SHEYNBAUM, E.M.

"Rumanian medicaments". Reviewed by E.M.Sheinbaum. Med.prom. 16 no.7:64 Jl '62. (MIRA 15:10)

(RUMANIA—PHARMACOPOEIAS)

SHEYNBAUM, E.M.

Review of D. Ozelianu and V.Stenescu's book "Preparing drugs in the pharmacy". Aptech. delo 12 no.3:84-86 My-Je '63 (MIRA 17:2)

SHEYNBAUM, E.M.

In one pharmaceutical circle. Apt. delo 12 no.6:66-67 N-D '63. (MIRA 17:2)

1. Apteka Sochinskoy gorodskoy bol'nitsy No.2.

PARSHINSKIY, Yu.A.; SHEYNBAUM, [illegible] (Sochi).

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SHEYNBAUM, E. Ya.

SHEYNBAUM, E.Ya. (Moskva)

Lymphogranulomatosis of the skin. Klin. med. 32 no.7:72-73 Jl '54. (MLRA 7:8)

1. 'z terapevticheskogo otdeleniya (zav.-kandidat meditsinskikh nauk L.I.Vasil'yev) klinicheskoy bol'nitsy No.6.

(HODGKIN'S DISEASE
*skin)
(SKIN, neoplasms
*Hodgkin's dis.)

SHEYNBAUM, Ye.M.; CHEREVATENKO, M.A.

Abstracts. Farmatsev.zhur. 17 no.4:93-95 '62. (MIRA 16:3)

(PHARMACY--ABSTRACTS)

ANDROSOV, P.I., doktor meditsinskikh nauk; POTEKHINA, L.A., inzhener; SAVCHENKO, Ye.D., kandidat meditsinskikh nauk; STREKOPYTOV, A.A., laureat Stalinskoy premii; TULYAKOVA, L.S., vrach; SHEYNBER, S.A., doktor tekhnicheskikh nauk.

A new technique for suturing bronchial stumps. Khirurgiia no.8:66-70 Ag. '55. (MIRA 9:2)

1. Iz Nauchno-issledovatel'skogo instituta eksperimental'noy khirurgicheskoy apparatury i instrumentov (dir.-kandidat meditsinskikh nauk M.G. Anan'yev) Ministerstva zdravookhraneniya SSSR.

(BRONCHI, surg.
suturing of stump with tantalum braces, technic)

SHEINBERG, A. E.

"A More Precise Method of Setting the Date for Statutory Leave for Pregnant Women," Akusher. i Ginekol. No. 3, 1949. Cand. Medical Sci. (Mbr., 2d Obstetrical & Gynecological Clinic, Odessa Med. Inst. & 2d Consultation Office for Women) -c1949-.

SHEYNBERG, A.B., kandidat meditsinskikh nauk (Odessa)

"Obstetrics." A.L. Kaplan. Reviewed by A.B. Sheinberg. Fel'd. i akush. no.11:62-63 N '55. (MLRA 9:2)

(OBSTETRICS) (KAPLAN,A.L.)

SHEYNBERG, A.B., kandidat meditsinskikh nauk (Odessa)

Determination of the date for maternity leave. Fel'd. i akush. (MLRA 9:5)
21 no.2:57-59 F '56.
(PREGNANCY)

SHEYNBERG, A.B.

SAVKO, V.I., kandidat meditsinskikh nauk (Odessa); SHEYNBERG, A.B., kandidat meditsinskikh nauk (Odessa)

"Textbook in gynecology" by A.I. Serebrov. Reviewed by V.I. Savko, A.B. Sheinberg. Fel'd. i akush. 22 no.3:61-63 Mr '57 (MLRA 10:5)

(GYNECOLOGY--STUDY AND TEACHING) (SEREBROV, A.I.)

USSR/Engin Dec 1947
Metallurgy
Furnaces

"New Construction for Hearth of Blast Furnace" 6 pp

"Stal'" No 12

Collection of articles written in answer to article submitted by Professor Semikin and Engineer Polovchenko. A. F. Sheynberg, Candidate in Technical Sciences, of GiproMez states that the construction suggested by Semikin and Polovchenko is inefficient, as uneven heating of the hearth will cause it to crack. He in turn suggests that stability of the hearth block can be increased, if it is cast of alloys having low deformation and linear expansion coefficients. [redacted] 57T30

BLINOVA, L.I.; TSYPIN, L.M.; SHEYNBERG, A.I.

Content of riboflavin and ascorbic acid in the cornea in burns of the eye. Vest.oft. no.6:48-53 '61. (MIRA 14:12)

1. Kafedra glaznykh bolezney (zav. - prof. A.B. Katsnel'son) Chelyabinskogo meditsinskogo instituta i glaznoye otdeleniye oblastnoy klinicheskoy bol'nitsy.

(EYE—WOUNDS AND INJURIES) (CORNEA)
(RIBOFLAVIN) (ASCORBIC ACID)

SAVKO, V.I., kandidat meditsinskikh nauk (Odessa); SHEYNBERG, A.V., kandidat meditsinskikh nauk (Odessa)

Hollow phantom of the uterus. Fel'd. i akush. 21 no.8:56-58 Ag '56. (MLRA 9:10)
(VISUAL INSTRUCTION)
(OBSTETRICS--STUDY AND TEACHING)

4C

L 24473-66 EWT(m)/T/EWP(t) IJP(c) JG/JD/GS

ACC NR: AT6010576 (N) SOURCE CODE: UR/0000/65/000/000/0083/0095

AUTHOR: Mal'tsev, M. V.; Shulepov, V. I.; Britnev, G. P.; Zhdannikova, V. N.; Dannelyan, T. A.; Popova, Yu. S.; Fedotov, E. I.; Sheynberg, B. N. 64 60 B+1

ORG: All-Union Institute of Light Alloys (Vsesoyuznyy institut legkikh splavov) 18

TITLE: Some data on the kinetics of the dissociation of a solid solution of interstitial impurities in cast molybdenum 27

SOURCE: AN UkrSSR. Mekhanizm plasticheskoy deformatsii metallov (Mechanism of the plastic deformation of metals). Kiev, Naukova dumka, 1965, 83-95

TOPIC TAGS: molybdenum, cast alloy, solid solution, crystal impurity, crystal lattice defect

ABSTRACT: The authors study the effect which the number and distribution of crystal lattice defects have on dissociation of a solid solution of interstitial impurities in molybdenum. The density and distribution of dislocations in cast molybdenum are determined principally by the parameters of the crystallization process (the rate of crystallization, temperature gradient in the liquid and solid metal etc.). An x-ray analysis of a molybdenum single crystal produced by electron-beam zone melting and

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L 24473-66
ACC NR: AT6010576

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containing interstitial impurities of carbon (0.01%) and oxygen (0.0015%) under optical and electron microscopes showed that the crystal is a single-phase solid solution of interstitial impurities in molybdenum. An entirely different picture is observed in cast molybdenum produced by arc melting. The decay of the solid solution in the ingots is localized on polygonization boundaries where the adjacent interstitial atoms are segregated. The compression stresses which arise at the interfaces tend to separate the crystals and are a cause of high brittleness in the cast metal. The polygonization single crystal in cast molybdenum is basically a saturated solid solution of interstitial impurities which decays only in widely scattered isolated sections. At the same time, the ductility of the polygonization single crystals is usually as high as in single crystals grown by zone melting. Various methods for increasing the ductility of cast molybdenum are discussed. Orig. art. has: 15 figures.

SUB CODE: 11,20/ SUBM DATE: 26Sep64/ ORIG REF: 001/ OTH REF: 000

Card 2/2 PB

L 9254-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(m)-2/EWA(c) IJP(c) JD/JG/AT

ACC NR: AP5022719 SOURCE CODE: UR/0181/65/007/009/2759/2762

AUTHOR: Azizov, U. V.; Vakhidov, U. V.; Sultanov, V. M.; Sheynberg, B. N.; Shuppe, G. N.

