SAVERIN, M.M., professor, doktor tekhnicheskikh nauk; PRONIN, B.A., kandidat tekhnicheskikh nauk, redaktor; BALASHOV, B.F., kandidat tekhnicheskikh nauk, retsenzent; POPOVA, S.M., tekhnicheskiy redaktor.

[Shot peening; theory and practical application] Drobestruinyi naklep; teoreticheskie osnovy i praktika primeneniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1955. 311 p. (MIRA 8:4)
(Shot peening)

BALASHOV, B. F.

"Nitriding as a method of increasing strength of machine parts" a paper presented at International Conference on Fatigue of Metals, London, Sep. 56.

DSI. No103

AVDEYEV, B.A.; MALASHOV, B.F., kandidat tekhnicheskikh nauk, retsenzent; KHARITONOV, I.I., inzhener, retsenzent; BORISOV, S.V., inzhener, redaktor; MOIKL', B.I., tekhnicheskiy redaktor.

[Testing machines and instruments] Ispytatel'nye mashiny i pribory. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1957. 350 p. (MLRA 10:4)

(Testing machines)

31007
S/124/61/000/009/048/058
D234/D303

26.2122

AUTHOR: Balashov, B.F.

TITLE: Fatigue of compressor blades

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 9, 1961, 40, abstract 9 V373 (V sb. Vopr. prochnosti materialov i konstruktsiy, M., AN SSSR, 1959, 313-315)

TEXT: Results are given of investigating the durable strength of models of lock joints of blades with a disc of the "swallow-tail" type, also profile parts of blade models with sharp edges and natural blades of compressors, with respect to blade material, methods of their strengthening treatment (nitrogen treatment and cold surface working), structural and technological factors (rounded and sharp blade profile etc.). Investigations were carried out at normal temperature and at vibrations in the fundamental tone. Tests of models of lock joints were carried out on a resonance machine with variable bending with the frequency of 70-80 cy-

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31007
S/124/61/000/009/048/058
D234/D303

Fatigue of compressor blades

cles and the basis of 2×10^7 cycles with static extension corresponding to centrifugal forces. Tests of profile parts of blades were carried out with vibrations from an electrodynamical vibrator with the frequency of 400-500 c/s and the base of 5×10^7 cycles. Fatigue curves of models of lock joints of blades and profile parts of blades, also photographs illustrating the development of fatigue cracks and contact surface wear in models of lock joints, are given. During investigation it was established: 1) Fatigue cracks in the lock joint are developed in the section of the tail of blade which touches the disc edges in the place where the blade tail comes out of the groove. At the static tensile stress of 20 kg/mm^2 the fatigue limit of a model of blade tail made of 18ХНВА (18KhNVA) and ЭИ-268 (EI-268) is respectively 14 and 16 kg/mm^2, and at static tensile stress of 10 kg/mm^2 the fatigue limit of a blade tail made of ВД-17 (VD-17) alloy is 2.5 kg/mm^2. Cold surface working of blade tails made of 18KhNVA and EI-268 steels increases the fatigue limit by 70 ÷ 45% and that of tail made of VD-17 alloy by 100%. Nitrogen treatment of tails made of 18KhNVA steel increases the

Card 2/3

Fatigue of compressor blades

fatigue limit by 25%. 2) The most dangerous point of a profile part of the blade are the sharp edges. For blade model with sharp edges made of 18KhNVA, 38XA (38KhA); 40XHMA (40KhNMA); 30X2HBA (30Kh2NVA) steels and VD-17 alloy the fatigue limit is respectively 45-46, 38-40 and 10 kg/mm^2. Defects of edge working (lack of due rounding, low quality of surface) lower the fatigue limit of the profile part of blades by 20-25%. Steels of 40KhNMA type are more sensitive to defects of edge working than 18KhNVA steel. For natural blades made of 40KhNMA steel, the fatigue limit depends on geometry and quality of the surface and varies from 30 to 50 kg/mm^2. Nitrogen treatment increases the fatigue limit of profile parts of blades made of 18KhNVA and 40KhNMA by 20-30%, and of those made of 30X2H2BA (30Kh2N2VA) by 40-50%. Cold working blades with sharp edges does not increase the fatigue limit. [Abstracter's note: Complete translation]

Card 3/3

BALASHOV, B F.

1.3

SOV/5105

PHASE I BOOK EXPLOITATION

Nauchno-tekhnicheskaya konferentsiya po voprosam povysheniya iznosostoykosti i sroka sluzhby mashin.

Povysheniye iznosostoykosti i sroka sluzhby mashin. t. 2 (Increasing the Wear Resistance and Extending the Service Life of Machines. v. 2) Kiyev, Izd-vo AN UkrSSR, 1960. 290 p. 3,000 copies printed.(Series: Its: Trudy, t. 2)

Sponsoring Agency: Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Tsentral'noye i Kiyevskoye oblastnoye pravleniya. Institut mekhaniki AN UkrSSR.

Editorial Board: Resp. Ed.: B. D. Grozin; Deputy Resp. Ed.: D. A. Draygor; M. P. Braun, I. D. Faynerman, I. V. Kragel'skiy; Scientific Secretary: M. L. Barabash; Ed. of v. 2: Ya. A. Samokhvalov; Tech. Ed.: N. P. Rakhlina.

PURPOSE: This collection of articles is intended for technical personnel of the machine industry and for workers of scientific

Card 1/9

research institutes and design and planning organizations.

COVERAGE: The collection contains papers presented at the Third Scientific Technical Conference held in Kiyev in September 1957 on problems of increasing the wear resistance and extending the service life of machines. The conference was sponsored by the Institut stroitel'noy mekhaniki AN UkrSSR (Institute of Structural Mechanics of the Academy of Sciences Ukrainian SSR), and by the Kiyevskaya oblastnaya organizatsiya nauchno-tekhnicheskogo obshchestva mashinostroitel'noy promyshlennosti (Kiyev Regional Organization of the Scientific Technical Society of the Machine-Building Industry). Papers presented at the conference were published in two volumes. The first volume contains papers presented at the plenary session and at the conference section on "Wear of Metals and Methods of Investigation". The second volume contains papers presented at the conference section on "Methods of Extending the Service Life of Machine Parts". These papers discuss mechanical, chemical, and electrolytic methods of increasing the durability (wear resistance and fatigue strength)

23475

1.1700 also 1454.

S/123/61/000/009/010/027
A004/A104

AUTHOR: Balashov, B.F.

TITLE: Increasing the fatigue strength of parts by cold working

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 9, 1961, 83-84, abstract 9B613 (V sb. "Povysheniye iznosostoykosti i sroka sluzhby mashin, v. 2", Kiyev, AN UkrSSR, 1960, 7 - 17)

TEXT: The author investigated the increase in strength by surface cold working of cemented gear teeth, dovetail scarf joints of axial compressor blades and herringbone scarf joints of turbine blades made from nickel alloys. Fatigue tests of the cemented gear teeth made of 18ХНВА (18KhNVA) steel with a module of 4 mm carried out on the pulsator with asymmetric cycle showed that, at a coefficient of elastic distribution concentration during bending $d\sigma = 2.1$, the endurance limit can be increased by 25 - 30% as a result of the cold working of the tooth space. The coefficient of concentration being less than 1.5, the increase in strength amounts to 10 - 15%. The endurance limit of the dovetail scarf joints of compres-

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S/123/61/000/009/010/027
A004/A104

Increasing the fatigue strength ...

scr blades made of 18KhNVA steel increased by 43 - 70% after cold working. The cold working of the scarf joints of turbine blades makes it possible to increase the endurance limit by 25 - 50% even at high temperatures. There are 15 figures.

N. Il'ina

[Abstracter's note: Complete translation]

Card 2/2

BALASHOV, B.G.; KHYRAK, E.Ya.

Method for determining free sulfuric acid in boiler-scales. Zav. lab. 26 no.9:1080-1082 '60. (MIRA 13:9)
(Boilers--Incrustations)
(Sulfuric acid)

BALASHOV, B.G., inzh.; KHYRAK, E.Ya., inzh.

Study of acid corrosion of carbon steel. Teploenergetika 8 no.7:41-44 Jl '61. (MIRA 14:9)
(Steel—Corrosion)

L 15755-66 EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b) JD/WB

ACC NR: AP5027460 SOURCE CODE: UR/0032/65/031/011/1358/1360

AUTHOR: Balashov, B. G.; Yegorova, Yu. D.

