functional features. Their lifecycle ends due to continuous wearing, varying economic conditions and safety requirements. This is related to specific pattern of lifecycle of equipment generation. Therefore, in course of reliability studies, one is required to use methods on basis of system approach and lifecycle concept.

Timofeev V. N. Cooling system for fresh air charge and exhaust gases coming from marine diesel to inlet

The author hereby reviews temperature control system for air charge and «cold» recirculation of exhaust gas by utilizing heat in absorption refrigerating unit.

SHIPBOARD EQUIPMENT

Kuzmin Yu. L., Stavitsky O. A., Podshivalov A. V. Cathode protection systems preventing erosion-and-corrosion of hulls of nuclear-powered ice-breakers.

The authors hereby analyze operational test results and specifications of cathode protection systems against erosion-and-corrosion of hulls of nuclear powered ice-breakers in arctic conditions.

Bubnov E. A. Dynamic color coding in information models of modern control systems

This author hereby proposes to apply method for information color coding in computerized control systems for ship equipment in order to increase efficiency of man-machine control system. Given are typical patterns of color coding alteration and methods for shaping of information model as per current value of controlled parameters.

Buryan Yu. A., Polyakov S. N., Shalay V. V. Application of inertial hydraulic motion converters for ship pipe hangers

This article reviews design principles for pipe hanger damper. It is composed of rubber-metal damper paralleled with inertial hydraulic motion converter (IHMC) consisting of rubber-cord casing filled with fluid. The authors hereby provide surveys of ship hanger damper dynamics for single/double-stage IHMC, indicating efficiency of proposed design. Application of IHMC in parallel with elastic hanger element, nearest to vibrating equipment, allows decreasing of vibration impact on ship's hull by 20—30 dB. Application of 2-stage IHMC systems significantly expands band of frequencies where force transmission rate to hull is low.

SHIPBUILDING MATERIALS

Alexeev S. A., Syatkovsky A. I. Damping parameters of polymeric films

This article analyses results of experimental surveys on damping parameters of polymeric films ВПНС-3, ВПНС-4, ВПС-АН produced by JSC «Plastpolimer».

Krushenko G. G. Application of chemical compounds containing nano-powders to increase surface quality of cast ship's propellers

The author narrates about application of antistick coatings used for painting of casting mold surface. These coatings contain fire-proof components in form of compounds with nano-powders which increase surface quality of propellers casted in sand-clay or metal moulds.

Grigoriev A. K., Nikitin M. N. Environmentally safe fluid «Aquanol»

This article generalizes operational experience for ship's stern gear with oil lubrication of propeller shaft bearings. Given is information on mineral oil overboard leakage depending on brand of seals used in ship's aft and mean time to repair. The authors highlight distribution of repair labor intensity of stern gear for three ship types and justify necessity to develop environmentally safe fluid (instead ad mineral oil) for ship stern gear. Specified are main physical-mechanical specifications of «Aquanol» liquid and its development/test stages onboard ships.

SHIPBUILDING ORGANIZATION AND TECHNOLOGY

Zhivotovsky R. P., Zelenin M. N., Mikhailov V S. Developing methods to reduce residual welding stresses and deformations of ship hull structures

This article highlights main achievements in reduction of residual welding stresses and deformations of ship hull structures by modeling production process with use of finite elements method.

Nikitin V. A. Technology and equipment for welding and assembly of T-beams

The author narrates about technology and design features of equipment for assembly and welding of T-beams; highlighted are deformations occurring upon welding and related countermeasures. The article contains general diagrams of equipment, production systems and lines for T-beams manufacturing.

SHIPREPAIR AND UTILIZATION

Fomichev R. S., Lazarevsky N. A. Modernization of electric power system at large dry cargo ship «Yauza»

This article describes modernized electric power system at large dry cargo ship «Yauza».

***Vlasov A. B., Mukhalev V. A.* Instant analysis of technical conditions of cables with rubber insulation**

The authors hereby describe instant diagnostics method based on calculation of cable/cable core insulation in cable routes onboard the ship. Analyzed are properties of rubber cable insulation exposed to various temperatures for a long period of time.

INFORMATION SECTION

Results of contest on developments for Arctic region. *Maximov V. N.* Chief designer *V.A. Zavarin. Rogachev G. M.* «Abyss looked into their illuminators». Foreign information. Academic Pashin square. Winners of the USC contest. Memorial desk in SMTU

HISTORY OF SHIPBUILDING AND FLEET

***Mozgovoy V. P.* Design solutions to provide combat stability for small chasers**

The author narrates about design feature of small chasers and their contribution to victory in the Great Patriotic War.

***Grebenshikova G. A.* 44-cannon frigates. History of appearance in Russian Navy**

This article is devoted to new type of frigates with optimal artillery composition. They had been designed and developed by the end of XVIII century.

***Vasilyev D. M.* Experiments in camouflage painting in training squadron of Baltic fleet**

External camouflage painting in training squadron by the end of XIX century.