ORG: Tashkent State University im. V. I. Lenin (Tashkentskiy gosudarstvennyy universitet)

TITLE: Emission properties of a molybdenum single crystal

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2759-2762

TOPIC TAGS: single crystal, molybdenum, work function, electron emission

ABSTRACT: Richardson lines were plotted for measuring the work function of electrons on the three main faces of a molybdenum single crystal: (110), (100) and (111). In addition to this, the work function of surface (111) was measured during vaporized deposition of barium on this face. The methods used in preparation of the specimens and making the measurements are described. The equipment is described in other papers. Curves are given for ln I/T^2 as a function of T^{-1} for the three faces studied. The data obtained from these curves are used for calculating the work functions and Richardson constants (see table)

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L 9254-66

ACC NR: AP5022719

0

TABLE

Face	ϕ, ev	$A_0(1-r)$, a/deg^2·cm^2
(110)	5.10 ± 0.05	270 ± 20
(100)	4.40 ± 0.05	230 ± 20
(111)	4.15 ± 0.05	140 ± 20

The method and formulas used for calculating the Richardson constants are described. It was found that the Ba-Mo$^{(III)}$ cathode current is directly proportional to the barium concentration. The work function in this case was found to be 2.30 ± 0.1 ev, while the effective Richardson constant was 60 a/deg^2·cm^2. Data from desorption curves show that the mean heat of adsorption for barium on surface (111) of molybdenum is 3.90-4.00 ev. The results indicate that the contrast in the work function is nearly as great in a molybdenum crystal as in tungsten: $\Delta\phi = \phi_{max} - \phi_{min} \approx 1$ ev. Orig. art. has: 5 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 09Apr65/ ORIG REF: 003/ OTH REF: 000

Card 2/2 pw

L 29980-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/WW/JG

ACC NR: AP6012475 SOURCE CODE: UR/0181/66/008/004/1140/1146

AUTHOR: Protopopov, O. D.; Mikheyeva, Ye. V.; Sheynberg, B. N.; Shuppe, G. N. 70 B

ORG: Tashkent State University (Tashkentskiy gosudarstvennyy universitet)

TITLE: Emission parameters of tantalum and molybdenum single crystals A

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1140-1146

TOPIC TAGS: tantalum, molybdenum, crystal, electron emission, work function, crystal lattice structure

ABSTRACT: This is a continuation of earlier work (FTT v. 7, 3759, 1965 and others) devoted to the work function of electrons from different faces of single crystals of tungsten and molybdenum. The present investigation reports similar measurements with large crystals of tantalum, accompanied by new measurements on molybdenum and comparing the results and refining earlier data. Most measurements were made in a cylindrical system of electrodes (Fig. 1), although some were made with a flat system of electrodes used in the earlier experiments. The measurements were made by the Richardson method. The values obtained for the work functions of molybdenum are $\varphi_{110} = 5.00 \pm 0.05$, $\varphi_{112} = 4.55 \pm 0.05$, $\varphi_{100} = 4.40 \pm 0.02$, and $\varphi_{111} = 4.10 \pm 0.02$ ev. The values for tantalum were $\varphi_{110} = 4.80 \pm 0.02$, $\varphi_{100} = 4.15 \pm 0.02$, and $\varphi_{111} = 4.00 \pm 0.02$ ev. The results for tungsten, molybdenum, and tantalum are tabulated and compared, and some of the differences are discussed. It is concluded that for metals with a body-centered cubic lattice the average work function is closest to that in the [100] direction. The difference between the maximum and the minimum work function is

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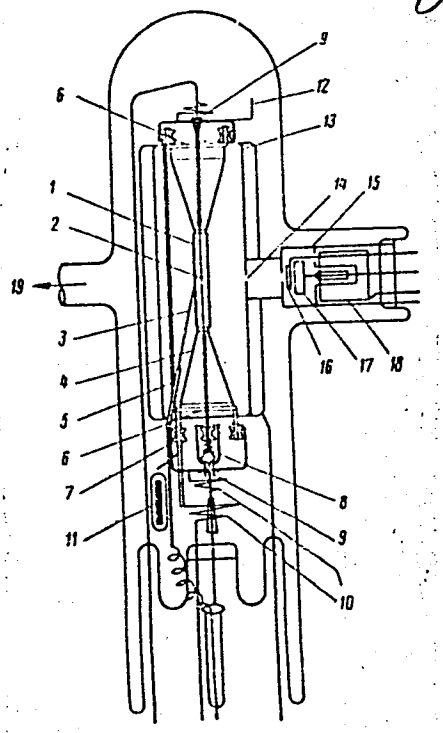
L 29980-66

ACC NR: AP6012475

Fig. 1. Diagram of cylindrical geometry. 1 - Cathode, 2 - tungsten heater, 3 - thermocouple, 4 - tantalum cone, 5 - ring-carrying rod, 6,7 - quartz insulators, 8 - tension device for heater, 9 - tantalum thrust bearings, 10 - tantalum shunting coils, 11 - glass-coated iron armature, 12 - angle indicator, 13 - anode, 14 - collector slit, 15 - collector screen, 16 - antidynatron diaphragm, 17 - collector, 18 - shielding cylinder, 19 - to pumps, manometer, and getters.



0.9 - 1.0 ev. The lower limit of the values of the work function lies closer to the average than the upper limit. Orig. art. has: 4 tables and 5 figures.

SC: 20/ SUBM DATE: 31Aug65/ ORIG REF: 010/ OTH REF: 003

Card 2/2

AID P - 5028

Subject : USSR/Electronics

Card 1/1 Pub. 89 - 13/14

Author : Sheynberg, M.

Title : Observation of volt-amper characteristics of electron valves on the oscillograph screen.

Periodical : Radio, #9, 53, S 1956

Abstract : The author describes a method which he developed for a direct observation of v-a characteristics of electron valves on the oscillograph screen. Two diagrams.

Institution : None

Submitted : No date

LOZINSKII, A. A., SCHEINBERG, O. A.

A method of complex balneotherapy. Sovet. med., No. 5, May 50. p. 12-3

1. Pyatigorsk.

CLML 19, 5, Nov., 1950

KAGANOV, A.S., kand. med. nauk, dotsent; SHTERENGERTS, A.Ye.; SHEYNBERG, O.A., kand. med. nauk

Reviews and bibliography. Vop. kur., fizioter. i lech. fiz. kul't. 29 no.4:370-373 Jl-Ag '64. (MIRA 18:9)

1. Glavnyy spetsialist Odesskogo upravleniya sanatoriyami Ministerstva zdravookhraneniya Ukrainskoy SSR (for Shterengerts).

SHEYNBERG, O.A.; PETELIN, S.M.

"Exercise therapy in the clinical aspects of nervous diseases" by V.N.Moshkov. Reviewed by O.A.Sheinberg, S.M.Petelin. Vop. kur., fizioter. i lech. fiz. kul't. 26 no.1:83-84 '61. (MIRA 14:5)
(EXERCISE THERAPY) (NERVOUS SYSTEM--DISEASES)
(MOSHKOV, V.N.)

ALEKSANDROVA, V.P.; BEREZINA, N.K.; BERNSHTEYN, A.I.; BERNSHTEYN, S.E.; BLOKH, R.L.; ZINKOVETSKAYA, T.S.; IDESIS, Ye.S.; SMOLENKOVA, O.N.; TOSHINSKIY, I.I.; TSARFIS, P.G.; SHABAD, Ye.T.; SHEYNBERG, O.A.

Professor E.IA. Stavskaia; obituary. Vop. kur., fizioter. i lech. fiz. kul't. 26 no. 2:191 Mr-Ap '61. (MIRA 14:4)
(STAVSKAIA, EVGENIIA IAKOVLEVNA, 1892-1960)

SHEYNBERG, S.A.

Gaseous lubrication of sliding bearings; theory and calculation. Tren. i izn.mash. no.8:107-204 '53. (MLRA 6:7)
(Lubrication and lubricants) (Bearings (Machinery))

SHEYNBERG, S.A.

On gassed oil lubrication. Tren. i izn.mash. no.9:143-155 '54.
(Lubrication and lubricants) (MLRA 7:9)

SHEYNBERG, S. A.

AID 479 - I

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT

Call No.: AF595007

BOOK

Author: SHEYNBERG, S. A.