21
13

ORG: none

TITLE: Determination of small contact wetting angels

SOURCE: Zavodskaya laboratoriya, v. 31, no. 11. 1965, 1358-1360

TOPIC TAGS: ~~calorimetry~~, magnifying instrument, wetting, surface tension

ABSTRACT: Small contact wetting angles ($\varphi < 90^\circ$) are usually determined from expression (1), i.e., $\tan \varphi = 2ah:(a^2-h^2)$, where a is a radius of the base of a spherical segment formed by a drop of the liquid, and h is its height. The determination requires special apparatus for measuring a and h. This could be eliminated by using an analytical balance, a pycnometer (or areometer), and a microscope on the Brinell testing machine. Take a sample (8 mm in diameter and 1.5 mm thick) with a well polished surface, weigh it, apply to the surface a drop of the studied liquid $\leq$ 0.01 ml, weigh the plate with the drop, and determine the weight of the drop (w). After 3 to 5 minutes, measure the parameter 2a by

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UDC: 669.11

ACC NR: AP5027460

using a microscope on the Brinell testing machine, determine the density (d) of the liquid at 20C by pycnometer or areometer, and calculate the volume of drop (V) from d and w. Measure 5 drops, subsequently applied, calculate their volume (v), plot v values on the graph (in v vs 2a coordinates) prepared in advance, and determine the wetting angle from the largest number of points nearest to one of the curves at φ = const. on the graph. For the graph, calculate the positive values of H from the expression (1) for each selected value of tan φ (φ = 0-> 90°) and a number of values of 2a (e.g., 2a=2-8 mm), then determine v from the corresponding a and h by using the formula of the volume of the spheric segment, and plot the graph v = f (2a) at φ const. An example of this graph is attached. The disagreement of parallel determinations made by this method is 1 to 2 degrees. Orig. art. has: 1 figure.

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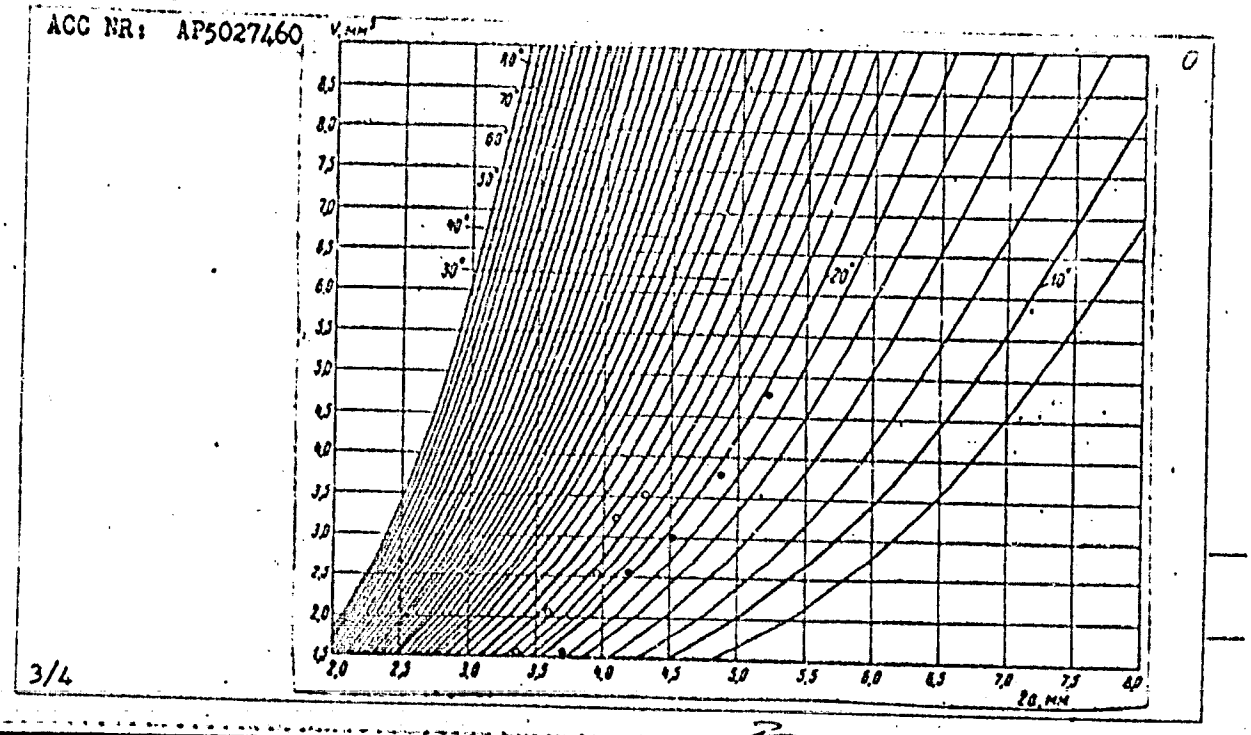
L 15755-66

ACC NR: AP5027460



3/4

L 15755-66

ACC NR: AP5027460

Graph of expression $v = f(\ 2a)$ at $\varphi =$ const.

SUB CODE: 20,14/ SUBM DATE: 00/ NR REF SOV: 001/ OTHER: 000

4/4 SM

L 27350-66 EWT(d)/EWT(m)/EWP(e)/T/EWP(v)/EWP(j)/EWP(h)/EWP(l) WW/RM/WH
ACC NR: AP6007723 (N) SOURCE CODE: UR/0413/66/000/003/0134/0134

AUTHORS: Sharapov, V. D.; Balashov, B. G.; Rybachek, L. T.

ORG: none

TITLE: Device for hermetic underwater sealing of an opening in a ship body during cruising. Class 65, No. 178699

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 134

TOPIC TAGS: ship component, shipbuilding engineering

ABSTRACT: This Author Certificate describes a device for underwater sealing of an opening in the ship's body during cruising. The method incorporates the use of a sealing disk. To simplify construction, the sealing disk is equipped with bracing springs and a layer of sealing compound. The sealing disk is fastened to the outside surface of the ship (see Fig. 1).

Card 1/2 UDC: 629.12.01-762

L 27350-66

ACC NR: AP6007723

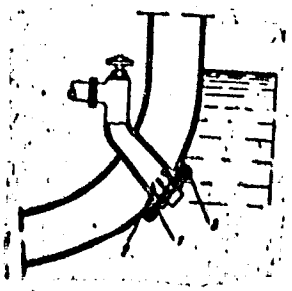


Fig. 1. 1 - sealing disk; 2 - bracing springs; 3 - layer of sealing compound.

Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 03Feb64

Card 2/2

SHER, Yu.M.; VOLKOV, M.A.; BALASHOV, B.V.; KRUGLOVA, T.P.

New standards for packing boxes. Der.prom. 8 no.3:14-15 Mr '59.
(MIRA 12:4)

1. TSentral'nata nauchno-issledovatel'skaya laboratoriya Rybtara.
(Boxes--Standards)

BALASHOV, B.V.; VOLKOV, M.A.; KRUGLOVA, T.P.

Wooden boxes for objects up to 200 kg. Standartizatsiia 25 no.2:50-60 F '61. (MIRA 14:3)

(Boxes--Standards)

BALASHOV, B.V.; ISKANTSEVA, K.G.; KHOKHLOVA, M.G.

Nonsectional wooden boxes for industrial manufacture.
Standartizatsiia 27 no.3:55-56 Mr '63. (MIRA 16:4)
(Boxes--Standards)

BALASHOV, D. B.

"Investigation of the Speeds of Propagation of Elastic Waves in Mineral Rock Specimens With Manifold Pressure up to 5,000 Kg/Sq Cm." Cand Tech Sci, Geophysics Inst, Acad Sci USSR, Moscow, 1954. (KL No 4, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

SOV/124-57-9-10918

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 9, p 154 (USSR)

AUTHORS: Volarovich, M. P., Balashov, D. B.

TITLE: Study of the Effect of Omnilateral Pressures up to 1000 kg/cm^2 on the Speed of Elastic Wave Propagation in Specimens of Coal (Izucheniye vliyaniya vsestoronnego davleniya do 1000 kg/cm^2 na skorost' raspostraneniya uprugikh voln v obraztsakh ugley)

PERIODICAL: Tr. Geofiz in-ta, AN SSSR, 1956, Nr 34 (161), pp 164-178

ABSTRACT: A description of the methods employed and the results obtained in experiments for the elastic-wave propagation speed in various types of coal subjected to omnilateral pressure of up to 1000 kg/cm^2. It was determined that the elastic-wave propagation speed follows a curvilinear law increasing with pressure. A qualitative explanation of the effects observed is given.

From the authors' résumé

Card 1/1

BALASHOV, D.B.

BALAKINA, L.M.

3(10)

PHASE I BOOK EXPLOITATION SOV/1663

Akademiya nauk SSSR. Komitet po geodezii i geofizike.

