**1**

**Nave lansatoare de conducte: descriere și clasificare**

**Pipelay Vessels: Description and Classification**

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**Abstract** The continuous development within the oil and gas industry, as well as the experts` continuous concerns to optimize the transport of the petroleum and its derivate products, have led to the appereance of new offshore technologies in the pipelaying area of activity. These technologies imply using specialised vessels in the pipelay activity, outfitted with performant equipment, which comply with the current environmental requirements and have a high degree of safety for the involved personnel during exploitation.

In this regard, this study has the purpose to present the general problems concerning the pipelay activities, regarding the vessels and the used technologies. Furthermore, because of the references and the added notes by the author, this text is designed to serve as a guide in the offshore pipelay technologies.

*Keywords*: pipelay, pipelay barge, pipelay vessel, offshore construction, offshore engineering, oil & gas.

2

**Stadiul actual în industria lansării conductelor offshore**

**Current Status of the Offshore Pipe Laying Industry**

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**Abstract** Within the offshore industry, the pipe laying process could also be defined as a big engineering challenge. Because of that reason, the biggest names in the pipe laying industry have brought this domain to a very high level when it comes to methods of construction and operation. From the pipe dimensioning to the moment in which they are launched on the sea-floor, each company that leads these kind of operations have put their mark on the development and revealing new innovating methods of work.

Regarding this matter, the present piece of work aims to bring a particular presentation on different methods or specific equipments available with the courtesy of various operators from the pipe laying offshore industry. These features were gathered and put into context by the author, together with some personal notes and observations.

***Keywords***: pipelay, pipelay vessel, S-lay, J-lay, reel lay, offshore construction, fire-line, oil & gas.

3

**Stucturi metalice pentru construcţii hidrotehnice speciale. Porţi de ecluză. Particularităţi de calcul.**

**Special hydrotechnic steel structures construction. Lockgates. Computing features**

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**Abstract** The study shows peculiarities calculation of buscate gates, located in composing lock gates placed on inland. The construction of buscate gates allows to transport all kinds of merchandise including: solids (grains, food, constructions materials, etc.) liquids (oil, fuel, etc.) and gases used in all fields of industry.

The case study was applied to buscate gate, downstream head, Agigea dock, placed on the Danube Black Sea Channel, Romania.

*Keywords*: Buscate gate, Lock, Danube Black Sea Channel

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**Instalaţie pentru prevenirea amestecului apei dulci cu apa sărată**

**Installation to prevent salt water mixture fresh water**

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**Abstract** This article presents a case study of an air curtain placed in the airlock head lock both downstream and upstream head.

Due to the nature of maritime and river transport activity under international law is imposed limiting the migration of flora and fauna from one area to another. Shifts of climate zones differences led over time to the migration of flora and form that made different species simply disappear.

To prevent ingress of seawater into waterways, so mixing salt water with fresh water provides pneumatic submersible curtains. Air curtain is formed before the opening portions of the service and stops at the end of its closing.

*Keywords*: submersible curtain, lock, upstream head, downstream head

5

**Adaptarea automacaralei DEMAG TC 600 la deplasarea pe calea ferată**

**Adaptation of DEMAG TC 600 crane to moving by rail**

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**Abstract** Study present the need to develop new methods for adaptation stems from necessity and opportunity to use equipment with a widw-ranging arm, high lifting capacity and the interchangeability of the various methods of transport.

The increased sea and inland waterway traffic demands us to find new technical solutions which allow: the use of lifting equipment in all naval operations involving loading and unloading, the use of cranes in handling all types of merchandise, an efficient use of fuels and lubricants, lowering the costs of handling, reducing the environmental pollution.

*Keywords*: inland, crane, traffic

6

**Debitarea robotizată a tubulaturilor**

**Robotic dispensing tubing**

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**Abstract**. The latest generation of CNC machines used type commands to synchronize various linear and rotary axes. Pipe cutting is done in many forms. As robots and the main controls are programmed series production, adapting this ordinary product can provide economic machine.

*Keywords:* robots, CNC, MIG-MAG

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**Studiul privind elaborarea planului de control nedistructiv pentru rezervorul de aer cu capacitatea de 20 m3**

**Study on the development plan for nondestructive test for an air tank with a capacity of 20 m3**

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**Abstract** Non distructiv test: Materials tested with nondestructive test is more than 40 years old. From the very first examinations, using ultrasonic and X ray for detection of flaws in different materials, it has become a classical test method based on measurements with due regard to all the important influencing factors. Today it is expected that nondestructive testing, supported by great advances in instrument technology, give reproducible test results within narrow tolerances. In this paper I will try to explain how to plan a nondestructive test foar an air tank with a capacity of 20 m3. I will explain what equipment is needed to perform NDT and what steps must be followed to make a proper control.