Full Title: LUBRICATION OF SLIDING BEARINGS WITH GAS (THEORY AND CALCULATION)

Transliterated Title: Gazovaya smazka podshipnikov skal'zheniya

PUBLISHING DATA

Originating Agency: Academy of Sciences, USSR. Machine-Building Institute, Treniye i iznos v mashinakh (Friction and Wear in Machines), Issue VIII

Publishing House: Academy of Sciences, USSR

Date: 1953 No. pp.: 98 (107-204) No. of copies: 2,500

Editorial Staff

Editor: Khushchov, M. M., Prof.

Others: The author expresses thanks for valuable help to: Artobolevskiy, I. I., Academician, Khrushchov, M. M., Professor, Dobrovol'skiy, V. V., Corr. Member, Academy of Sciences, and to Professors Gut'yar, Ye. M., and Baranov, G. G.

PURPOSE: The study of the development of gas (air) lubricated sliding bearings.

TEXT DATA

Coverage: The author considers the basic problem of gas (mainly air) lubrication, e.g., the theory of the formation of a lubricating layer

1/3

...rces due to friction on the ...grams; 8. Carrying ...tem in ... 10. Calculation and study of a bearing

2/3

SHEYNBERG, S. A.

"Fundamentals of the Theory and Design of Aerodynamic Supports." Sub 25 Apr 51, Inst of Machine Science, Acad Sci USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55.

SHEYNBERG, S.A., doktor tekhn.nauk; KHARITONOV, A.M., kand.tekhn.nauk

Aerodynamic supports for high-speed engines and turbines. Vest. mash. 38 no.9:14-17 S '58. (MIRA 11:10)
(Bearings)

13,2520

1.5100 also 1413

86364

S/121/60/000/011/009/013
A004/A001

AUTHORS: Sheynberg, S. A., Shuster, V. G.

TITLE: Vibration-Proof Porous Aerostatic Footstep Bearing

PERIODICAL: Stanki i Instrument, 1960, No. 11, pp. 23-27

TEXT: The authors point out that the aerostatic footstep bearings known hitherto ensure a sufficiently high supporting power, are simple in manufacture, but tend to vibrations, which leads to the origination of natural shaft vibrations in axial direction. Also the aerostatic footstep bearing developed by the ENIMS and used in electric spindles for internal grinding operations is not vibration-proof. The elasticity of the gas cushion included in the pockets or grooves of footstep bearings of old design was the main reason for the origination of natural vibration. To eliminate this deficiency a porous footstep bearing has been developed, the structure of which is shown in Figure 2. Footstep bearing 1 made of porous carbon graphite is pressed against the face of bearing 2 by nut 3. Compressed gas from the bearing enters ring-shaped chamber 5 by channel 4. Then the gas gets into holes 6, located on two concentric circles, and proceeds through the porous body of the footstep bearing into the lubricating

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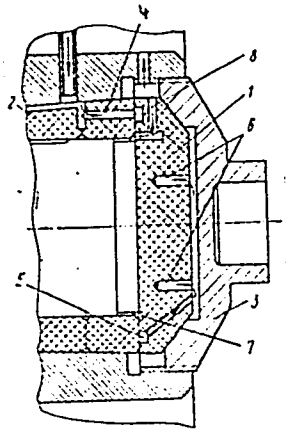
Vibration-Proof Porous Aerostatic Footstep Bearing

clearance. The gas consumption is regulated by the depth of the holes. This depth being increased, the wall thickness decreases and so does the hydraulic resistance. The spent gas from the footstep bearing and bearing is collected in ring-shaped groove 7 of the footstep bearing, from where it escapes into the air through hole 8. The honeycomb structure of the footstep bearing ensures both the necessary gas permeability and a sufficient mechanical rigidity. It should be taken into account that the deflection of the footstep bearing under the effect of the compressed gas pressure must not exceed 2 - 3 μ, lest the footstep bearing loses some of its carrying capacity because of the distortion of the clearance uniformity. Figure 3 shows the standard design of an electric spindle with porous footstep bearing. The electric spindle is a three-phase asynchronous short-circuited motor with synchronous velocity of rotation of 48,000, 72,000 and 96,000 rpm.

Figure 2:



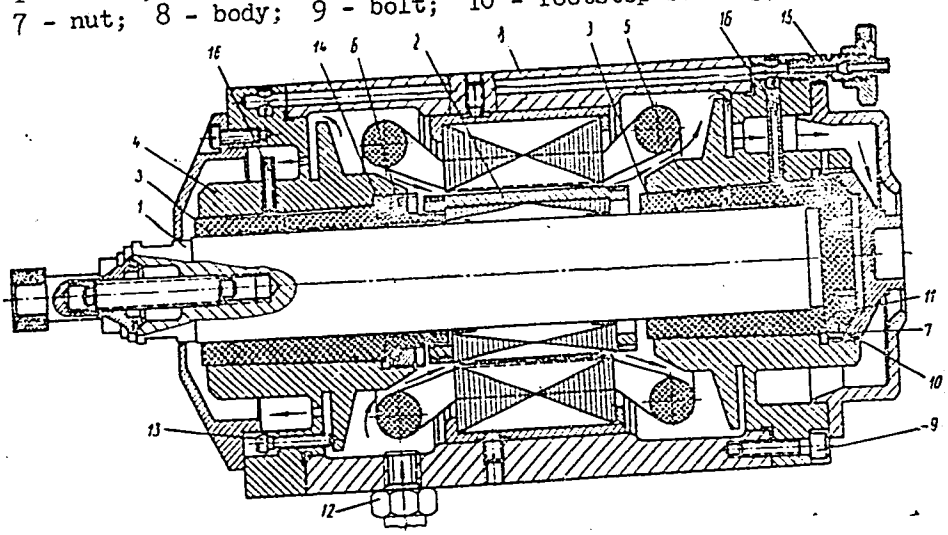
Card 2/6

86154

S/121/60/000/011/009/013
A004/A001

Vibration-Proof Porous Aerostatic Footstep Bearing

Figure 3. Electric spindle on air-lubricated bearings: 1 - shaft; 2 - rotor; 3 - bearings; 4 - front shield; 5 - rear shield; 6 and 7 - nut; 8 - body; 9 - bolt; 10 - footstep bearing; 11 - channel; 12 - connecting branch; 13 - screw; 14 - graphite bushing; 15 - connecting branch; 16 - pipe.



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85254

S/121/60/000/011/009/013
A004/A001

Vibration-Proof Porous Aerostatic Footstep Bearing

Porous footstep bearings possess high anti-vibration qualities over the whole range of possible loads, i. e. with any clearance. Therefore, the described electric spindle is used successfully for face grinding. Since the new footstep bearing has not pockets and grooves, vibrations are practically eliminated. Besides, the porous wall absorbs the energy of compulsory oscillations in case such oscillations should originate. The boundary magnitude of supporting power of porous footstep bearings is approximately twice as large as that of footstep bearings with a central hole. Porous footstep bearings are more simple to manufacture, and, thanks to the absence of pockets, the wear of the working surface does not put it out of action, which is the case with ordinary footstep bearings because of the insufficient depth of the feeding pockets. For the calculation of porous footstep bearings it is necessary to determine their supporting power and the gas consumption through the bearing. Using the continuity equation of isothermal gas flow and by means of differential equations, the supporting power of the footstep bearing is determined by the formula $P = \pi R_1^2 p_a \bar{P}$, where $\bar{P}$ - the dimensionless characteristic of the supporting power - is calculated by formulae of approximated integration, p_a = absolute pressure over the cross-section x. The volumetric gas consumption through the footstep bearing in cm^3/sec at pressure p_a is

$$Q_0 = \frac{\pi \delta^3 p_a}{12\eta} \cdot \frac{I_1(\chi)}{I_0(\chi)} \left(\bar{p}_3^{-2} - 1\right)\chi,$$

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S/121/60/000/011/009/013
A004/A001

Vibration-Proof Porous Aerostatic Footstep Bearing

where η = absolute gas viscosity, δ = clearance between pivot and bearing. Figure 6 shows modifications of the porous footstep bearing.