Tezisy dokladov na XI General'nuyu assambleyu Mezhdunarodnogo geodezicheskogo i geofizicheskogo soyuza. Mezhdunarodnaya assotsiatsiya seysmologii i fiziki nedr zemli (Abstracts of Reports Submitted to the XI General Assembly of the International Union of Geodesy and Geophysics. The International Association of Seismology and Physics of the Earth's Interior) Moscow, 1957. 108 p. /Parallel texts in Russian and English/ 1,500 copies printed.

No additional contributors mentioned

PURPOSE: This booklet is intended for geophysicists, especially those specializing in seismology.

COVERAGE: This collection of articles deals with the structure and composition of the Earth and phenomena related thereto. The majority of the articles concern studies of earthquakes and seismic waves. Other articles cover the structure of the Earth's crust and mountain roots; the elastic properties of rocks at high pressures; the piezoelectric effect of rocks and the method of modelling in tectonophysics. The collection also contains articles on the Earth's thermal history, the microseismic method of tracing storms and others.

Card 1/3

modelling in tectonophysics. The collection also contains articles on the Earth's thermal history, the microseismic method of tracing storms, and others. No references are given.

TABLE OF CONTENTS:

Balashov, D.B.

AUTHORS: Volarovich, M.P. and Balashov, D.B. 49-3-4/16

TITLE: Investigation of velocities of elastic waves in rock samples at pressures up to 5000 kg/cm^2. (Issledovaniye skorostey uprugikh voln v obraztsakh gornykh porod pri davlenii do 5000 kg/cm^2).

PERIODICAL: "Izvestiya Akademii Nauk, Seriya Geofizicheskaya" (Bulletin of the Ac.Sc., Geophysics Series), 1957, No.3, pp.319-330 (U.S.S.R.)

ABSTRACT: The object of the work was to develop a pulse method for investigating the velocities of longitudinal waves of ultrasonic frequencies in rock samples at pressures up to 5000 kg/cm^2. Such pressures prevail in the Earth's crust at depths of the order of 20 km, in which the foci of destructive tectonic earthquakes are located. A detailed description of the apparatus and of the method, by which measurements were made, is given. A sketch of the bomb used for measuring the speed of propagation of elastic waves in rock specimens at pressures of up to 5000 kg/cm^2 is shown in Fig.1, p.320. The pressure was transmitted to the specimen by means of nitrogen with an accuracy of up to 1%. The experiments were carried out at a temperature of 20 C. A characteristic feature of the apparatus is the placing of the (piezoelectric) ultrasonic emitter and receiver inside

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Investigation of velocities of elastic waves in rock samples at pressures up to 5000 kg/cm^2. (Cont.)

the pressure bomb, in close contact with the rock sample investigated. The frequencies used were about 100 kc/sec, which are more suitable than the 3 to 5 Mc/sec used by Hughes (18) and (19) which have wave lengths approaching the dimensions of structural inhomogeneities of rocks and cause a dispersion of the velocities. A pulse-type ultrasonic seismoscope was used for the measurements, the design of which was similar to that of the seismoscope БИ-4 developed by the team of the Model Laboratory of the Geophysics Institute, Ac.Sc. (Riznichenko, Yu.V., Ivakin, B.N. and Bugrov, V.R.) (25 to 27), which was developed for model seismic waves and also for generating and receiving mechanical impulses of ultrasonic frequencies when measuring the time of travel of elastic waves in solid specimens and particularly inside mine shafts (29). The experimental results are plotted in Figs. 5-8. Fig.5 gives the dependence on the pressure of the speed of propagation of longitudinal waves for dolomite; Figs. 6 and 7 give the same dependence for basalt of two different origins and Fig.8 gives the same dependence for syenite. The table, p.328, gives the variation of the speed of longitudinal waves as a function of the

Investigation of velocities of elastic waves in rock samples at pressures up to 5000 kg/cm^2. (Cont.)

pressure in specimens of basalt, syenite and dolomite of pressures of 1 to 5000 kg/cm^2. Samples of igneous rocks (basalt and syenite) and of sedimentary rocks (dolomite) were investigated, using fresh specimens which were obtained by drilling to a depth of about 50 m. It was found that the velocities of longitudinal waves increase abruptly at pressures up to 500 to 1000 kg/cm^2, whereupon their increase slows down. This is due to the fact that at 500 to 1000 kg/cm^2 the pores of rocks are closed by the pressure. It was further found that at pressures of the order of 5000 kg/cm^2 the velocities of longitudinal waves increase by 10 to 12% in basalt and dolomite and by about 20% in syenite, which is similar to the increase of 10 to 20% in the velocity of longitudinal waves at depths of the order of 20 km. There are 8 figures, 1 table and 33 references, 24 of which are Slavic.

SUBMITTED: May 26, 1956.

ASSOCIATION: Ac.Sc. U.S.S.R. Institute of Physics of the Earth. (Akademiya Nauk SSSR Institut Fiziki Zemli).

AVAILABLE: Library of Congress

PALASHOV, D. B., VOLAROVICH, M. P. and Z. I. STAKHOVSKAYA

"Investigation of Elastic Properties of Rocks Under High Pressure" p. 137

"Synthesis and Structure of Hydrosilicates containing Single and Complex Heavy Metal Cations." p. 98

Transactions of the Fifth Conference on Experimental and Applied Mineralogy and Petrography, Trudy ... Moscow, Izd-vo AN SSSR, 1958, 516pp.

reprints of reports presented at conf. held in Leningrad, 26-31 Mar 1956. The purpose of the conf. was to exchange information and coordinate the activities in the fields of experimental and applied mineralogy and petrography, and to stress the increasing complexity of practical problems.

VALAROVICH, M. P. and BALASHOV, D. B.

"Propagation of Ultrasound in Nitrogen at Pressures up to 1,000 kilograms per Square Centimeter."

report presented at the 6th Sci. Conference on the Application of Ultrasound in the investigation of Matter, 3-7 Feb 1958, organized by Min. of Education RSFSR and Moscow Oblast Pedagogic Inst. im N. K. Krupskaya.

AUTHORS: Rabinin, Yu. N., Vereshchagin, L. F., Balashov, D. B. and Livshits, L. D.

TITLE: Equipment for Mechanical Studies of Metals at Pressures up to 30 000 kg/cm^2 (Apparatura dlya mekhanicheskikh issledovaniy metallov pri davleniyakh do 30 000 kg/cm^2)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, pp 79-85 (USSR)

ABSTRACT: A description is given of an apparatus which produces a hydrostatic pressure of up to 30 000 kg/cm^2 in a liquid enclosed in a chamber 13 mm in diameter and 40-70 mm long. The principle of the device is illustrated in Fig.1. The high pressures are produced within a chamber drilled in a conical metallic body. In order to be able to withstand pressures greater than 20 000 kg/cm^2 this conical member is supported by a close fitting female cone. Experiments have shown that the best angle of this cone is 5°. The same value was used by Bridgman (Refs.1 and 5). The multiplicator is also of the type described by Bridgman in Refs.5 and 6. The multiplicator is shown diagrammatically in Fig.3. The apparatus was designed for experiments on various specimens placed within the pressurised region. The force applied to the specimens is measured by a "compressimeter" described by Bridgman in

Equipment for Mechanical Studies of Metals at Pressures 30 000 kg/cm^2.

Ref.2. The pressure was measured by a manganin manometer. The apparatus has been used to investigate the behaviour of steel at high pressures. Fig.8 shows photographs of steel specimens stretched to breaking point under various pressures. There are 8 diagrams, no tables and 10 references, of which 3 are English, and the rest Soviet.

ASSOCIATION: Laboratoriya Fiziki sverkhvysokikh davleniy AN SSSR (Laboratory of Ultra-high Pressure Physics of the Academy of Sciences USSR)

SUBMITTED: July 25, 1957.

Card 2/2 1. Metals--Mechanical properties 2. Metals--Pressure
3. High pressure equipment--Applications

83623

24.1800

S/081/60/000/014/002/009
A006/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 14, p. 42, # 56125

AUTHORS: Volarovich, M.P., Balashov, D.B.

TITLE: Investigation of Ultrasonic Velocity in Nitrogen at a Pressure up to 1,050 kg/cm^2

PERIODICAL: V sb.: Primeneniya ul'traakust. k issled. veshchestva, No. 8, Moscow, 1959, pp. 83 - 91

TEXT: The ultrasonic velocity (v) (115 kilocycles frequency) in nitrogen at 25°C and up to 1,050 kg/cm^2 pressure was measured by the pulse method. The ultrasonic velocity increases linearly from 358 to 873 m/sec at an increase in the pressure from atmospheric pressure to 1,050 kg/cm^2. The values of ultrasonic velocity, v, were calculated using the Khimpan state equation (RZhKhim, 1956, No. 3, # 6283; No. 8, # 21878; No. 10, # 28391) which are in a satisfactory agreement with experimental data found at pressures below 100 kg/cm^2. At a higher pressure the calculated values of the ultrasonic velocity are below those observed in the experiments (at a pressure of 1,100 kg/cm^2 the discrepancy

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83623

S/081/60/000/014/002/009
A006/A001

Investigation of Ultrasonic Velocity in Nitrogen at a Pressure up to 1,050 kg/cm^2

is 23%) since at high pressures the Khimpan equation yields too low values of the isothermal modulus of volumetric dompression.

