

# СУДОСТРОЕНИЕ

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**ПРОЕКТИРОВАНИЕ СУДОВ**

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# SUDOSTROENIE 4 2017

## /SHIPBUILDING/

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### AT SHIPBUILDING YARDS

#### First Uragan-class ship

### SHIP DESIGN

#### **Sazonov K. E. Estimating maximum icebreaking capability during accelerated motion of icebreaker.**

The author hereby states that requirements of Russian Maritime Registry of Shipping to definition of ice-breaker class are excessive. The author proposes to define maximum icebreaking thickness during accelerated motion of ice-breaker. This method is applicable for any ice-breaker or ice-class vessel being designed.

**Keywords:** ice-breaker, icebreaking capability, accelerated motion of ice-breaker.

#### **Zuyev V. A., Moskvicheva Yu. A. Prognostication of media resistance when designing ice-class hovercrafts.**

The authors hereby discuss prognostication of media resistance at low ice-breaking speed (pressure method) using self-propelled/non-self-propelled ice-class hovercrafts.

**Keywords:** ice-class hovercraft, ice breaking, ice resistance.

#### **Dubrovsky V. A. Certain dimensions affect slamming of beams connecting catamaran's hulls.**

Selection of optimal catamaran's dimensions at design stage will greatly affect main vessel specifications, including wave slap intensity caused by slamming during sea disturbance. Calculations revealed, that relative breadth of catamaran's hull stronger affects quantity of wave slaps to the bottom than vertical clearance and therefore to be considered on priority when picking catamaran's dimensions.

**Keywords:** slamming, vertical clearance, catamaran, disturbance, main dimensions.

### CIVIL SHIPBUILDING

#### **Egorov G. V., Tonyuk V. I., Durnev E. Yu. «Saturated» multi-purpose P.RST54 ships for transportation of oil and dry cargo as containers, rolling equipment and special-purpose cargo and other containers.**

Another principal feature of new «Volgo-Don-max» class is increased cargo capacity due to maximum possible length and breadth of the ship as well as extreme hull lines applied in world practice for the first time. Application of multi-purpose P.RST54 ship ensures two way-loading, i.e. back-to-back transfer of oil and dry cargo.

**Keywords:** «saturated» multi-purpose vessel, p.RST54, main features.

### ***Mizgirev D. S., Kurnikov A. S. Using complex waste recycling vessels in modern fleet servicing system.***

This article is focusing on solving the actual issues regarding advancement of fleet full-service system (FFS). The authors have thoroughly analyzed operation and interaction between transit and servicing vessels as part of FFS. The authors have proposed solution on fleet servicing (recycling of wastes from ships and water transport companies), which can solve the above issues in any navigation area. Operational features have been reviewed and recommendations on design of complex waste recycling vessels have been provided.

**Keywords:** fleet full-service, complex waste recycling vessels, shipboard wastes, shipboard wastes recycling.

### **OFFSHORE FACILITIES**

#### ***Mogutin Yu. B., Guseva O. A., Veselova A. V., Vlasyev M. V. Arranging underwater service works at sea oil fields.***

This is final part of article related to organization of subsea service works in offshore oil-gas fields. This article specifies main applicable technologies, equipment and ships.

**Keywords:** service works, subsea production facilities, submersible crafts, diving systems.

### **SHIP POWER PLANTS**

#### ***Zverev D. L., Samoilov O. B., Preobrazhensky D. G., Morozov O. A., Kolomiets B. I., Alexeyev V. I., Silayev V. Yu., Kashka M. M., Darbinyan O. E. Active zones exploitation experience onboard operational nuclear powered ice-breakers.***

This article represents the history of development and exploitation experience of series-production active zone 14-10-3M onboard operational nuclear powered ice-breakers. The author specifies conceptual and principal design solutions, long-term performance and environmental specifications of the active zone. Active zones 14-10-3M were operating for 17 years (18 sets went depleted) and proved high performance of advanced fuel assembly and dispersing smooth-piston fuel cells with zirconium cover.

**Keywords:** active zone, fuel assembly, fuel cell, conceptual and technical solutions, exploitation, long-term performance and environmental specifications, radiation-environmental safety.