Figure 6.
a = solid footstep bearing; δ (b) = solid footstep bearing with centric hole at the shaft face; δ (v) = ring-shaped footstep bearing; λ (g) = ring-shaped footstep bearing with escape towards the center.

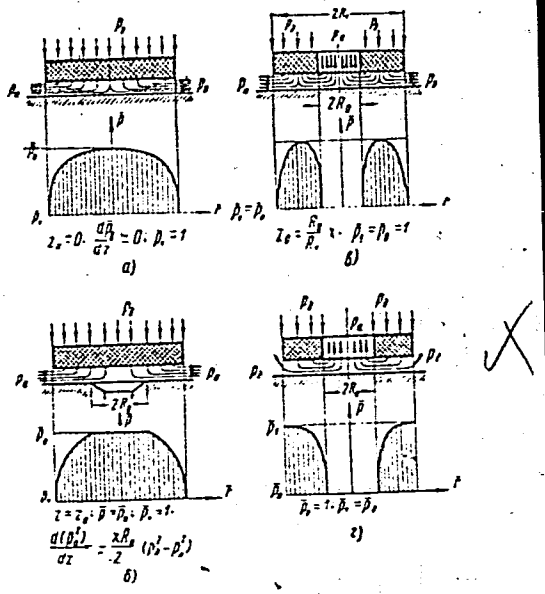

Figure 6:

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Vibration-Proof Porous Aerostatic Footstep Bearing

Table 1 shows the calculation results for the case of 6, a. The authors exemplify the calculation of a porous footstep bearing of the A48-22 electric spindle.

Table 1:

χ	$\bar{P}$			
	$\bar{p}_\partial = 3$	$\bar{p}_\partial = 4$	$\bar{p}_\partial = 5$	$\bar{p}_\partial = 6$
1	0.350	0.587	0.842	1.11
2	0.806	1.27	1.75	2.24
3	1.10	1.70	2.31	2.92
5	1.40	2.13	2.86	3.60
10	1.72	2.60	3.48	4.37
	2.00	3.00	4.00	5.00

There are 9 figures, 3 tables and 6 references: 4 Soviet and 2 US.

Card 6/6

ZHED', V.P., kand. tekhn. nauk, Prinimali uchastiye: BASS, G.S., inzh.; VOROB'YEV, I.I., kand. tekhn. nauk; YELISAVETSKIY, A.G., inzh.; PAVLOVA, M.A., st. inzh.; SHEYNBERG, S.A., doktor tekhn. nauk; LUK'YANOV, A.K., red.; VIKTOROVA, Z.N., tekhn. nauk

[Units and mechanisms of machine tools; survey of foreign design] Uzly i mekhanizmy metallorezhushchikh stankov; obzor zarubezhnykh konstruktsii. Moskva, TSentr. in-t nauchno-tekhn. informatsii, 1961. 53 p. (MIRA 14:11)
(Machine tools--Design and construction)

23260
S/122/61/000/006/001/011
D244/D301

26.2182

AUTHOR: Sheynberg, S.A., Doctor of Technical Sciences

TITLE: Vibrational stability of gas lubricated bearings

PERIODICAL: Vestnik mashinostroyeniya, no. 6, 1961, 3-10

TEXT: Gas bearings can give a very stable and smooth performance at high speeds but this is not an inherent property. It has to be ensured by proper design, to avoid the appearance of selfexciting vibrations known as the half-speed whirl or whip of the shaft. When this occurs the load carrying capacity of the bearing is lost and dry friction between the shaft and the bearing takes place; with oil lubrication a thin film would still exist. Critical speeds at which whipping occurs depend on the shaft diameter, radial load and other factors. Whipping is likely in nearly concentric running of the shaft due to low radial loading (vertical shafts). It is easily distinguishable from vibrations due to imperfect balancing, even without any instruments.

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Vibrational stability of...

It appears suddenly when the critical speed is reached or when the gas pressure in the bearings is reduced to a definite value. There are two kinds of half-speed whirl: cylindrical, peculiar to short shafts in which the shaft axis describes a cylinder, and conical, in which the axis describes a circular cone with the apex in its centre of gravity. Cylindrical whip is first analyzed with the shaft assumed unloaded. Due to a small inaccuracy of shape the shaft can be displaced by an impulse S. The resulting eccentricity and the wedge of lubricant create a force whose components N and T will move point O_1 round the bearing center. On a spiral with angular velocity φ' . These components depend on eccentricity e and on φ'. When $\varphi = \frac{n}{2}$ (n - angular speed of shaft), forces N and T both become zero. The central position of the shaft in the bearing is also unstable. The load carrying capacity of the circular (pressurized) bearing can be expressed as $N = G_N e; \quad T = G_T e\left(1-\frac{2\varphi'}{n}\right).$ (1) where G_N and G_T - stiffness coefficients depending on bearing dimensions, speed of shaft (G_T only), pressurizing

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Vibrational stability of...

pressure etc. By Lagrange differential equations for the motion of a rigid body (shaft in two bearings) the author obtains (Eq. 2) and (3)

$$e'' - \left(\varphi'^2 - \frac{2G_N}{M}\right)e = 0 \qquad (2)$$

where M - mass of shaft. The solution of (Eq. 3) for e = const. is (Eq. 4)

$$\varphi'' + \frac{4G_T}{nM}\varphi' + 2\frac{e'}{e}\varphi' - \frac{2G_T}{M} = 0. \qquad (3)$$

$$\varphi' = \frac{n}{2}\left(1 - e^{-\frac{4G_T}{nM}t}\right); \qquad (4)$$

from which it will be noticed that the limiting speed is $\frac{n}{2}$. For stability of the shaft in the concentric position there must be (Eq. 5).

$$k^2 = \frac{n^2}{4} - \frac{2G_N}{M} < 0. \qquad (5)$$

When whipping occurs the shaft slides in the bearing and will be acted on by additional forces: $-N_n$ and $-T_n = N_n f$ (f=.03 - .04 for dry friction of steel on graphite). Therefore, Eqs. (2) and (3) become

$$(\varphi')^2 - \frac{2G_N}{M} - \frac{2N_n}{Me} = 0; \qquad (3')$$

From the last of these it follows that $\varphi' < \frac{n}{2}$. Next, the conical whipping

Card 3/5 $\varphi' = \frac{n}{2}\left(1 - \frac{N_n f}{G_T e}\right)$.

Vibrational stability of...

is considered assuming the centre of gravity is half way between the bearings. The final equations of motion for this case is (Eq. 12) and the condition of stability is (Eq. 13)

$$\psi' = \frac{n}{2}\left(1 - e^{-\frac{4G_T l^2}{nA}t}\right), \quad (12)$$

where C-moment of inertia about the shaft axis, A- the moment of inertia about axis Ox. The last condition means that conical whip can only appear in long shafts, because if $A < 2C$, the motion is stable even for $G_N = 0$. This is only possible in gyroscopes. For other shafts we usually have $\frac{A}{C} = 8$ to 20 or more. As n is increased angle θ will also increase from the moment when inequality (Eq. 13) is reversed. In the bearing with circular pressurization (in which G_N does not depend on θ) θ will rapidly rise to θ_n at which the shaft slides on the bearing. If G_N increases with θ (in non-circular pressurization), then whipping takes the form of precession in which the shaft does not touch the bearing. A general case of whipping is then analyzed. To ensure shaft stability of a circular bearing the pressurization pressure (and hence G_N) should increase in proportion

$$\frac{\partial N}{\partial e} - G_N > \left(\frac{A}{2} - C\right)\frac{n^2}{L^2}. \quad (13)$$

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S/122/61/000/006/001/011
D244/D301

Vibrational stability of...

to the square of shaft speed. There are 8 figures and 6 Soviet-bloc references.

X

Card 5/5

S/121/62/000/003/001/004
D040/D113

AUTHOR: Sheynberg, S.A.