B. Kudryavtsev

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

18.6100

80220
S/126/60/009/04/025/033
E111/E435

AUTHORS: Voronov, F.F. and Balashov, D.B.

TITLE: Adiabatic Moduli of Elasticity of Cermet Tungsten Carbides

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 4, pp 616-620 (USSR)

ABSTRACT: The moduli of elasticity of the carbides VK6, VK8, VK10, VK11, and VK15 (Co contents between 6 and 15%) are given which were determined at 22°C by means of a dynamic method, namely from the speeds of the longitudinal and transverse ultrasonic waves and from the densities. The moduli of elasticity were determined with an accuracy of 2 to 4%. The speed of the ultrasonics was measured by means of apparatus described in an earlier paper (Ref 6), using piezoquartz pick-ups with a natural frequency of 10 Mc/s; the duration of the radio-frequency pulse received by the pick-up was about 1 μs. The pulses were emitted at a frequency of 1 kc/s. The speed of the ultrasonics was measured with an accuracy of 0.5% for a specimen length of 5 cm. On the basis of the obtained speeds and densities, the adiabatic moduli of elasticity and Poisson's coefficient were calculated with an accuracy of ± 2 to 4%, taking into consideration the scatter in the

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80220
S/126/60/009/04/025/033
E111/E435

Adiabatic Moduli of Elasticity of Cermet Tungsten Carbides

values of specimens of various batches. The graph, Fig 1, shows the dependence of the density ρ, the speeds of the 10 Mc/s longitudinal v_p and the transverse v_s waves on the Co content of the tested tungsten carbides. The Dependence of the adiabatic modulus of compression K, the Young modulus E, the shear modulus G and the Poisson coefficient σ on the Co content is plotted in Fig 2, using the same data as are given in Table 1. In Table 2, the most reliable values of the Poisson coefficient, as determined by Lardner and McGregor (Ref 3), for specimens of 6 and 10% Co, by means of the method of static compression of cylindrical specimens, are given and also the values obtained by the authors of this paper for specimens with equal Co contents. In the plot, Fig 3, published data are compared with results obtained by the authors for the Young modulus as a function of the Co content. The following values were obtained for the carbide VK6: modulus of volume compression $K = 3.59 \times 10^{12}$ dynes/cm^2; Young modulus $E = 6.20 \times 10^{12}$ dynes/cm^2; shear modulus $G = 2.61 \times 10^{12}$ dynes/cm^2. The increase in the

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80220

S/126/60/009/04/025/033
E111/E435

Adiabatic Moduli of Elasticity of Cermet Tungsten Carbides

Co content from 6 to 15% leads to the following reduction in value: K by 12.6%; E by 14.5% and G by 14.7%; the Poisson coefficient increases thereby from $\sigma = 0.212$ to $\sigma = 0.222$. There are 3 figures, 2 tables and 12 references, 8 of which are Soviet, 2 German and 2 English.

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR
(Institute of High-Pressure Physics AS USSR)

SUBMITTED: January 21, 1959

4

Card 3/3

S/076/60/034/011/006/024
B004/B064

11.2216 also 2108

AUTHORS: Vasil'yev, M. Ya., Balashov, D. B., and Mokrousov, L. N. (Moscow)

TITLE: Investigation of the Isothermal Compressibility of Explosives at Pressures of up to 22,000 kg/cm^2

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 11, pp. 2454 - 2459

TEXT: The authors were the first to study the compressibility of trotyl, TEN (tetranitropentaerythrite), and Hexogen at 18°C and pressures at up to 22,000 kg/cm^2. For this purpose an apparatus was used whose piezometer is shown in Fig. 1; it was designed at the Institut fiziki vysokikh davleniy AN SSSR (Institute of High-pressure Physics of the AS USSR). Sample 14 (0.4 - 0.5 cm high, 0.53 cm in diameter) is enclosed in a lead cover 13, and is compressed between the pressure pistons 5 and 8 in the channel 6 of the piezometer (0.6 cm in diameter). The pressure P is produced by a hydraulic press and transmitted to 5 and 8 by means of the steel bars 3 and

86780

10. The steel bars are reinforced at their ends by the blocks 4 and 9 made of a βK8 (VK8) tungsten - cobalt alloy, which prevent the bars from being crushed by the pistons 5 and 8. The motion of 5 and 8 is measured by the indicators 1 and 17. The pressure P was measured with a spring manometer which was calibrated against a dynamometer. The experimental error in measuring the volume decrement $\Delta v/v_0$ was $\pm 1\%$, and that in pressure measurement was ± 100 kg/cm^2. The samples of the explosives were pressed from fine-crystalline powder at 70° or 100°C and 2000 kg/cm^2, so that their density was close to that of monocrystals. The volume decrements as a function of pressure gave flat curves, concave to the abscissa. At 20,000 kg/cm^2, their values were 11.9% for trotyl, 10.8% for TEN, and 9.4% for Hexogen. At atmospheric pressure, the density was 1.63 for trotyl, 1.77 for TEN, and 1.80 g/cm^3 for Hexogen; at 20,000 kg/cm^2, however, it was 1.85 for trotyl, 1.98 for TEN, and 1.99 g/cm^3 for Hexogen. No polymorphous changes were observed. The values obtained for trotyl and Hexogen are in

Card 2/

Investigation of the Isothermal Compressibility of Explosives at Pressures of up to 22,000 kg/cm^2

S/076/60/034/011/006/024
B004/B064

good agreement with those of V. S. Ilyukhin who determined them by means of a shock wave at 6.10^4 - 24.10^4 kg/cm^2. Within the error limits, the measured volume decrement of pure lead, of which cover 13 was made, was in good agreement with the data of P. W. Bridgman (Ref. 11) and Fr. Birch and R. R. Law (Ref. 12). K. K. Andreyev, Yu. N. Ryabinin, and I. A. Leskovich are mentioned. Academician N. N. Semenov and Professor L.F.Vereshchagin are thanked for interest, and V. G. Babikov, A. I. Molotkov, and V. D. Yashin for assistance. There are 4 figures, 1 table, and 14 references: 8 Soviet, 5 US, and 1 French.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki, Moskva (Academy of Sciences of the USSR, Institute of Chemical Physics, Moscow)

SUBMITTED: February 7, 1959

Card 3/4

BALASHOV, D.B., kand.tekhn.nauk

Selecting cylinders for laboratory hydraulic presses. Vest.mash. 40 no.11:56 N '60. (MIRA 13:10)
(Hydraulic presses)

6.8000(3201,1099,1162)

86833
S/020/60/135/005/022/043
B019/B067

AUTHORS: Volarovich, M. P. and Balashov, D. B.

TITLE: Effect of Pressures of Up to 5000 kg/cm^2 on Velocity and Absorption of Ultrasonics in Nitrogen

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 5, pp. 1117-1119

TEXT: The experiments described here were made by means of an electromechanical radiator prepared from Rochelle salt and ammonium dihydrophosphate at 20° and at pressures of up to 5000 kg/cm^2 in a frequency range of from 160-310 kilocycles. The pressure dependence of the ultrasonic velocity v which is shown in Fig. 1 indicates that by increasing the pressure from 0 to 5000 kg/cm^2 v increases by the five-fold, i.e. from 352 to 1723 m/sec. Table 1 gives comparisons with results obtained by other authors. Fig. 2 shows the pressure dependence of the damping coefficient. There are 2 figures, 1 table, and 8 references: 4 Soviet, 1 French, 1 German, and 1 US.

~~Card 1/4~~ Inst. Physics of the Earth, Acad. Sci. USSR

ADADUROV, G.A.; BALASHOV, D.B.; DREMIN, A.N.

Investigating the cubic compressibility of marble at high pressures. Izv.AN SSSR.Ser.geofiz. no.5:712-716 My '61. (MIRA 14:4)

1. Akademiya nauk SSSR, Institut khimicheskoy fiziki.
(Marble) (Compressibility)

S/081/62/000/008/007/057
B166/B101

AUTHORS: Volarovich, M. P., Balashov, D. B.

TITLE: Study of the velocity and absorption of ultrasound in nitrogen at pressures up to 5000 kg/cm^2.

