



Hidraulica

1. REGLAREA VITEZEI DE rotație A ASPERSORULUI **Dr.ing. Constantin NICOLESCU**

THE MANUAL ADJUSTMENT OF THE ROTARY SPEED AT THE SPRINKLER

Abstract:

The study presents an analysis of the rotation of a sprinkler type ASJ 1M, metal made, largely used in practice, operating on intermittent and in horizontal plane rotation. The obtained results cover the following issues: time of a complete rotation; number of shocks for one complete rotation; minimum operating pressure; working features influenced by the rotary speed. It is also presented the influence on pluviometrics, radius of action, irrigation quota, ageing stage and uniformity ratio. In the end we proposed the design of a device for remote shock numbering in order to make specific manual adjustment and verify the quality of repair and maintenance procedures.

2. ECHIPAMENT HIDRAULIC DE ÎNDOIT ȘINĂ DE TRAMVAI SAU ȘINĂ DE CALE FERATĂ

Conf.dr.ing Constantin CHIRIȚĂ **Ing.Daniel CALFA**
Ing. Adrian HANGANU **Ing. Laurențiu DAMIAN**
Stud. Vasile DAMASCHIN

HYDRAULIC EQUIPMENT FOR BENDING TRAM OR RAILWAY TRACKS

Abstract:

The paper presents a device for bending tracks, its functional characteristics and also the advantages of using it.

3. ECHIPAMENT PROPORȚIONAL DE REGLARE A PRESIUNII **Dr. Ing. Gabriela MATACHE; dr. ing. Petrin DRUMEA; drd. ing. Mircea COMES;** **drd.ing. ILIE Ioana**

PROPORTIONAL EQUIPMENT FOR ADJUSTING PRESSURE

Abstract:

The paper is concerned with a novel patented solution for a proportional pneumatic pressure regulator with membrane. There are also presented methods for testing the regulator which result in raising the power supply and force characteristics.

**4. CERCETĂRI TEORETICE ȘI EXPERIMENTALE PRIVIND
MODERNIZAREA SISTEMELOR HIDROSTATICE DE LA MESELE
ROTATIVE GRELE**

Conf.dr.ing.Dan PRODAN, Universitatea POLITEHNICA București

**THEORETICAL AND EXPERIMENTAL RESEARCH ON THE
MODERNIZATION OF THE HYDROSTATIC SYSTEMS IN HEAVY ROTARY
TABLES**

Abstract:

On modernizing heavy rotary tables a full restoration of the hydrostatic systems was required. The paper presents some theoretical and practical aspects which are specific to such an intervention. The device is designed to process very large pieces, dozens of tones in weight.

**5. ACTUALITĂȚI ÎN CERCETAREAȘI PROIECTAREA HIDRODINAMICĂ A
TURBINELOR HIDRAULICE**

Prof.dr.ing. Mircea BĂRGLĂZAN

**UP TO DATE INFORMATION ON HYDRODYNAMIC RESEARCH AND
DESIGN OF HYDRAULIC TURBINES**

Abstract:

The paper presents a study on classic turbines existing in Romanian hydroelectric power plants and also the achievements of Chair of Hydraulic Machines in Faculty of Mechanics in Politehnica University of Timisoara.

**6. PUNCT DE VEDERE PRIVIND CERINȚELE SPECIFICE UNUI SISTEM
PENTRU MĂSURAREA UMIDITĂȚII SOLULUI IRIGAT**

Dr.ing. Constantin NICOLESCU

dr. ing. Petrin DRUMEA

**VIEW POINT ON SPECIFIC CHARACTERISTICS AT TRANSDUCERS
OF SYSTEM FOR MEASURING IRRIGATION SOIL MOISTURE**

Abstract:

The paper presents the importance of soil moisture determination in interrelations water - soil - stages - plant - environment, for rational management of irrigation. There are presented a number of 14 methods used for soil moisture determination in national and international scale and one proposal of classifying them in 8 groups, by 2 - 3 subgroups. The main characteristics of these methods are used in formulating the requirements for the transducers proper for the determination of irrigation soil moisture system. There is also presented one study of case with the characteristics for each of the three elements compounds: measuring method, sensor and adapter.