TITLE: Electric spindles on air lubricated bearings and their operational performance

PERIODICAL: Stanki i instrument, no. 3, 1962, 7-11

TEXT: The design of new electric spindles with air cushion bearings developed by ENIMS for internal grinders is described. The specifications of the set of six spindles developed are as follows:

Spindle model	Spindle rpm	Three-phase current frequency, cps	Net power, kw	Spindle neck fit diameter, mm	Spindle neck diameter, mm
A48-22 (A48-22)	48,000	800	2.0	120E (120S)	32
A48-22A (A48-22A)	48,000	800	0.7	120S	32

Card 1/

Electric spindles .....
Continuation of the table

A72-20 (A72-20)	72,000	1200	0.5	90S	22
A96-30 (A96-30)	96,000	1600	0.3	65S	16
A120-40 (A120-40)	120,000	2000	0.15	65S	12
A144-51 (A144-51)	144,000	2400	0.15	65S	12

The electric spindle is a three-phase short-circuited induction motor with current supply from a special converter, its shaft being mounted on two air-cushion bearings. Axial load is assimilated by an air cushion between the shaft end face and a thrust bearing. Compressed air fed into the bearing casing exerts axial pressure. Each bearing consists of a brass sleeve with a pressed-in bushing of carbegraphite, impregnated with bronze and provided with two circular and one

Card 1/3

lectric spindles .....

longitudinal groove. Air is fed through only one bore and the longitudinal groove, and the circular grooves help form the air cushion before the spindle starts moving. Spindle vibration is eliminated and jamming made impossible even when air feed is temporarily stopped, though vibration is then present. The diametrical clearance is 0.01 mm as compared with 0.0. mm in old-type bearings, the work finish is considerably improved and the Nauchno-issledovatel'skiy institut podshipnikovoy promyshlennosti (Scientific Research Institute of the Bearing Industry) (NIIPP) states that bearing races have 30 % longer life after using the new spindles. Seven semi-automatic grinders were fitted with 48,000 rpm electric spindles in the GP (Bearing Plant) in Kuybyshev; so far not one air-cushion bearing has had to be replaced and 75,000 and 90,000 rpm electric spindles are now being tested. The Automation Laboratory of the IGP2 (Plant) has tested 48-22 spindles in automatic grinders for cylindrical races of Cardan shaft bearings. Centralized output of new electric spindles with air-cushion bearings has started at the Moskovskiy zavod "Elektronasos" (Moscow "Electronasos" Plant). The design and operation of the ENIMS spindles are described and calculation data for diametrical clearance are included. Technical advantages of spindles on air-cushion

Card 3/4

Electric spindles .....

bearings are stressed, comparisons being made with the performance of spindles on oil-lubricated bearings, including the "Servomatic" grinding head of the British Raleigh Company which requires about ten times more electric power. Italian-made electric spindles are used at the IGPZ. There are 6 figures and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The English-language reference is: T.E.F. Preston, Servomatic high-speed grinding spindles, "Metalworking Production", September 14, 1956.

Card 4/4

SHEYNBERG, S.A.

Half-speed whirling in gas-lubricated bearings. Stan. i instr. 36 no.2:1-6 F '65. (MIRA 18:3)

KARPOV, Yevgeniy Fedorovich; KRAVCHENKO, Vladimir Sergeyevich, doktor tekhn. nauk; LEYBOV, Ruvim Moiseyevich, doktor tekhn.nauk; SHEYNBERG, Samuil Davydovich; MIRSKAYA, V.V., red.izd-va; KOROVENKOVA, Z.A., tekhn.red.; BERESLAVSKAYA, L.Sh., tekhn.red.

[Automatic protective devices in mines] Avtomaticheskie shakhtnye zashchitnye ustroistva. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1960. 111 p.
(MIRA 13:7)

(Electricity in mining--Safety measures)

SHEYNBERG, S.D., inzh.

Problems of rock hoisting in deep hydraulic mines. Ugol' prom. no.4:40-46 Jl-Ag '62. (MIRA 15:8)

1. Dongiproshakht.
(Donets Basin—Hydraulic mining) (Mine hoisting)

SHEYNBERG, S.I.,; KOZINA, M.G.,; NAGAYEVA, L.I.,; EFROS, G.A.

Improvement in the design of vascular suturing apparatus. Med. prom. 10 no.1:30-34 Ja-Mr '56. (MLRA 9:6)

1. Nauchno-issledovatel'skiy institut eksperimental'noy khirurgicheskoy apparatury i instrumentov.
(SURGICAL INSTRUMENTS AND APPARATUS)

ANDROSOV, P.I., doktor meditsinskikh nauk; SHEYNBERG, S.I., doktor tekhnicheskikh nauk.

An improved apparatus for suturing of vessels and its application in clinical and experimental practice. Khirurgiia, 33 no.1:117-122 Ja '57 (MLRA 10:4)

1. Iz Nauchno-issledovatel'skogo instituta eksperimental'noy khirurgicheskoy apparatury i instrumentov Ministerstva zdravookhraneniya SSSR (dir. M.G. Anan'yev)

(SUTURES
appar. for suturing blood vessels) (Rus)

SU[illegible], S. I.

Vessel suturing apparatus 19

Novye khirurgicheskie apparaay i instrumenty i opyt ikh primeneniye (New Surgical Equipment and Instruments and Experience in Their Use) NO. 1, Moscow, 1957 A collection of Papers of the Scientific Research Inst. for Experimental Surgical Equipment and Instruments.

NIIERKAI/

SHEYNBERG, V. M.

SHEYNBERG, V. M. - "Pathology of Cutting the Lower Wisdom Tooth." Min of Public HEALTH RSFSR, Moscow Med Stomatological Inst, Moscow, 1955 (Dissertations for Degree of Candidate of Medical Sciences)

SO: Knizhnaya Letopis' No. 26, June 1955, Moscow

FAVORSKAYA, T.A.; ANISIMOVA, I.L.; SHKYNBERG, Z.A.

Study of conditions for the formylation of acyl amino acids.
Zhur.ob.khim. 25, no.3:551-558 Mr '55 (MLRA 8:6)

1. Leningradskiy Gosudarstvennyy universitet
(Amino acids)(Formylation)

SHEYNBLYUM, I.I.: FEL'ZENBAUM, V.G.: RABINOV, I.L., kandidat tekhnicheskikh nauk; RABINOVICH, I.A., redaktor; LYUDKOVSKAYA, N.I., tekhnicheskiy redaktor.

[Following the example of leading factories; the work practice of Novorossiisk slate] Po primeru peredovykh zavodov; iz opyta raboty novorossiiskikh shifernikov. Moskva, Gos. izd-vo lit-ry po stroit, materialam, 1954. 16 p. (MLRA 8:8)

1. Nauchnyye sotrudniki Vsesoyuznogo nauchno-issledovatel'skogo instituta asbestotsementnykh izdeliy "VNIIasbestotsement" MPSM SSSR. (for Sheynblyum, Fel'zenbaum)
(Asbestos cement)

ZAK, M.B., HEYNBERGAS, M.M.; GEFENAS, Sh.G.; MOTEYUNAS, L.I.

Detection of subclinical forms of epidemic hepatitis (Botkin's disease) in a focus following prevention with gamma globulin. Zhur. mikrobiol., epid. i immun. 41 no.1:31-34 Ja '64. (MIRA 18:2)

1. Vil'nyusskiy institut epidemiologii i gigiyeny.

SHEYNBROT, Mark L'vovich; KOROTKOVA, L., red.; LEBEDEV, A., tekhn.red.

[Operational method of accounting for materials; the balance-sheet method] Operativno-bukhgalterskii uchet materialov; sal'dovyi metod. Moskva, Gosfinizdat, 1960. 94 p. (MIRA 13:11)
(Accounting)

SHEINBERGAS, M. M.

Clinical observations of streptomycin effect on the course of toxic dysentery. Vopr. pediat. 18:5, 1950. p. 30-3

1. Of Vil'nyus Municipal Infectious Diseases Hospital (Head Physician — N. I. Khomenko.
2. Author — Head Pediatrician of the Ministry of Public Health Lithuanian SSR.

CLML 20, 3, March 1951

SHEYNBERGAS, M.M., kand.med.nauk

Prevention of intestinal diseases in a children's home. Pediatriia 36 no.10:56-62 O '58 (MIRA 11:11)

1. Iz Vil'nyusskogo doma rebenka (glavnyy vrach M.M. Sheynbergas).
(INTESTINES, dis.
prev. in children's home in Russia (Rus))

SHEYNBERGAS, M.M.