### **SHIPBOARD CONTROL SYSTEMS**

#### ***Dorry M. H., Nikishov S. M., Ostretsov G. E., Roschin A. A., Sereda L. A. Survey and comparison of three ship motion control systems along preset trajectory.***

This article describes several control algorithms for automated ship motion along preset trajectory and analyzes their features using special-purpose stand.

**Keywords:** automated motion, specified trajectory автоматизированное, control algorithm.

### **SHIPBUILDING ORGANIZATION AND TECHNOLOGY**

#### ***Zakharov A. A., Kulikov K. N., Parfentiev I. A., Bogdanov G. A. Devices and appliances for machining of inclined tie plates.***

The authors narrate about pilot samples of devices ensuring significant decrease of labor intensity and machining of inclined tie plates, provision of required manufacturing accuracy and deskilling effect to involved personnel.

**Keywords:** inclined tie plates, leveling washers, fixture, magnet plate, adjustment works, machine, foundation.

### **Novikov A. V. Problems and contradictions in managing development of companies comprising JSC «United Shipbuilding Corporation».**

This article is devoted to issues on competitive growth of shipbuilding companies comprising JCS «United Shipbuilding Corporation». The authors analyze «lean manufacturing» programs developed by Japanese company «Toyota Motor» and scheduled for implementation in the above companies as well as accompanying problems thereof.

**Keywords:** lean manufacturing, modular production system, controllable restructuring, automated restructuring, production system flexibility, mass customization.

### **Pavlov A. A., Pozdnyakov V. I. Issues in switching over to best of available technologies in shipbuilding and mechanical engineering industry.**

The authors hereby review main provisions for switching over to environmental standardization on basis of technological standards which include economic encouragement for usage of energy saving and environmental safe technologies, enhancement of responsibility for non-observance of technological regulations. This article indicates that key point for above actions is switching over to best of available technologies in shipbuilding and mechanical engineering industry.

**Keywords:** technologies, best available technologies, environment, regulations.

## **SHIPBUILDING MATERIALS**

### **Kalemintsev I. V. Russian Navy: Implementation of shipboard machinery installation procedure using composite polymeric materials.**

This article analyzes experience of JSC PA «Sevmash» in development and implementation of shipboard machinery installation procedure using composite polymeric materials in Russian Navy.

**Keywords:** JSC PA «Sevmash», composite, polymeric materials, technology, shipbuilding, installation procedures in Russian Navy.

## **INFORMATION SECTION**

### **Outstanding scientist and shipbuilder. Results of IMDS-2017. V V. Zamukov – 70 years anniversary!. Khaustov A. N. Balaklava: objects 825 GTS and 820 RTB. vessels for United Arab Emirates**

## **HISTORY OF SHIPBUILDING AND FLEET**

### **Afonin N. N. Destroyers «Karl Marks» and «Kalinin».**

Destroyers «Karl Marks» (former «Izyslav») and «Kalinin» (former «Pryamislav») hold unique position among Novik-class destroyers. Those destroyers were advanced version of famous «Novik», first turbine-powered destroyer of Russian Navy, carrying most powerful weapons. History of their construction and modernization, drawings and photos has been provided.

**Keywords:** shipbuilding history, naval shipbuilding, destroyer, ship modernization.

### **Kolosov E. E. Appearance of snorkel devices onboard Russian submarines.**

The author narrates about development of snorkel devices for Russian submarines to ensure engine (petroleum/diesel) operation at periscope depth. Drawings and photos have been provided.

**Keywords:** shipbuilding history, naval shipbuilding, submarine construction, submarine, snorkel.

### **Rassol I. R. Technical myths in subsea navigation. Underwater seagals of Zaporozhe Cossacks.**

Maritime activities are one of most complex occupations in the history of humanity, including subsea navigation and submarine construction. Some hard-to-believe stories survived till now. One of most interesting plots can be described as «Underwater seagals of Zaporozhe Cossaks».

**Keywords:** history of shipbuilding, Zaporozhe seagal, submarine construction, submarine.