

СУДОСТРОЕНИЕ

Издаётся с 1898 г.

НАУЧНО-ТЕХНИЧЕСКИЙ И ПРОИЗВОДСТВЕННЫЙ ЖУРНАЛ

ISSN 0039-4580

ПРОЕКТИРОВАНИЕ СУДОВ

№ 4
2020
июль-август

**ВОЕННОЕ
КОРАБЛЕСТРОЕНИЕ**

**СУДОВОЕ
ОБОРУДОВАНИЕ**

**ТЕХНОЛОГИЯ
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ИСТОРИЯ



SUDOSTROENIE 4 2020

/SHIPBUILDING/

(851) July

Published since September 1898 r.

CONTENTS

AT SHIPBUILDING YARDS

CIVIL SHIPBUILDING

V.N. Polovinkin, I.V. Karyshev. Optimization of shipbuilding industry development programs with use of dynamic routing method.

It is offered to use dynamic routing method in frames of shipbuilding program scheduling and stage-wise financing. Programs built as per this method will be balanced automatically both cost- and time-wise.

Keywords: industry development program, dynamic routing method, optimization.

G. B. Egorov, I. A. Ilnitsky, A. G. Egorov, R. D. Bagautdinov. Shallow-draft twin-hull fuel barges of 6000 t deadweight pr. ROB20, «Belmax» class

Concept of «Belmax» Type non-self-propelled oil barge of ROB20 project is justified. Route conditions of Belaya river are analyzed. Main characteristics are defined; hull of barge is designed with consideration of requirements of MARPOL. Comparative analysis of developed concept with barges-analogues is executed. Characteristics of ROB20 barge — 6000 t of cargo (at 2.75 m draught) with 880 t lightweight allow consider the project as unique one.

Keywords: river transportations, oil, barge, design, structure, safety.

A.V. Nefedovich. Advanced human-oriented approach for construction of new-generation surface naval ships

Concept of construction of advanced naval surface ships considers ergonomics as justification of ship's «ergonomic appearance» considered as integral part of ship's «technical design». This article defines notions of «control functionality» and comprising elements. Each element obtained ergonomic characteristic for the following implementation in design. The author also settles advanced human-oriented approach towards construction of new-generation surface naval ships.

Keywords: surface naval ship, ship generations, human-oriented approach, ergonomic appearance, design

M.N. Burov, V.A. Ponomaryov. Development and construction trends of 5th generation gas-turbine engine.

This article describes current state of development and construction of domestic shipboard gas-turbine engines. Two options have been proposed: modification of existing engines and construction of new 5th generation engines. The authors analyze criteria defining generation of simple-cycle shipboard motors. It has been stated, that single specific fuel rate is insufficient to bring the engine into 5th generation category. The authors say that technical risks associated with construction of 5th generation shipboard gas-turbine engine can be avoided as follows: simple-cycle motor to be developed prior to complex-cycle motor, both must have maximum unification rate.

Keywords: generations of shipboard gas-turbine motors, shipboard GTEs of simple and complex cycle, GTE family, unification, specific fuel rate, technological advance.

V.V. Stanovskoy, O.A. Tsyganov, E.V. Karpenko. Domestic vertical thruster.

The authors hereby represent original design of vertical thruster allowing usage of spare parts of Russian origin. Gearboxes of such thrusters utilize new eccentric-cycloidal engagement. Rotation mechanism based on differential cam mechanism helps to avoid impact loads. Next goal defined by the developer is the increase of thruster's reliability to ensure reliable exploitation during continuous ice drift.

Keywords: domestic vertical thruster, ice-going ships, eccentric-cycloidal engagement, axial-piston mechanism

A.Ya. Rozinov. Diagnostics of minimum-sized through defects of welded joints.

Through defects of welded joints are conventionally checked by applying hydrostatic pressure (water pouring/flowing), compressed air flow (blowing and application of foam-generating indicator), kerosene wetting, application of luminescent and deep-penetrating colored liquids. This article compares quality of leak tests of welding joints.