*Keywords*: air tank, Liquid penetrant, Ultrasonic, X-ray

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Unele consideraţii privind navele RO-RO

Some Considerations on the RO-RO ships

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**Abstract** În this paper we will talk about a type of ship called RO-RO (roll on-roll off). This ship is a type of specialized marine vessel for transport of vehicles, trailers with containers, tracked vehicles, buses and so on. We begin with a brief historical în which we will outline the past of this type of boat, we describe its generalities and talk about types and design features, hybrid models and technological connections overdue specific innovative features the base model ships that were derived from these great innovations.

*Keywords:* RO-RO, marine vessel, transport, vehicles, generalities, hybrid, technological, innovative.

**9**

Considerații generale privind manevrabilitatea unei nave de aprovizionare a platformelor

General consideration on handling a platform supply vessel ship

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**Abstract** All vessels must be able to respond to commands to control speed, sterring or march, in crowded areas such as porst or vessels used in drilling and extraction must keep a fixed possition to the seabed. To respond to these requirements, vessels must produce a thrust forward or backward, yaw moment and lateral trust. Based on these considerations, this paper presents the steps that must be taken to determine the handling for a platform supply vessel.

*Keywords:* girația navei, manevrabilitate, sistem de guvernare.

**10**

**Determinarea momentului de frecare în etanşări cu manşetă de rotaţie.**

**Determination of the friction moment sleeve rotating seals.**

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**Abstract** Through this study aims to determine experimental friction losses in rotary cuff seals, rotary shaft for lubrication with different roughness in the contact area and the different modes of lubrication in the contact area. The system allows the measurement of frictional torque for rotating the sleeve mounted to the eccentricity. The system allows the timing of the rubbing lip seals of rotation, depending on the roughness of said shaft for lubricating various ways (with lubricating grease lubrication, oil lubrication), and mounting eccentricity e = (0 ... 0.75) mm.

*Keywords:* rotating seals, lubrication, rotary shaft

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**Studiu privind elaborarea unei linii tehnologice mecanizate în vederea sudării produsului condensator de sulf cu capacitatea de 9,2 m3**

**Study on development of a mechanized production line for welding a 9,2 m3 capacity sulfur condenser**

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**Abstract** Mechanised welding = Welding in which the welding parameters are controlled mechanically or electronically and may be manually varied during welding to maintain the required welding position.

Successful application of mechanised systems can offer a number of advantages. These include increased productivity, consistent weld quality, predictable welding production rates, reduced variable welding costs and lower part costs. Limitations include higher capital investment than for manual welding equipment, a need for more accurate part location and orientation, and more sophisticated arc movement and control devices. As such, production requirements must be large enough to justify the costs of equipment and installation, the maintenance of equipment and the training of operators/programmers for the equipment.

In this project, I will propose some methods for a mechanized production line for welding a 9,2 m3 capacity sulfur condenser.

*Keywords:* mechanised, weld, production line, condenser

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Asamblarea corpului navei prin metoda prefabricaţiei

Precast method to hull construction

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**Abstract** Hull splitting in precast is the most efficient way to assembly the ship. This method is used in many naval shipyards around the world.

*Keywords:* hull assembly, precast method, shipyards, prefabricated elements, welding.

13

**Metode de determinare a ponderii defectelor de sudură în şantierul naval Vard Tulcea**

**Methods for determining the weight of weld defects Tulcea shipyard Vard**

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**Abstract** This paper presents the main welding defects, and their rate in VARD Tulcea shipyard in 2012.

*Keywords:* defects of welding, welding, shipyard, non-distructive testing, results.

14

Tehnica îndreptării şi rigidizării planşeelor navale cu ajutorul întăriturilor suplimentare

**Technical straightening and stiffening the floors naval additional reinforcements**

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**Abstract** This paper presents the main procedures for additional stiffners and reinforcements used in VARD Tulcea shipyard .

*Keywords:* Stiffeners, deck, bulkhead, fillet welding.