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 8, 1962, 39, abstract 8B265 (Sb. "Primeneniye ul'traakust. k issled. veshchestva". M., no. 13, 1961, 63-77)

TEXT: The pulse method was used to study the velocity and absorption of ultrasound in N_2 at frequencies of 160 and 310 kc/s at 20°C and pressures up to 5000 kg/cm^2. The technique has been described before (RZhKhim, 1960, no. 14, 56125). The accuracy of the measurements is 2 %. When the pressure is increased from 1 to 5000 kg/cm^2 the velocity of ultrasound increases ~5 times. Good agreement was obtained with other measurements (RZhKhim, 1955, no. 6, 9161) and computations (Benedict M., J. Amer. Chem. Soc., 1937, 59, no. 11, 2223, 2224). The velocities of ultrasound are

Card 1/2

also computed on the basis of the equation of state suggested earlier (RZhKhim, 1956, no. 3, 6283). The results agree with the observations only at pressures up to 1000 kg/cm^2; at 5000 kg/cm^2 the discrepancy amounts to ~40 %. The experimental data and literature data are used to calculate the ratios of the specific heats at constant pressure and volume. With change in pressure from 1 to 5000 kg/cm^2 the damping coefficient decreases by ~ 5600 times. For pressures up to 1000 kg/cm^2 the damping coefficient is found from the Kirchhoff-Stokes formula; it is extremely close to that observed. [Abstracter's note: Complete translation.]

SEMERCHAN, A.A.; BALASHOV, D.B.

Design and testing of containers for geophysical investigations at great depths of the ocean. Dokl. AN SSSR 146 no.3:592-595 S '62. (MIRA 15:10)

1. Institut fiziki vysokikh davleniy AN SSSR. Predstavleno akademikom V.V.Shuleykinym.

(Oceanographic instruments)

L 14058-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC ASD Pf-4 JD/HW

ACCESSION NR: AP300.... .../0049/63/000/008/1198/1205

AUTHOR: Volarovich, M. P.; Balashov, D. B.; Tomashevskaya, I. S.; Pavlogradskiy, V. A.

TITLE: Study of the effect of uniaxial compression on elastic wave velocities in rock samples under high hydrostatic pressure

SOURCE: AN SSSR. Izv. Ser. geofizicheskaya, no. 8, 1963, 1198-1205

TOPIC TAGS: uniaxial compression, elastic-wave velocity, hydrostatic pressure, rock deformation

ABSTRACT: Devices and techniques used in recent tests to measure ultrasonic longitudinal wave velocities in granite, diabase, basalt, serpentinite, and limestone samples subjected to uniaxial compression and varying hydrostatic pressures are described (see Figs. 1 and 2 of Enclosure for diagrams of equipment used). Test results show a rapid increase in wave velocity with an increase in compression to 500 kg/cm^2 at a hydrostatic pressure of 1000-2000 kg/cm^2. This increase is attributed to decreased pore space. Additional load produces a much slower increase in wave velocity. Similarly, under higher confining pressures, velocities increase at a slower rate. At pressures above 2000 kg/cm^2, the velocity gradient

Card 1/2

L 14958-63
ACCESSION NR: AP3005588

falls in the range of the measurement error (3-4%). Engineer Yu. N. Kononova participated in the experimental part of this work. The article was presented by Ye. F. Savarenskiy. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Akademiya nauk SSSR. Institut fiziki Zemli (Academy of Sciences SSSR, Institute of Physics of the Earth)

SUBMITTED: 04Dec62 DATE ACQ: 06Sep63 ENCL: 02

SUB CODE: AS NO REF SOV: 012 OTHER: 001

Card 2/2

S/020/63/149/003/015/028
B104/B186

AUTHORS: Volarovich, M. P., Balashov, D. B., Tomashevskaya, I. S., Pavlogradskiy, V. A.

TITLE: An investigation of the velocities of elastic waves in samples of rock at the composite action of hydraulic pressure and singleaxial compression

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 3, 1963, 583-585

TEXT: The propagation of longitudinal supersonic waves in rock samples is investigated with a pulse method. The apparatus is shown in Fig. 1. The propagation rates were measured with piezoelectric pickups at hydraulic pressures of 1, 500, 1000, 2000, and 4000 kg/cm^2, the single-axial pressure being changed gradually. Results: Up to a hydraulic pressure of 1000 kg/cm^2, v_p increases rapidly due to the closing of pores. At higher pressures v_p increases more slowly. If the single-axial compression increases up to 1000 kg/cm^2, v_p increases rapidly too. At higher

Card 1/4

An investigation of the velocities of ...

pressures, single-axial compression has nearly no influence on the propagation rates. (Fig. 2). There are 2 figures and 1 table.

ASSOCIATION: Institut fiziki Zemli im. O. Yu. Shmidta Akademii nauk SSSR (Institute of Earth Physics imeni O. Yu. Shmidt of the Academy of Sciences USSR)

PRESENTED: October 12, 1962, by P. A. Rebinder, Academician

SUBMITTED: October 11, 1962

Fig. 1. Testing apparatus. Legend: (1) steel chamber; (2) sample; (3) piston; (4) press; (5) cross piece; (6) piezoelectric pickup.

Fig. 2. Results. Legend. (1) P = 5'00 kg/cm^2; (2) 4000 kg/cm^2; (3) 3'00 kg/cm^2; (4) 1000 kg/cm^2; (5) ' kg/cm^2;

Card 2/4

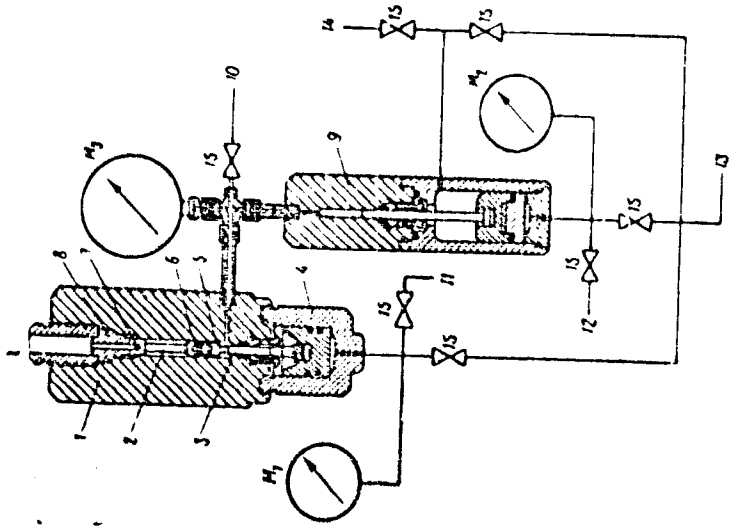


Fig. 1

Card 3/4

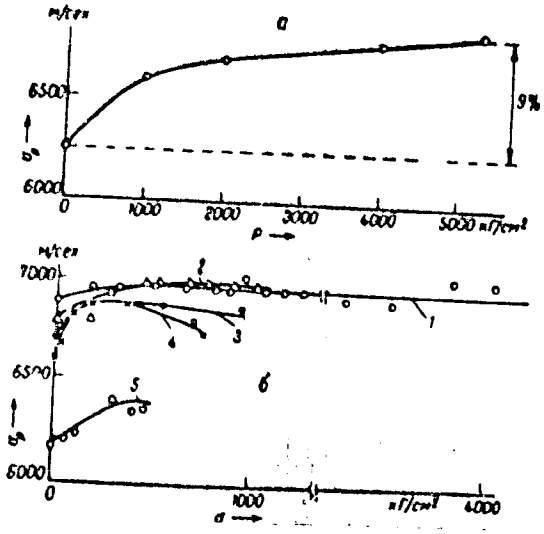


Fig. 2

Card 4/4

ACC NR: AP6032269 SOURCE CODE: UR/0076/66/040/009/2125/2129

AUTHOR: Balashov, D. B.

473

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: A study of the isothermal compressibility of nitroglycerine powders in the pressure range up to 26000 kg/cm^2 and temperatures of 20—92C

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 9, 1966, 2125-2129

TOPIC TAGS: double base propellant, explosive, nitroglycerine powder

ABSTRACT: The isothermal compressibility of nitroglycerine powders N, NB-40, and NB-60 containing various amounts of nitroglycerine was determined at pressures up to 26000 atm at 18—92C. The 0.5—0.7 cm long samples with a diameter of 0.53 cm were placed in lead casings, subjected to pressure in a hydraulic press, and the pressures were recorded by a piezoelectric pressure pick-up. Curves of the piston displacement vs pressure were obtained, and a method for determining the coefficient of thermal expansion from p-v-T data was also developed. Orig. art. has: 6 formulas. [PV]

SUB CODE: 21,07 / SUBM DATE: 26Mar65/ ORIG REF: 007/ OTH REF: 001/ ATD PRESS: 5091

Card 1/1 hs UDC: 662.2/.3+541.11

BALASHOV, F.I.