7. SISTEME DE ECHILIBRARE ÎN CIRCUIT ÎNCHIS

Conf. dr. ing. Dan PRODAN; Șef lucrări dr. ing. Anca BUCUREȘTEANU

BALANCING SYSTEMS IN CLOSE CIRCUIT**Abstract:**

This paper proposes the drawing up of a calculus methodology for balancing systems in heavy machine tools. The topic under discussion is balancing systems in close circuit with using of pneumohydraulic accumulators. In the end we drew a parallel between these balancing systems and those operating on varying flow pumps and pressure controller.

8. CERCETĂRI TEORETICE PRIVIND REALIZAREA DE JETURI PULSATORII DE FOARTE ÎNALTĂ PRESIUNE ÎN SCOPUL CREȘTERII PERFORMANTELOR ȘI EFICIENȚEI PROCESELOR DE PRELUCRARE CU JETURI CONCENTRATE DE APĂ

ing. Leonard TEODORU CSP III SC ICTCM SA București; ing. Valeriu AVRAMESCU CSP II SC ICTCM SA București; ing. Valentin MIHĂILESCU CSP II SC ICTCM SA București; sing. Condurache DUMITRU sing.pr. SC ICTCM SA București

THEORETICAL RESEARCH ON ENGENDERING VERY HIGH PRESSURE PULSATORY JETS IN ORDER TO IMPROVE PERFORMANCE AND EFFICIENCY IN PROCESSING BY MEANS OF CONCENTRATED WATER JETS**Abstract:**

The paper theoretically substantiates very high pressure pulssatory jets; it presents the specific physical phenomena at the basis of their generation as well as the mathematical relations expressing them, from a quantitative point of view. In the end, in accordance with the theoretical study, we draw some conclusions upon the estimated results with regard to the pulsatory jets, upon their specific parameters in proportion to those of continous jets.

From the point of view of undulatory phenomena, water flow through high pressure pipes is characterized by:

- the medium for wave transfer is open, connected to the outside at one end;
- the spread direction is axial, being unidimensional;
- the motion of generator engenders pressure pulses by compressing liquid.

These issues led to the conclusion that the waves engendered in pressure pipes are compression progressive waves (unlike stationary waves which are characteristic to close media) similar to sound waves that spread through air. The spread direction being axial, the waves are longitudinal; thus, the equations describing them have one-dimension expression.

9. CERCETAREA COMPORTĂRII DINAMICE A MECANISMULUI DE RIDICARE-COBORÂRE CLEȘTE DIN COMPONENTA MANIPULATOARELOR DE FORJARE

Dr.ing. Corneliu CRISTESCU* ing. Constanța CRISTESCU**

THE RESEARCH OF THE RISING MECHANISM DYNAMIC BEHAVIOUR WHICH BELONGS TO THE MODERN FORGING MANIPULATORS

Abstract:

The paper presents the results following the theoretical research of the rising mechanism dynamic behaviour for a modern forging manipulator. Using the mathematical modelling and the computer simulation, it can determine the parameters with sensitive behaviour and it can optimize the dynamic rising regimes.

10. TEHNICA GENERĂRII PROGRESIVE A PRESIUNILOR ÎNALTE ÎN LICHIDE

Dr. ing. Petrin DRUMEA; ing. Gabriel RĂDULESCU; ing. Nicolae IONIȚĂ

THE TECHIQUE OF GRADUALLY ENGENDERING HIGH PRESSURE IN LIQUIDES

Abstract:

The present paper submits, from both a constructional and functional point of view, a technical solution for a hydrostatic high pressure progressively operating generator.