15

Mecanism de acţionare cu raport de transmitere variabil şurub – piuliţă şi cremalieră – sector dinţat

Actuator with variable gear ratio screw – internal screw and rack – notched quadrant

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**Abstract.** I have designed a steering box with a variable transmission report, more precisely, the bigger the turning is, the lower the effort in steering the wheel. The steering box also contains an electric engine, a motor drive over the steering column using as a source of power, the electricity.

16

Particularităţi constructive ale scrubberelor

Constructive particularity of scrubbers

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**Abstract** Inert gas system is of particular importance as acts of prevention, while other facilities have fire-fighting role after it was launched. Scrubber (scrubber absorber) is the element of the system in which the cooling and cleaning of solid particles and sulfur compounds from flue gas volume taken from the main and auxiliary marine boilers or flue gas generator self. All of types of scrubbers are watching a good contact between the gas and the absorbing liquid. From this point of view, there are four types of scrubbers: tray, filled with water spray, combined. Scrubber is designed to absorb the sulfur dioxide diffusion method of the flue gases to cool the gases and to remove solid impurities (soot, ash).

*Keywords:* Scrubber, Inert gas system, Pollushon Free, filters, solids

**17**

**Managementul siguranței structurilor marine offshore**

**Safety Management of Offshore Marine Structures**

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**Abstract** In this article it is done a study of offshore structures disasters therefore to analyse the main accidents roots. Those aries due design, fabrication and operation errors. The most important errors which are resulting in major disaster are the human errors.

The safety management of marine offshore structure is a relative new concept. This was required to minimize the fatalities, environment and property losses.

It is done one critical analysis of Petrobras P - 36 disaster to do an easy comparation of the main causes and the poor safety management which caused the disaster.

*Keywords*: Safety Management, Offshore Structures, Oil Rigs

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Nave specifice industriei offshore de petrol şi gaze

Offshore oil and gas specific vessels

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**Abstract** In this article there are presented the main vessels and equipment with specific functionality of the activities in the offshore oil and gas industry. To meet the needs of the staff working at sea, these ships are varied and differ according to the nature and the services they provide. The main types of vessels that are presented in the article are used in oil exploration and drilling, to supply, accommodate, and also in construction and special operations.

*Keywords:* offshore, offshore industry, offshore vessels, OSV, offshore production vessels, offshore construction vessels, oil exploration and drilling vessels.

19

Tendinţe ale utilizării hidrocarburilor halogenate în stingerea incendiilor

Trends in the use of halogenated hydrocarbons in fire

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**Abstract** Many operators have equipped their vessels with large halon systems because halon is relatively clean, electrically non conductive, compact and effective. However, halon is rapidly disappearing from the scene, and mariner need to find satisfactory replacements. Although halon 1301 is probably the best fire-extinguishing agent ever made. Halon fire extinguishing agents are used throughout the world to protect valuable electronics, oil and gas production, military systems, as well as many other critical operations. Unlike CO2, Halon 1301 does not smother a fire. Instead it interferes with the combustion cycle that occurs in a fire, arresting the heat proucing reactions. Whilst halon is not toxic at normal temperatures at temperatures above 800 °C toxic vapours may be given off.

*Keywords:* Halon 1301, INERGEN, ARGONITE, NOVEC1230, fire system extinhuishing, halogenated hydrocarbons, reduce the concentration of oxygen

**20**

**Studii privind influenţa preîncălzirii aspura eliminării riscului de fisurare la rece
la sudarea oţelurilor pentru construcţii**

**Studies on the influence of preheating about eliminating risk of cold cracking
of construction steels welding**

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**Abstract** This paper work propose to study cold cracking phenomenon about unalloyed construction steels and determination of optim preheating temperature to eliminate this risk. In welding construction cracking are unwanted defects, no matter in what quality class welded joint are framed from one structure. Cold cracking, from own formation mechanism (character appearance delayed), is most afraid imperfection. Because of that is necessary a fair cold cracking evaluation of steels sensitivity, this analyzes beeing one of the steels weldability checking. Preheating represent one of the cold cracking elimination method, way and determination preheting temperature correctness representing an important decisional step from view point of corresponding elaboration welding proceeding.

*Keywords:* preheating, construction steel, cold cracking, unalloyed steels.