Spondylograph; apparatus for measurement and graphic registration of spinal curvature. Sovet. med. 17 no. 1:39-40 Jan 1953. (CIML 24:1)

1. Of Lipetsk Children's Bone Tuberculosis Sanatorium (Head Physician -- M. V. Sveshnikova).

BALASHOV, G.

Payment by check. Den. i kred. 20 no.3:66-69 Mr '62.
(MIRA 15:3)

1. Glavnyy bukhgalter Nizhneudinskogo otdeleniya Gosbanka.
(Nizhneudinsk--Payment) (Checks)

[illegible] firebox." [illegible] Moscow, [illegible].
([illegible] In Candidate In [illegible])

So: [illegible] No 28, [illegible]. Moscow

BALASHOV, G. V. Cand Tech Sci -- (diss) "Aerodynamics of secondary-air feed in highly forced stoking." Mos, 1958. 16 pp with graphs. (Mos Order of Lenin and Order of Labor Red Banner Higher Tech School im Bauman), 150 copies. (KL, 36-58, 112)

BALASHOV, G.V., inzh.

Modeling secondary air feed into furnaces and combustion chambers. Nauch.dokl.vys.shkoly;mash.i prib. no.1:68-74 '58. (MIRA 12:1)

1. Predstavleno kafedroy "Konstruktsii i remont lokomotivov" Rostovskogo-na-Donu instituta inzhenerov zheleznodorozhnogo transporta.
(Gas and oil engines) (Furnaces)

S/123/59/000/11/71/077

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, No. 11, p. 373, # 44530

AUTHOR: Balashov, G. V.

TITLE: Turbulent Jets in High-Temperature Media

PERIODICAL: Tr. Rostovsk. in-ta inzh. zh.-d. transp., 1958, No. 21, pp. 156-170

TEXT: This work deals with the experimental checking of the theory of free hot gas jets (J) (V. Ya. Borodachev, L. Ye. Kalikhman). The tests carried out confirmed the fundamental propositions of this theory. The author elucidates that the propagation of cold J differs essentially from the propagation of isothermal J of the same initial parameters. In particular, he draws the conclusion that an increase in temperature of the surrounding medium leads to a contraction of the J and, consequently, to a decrease in its capacity to intermix with the medium.

P. M. V.

Card 1/1

VB

GRIGOROVA, S.; KOSOY, A.; BALASHOV, I.

Give more attention to payments by checks. Den. i kred. 20 no.9:13-28 S '62. (MIRA 15:9)

1. Nachal'nik planovo-ekonomicheskogo otdela Kirovogradskoy oblastnoy kontory Gosbanka (for Kosoy). 2. Glavnyy bukhgalter Nizhneudinskogo otdeleniya Gosbanka Irkutskoy oblasti (for Balashov).

(Checks)

TIMOFEYEVA, Ye.A.; SHUYKIN, N.I.; BALASHOV, I.A.; SMIRNOV, V.S.

Catalytic synthesis of neohexane. Izv. AN SSSR. Ser. khim. no.9:1699-1701 '65. (MIRA 18:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

BALASHOV, I.D.

Kvoprosu o planirovanii kapital'nogo stroitel'stva. [On planning large scale construction]. (Sots. transport, 1934, no. 1, p. 39-50).

DLC: HE7.S6

SO: SOVIET TRANSPORTATION AND COMMUNICATION, A BIBLIOGRAPHY, Library of Congress Reference Department, Washington, 1952, Unclassified.

BALASHOV, I.F.; VANYUKOV, M.P.; MURATOV, V.R.; NILOV, Ye.V.

Spark discharge emission spectra resolved in time and along the channel cross sections, as recorded with an electron optical converter. Opt. i spektr. 9 no. 6:790-791 D '60. (MIRA 14:1)
(Electric discharges through gases--Spectra)

85051

9,4140

S/051/60/009/006/015/018
E201/E191

AUTHORS: Balashov, I.F., Vanyukov, M.P., Muratov, V.R., and Hilov, Ye.V.

TITLE: Image-Converter Recording of Spark-Discharge Spectra Resolved in Time and Along the Channel Cross-Section

PERIODICAL: Optika i spektroskopiya, 1960, Vol.9, No.6, pp 790-791

TEXT: The authors describe a method of recording rapidly changing spark-discharge spectra using small portions of the discharge channel. The apparatus is shown schematically in Fig.1. Light proceeds via a monochromator M and is projected by a lens O_4 on the photocathode of an image converter ЭОП (EOP) fitted with an electronic shutter. The shutter is connected to a generator of square pulses 3. The generator is synchronized with the discharge by means of a photomultiplier 1 and a synchronization circuit 2. In this way one obtains a spectrum on the image-converter screen at a time governed by the delay between opening of the electronic shutter and the beginning of the discharge. Exposures can be varied from 0.1 to 10 μsec and

Card 1/2

S/051/60/009/006/015/018
E201/E191

Image-Converter Recording of Spark-Discharge Spectra Resolved in Time and Along the Channel Cross-Section

spectra can be recorded 0.07 to 25 μsec from the beginning of a discharge. The image-converter screen is photographed with a camera, denoted by ⊕ in Fig.1. The method was applied to a 10 kV discharge across a 4 mm gap in air: N I, N II, and H_α lines were recorded 1, 5, 10 and 21 μsec from the beginning of the discharge (Fig.2).
There are 2 figures and 5 references: 3 Soviet and 2 English.

SUBMITTED: June 22, 1960

Card 2/2

20728
S/051/61/010/004/006/007
E032/E314

9.4140 (also 1138, 1141)

AUTHORS: Balashov, I.E., Vanyukov, M.P., Muratov, V.R. and Nilov, Ye.V.

TITLE: The Recording of Time-resolved Spectral Line Profiles by Means of an Image Converter

PERIODICAL: Optika i spektroskopiya, 1961, Vol. 10, No. 4, pp. 540 - 541

TEXT: The present authors point out in* Ref. 1 that the image-converter method can be used to record time-resolved spectra of various parts of a spark discharge. The present note reports results obtained with this method in the recording of time-resolved spectral line profiles. The method has the advantage that a single flash is sufficient to record the profile. The apparatus employed is said to have been described in* Ref. 1. It incorporated the ИСП-51 (ISP-51) spectrograph with an 800 mm focal length camera. The image-converter was switched on by 1 μs pulses at different times after the onset of the discharge. The image of the spectral line was photographed from the image-

Card 1/3

* Optika i spektroskopiya, 1960, Vol. 9, No. 6, pp 790-791

S/051/61/010/004/006/007
E032/E314

The Recording of ....

converter screen with a 1:1 magnification, using a photographic objective with a focal ratio of 1:1.5, Fig. 2 shows the distribution of the intensity at the centre of the H_α line across the channel of a spark discharge in hydrogen. Fig. 3 shows the H_α profile emitted by the central zone of the channel. Preliminary calculations show that by using the highest-sensitivity image-converters (Butslov et al - Ref. 6) and with an intensity corresponding to the saturation region (Vanyukov and Mak - Ref. 7) the profile of the spectral line can be recorded with a spectral resolution of 0.1 Å with an exposure of 1 nsec.
There are 3 figures and 7 references: 6 Soviet and 1 non-Soviet.

SUBMITTED: October 14, 1960

The Recording of ....

Fig. 2:

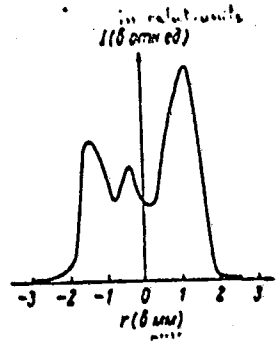
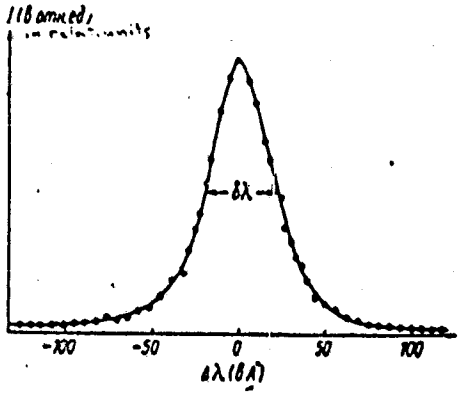


Fig. 3:



Card 3/3

ACCESSION NR: AP4038655 S/0109/64/009/005/0907/0909

AUTHOR: Balashov, I. F.; Yermakov, B. A.