Controversial problems in the epidemiology of infectious hepatitis. Vest. AMN SSSR 17 no.2:32-41 '62. (MIRA 15:3)

1. Nauchno-issledovatel'skiy institut epidemiologii i gigiyeny Ministerstva zdravookhraneniya Litovskoy SSR.
(HEPATITIS, INFECTIOUS)

SHEYNBERGAS, M.M. [Seinbergas, M.M.]

Outbreak of infectious hepatitis (Botkin's disease) in the Birzai District and some problems in the epidemology of this disease. Report No.1: The role of viral carriage as a source of infection. Zhur.mikrobiol., epid.i immun. 33 no.4:105-110 Ap '62. (MIRA 15:10)

1. Iz Instituta epidemiologii i gigiyeny Ministerstva zdravookhraneniya Litovskoy SSR.
(BIRZAI DISTRICT--HEPATITIS, INFECTIOUS)

SHEYNBERGAS, M.M.; PAKTORIS, Ye.A.; ROGOL', Yu.M.; PODSEDLOVSKIY, T.S.; TENIKAYTITE, M.I. [Tenikaityte, M.]

Epidemic of infectious hepatitis in three northern districts of the Lithuanian S.S.R. Vop.med.virus. no.9:173-180 '64. (MIRA 18:4)

1. Iz Vil'nyusskogo nauchno-issledovatel'skogo institut epidemiologii i gigiyeny i Instituta virusologii imeni Ivanovskogo AMN SSSR, Moskva.

ALAD'YEV, I.T.; ALEKSANDROV, B.K.; BAUM, V.A.; GOLOVINA, Ye.S.; GOL'DENBERG, S.A.; ZHIMERIN, D.G.; ZAKHARIN, A.G.; IYEVLEV, V.N.; KNORRE, V.G.; KOZLOV, G.I.; LEONT'YEVA, Z.I.; MARKOVICH, I.M.; MEYEROVICH, E.A.; MIKHNEVICH, G.V.; POPKOV, Z.I.; POPOV, V.A.; PREDVODITELEV, A.S.; PYATNITSKIY, L.N.; STYRIKOVICH, M.A.; TOLSTOV, Yu.G.; TSUKHANOVA, O.A.; CHUKHANOV, Z.F.; SHEYNDLIN, A.Ye.

Lev Nikolaevich Khitrin, 1907-1965; obituary. Izv. AN SSSR. Energ. i transp. no.2:159-160 Mr-Ap '65. (MIRA 18:6)

SHEYNDLIN, A. E.

USSR/Aeronautics Mar 1947
Motors, Aircraft
Instruments, Aeronautical

"Device for Measuring the Average Indicator Pressure of Aviation Motors in Flight," A. E. Sheyndlin, G. I. Shpolyanskiy, 2 pp

"Tekh Voz Flota" No 4

At the present time, there is no device for direct measurement of the average indicator pressure of a multicylinder aviation motor. The article sets forth a plan for such a device based on the principle of the retardation of gas in its flow through a resistance.

BS 2971

SHEYNDLIN, A. Ye

KIRILLIN, V.A.; SHEYNDLIN, A.Ye; KOMAROV, L.P., redaktor; VORONIN, K.P., tekhnicheskiy redaktor.

[Steam in power engineering] Vodianoi par v energetike. Moskva, Gos. energeticheskoe izd-vo, 1953. 94 p. (MLRA 7:8)
(Steam engineering)

SHEYNDLIN, A. E.

USSR.

Determination of the specific heat of ethyl alcohol up to a pressure of 118 atmospheres and at temperatures from −57.22 to +252.23°. A. E. Sheĭndlin and S. G. Shleĭfer. *Zhur. Tekh. Fiz.* 23, 1411–26(1953).—The measurements were made in a directly heated calorimeter. The vessel was placed in an evacuated container placed in a liquid thermostat. The vessel was connected to a container with Hg by a small steel tube. The Hg transmitted the pressure of a H_2 tank directly to the EtOH. The d. of the EtOH is measured before and after the test at each temp. by weighing the amt. of Hg corresponding to the expansion of a given wt. of EtOH. Results are tabulated for 95% EtOH for pressures 1, 10, 20. . .120 atm. and temps. −60°, −40° . . . +235°. Determination of the density of ethyl alcohol at pressures from 12 to 118 atmospheres and temperatures from 17.25° to 250.38°. *Ibid.* 1427–9.—The d. of 95% EtOH obtained with the app. above is also tabulated in the pressure range 10. . . .120 atm. and at temps. +20, +40. . . .240°. S. Pakswer

SHEYNDLIN, H.Ye.

Experimental investigation of the heat capacity C_p of water and water vapor of high parameters. A. E. Sheindlin. *Teploenergetika* 1954, No. 1, 11–19; *Referat. Zhur., Khim.* 1954, No. 44397.—A new method of calorimetric detn. in flow was worked out by means of a calorimeter of such small losses that they can be disregarded. The heat capacity of water and water vapor was detd. at 200–660° and pressures of 300, 350, 400, 450, and 500 kg./sq. cm. Thus were obtained 240 exptl. values of heat capacity with a max. error of 2%. The results are tabulated and presented graphically as C_p *vs.* temperature isobars. The max. value of C_p was approx. 7 cal./g.° (t = 400°, p = 300 kg./sq. cm.).
M. Hoseh

[illegible], A. Ye.

"Concerning the Behavior of Substances in the Super-Critical Region" Teploenergetika, No 3, 1954, 26-35

Assumes that the maximum values for C_p and $(dv/dt)_p$ attest to the presence of II order transitions in the supercritical region that are analogous to the phase transitions observed in liquid helium (the lambda point). Believes that these transitions are due to changes in the degree of association. In the supercritical region, a line may be drawn along points of maxima on the curve of separation between the liquid (high degree of molecular association) and the vapor (low degree of molecular association) phases. Expresses the opinion that by taking into account the peculiariteiss in behavior at abnormal transitions, one can predetermine the construction of units operating in the supercritical region. (RZhKhim, No 3, 1955)

SO: Sum No ~~787~~ 845, 7 Mar 56

SHEYNDLIN, A., doktor tekhnicheskikh nauk; BUBUSHYAN, M., kandidat tekhnicheskikh nauk.

Experimental determination of density and thermal capacity C_p of liquid freon - 113. Khol.tekh. 31 no.4:53-55 O-D '54. (MLRA 8:1)
(Freons)

SHEYNDLIN, A. YE.

USSR/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physicochemical Analysis. Phase Transitions, B-8

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 331

Author: Kirillin, V. A., Sheyndlin, A. Ye., and Shpil'rayn, E. E.

Institution: None

Title: New Tables of Correlated Values for the Enthalpy and Specific Volume of Steam

Original Periodical: Dokl. AN SSSR, 1955, Vol 105, No 3, 472-475; Teploenergetika, 1956, No 1, 16-21

Abstract: On the basis of experimental data collected over the last few years (chiefly at the All-Union Heat and Power Institute and the Moscow Power Institute) tables of correlated values for the enthalpy and specific volume of steam are presented for pressures up to 500 atm (in steps of 50 atm) and for temperatures up to 650° (in steps of 50°); (the existing tables, adopted in 1934, give values for the enthalpy and specific volume up to 300 atm and 550°, the values in the

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KIRILLIN, Vladimir Alekseyevich; SHEYNDLIN, Aleksandr Yefimovich; SHPIL'RAYN, E.E., redaktor; VORONIN, K.P., tekhnicheskiy redaktor

[Thermodynamics of solutions] Termodinamika rastvorov. Moskva, Gos. izd-vo, 1956. 272 p. (MLRA 9:7)
(Solutions(Chemistry)) (Thermodynamics)

KIRILLIN, Vladimir Alekseyevich; SHEYNDLIN, Aleksandr Yefimovich; SHPIL'RAYN, Eval'd Emil'yevich; NIKOLAYEV, V.V., red.; MEDVEDEV, L.Ya., tekhn.red.

