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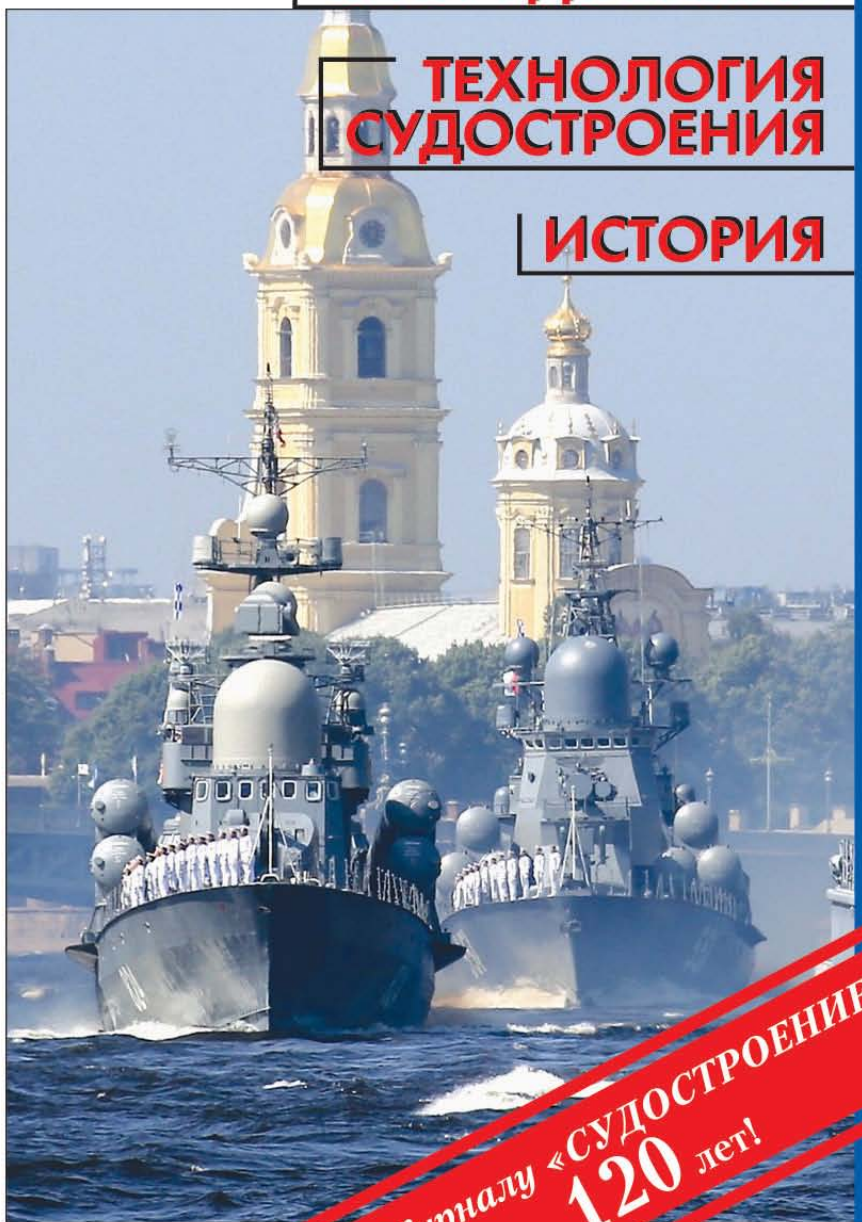
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## /SHIPBUILDING/

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### AT SHIPBUILDING YARDS

**A. A. Vasilyev, N. N. Trubetskiy. Prospects for implementation of modern technologies at river shipyards.**

This article reviews latest achievements of JSC SSTC in development of modern technologies and equipment for river shipbuilding and prospects of their implementation during modernization of LLC «Onega shipbuilding and shiprepair yard», Petrozavodsk, using «Digital shipyard» principles.

**Keywords:** shipbuilding, river ships, technology, automation, bending, welding, laser.

**Yu. A. Pankratov, K. V. Polyanskiy, S. V. Smirnov. Technical retooling and reconstruction of facilities dedicated for diesel-electric submarines at JSC «Admiralty shipyard».**

This article describes establishment of modern, hi-tech, compact and environmentally safe submarine construction facilities based on closed production cycle at South Construction Site of JSC «Admiralty Shipyard». Brief description of adopted technological, architectural, design and space-planning solutions is enclosed.

**Keywords:** JSC «Admiralty Shipyard», JSC SSTC, diesel-electric submarines, reconstruction, compact shipyard, facility, submarine construction, shiprepair, assembly, welding, section, block, geotechnical justification, blasting and painting chambers, building berth, shop, building, span, transborder, station, side, article, fittings, reforming, North construction site, New-Admiralty island, Central construction site, South Construction site, Fontanka river, Ekateringofka river.

**N. Ya. Sherbina, V. A. Zimin. 20th century as the beginning of nuclear-powered shipbuilding.**

The authors narrate about development of NPP, fault-free operation provision, new technologies, construction materials.

**Keywords:** submarine, nuclear power plant, project, trials.

**N. I. Gerasimov, D. N. Kanaev, I. V. Grachev. Modular installation method of shipboard NPPs: main development prospects.**

The authors hereby analyze technical and economical efficiency granted by implementation of modular installation method for power and common-purpose equipment during construction of marine facilities. The article shows broad implementation prospects of modular installation method for power plants by enlarging the assembly units. Main technical issues related to assembly and installation of large-dimensioned and heavy assembly units have been defined and relevant solutions have been nominated.