TITLE: Frequency response of multiplier phototubes

SOURCE: Radiotekhnika i elektronika, v. 9, no. 5, 1964, 907-909

TOPIC TAGS: multiplier phototube, phototube, multiplier phototube frequency response, FEU-19M photomultiplier, FEU-36 photomultiplier

ABSTRACT: The frequency response of FEU-19M and FEU-36 multiplier phototubes was experimentally determined in a hookup that contained a Kerr cell modulated at 0.2-20 mc; 50% modulation was used; distortion was under 10%. Experimental and estimated frequency-response curves are presented; the error in the experiments was 10-15% at 10 mc or lower frequencies, 20-25% at 20 mc. "In conclusion, the authors wish to thank Yu. V. Popov and G. E. Levin for discussing the results of this work." Orig. art. has: 2 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 03May63 DATE ACQ: 05Jun64 ENCL: 00

SUB CODE: EC NO REF SOV: 003 OTHER: 001

Card 1/1

L 11063-66 EWT(d)/EWT(l)/T/EWP(l)/EWA(h) IJP(c)

ACC NR: AT6001389 SOURCE CODE: UR/3180/64/009/000/0079/0083

AUTHOR: Balashov, I. F.; Muratov, V. R.; Nilov, Ye. V.

55

B+1

ORG: none

TITLE: Information transmitting capacity of an image converter 25

SOURCE: AN SSSR. Komissiya po nauchnoy fotografii i kinematografii. Uspekhi nauchnoy fotografii, v. 9, 1964. Vysokoskorostnaya fotografiya i kinematografiya (High-speed photography and cinematography), 79-83

TOPIC TAGS: image converter, image intensifier, information theory

ABSTRACT: Image converters permit the recording of rapidly occurring phenomena with a time resolution of 10^{-8} sec and higher. The authors selected the basic parameters of a recording apparatus which included an image converter, using the basic tenets of information theory; to this end, the system was treated as an information channel. The calculation of the optical part of the recording apparatus consisted of quantitatively evaluating the information which should be obtained in a given recording event and comparing this amount with the information actually passed through the information channel. The following formula is derived for the transmitting capacity of an image converter:

$$C = 4N^2 \log_2 \frac{e^{-4 \cdot 10^{-8} N}}{2.5 \cdot 10^{-8} N}.$$

Card 1/2

ACC NR: AT6001389

where N is the number of lines per unit length. It is concluded that in order to make the maximum use of the transmitting capacity of the image converter, it is necessary to code the image being transmitted. This coding should consist of an artificial redistribution of the brightness by means of some coding system which may include elements of fiber optics. The use of the frequency-contrast characteristics of the converter permits not only the calculation of its transmitting capacity but also the determination of the specific characteristics of the code to be used. Orig. art. has: 2 figures, 11 formulas.

SUB CODE: 14,09 SUBM DATE: 00/ ORIG REF: 005/ OTH REF: 000

Card 2/2

L 12625-66 EWP(m)/EWT(l)/EWG(k)-2/T/EWP(k) IJP(c) WW

ACC NR: AP6008040 SOURCE CODE: UR/0020/66/166/004/0825/0828

AUTHOR: Anan'yev, Yu. A.; Balashov, I. F.; Mak, A. A.

ORG: none

TITLE: Theory of monopulse operation of lasers

SOURCE: AN SSSR. Doklady, v. 166, no. 4, 1966, 825-828

TOPIC TAGS: laser pulsation, laser radiation, laser emission, laser energy

ABSTRACT: The theoretical examination of the monopulse mode of laser operation made in this paper includes the processes following the instantaneous increase in resonator Q as well as the process of energy accumulation in the active medium. When the inverted population is large, spontaneous emission is amplified and the lifetime of the excited state is decreased. This, together with the light leakage from the active medium, is one of the main factors limiting energy accumulation and consequently the generated power as well. The media considered are three- and four-level solid state rods with polished and mat side surfaces. Energy accumulation in the active medium must continue for a time exceeding the effective lifetime of the excited state in order to obtain the maximum population inversion. The population inversion is found for a three- and a four-level medium, taking into account spontaneous and induced radiation. Equations are derived for calculating the number of quanta induced by spontan-

UDC: 621.378.3

Card 1/2

L 41095-66

ACC NR: AP6008040

eous quantum of a given frequency, taking losses into account. The effective length of the rods is calculated and the average photon paths incident to the walls are described in relation to rod diameter. A more effective method is given for finding the number of spontaneously induced quanta, based on the spectral density of the illumination. Conditions are outlined for the generation mode and equations are given for finding maximum pulse power, generation energy, and pulse duration. Calculations are made for both three- and four-level systems and results for maximum power are plotted. Presented by Academician A. A. Lebedev on 31 May 1965. Orig. art. has: 11 formulas, 2 figures.

SUB CODE: 20/ SUBM DATE: 27May65/ ORIG REF: 006/ OTH REF: 003

Card 2/2 af

GEORGIYEVSKIY, Yu.I., inzh.; BALASHOV, I.I., inzh.

Discrete computer for automatic analysis of two-component solutions.
Avtom.i prib. no.2:61-73 '61. (MIRA 14:12)
(Solution (Chemistry)--Analysis) (Electronic analog computers)

L 29384-66 EWT(1)
ACC NR. AP6017970 SOURCE CODE: UR/0413/66/000/010/0052/0052

INVENTOR: Balashov, I. I.; Georgiyevskiy, Yu. I.; Zarechnyy, V. F.

23
B

ORG: none

TITLE: DC to AC converter. Class 21, No. 181724

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 52

TOPIC TAGS: electric energy converter, electronic circuit

ABSTRACT: A DC to AC converter (intended for measurements) in the form of a two-transistor direct coupled astable multivibrator is shown in the figure. To increase

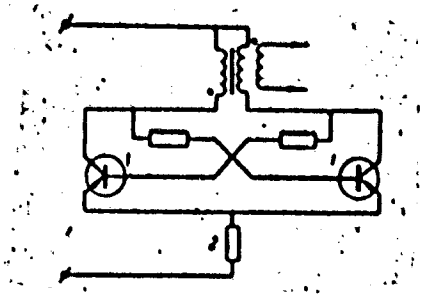


Fig. 1. DC to AC converter

1 - Transistors; 2 - temperature sensitive resistor.

Card 1/2 UDC: 621.314.572:537.312.6

L 29384-66

ACC NR: AP6017970

0

its accuracy in a wide temperature range, the emitters of the two transistors are coupled to ground through a temperature sensitive resistor (for example, a copper resistor). Orig. art. has: 1 figure. [BD]

SUB CODE: 09/ SUBM DATE: 29Mar65/ ATD PRESS: 5008

Card 2/2

ZARECHNYY, V.F. [Zariechnyi, V.F.]; [illegible], I.[illegible]; MANOVA, I.Ye. [Manova, I.IE.]

Device for registering the approximate electric power consumption by industrial electrolyzers. Energ.prom. [Ukr.] no.2:65-66 Ap-Je '65. (MIRA 18:6)

S/271/63/000/003/047/049
A060/A126

AUTHORS: Georgiyevskiy, Yu. L., Balashov, I.I.

TITLE: Digital regulating apparatus for the automatic analysis of two-component solutions

PERIODICAL: Referativnyy zhurnal, Avtomatika, telemekhanika i vychislitel'naya tekhnika, no. 3, 1963, 81 - 82, abstract 3B483 (Sb. nauchn. tr. In-t avtomatiki Gosplana USSR, 1961, no. 2, 61 - 73)

TEXT: One of the principal apparatus for the automatic analysis of multi--component solutions is a differential analyzer. The digital principle applied to the solution of problems of automatic analysis has considerable advantages over simulation apparatus. DC potentials whose values are proportional to the electrical conductivity and density of a reversible solution are fed to the input of a digital differential analyzer from an automatic conductivity-meter and densitometer. These potentials are converted into a digital pulse code and fed into the memory matrix. In the matrix memory are permanently recorded the dependences between density, electrical conductivity, modulus and concentration,

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Digital regulating apparatus for the ....

obtained on the basis of the physico-chemical analysis of the reversible solution. When the matrix is interrogated by signals corresponding to the determined electrical conductivity and density, data as to the quantitative composition of the solution is fed to the output converter in binary code. In the output converter the data is converted from a binary code to an amplitude pulse by means of a decoder. The block diagram of the digital differential analyzer is shown and the operation of its component parts is described in detail. In the memory unit of the analyzer torroidal ferrite cores are used. The memory unit, forming the main part of the differential analyzer contains in tabular form the dependences of the output quantities upon the density and electrical conductivity. The memory unit consists of two identical matrices of modulus and of concentration. Each matrix contains 200 ferrite cores and has a capacity of 2,000 bits. A schematic diagram of the power-supply voltage-stabilizer of the analyzer is shown which admits a variation of grid voltage by 50% and of load current from 0 to 300 ma with a voltage variation at the load not exceeding 1%. The described digital differential analyzer is designed for operation under shop conditions and is constructed in the form of block-panel construction. There are 7 figures and 12 references.