[Engineering problems in thermodynamics] Zadachnik po tekhnicheskoi termodinamike. Izd.2-oe, perer. Moskva, Gos.energ.izd-vo, 1957. 253 p. (MIRA 11:1)
(Thermodynamics--Problems, exercises, etc.)

GERASIMOV, S.G., professor, redaktor; KAGAN, Ya.A., kandidat tekhnicheskikh nauk, redaktor; LEBEDEV, P.D., professor, glavnyy redaktor; LUKNITSKIY, V.V., professor, redaktor [deceased]; SHEYNDLIN, A.Ye., professor, redaktor; AYZENSHTAT, I.I., redaktor; VORONIN, K.P., tekhnicheskiy redaktor

[Heat engineering handbook] Teplotekhnicheskii spravochnik. Moskva, Gos.energ.izd-vo. Vol.1. 1957. 728 p. (MLRA 10:9)
(Heat engineering)

SHEYNDLIN, A.Ye.

RASSKAZOV, D.S., inzh.; SHEYNDLIN, A.Ye., doktor tekhn.nauk, prof.

An experimental investigation into heat capacity (c_p) of water and water-vapor of high parameters. Teploenergetika 4 no.11:81-84 N '57. (MIRA 10:10)

1.Moskovskiy energeticheskiy institut.
(Steam--Tables, calculations, etc.)

SOV/96-58-7-2/22

AUTHOR: Vukalovich, M.P. Dr. Tech.Sci., Sheyndlin, A.Ye., Dr.Tech.Sci. and Rasskazov, D.S. Cand.Tech.Sci.

TITLE: Investigation of the specific heat at constant pressure c_p of steam up to 700 atm and 700°C. (Issledovaniye teployemkosti c_p vodyanogo para do 700 ata i 700°C.)

PERIODICAL: Teploenergetika, 1958, 5. No.7, pp. 7-9 (USSR)

ABSTRACT: This is a continuation of the work described in Teploenergetika No.11 1957, on the c_p of steam in the super-critical region from 300 to 500 atm. The same method and equipment were used in the present work. The work was done on the isobars 550, 600 and 700 atm at temperatures of 280 - 700°C. The errors are estimated not to exceed 2%. The 116 experimental values of specific heat obtained in the work are tabulated. Graphs of new experimental values of specific heat in co-ordinates of c_p-t, and also values obtained in the previous investigation, are given in Fig.1. The agreement between the two sets of work is illustrated in Figs.3. and 4. by graphs of c_p against pressure for various isotherms. The work in the previous article is also compared graphically with that of other authors in Fig.2;

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agreement is good and the reasons for such differences as exist are discussed. Data of other Soviet authors is included in Figs.3. and 4. and the new data are in reasonable agreement with old where they overlap. There are 4 figures, 1 table and 8 literature references (6 Soviet and 2 German)

ASSOCIATION: Moskovskiy Energeticheskiy Institut (Moscow Power Institute)

1. Steam - Specific heat 2. Steam - Pressure factors
3. Steam - Temperature factors

SOV/96-58-7-4/22

AUTHOR: Sheyndlin, A.Ye., Dr.Tech.Sci.; Shpilrayn, E.E., Cand.Tech.Sci. and Sychev, V.V., Engineer.

TITLE: The specific heat at constant pressure c_p of steam at the saturation line (Teployemkost' c_p vodyanogo para na linii nasyshcheniya)

PERIODICAL: Teploenergetika, 1958, 5 No.7, pp. 13-17 (USSR)

ABSTRACT: The enthalpy of supersaturated steam is best calculated by integrating values of c_p on isobars from the saturation curve to the temperature at which the enthalpy is to be determined. However, as it is very difficult to determine c_p near the saturation curve, values are usually obtained by extrapolation, but this procedure is unreliable near the critical pressure. The authors, therefore, decided to calculate the c_p of steam at the saturation line by a method basically independent of experimental determinations of c_p for superheated steam. An equation is then written for the specific heat of steam at the saturation line; it includes terms for the specific heat of water at the saturation line at the same temperature, the latent heat of steam and its differential with respect to temperature, the specific volumes of dry saturated steam and water on the saturation line, and their partial differential with respect to temperature at constant pressure. This equation forms the basis of all the calculations. In using it, a large number of calorific and thermal data for water and steam have to be determined, but these determinations can all be made more accurately than direct

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The specific heat at constant pressure c_p of steam at the saturation line.

determination of c_p near the saturation line. The calorific and thermal data used in the present calculations are given in Table.1. The method of calculating each of the terms of the equation is then explained. Graphs of differentials of latent heat of steam, specific volume of steam and of water are given in Figs.1., 2., and 3. The accuracy of the calculations was evaluated by the methods of the theory of errors. The accuracy of determination of the differentials was determined by an indirect method. The errors in each of the terms are then evaluated numerically and finally it is stated that the overall error in the determination of c_p did not usually exceed 1 - 1.5%. The error is somewhat greater near the critical region. Calculated values of c_p from 170 - 380°C are displayed in Table.2, which also gives values recommended by the All-Union Thermotechnical Institute and percentage differences between the two sets of values. The calculated values are then compared with experimental values of several authors and a number of differences are found to exist which exceed the errors of calculation or of experiment in some regions. Further theoretical and practical investigations in these regions are

The specific heat at constant pressure c_p of steam at the saturation line.

required to establish the reasons for the differences.
There are 5 figures, 2 tables, 16 literature references
(4 Soviet, 7 English and 5 German)

ASSOCIATION: Moskovskiy Energeticheskiy Institut (Moscow Power Institute)

1. Steam - Specific heat 2. Steam - Enthalpy 3. Steam - Pressure factors

AUTHORS: Rasskazov, D. S., Sheyndlin, A. Ye. SOV/20-120-4-23/67

TITLE: The Experimental Investigation of the Specific Heat C_p of Water and Steam With High Parameters (Eksperimental'noye issledovaniye teployemkosti C_p vody i vodyanogo para vysokikh parametrov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 4, pp.771-773 (USSR)

ABSTRACT: The authors first give a short report about various earlier papers dealing with the same subject. A new investigation of the specific heat of water and steam was carried out by the improved method developed by A. Ye. Sheyndlin (Ref 2). The most important improvement was the introduction of a device for the reliable stabilization of temperatures in hot as well as in cold calorimeters. Besides, the accuracy of pressure measurement was improved. Pressure is measured by means of a piston manometer constructed by M. K. Zhokhovskiy. When dealing with measuring results much attention was paid to the analysis of the influence exercised by the specific heat, which changes only little during the experiment, upon calorimetric temperature difference. A character-

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The Experimental Investigation of the Specific Heat C_p of Water and Steam With High Parameters

istic feature of the experimental method chosen for this purpose was the practically complete avoidance of the correction due to the throttle-effect. Much care was also devoted to temperature measurement. The experimental data obtained have an error of the order of 1,5 %. A total of 317 experimental values of specific heat was determined; these values are given in a table. Experiments extended to the range of from 300 to 500 atmospheres at temperatures of from 280 to 685°. The new experimental data obtained agree satisfactorily with the data of an earlier work by A. Ye. Sheyndlin. The precise data concerning the values of specific heat, which were nevertheless determined and described in short, necessitate corresponding changes of the values of enthalpy, which is of considerable importance for calculation. There are 1 table and 5 references, 4 of which are Soviet.

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SOV/20-120-4-23/67

The Experimental Investigation of the Specific Heat C_p of Water and Steam With High Parameters

PRESENTED: January 8, 1958, by S. A. Khristianovich, Member, Academy of Sciences, USSR

SUBMITTED: January 3, 1958

1. Water--Specific heat 2. Steam--Specific heat 3. Calorimeters --Performance 4. Temperature--Measurement

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05280
SOV/170-59-7-11/20

10(5)

AUTHORS: Sheyndlin, A.Ye., Shpil'rayn, E.E., Sychev, V.V.