21

Studiu privind analiza chimico-mecanică a cordoanelor de sudură din structura rezervorului de evacuare apă de proces, realizate prin procedeele SE şi MAG cu sârmă tubulară

Study on chemical-mechanical analysis of the welds in the structure of process water drain vessel, made by SE and MAG with tubular wire processes

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**Abstract** Providing certain mechanical and structural characteristics for a wide range of steels, it becomes increasingly difficult, especially for fine grain steels, which establish welding regimes based on geometrical elements of the weld is not enough anymore. In such circumstances, the trend of development of tehnology becomes predominant, so as to ensure optimum mechanical and structural characteristics.

In the present paper were experimentally determined mechanical and chemical characteristics of some welds from a proccess water drain vassel.

**Keywords:** cusături; caracteristici; proprietăţi; sudură; îmbinări; procedee; materiale; rezervor.

22

Tehnologii integrate pentru sistemele de propulsie navală

**Integrated technologies for marine propulsion systems**

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**Abstract** The paper presents the issue related to integrated technologies for naval propulsion systems, an overview of the current status and trends of marine propulsion.

*Keywords:* marin**e** propulsion system, rudder-propeller, naval installations, hydrodynamic tunnels.

23

Optimizarea operaţională a instalaţiei de aer comprimat

**Operational optimization of compressed air installation**

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**Abstract** The compressed air supply source is widely used in modern production and is therefore responsible for a great deal of energy. This paper provides an overview on the use of compressed air installation vessel, from design to optimize itself and the installation of compressed air. Optimizing operational compressed air installation refers to ways of reducing operating costs associated with air system (between 25 ... 60%).

*Keywords:* compressed air, energy efficiency, measurement.

24

Tehnici CAD-CAM de modelare şi analiză în proiectarea navală

**CAD-CAM techniques of modeling and analysis in the shipbuilding design**

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**Abstract** In this paper are pointed out the areas of technical problems that are soved using special CAD/CAM softwares, in the shipbuilding industry. The influence of modern tecchnics in this field gives a new trend in the developement of the design processes, a new direction that leads to a standard ship documentation, from paper support digita, which allows processing, using and modifieing large quantities of information in a short period of time. To highlight these features of CAD/CAM techniques, the object of study, school’s ship „Ovidius”, a tug with a 150 HP engine, was the subject of different sets of measurements, and the geometry and other technical characteristisc were transposed as a 3D model in the virtual space offered by the specialized sofwares. Using a various range of simulations and trials, we were able to complete the reverse road from the final product (school’s ship) to the initial project, prompting the hydrostatisc and hydrodinamics characteristics of the model, and also checking the sress applied to the docked ship.

*Keywords:* CAD/CAM, analysis, design, modeling

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**Soluţii neconvenţionale de propulsive a submarinelor**

**Unconventional solutions for submarines propulsion**

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**Abstract** The focus of this paper is the presentation of some considerations about the unconventional solution submarines propulsion and the main approach to efficient propulsion systems.

*Keywords:* magneto-hydrodynamic propulsion system, contact layer control, superconducting technology.

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Consideraţii privind dezvoltarea offshore

Considerations on the development of offshore

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**Abstract** This article refers at all the activities related to offshore like drilling and inspection în subsea environment. The main form used to explore offshore are oil rigs and specialized vessel for this activities. Also this article is developing a few things about semi-submersibles because they are really interesting how they can adapt in this environment.

*Keywords:* Offshore, Platforma, Foraj, Inginerie

**27**

**Proiectarea construcţiilor metalice utilizând blocuri dinamice parametrizate**

**Metallic structures CAD, using parametrized dynamic blocks**

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**Abstract:** In metallic structures design it is often used standard or internal defined parametrized repetitive content, as beams crossections and substructures. For AutoCAD and AutoCAD Mechanical users two case studies on cross sections are presented. Combinations of standard and user defined shapes can be used for dynamic block definitions, with variable content regarding main dimensions. These parametres can be linked with data bases and spread sheets for sectional characteristics calculus and bill of materials information.

***Keywords*:** dynamic block, repetitive content parametrization

**28**

Studii privind corelarea ciclurilor termice cu duritatea maximă din ZIT la sudarea otelurilor pentru construcţii

**Studies on the correlation of thermal cycles with maximum hardness of HAZ in welding construction steels**

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**Abstract** The aim in this paper presentation is to determine the maximum hardness of heat affected zone (HAZ) for construction steels, allied by the influence of welding parameters regime by varying the concentration of carbon (C) and various other allied elements such as silicon (Si), manganese (Mn), copper (Cu), nickel (Ni), chromium (Cr), molybdenum (Mo), vanadium (V).

*Keywords:* maximum hardness,construction steels, heat affected zone.