[Abstracter's note: Complete translation]

V. Ts.

Card 2/2

TELEPNEV, D.Ya.; IORDAN, V.V., [illegible]

Industrial testing of a [illegible]. Gig. i San. Ukr. 7 no.10: 37-38 O '63. (MIRA 17:4)

BALASHOV, I. S. and TUMAYKIN, N. S.

"Increase Sowing of 'Regeria'," Korm. baza, 3, No.3, 1952

BALASHOV, I. S.

"Widespread Testing of a New Fodder Grass-Regéneria," Sov. agron., 10, No.3, 1952

BALASHOV, I. S.

"Sound and Timely Suggestion," Sel. i sem., 19, No.8, 1952

BALASHOV, I.S., kand.sel'skokhozyaystvennykh nauk

Increasing the productivity of forestated meadow and pastures.
Zemledelie 24 no.6:79-82 Je '62. (MIRA 15:11)

1. Irkutskaya oblastnaya gosudarstvennaya sel'skokhozyaystvennaya opytnaya stantsiya.

(Pastures and meadows)

PA 50T3

USSR/Electricity Dec 1947
Generators, Electricity
Medicine - Surgery

"Utilization of Steam as Means of Illumination," Maj Ye. I. Balashov, Engineers, 4 pp

"Voyenno-Medits Zhur" No 12

Steam boilers of portable sanitary and technical equipment, in particular the ODP-2 and ADP apparatus, can be used as steam generators for portable power generator of 1.2-kw capacity. Power sufficient for all surgical needs of one unit, and permits enough power for three operating tables. Steam method of generating light is efficient since the steam can be

IC 50T3

USSR/Electricity (Contd) Dec 1947

used for other purposes, e.g., for disinfecting clothes, and for bathing. Tests showed advisability of supplying medical services with portable, field steam electric generators.

IC 50T3

BALASHOV, [illegible] MAJ.

BALASHOV, K.K.

GRUDINSKIY, P.G., professor; SHNITSER, L.M., inshener; ROZENBERG, B.I., kandidat tekhnicheskikh nauk; BALASHOV, K.K., kandidat tekhnicheskikh nauk; MEL'NIKOV, N.A., kandidat tekhnicheskikh nauk.

Calculating load-carrying capacity in selecting transformers. Elek.sta. 28 no.3:61-70 Mr '57. (MLRA 10:5)
(Electric transformers)

104-3-23/45

AUTHOR: Balashov, K.K., Candidate of Technical Sciences.

TITLE: Discussion of Grudinskiy's article.

PERIODICAL: "Elektricheskiye Stantsii" (Power Stations), 1957, Vol. 28, No.3, pp. 68 - 70 (U.S.S.R.)

ABSTRACT: This discussion of Prof. Grudinskiy's article is of a mathematical nature and introduces the concept of specific cost of transformer which is the ratio of the total cost over the pay-off time to the amount of electric power usefully transformed in this time. Calculations on this basis are made and a numerical example is worked out for a 3 200 kVA 35 kV transformer showing that the selection of a smaller transformer running heavily loaded would usually be unjustified and that it is best to run the transformer lightly loaded. Prof. Grudinskiy's conclusions about the series of standard ratings are also affected if the concept of specific cost is introduced. There are 2 tables.

ASSOCIATION: Odessa Polytechnical Institute (Odesskiy Politekhnicheskiy Institut)

AVAILABLE: Library of Congress

Card 1/1

110-58-5-24/25

AUTHOR: Balashov, K.K. Candidate of Technical Sciences

TITLE: Transformers with Aluminium Windings (Transformatory s alyuminiyevymi obmotkami)

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Vol 29, Nr 5, pp 78 - 79 (USSR).

ABSTRACT: This is a discussion of an article by L.M. Shnitser, published in Vestnik Elektropromyshlennosti, 1957, Nr 4. In comparing transformers with aluminium and copper windings, Shnitser considered that the latter are always cheaper and more efficient. This is only true if the shape of the transformer is made the same in both cases. However, when aluminium windings are used, the legs should be made longer and the windings narrower. There is thus a reduction in the number of volts per turn, which causes an increase in the volume of the winding; but as aluminium is lighter than copper, the weight of the windings remains unchanged.
A lower current density must be accepted and the mechanical strength must be maintained. It is pointed out that if the appropriate design changes are made, the aluminium-wound transformer becomes cheaper and more efficient than one using copper. Comparative data for 560 kVA transformers with aluminium and copper windings are given in Table 1. It shows

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that for the same losses the transformer with aluminium winding weighs less and is 4% cheaper; also that the no-load current is 21.5% less and the temperature rise of the aluminium winding above that of the oil is 7 °C less. Table 2 gives comparative data for 180 kV transformers with similar results. It is recommended to develop a series of aluminium-wound transformers for mass production. There are 2 tables.

ASSOCIATION: Odesskiy politekhnicheskiy institut
(Odessa Polytechnical Institute)

SOV/110-58-8-13/26

AUTHOR: Balashov, K.K. (Candidate of Technical Science)

TITLE: The Variant Method of Designing Transformers (Variantnyy metod rascheta transformatorov) 29

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Nr 8, pp 45-50 (USSR)

ABSTRACT: This article describes the variant method of designing transformers, which ensures that: given values of losses and short circuit voltage will be obtained; all the main dimensions of transverse and longitudinal insulation are maintained; the windings fit well into the windows; and the requisite winding temperature rise is observed. Given the values of the losses and reactance, the design of a transformer is a problem with a single solution found by making a number of variant designs. The formulae offered in this article are derived for three-phase core-type two-winding transformers but can be extended to other types. The formulae are derived by assuming that the high- and low-voltage windings are replaced by a single equivalent winding to which a number of conditions apply. Formulae are then derived for the mean diameter of the equivalent winding, the rated power and other important features.

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SOV/110-58-8-13/26

The Variant Method of Designing Transformers

The order in which the calculations should be made is explained. A number of variants are compared to find the best. It is concluded that with this method of design it is possible to analyse the construction of transformers and to suggest methods of improving them. Transformers can be designed for various temperature rises and loss ratios. An example is given of the design of a 180 kVA, 10 kV transformer.

There is 1 Soviet reference.

SUBMITTED: April 23, 1957

1. Transformers--Design 2. Mathematics--Applications

Card 2/2

BALASHOV, K.K., kand.tekhn. nauk

Transformers equipped with aluminum windings. Vest. elektroprom. 29 no. 5:78-79 My '58. (MIRA 11:7)

1. Odesskiy politekhnicheskiy institut.
(Electric transformers)

BALASHOV, Konstantin Konstantinovich, kand.tekhn.nauk, dotsent

Dimensional relationships and methods for designing electric transformers. Izv. vys. ucheb. zav.; elektromekh. 3 no.6:36-48 '60. (MIRA 15:5)

1. Kafedra elektricheskikh mashin Odesskogo politekhnicheskogo instituta.

(Electric transformers)

BALASHOV, K.K., kand.tekhn.nauk

Problems of technical and economical design fundamentals for transformers. Vest.elektroprom. 31 no.1:36-39 Ja '60.
(MIRA 13:5)
(Electric transformers)

BALASHOV, Konstantin Konstantinovich, kand.tekhn.nauk, dotsent

Fundamental principles for the design of efficient transformers. Izv. vys. ucheb. zav.; elektromekh. 3 no.3:55-70 (MIRA 13:10)

1. Kafedra elektricheskikh mashin Odesskogo politekhnicheskogo instituta.

(Electric transformers)

BALASHOV, K.K.

Methods for designing efficient transformers. Izv. vys. ucheb. zav.; elektromekh. 4 no.2:41-52 '61. (MIRA 14:9)
(Electric transformers)

BALASHOV, K.K., kand.tekhn.nauk

Economical choice of an electric transformer with aluminum windings. Izv. vys. ucheb. zav.; energ. 5 no.1:7-14 Ja '62. (MIRA 15:2)

1. Odesskiy politekhnicheskiy institut. Predstavleno kafedroy elektricheskikh mashin.
(Electric transformers)
(Electric power distribution)

BALASHOV, K.K.; KURILOV, V.V.

Electric transformers with aluminum windings and increased overload rating. Izv. vys. ucheb. zav.; elektromekh. 5 no.2: 168-176 '62. (MIRA 15:3)

(Electric transformers)

BALASHOV, K.K., kand.tekhn.nauk

Complex engineering efficiency method for designing electric transformers. Elektrichestvo no.4:80-86 Ap '63. (MIRA 16:5)

1. Odesskiy politekhnicheskiy institut.
(Electric transformers)

BALASHOV, K.K., kand.tekhn.nauk

Choice of short-circuit voltage for electric transformers. Vest. elektroprom. 34 no.4:20-24 Ap '63. (MIRA 16:10)