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ИСТОРИЯ



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/SHIPBUILDING/

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AT SHIPBUILDING YARDS

NAVAL SHIPBUILDING

Platonov A. V. Post-war heavy gun cruisers of USSR Navy.

The article analyses post-war heavy gun cruisers. Specifications and diagrams have been provided.

Keywords: naval shipbuilding, design, history of shipbuilding, heavy cruiser.

Sariyev K. S. Unmanned naval warfare.

This article reviews various types of unmanned naval warfare developed abroad: unmanned submersible vehicles, unmanned automated boats and unmanned aerial vehicles. Classification, purpose, main trends and development prospects have been provided.

Keywords: unmanned submersible vehicles, unmanned automated boats, unmanned aerial vehicles.

SHIP POWER PLANTS

Gelver F. A. Shipboard electric propulsion plants with common DC buses.

The author hereby describes advanced design of shipboard electric propulsion plant with common DC buses which improves such parameters as weight and dimensions, environmental safety, reliability and lifetime of entire power system, up to 15% of fuel saving compared to existing systems and depending on ship travel mode.

Keywords: electric propulsion plant, electric propulsion system, voltage inverter, energy storage, braking, fuel saving.

Abdullaev Ya. R., Mekhtiev G. A., Ismailov S. S. Surveys on dynamic operation modes of asynchronized synchronous shaft-driven generator with controlled pitch propeller.

This article reviews the dynamic operation mode of asynchronized synchronous generator (ASG) for ships with controlled pitch propeller (CPP). Rated rotational frequency of ASG ($S=0$) during survey was taken as $n_{\text{БГ}} = 0,85 n_{\text{ГД}}$, where $n_{\text{ГД}}$ – rated rotational frequency of main propulsion unit. ASG rotational frequency varies by $\pm 15\%$ from synchronous rotational frequency. Suitable presentation format was selected to represent math model of ASG on axes d, q rotating at rotor speed. ASG equations were solved using Matcad software.

Keywords: asynchronized synchronous generator, main propulsion unit, controlled pitch propeller, rotor, frequency converter, shaft-driven generator.

SHIPBOARD EQUIPMENT

Pshenitsyn A. A., Spiridonov A. Yu., Dobronravov M. A., Zaytsev A. N. Fine tuning of axial fan acoustic specifications on basis of hydrodynamic analysis.

This article contains theoretical analysis purposed to estimate hydroacoustic specifications of shipboard fans. This analysis helps to detect areas with abrupt change of parameters and to find out reasons for high-level noises to occur. The authors hereby describe application of chevron cut-outs for reduction of actual fan noise.

Keywords: shipboard fan, noise level, hydrodynamic specifications.

Shegolikhin V. P. Control algorithm of vibroacoustic state of shipboard mechanisms.

This article describes the control algorithm of vibroacoustic state of shipboard mechanisms using onboard information and measuring systems (IMS). It has been noted, that vibroacoustic state of any shipboard mechanism is the function of two parameters – sample average values and root mean square deviations of vibration spectre constituents which are to be controlled by IMS during operation.

It is stated, that usage of this algorithm as part of software for existing and advanced onboard IMS should significantly raise the validity of vibroacoustic control of modern shipboard equipment.

Keywords: shipboard mechanisms, vibroacoustic state, onboard information and measuring system, spectre constituent level, vibration spectre.

RESCUE MEANS

Ilyukhin V. N. Development of rescue means for emergency submarines: conceptual issues.

This article reviews advancement of rescue means for crew of emergency bottomed submarines on basis of: experience of relevant rescue works, current state of rescue systems, development trends of foreign emergency systems, requirements of regulatory documents to rescuing procedure.

Keywords: emergency, submarine, rescue methods and means, search and rescue gear, rescue vessel, deep-sea diving system, deep-sea rescue vessel, rescue gear.

SHIPBUILDING ORGANIZATION AND TECHNOLOGY

Klyakhin V. N., Fomichev A. B. Application of methodological approach to consider uncertainties as part of risk management when choosing shipyard modernization pattern.

Therefore, the author offers methodological approach which would consider uncertainties for risk management when choosing shipyard modernization pattern.

Keywords: shipyard, modernization project, uncertainty, risk management.

SHIPBUILDING MATERIALS

Kulichkova E. A., Shmotikov A. V., Mulev M. A. Application of composite materials for shipboard valves.

This article describes application of composite materials for shipboard valves as upcoming trend implemented by leading design bureau «Armas», JSC SSTC.

Keywords: marine engineering, shipboard valves, composite materials.

Grakov S. A., Zubarev A. V., Bokhan V. V., Ugrenov M. V. Application of composite materials for production of thin-walled, light and heavy-duty shipboard shaft lines.

This article lists main specifications of composite thin-walled light shafts which are to be considered when using such shafts in heavy-duty shaft lines. Described are some design features arising due to replacement of conventional materials with composites.

Keywords: composite shaft, carbon fiber plastic, fiber glass plastic, critical frequency.

ECONOMY AND FINANCE

Pautova O. A., Luchkov I. N., Burmistrov E. G. Production risks management methods at shipyard.

The developed method for risk estimation at main stages of lifecycle of shipyard production includes identification, analysis and risk distribution. Application of such method allows to take administrative decisions and to estimate implementation effectiveness thereof.

Keywords: shipyards, production risks, risk management procedure, risk significance level, product life cycle.

LABOR SAFETY

Dorozhkin A. S., Goncharov S. M. Fire protection of engineering structures.

This article reviews fire protection issues of engineering structures, application of structural fire curtains, thin-layer intumescent, requirements of regulatory documents to design and exploitation.

Keywords: fire safety, structural fire protection, fireproof coatings, requirements of regulatory documents.

INFORMATION SECTION

International Arctic summit «Arctic region and offshore projects: prospects, innovations and regional development». Results of 1st Saint Petersburg's Arctic congress: «Arctic region is the competence merging territory». Subsidies for shipyard construction. Foreign information. In the memory of colleague. New books. «Poseidon» has been developed in Russia

HISTORY OF SHIPBUILDING AND FLEET

Rassol I. R. First underwater vehicles by O.B. Gern.

The author narrates about first underwater vehicles built in 2nd half of 19th century by O. B. Gern – Russian military engineer on fortification.

Keywords: naval shipbuilding, design, history of underwater ships, underwater vehicles, submarine.

Pridannikov M. I. Motor minesweepers of Baltic fleet.

This article reviews design and construction issues of motorized minesweeping boats during First World War in 1914–1918. Provided are drawings, photos and specifications thereof.

Keywords: naval shipbuilding, design, boat construction, patrol boat, minesweeping boat, motor boat.

Tsarkov A. Yu. First strategic operation of WPRF (Worker's and Peasant's Red Fleet)

This article is associated with 100 years' anniversary of strategic operation of the Baltic fleet also known as Ice cruise of ships from Finland to Kronshtadt port in the spring of 1918.

Keywords: strategic operation, Baltic fleet, Ice cruise.

Tsekhanovskaya O. K. Mystery of one painting.

This article tells the story about painting ordered by CNM and drawn by artist D. B. Alkhovsky – «Members of Politburo of Central Committee of the All-Union Communist Party are checking project of a new ship».

Keywords: naval shipbuilding, design, history of shipbuilding, shipbuilding program.