Keywords: welded joints, through defects, diagnostics, leak-tightness

Yu.G. Glazko, S.B. Zaytsev. Selection of fire alarms for Russian Navy and analysis of incoming data therefrom.

This article stipulates main rules for selection of fire alarms for Russian Navy and analysis of incoming data therefrom. These rules are for automation of fire safety monitoring of protected facilities, and to conduct works aimed to increase efficiency of fire alarm and automatic actuation of fire extinguishing systems.

Keywords: fire alarm systems, fire alarm devices, data processing, automation of fire hazard monitoring systems.

V.V. Romanovsky, B.V. Nikiforov. Electric and power system of deep-sea vehicle: design concept.

The authors offer design concept of deep-sea vehicle capable to submerge on 2000—11000 m depth, provide its main specs and configuration of main assemblies. Vehicle's hull shape are similar to rotation body with horizontal axis. The article describes DC power system for feeding all end-users in the vehicle. Power source is represented by Li-Ion batteries which are currently at early development stage but have high advancement potential.

Propulsive machinery consists of ac converter-fed motors; backup machinery utilizes electric motors with rotor-based permanent magnets. Preferable light sources are external and internal illumination lamps with embedded LEDs, advantages of which are clearly indicated in comparison with conventional illumination lamps.

Keywords: deep-sea vehicle, ac converter-fed motors, accumulator storage battery, propulsive unit, light-emitting diode

D.S. Mizgirev, D.E. Shlyahktin. Experimental analysis of shipboard treatment system for ballast water.

This article offers ballast water purifying and decontamination system using chemical components and physical action to obtain clean water in closed loop.

Keywords: ballast water, purification, decontamination.

A.A. Katanovich, S.N. Matyushkin. Portable onboard cell communication system.

This article reviews a concept for creation of portable onboard cell communication system. Provided are principal technical solutions and specifications of the communication system.

Keywords: vessel, surface ship, cell communication, emergency signal, data exchange, basic station, ship compartments.

E.E. Lyakhovsky. Implementation experience of «pull» cable production system for onboard electric installation works at JSC NPA «Arktika».

This article reviews issues related to cable production at electrical maintenance facilities. The author describes typical features of preproduction and highlights key issues of existing cable production system. The article generalizes practical experience accumulated by JSC NPA «Arktika» in usage of methods and approaches for lean cable production and laying onboard the ship. The author hereby offers interaction algorithm between integration shop and electric installation shop, which allows to minimize stocks, to clear storage space for cable drums, decrease demand in returnable packages and ensure stable delivery of cable devices for electrical installation works. It has been proposed to adopt the implementation experience of the above-described «pull» system at other shipyards.

Keywords: electric installation facilities, planning, production organization, cable production, pull system.

E. A. Kulichkova, A. V. Shmotikov, G. A. Tyumentsev, V. A. Kozlov. Advancement of design technology for shipboard pipe fittings.

DB «Armas» has developed a design technology for shipboard pipe fittings, which increases automation level and effectiveness of all production stages thereof. This technology can be used as basis for development of shipboard pipe fittings and hydraulic equipment of new generation with enhanced specifications.

Keywords: shipboard fittings, design, hydraulic equipment, automation.

A. L. Kuznetsov. Small subsea mine dispensers, type «Z».

The author narrates about design and construction of small subsea mine dispensers for Baltic fleet during the World War I.

Keywords: history of shipbuilding, history of fleet, ship design, submarine, subsea mine dispenser.

V. N. Polovinkin. S.V. Fedulov, B.A. Barbabel. Rationalisation of production procedures at Kronshtadt shipyard during the Great Patriotic War.

This article reviews rationalization works aimed to advance production procedures at Kronshtadt shipyard during the Great Patriotic War.

Keywords: Kronshtadt shipyard, rationalizers and inventors, rationalization works.