11. SISTEM DE ACȚIONARE HIDROSTATICĂ UTILIZAT PE STANDURILE DE PROBARE A POMPELOR CENTRIFUGE

**Drd. ing. Costinel POPESCU; drd. ing. Gheorghe ȘOVĂIALĂ; dr. ing. Constantin
NICOLESCU**

HYDROSTATIC DRIVING SYSTEM USED ON TEST STANDS FOR CENTRIFUGAL PUMPS

Abstract:

The present paper is concerned with a novel method of driving centrifugal pumps on test stands allowing raising their specific curves. The shaft of the pump being tested is driven via a hydrostatic actuating system which consists of two volumetric machineries, an oil tank, a safety valve and a three-phase induction constant speed electric motor. Such a stand uses two different working fluids: water - for the rotary pump being tested and hydraulic oil - for the hydrostatic system which engenders mechanical power needed in order to drive a rotary pump through the tests.

12. RHEOLOGY OF SOLDER PASTES FOR SMT APPLICATIONS**Alexandru MARIN, Daniel SIMION-ZANESCU****“Politehnica” University of Bucharest****Abstract:**

The field of electronic packaging, in the context of chip miniaturization and very high I/O densities- i.e. flipchips with I/O connections at 100 μm pitch poses very challenging issues to the electronics manufacturing community, in terms of producing reliable solder joints, of very high density, and at very low cost. Pb-free solder materials are continuing to attract a great deal of interest within the electronics manufacturing community due to an increasing trend towards producing ‘Green’ electronics products.

The paper presents some rheological measurements, destined to provide useful data for understanding flow behaviour of solder pastes in the stencil printing process. Factors affecting the rheology of solder pastes are alloy type, particle size distribution (PSD), metal content and flux vehicle system. Removal of lead from the solder paste and developments in the flux to accommodate Pb-free materials will inherently affect the flow properties of the solder paste. Therefore, it is essential to the stencil printing process that these new lead-free materials are characterized in a rheological nature. This study, therefore, aims to understand the rheological behaviour of certain lead-free solder pastes for flip-chip assembly applications and to subsequently assist in new formulations replacing lead solders. The fundamental aspects for processability of the double layer no-flow underfill are studied. The important materials and process parameters affecting the yield of flip-chip interconnection with filled no-flow underfill are investigated.

We also compared the mechanical properties of the soldered joints before and after two different types of aging: temperature and humidity aging.

**13. CERCETĂRI EXPERIMENTALE PRIVIND IMPLEMENTAREA
CONVERTOARELOR NECONVENȚIONALE ÎN APARATURA HIDRAULICĂ
ȘI PNEUMATICĂ PROPORȚIONALĂ****Mihai AVRAM, Despina DUMINICĂ, Daniel BESNEA, Viorel GHEORGHE**

EXPERIMENTAL RESEARCH ON IMPLEMENTING NON-CONVENTIONAL CONVERTORS IN PROPORTIONAL HYDRAULIC AND PNEUMATIC EQUIPMENT

Abstract:

The study presents some applied research activities undertaken on non-conventional convertors. There are also described the test stands used in such research, adding the conclusions these tests led to.

14. RIDICAREA CARACTERISTICILOR LA PRESA HIDRAULICĂ DE ATELIER 75tf CONECTATĂ LA UNITATEA DE ACȚIONARE HIDRAULICĂ, DE PRESIUNE RIDICATĂ SERIA 700 BAR

Conf. dr. ing. Constantin CHIRIȚĂ* Drd. ing. Adrian Constantin HANGANU*

Ing. Corneliu COMANECI* Prof. dr. ing Boris PLAHTEANU**

Dr. ing. CS III Petru CÂRLESCU**

RAISING THE FEATURES AT THE WORKROOM HYDRAULIC PRESS 75tf WHICH IS CONNECTED TO A HYRAULIC DRIVING UNIT, HIGH PRESSURE, SERIES 700 BAR

Abstract:

This paper points out, by means of experimental tests and by processing data collected using calculus technology, the specific features pressure - displacement, loading - displacement throughout one complete working cycle at the workroom hydraulic press type HPHD - 075.150 which engenders a force of 75 tf.

Obtaining these characteristics allows one to conclude as to the working parameters of the press throughout one complete loading - unloading cycle and of the hydraulic driving unit with multiplier by means of which the pressure needful to the press is engendered.