**Keywords:** power plants, modular installation method, large-dimensioned articles, precise positioning, hydrodynamic flushing.

**V. V. Barskov, V. S. Kotov, A. V. Pankratov. Using additive technologies for production of gas-turbine engines for Russian Navy.**

In frames of import-replacement program, R&D works are being conducted to prepare domestic serial production of marine gas-turbine engines. Relevant researches revealed advantages of additive technologies in production of new generation gas-turbine engines based on polymeric materials.

This article contains results of physical-mechanical tests (compression, bending and tear) of ABS resin and polymeric material ПА-12 and procedure of GTE parts production from the above materials and using FMD and SLS technologies.

**Keywords:** additive technologies, gas-turbine engines, physical-mechanical properties, polymeric materials.

**E. A. Bubnov, D. V. Ivanov. Information supporting systems for ship systems operators: information representation pertinence.**

This article reviews pertinence of information submitted to ship systems operator as a key concept of information supporting (IS) theory. The author has semantically analyzed the above concept, revealed properties and patterns of information pertinence in IS systems and comparatively analyzed pertinence rate of shipboard and common-purpose IS. The author has described main methods to provide shipboard IS pertinence depending on IS strategy applied.

**Keywords:** information support, shipboard operator, information submission pertinence, pertinence content structure, information support postulate.

**V. P. Shegolikhin. Algorithm to reveal «acoustic-faulty» mechanisms in ship power compartments.**

Shipboard acoustic check systems are used to reveal «acoustic-faulty» mechanisms, but actual operation conditions may distort their readings due to induced vibration of adjacent mechanisms. The author hereby describes the algorithm which solves the above issue and substantially expands vibroacoustic check capabilities.

**Keywords:** vibroacoustic control, induced vibration, vibration measurement, spectral frequency bands.

**V. Yu. Shungin, A. V. Konyshev. Application prospects for rotary-local deforming method and replacement of pressing equipment in hull shops at Russian shipyards.**

The experience suggests, that bending by rotary-local deforming method (RLD) can be successfully used for shaping of hull plates and can replace such methods as forming, hot bending and local heating bending.

Application of RLD technologies has been continuously expanding at Russian shipyards, mostly because of successful exploitation of MGPS machines produced by JSC SSTC. However, application of roller add-ons for heavy-duty presses which are mostly designed for forming, causes certain technical difficulties. Domestic heavy-duty bending machines are not available thus forcing a customer to rely on foreign technical solutions, which do not always consider specific requirements to hydraulic presses and bending jigs and fixtures required for RLD implementation. The same situation is applicable to profile bending machines, where few remaining machines of a domestic origin have gone obsolete in all the aspects. Therefore, it seems feasible to establish design and production facilities of heavy-duty bending system in the territory of Russia. Currently, most demanded plate bending and profile bending presses should respectively have 500 tf and 250 tf bending capacity. JSC SSTC renders R&D activities aimed to establish production of plate and profile bending systems of Russian origin. Experience accumulated in production of MGPS machine together with application of foreign equipment will be useful to avoid various errors and minimize project implementation expenses.

**Keywords:** roller press, pressing and bending equipment, profile parts, plate bending presses, bending rollers, roller add-on, rolling device.

***D. P. Khitrykh, M. S. Raymers. Development of advanced calculation method for cavitation performance of 2D-profiles.***

This article reviews advanced methodology for calculation of cavitation performance of 2D-profiles based on using the gas-dynamic package ANSYS CFX for automation of main stages of calculation experiment. The developed methodology ensures noticeable timesaving and prevention of errors upon optimization of liquid ends of impeller pumps by means of preliminary calibration of cavitation and turbulence math models. Calibration is based on numerical calculations of cavitation flow of 2D-profiles used for construction of liquid ends of impeller pumps.

**Keywords:** cavitation, cavitation flow, shipboard pumps, hydrofoil, SST-model of turbulence, automation.

***V. G. Andriyenko «A.E. Nordenskjold» – Arctic steam vessel of A. M. Sibiryakov.***

Steam vessel «A.E. Nordenskjold», special order of Russian entrepreneur A.M. Sibiryakov in Sweden for Arctic cruising can be considered as the first ice-breaking steam vessel under Russian flag.

**Keywords:** ice-breaking steam vessel, Kara sea route, Arctic cruise, expedition of A. E. Nordenskjold.

***D. M. Vasilyev. «Riga» transport.***

This article traces history of acquisition and service of «Riga» transport as part of gunnery school division of the Baltic fleet in 1905–1917.

**Keywords:** history of shipbuilding, steam vessel, transport, training vessel.

***M. I. Pridannikov. Patrol boats of Norway origin as part of Russian Navy.***

The author hereby reviews construction issues of patrol boats for Baltic fleet, ordered in Norway during World War I (1914–1918). Photos and specifications thereof have been enclosed.

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

***V.P. Mozgovoy. Ensuring combat stability of boats in the course of combat training.***

Narrates about activities for combat stability of boats in the course of combat training (1941–1945).

**Keywords:** combat stability, boats, combat training.