TITLE: On the Heat Capacity C_p of Water and Water Vapor at Supercritical Pressures

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 7, pp 75 - 79 (USSR)

ABSTRACT: There are several methods for working out graphs expressing relationships between heat capacity C_p and various factors. Ya. Havlíček and L. Miskovskiý /Ref 9/ proposed a method for analyzing experimental data on C_p by plotting the lines C_p = const in the coordinate system p - T. This method, as well as other existing methods, possesses some intrinsic drawbacks. The authors have worked out a new method which is based on the coordinate system: $\frac{1}{C_p}$ versus p. This graph is shown on Figure 3 which is plotted by isochores. This made it possible (after smoothing the isochores) to obtain from this graph isobars of C_p as functions of V. Then the values of T are found from the v - T graph, and the smoothed data are plotted in the C_p - T graph by isobars. The values of C_p corresponding to the round values of pressure are then obtained from these isobars and compiled into a table presented in the paper. This method was employed for analyzing the available experimental data on heat capacity C_p of water

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On the Heat Capacity C_p of Water and Water Vapor at Supercritical Pressures

and water vapor at pressures from 225 up to 700 kg/cm^2 and temperatures from 300 to 600°C.
There are: 3 graphs, 1 table and 13 references, 12 of which are Soviet and 1 Swiss.

ASSOCIATION: Energeticheskiy institut (Power Engineering Institute), Moscow.

SHEYNDLIN, A.Ye., doktor tekhn. nauk; SHPIL'RAYN, E.E., kand. tekhn. nauk; SYCHEV, V.V., inzh.

Reference values of the specific heat of steam. Teploenergetika 6 no.12:80-83 D '59. (MIRA 13:3)

1.Moskovskiy energeticheskiy institut.
(Steam)

BADYL'KES, I.S., prof., doktor tekhn.nauk; BUKHTER, Ye.Z., inzh.; VEYNBERG, B.S., kand.tekhn.nauk; VOL'SKAYA, L.S., inzh.; GERSH, S.Ya., prof., doktor tekhn.nauk [deceased]; GUREVICH, Ye.S., inzh.; DANILOVA, G.N., kand.tekhn.nauk; YEFIMOVA, Ye.V., inzh.; IOFFE, D.M., kand.tekhn.nauk; KAN, K.D., kand.tekhn.nauk; LAVROVA, V.V., inzh.; MEDOVAR, L.Ye., inzh.; ROZENFEL'D, L.M., prof., doktor tekhn. nauk; TKACHEV, A.G., prof., doktor tekhn.nauk; TSYRLIN, B.L.; SHUMELISHSKIY, M.G., inzh.; SHCHERBAKOV, V.S., inzh.; YAKOBSON, V.B., kand.tekhn.nauk; GOGOLIN, A.A., retsenzent; GUKHMAN, A.A., retsenzent; KARPOV, A.V., retsenzent; KURYLEV, Ye.S., retsenzent; LIVSHITS, A.B., retsenzent; CHISTYAKOV, F.M., retsenzent; SHEYNDLIN, A.Ye., retsenzent; SHEMSHEDINOV, G.A., retsenzent; PAVLOV, R.V., spetsred.; KOBULASHVILI, Sh.N., glavnyy red.; RYUTOV, D.G., zam.glavnogo red.; GOLOVKIN, N.A., red.; CHIZHOV, G.B., red.; NAZAROV, B.A., glavnyy red.izd-va; NIKOLAYEVA, N.G., red.; EYDINOVA, S.G., mladshiy red.; MEDRISH, D.M., tekhn.red.

[Refrigeration engineering; encyclopedic reference book in three volumes] Kholodil'naia tekhnika; entsiklopedicheskii spravochnik v trekh knigakh. Glav.red. Sh.N.Kobulashvili i dr. Leningrad, Gostorgizdat. Vol.1. [Techniques of the production of artificial cold] Tekhnika proizvodstva iskusstvennogo kholoda. 1960. 544 p. (MIRA 13:12)

(Refrigeration and refrigerating machinery)

ALEKSANDROV, S.V.---(continued) Card 2.

1. Vsesoyuznyy institut rasteniyevodstva (for Sechkarev, Lizgunova, Brezhnev, Gazenbush, Meshcherov, Filov, Tkachenko, Kazakova, Krasochkin, Levandovskaya, Shebalina, Syskova, Makasheva, Ivanov, Martynov, Girenko, Ivanova, Shilova). 2. Gribovskaya ovoshchnaya selektsionnaya opytnaya stantsiya; chleny-korrespondenty Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Alpat'yev, Solov'yeva). 3. Deystvitel'nyy chlen Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Brezhnev).
(Vegetables--Varieties)

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AUTHORS: Kirillin, V.A., and Sheyndlin, A.Ye. (Moscow)

TITLE: An Experimental Investigation of the Thermodynamic Properties of Water and Steam at High Temperature and Pressure

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 2, pp 44-53 (USSR)

ABSTRACT: As a rule, foreign work on the thermodynamic properties of steam and water has not been carried out at pressures greater than 300 kg/cm^2 or temperatures over 550 °C. Similar experimental and theoretical work was also carried out in the Soviet Union in the years 1937-1950, mainly at the All-Union Thermo-Technical Institute and the Moscow Power Institute. There is, however, an increasing demand for information about steam and water at still higher temperatures and pressures. In recent years the Moscow Power Institute has accordingly begun, and is successfully undertaking, new work on the integrated experimental investigation of the thermodynamic properties of water and steam at pressures of the order of 700-900 kg/cm^2 and temperatures of the order of

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650-700 °C. An important feature of the recent investigations is the combined study of both the thermal and caloric properties of water and steam, so that the data form a reliable basis for formulating tables of their thermodynamic properties. At the Moscow Power Institute, experimental investigations into the thermal properties have been carried out by V.A. Kirillin's procedure, which has been described in several articles. A schematic diagram of the equipment is given in Fig 1, accompanied by a fairly detailed description of the apparatus and experimental procedure. A diagram of the high-pressure differential manometer is shown in Fig 2. The experimental procedure, though relatively simple, ensures high accuracy and the maximum error is 0.2-0.25%. Extensive experimental material has been obtained at conditions up to 952.9 kg/cm^2 and 650 °C. Recently the apparatus has also been used to investigate the specific volume of heavy water and its steam at pressures of 70-500 kg/cm^2 and temperatures of 250-500 °C; the work

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was described at the Geneva Conference on the Peaceful Uses of Atomic Energy in 1958. Investigation of the caloric properties of water and steam is then considered. The experimental equipment arranged to determine the specific heat at constant pressure is sketched diagrammatically in Fig 3 and the operating procedure is explained in considerable detail. The flow calorimetry procedure that is used is particularly described. With this procedure the calorimeters have very small heat losses, obviating the usual complicated auxiliary equipment which these necessitate. The experimental equipment is very easy to set up and operate, and is readily changed from one condition to another. The total duration of a calorimetric test, that is the time between successive determinations, is about 20-25 minutes. With this new experimental procedure the maximum error in determining the specific heat at constant pressure is of the order of 2%. Considerable experimental data on the specific heat at constant pressure has been obtained and published. On the basis of the extensive experimental

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material obtained in the Moscow Power Institute and the results of other investigations it has been possible to analyse and compare recent experimental data on the thermal and caloric properties of steam and water. This work is of particular importance in drawing up international sketon tables for water and steam. Tables of reference values of specific volume and specific heat at constant pressure of water and steam have now been worked out for a wide range of pressures and temperatures. Very complete data has been obtained at super-critical conditions. As is known, as the critical point is approached the specific heat at constant pressure increases, particularly, in the vapour phase. This increase makes a considerable contribution to the enthalpy of steam and accordingly knowledge of this specific heat at conditions near to the boundary curve is very important. The specific heat at constant pressure of dry saturated steam was determined up to a temperature of 340 °C by using the following four known

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values: the specific heat at constant pressure for the liquid; the latent heat of vapourisation; the relationship between the pressure and temperature of dry saturated steam; and the fairly well known thermal properties of steam near the boundary curve. The experience accumulated will be of value not only directly in providing information about the properties of water and steam but also in studying other important working substances.

Card 5/5 There are 4 figures and 20 Soviet references.

SUBMITTED: December 10, 1959

SHEYNDLIN, A.Ye., doktor tekhn.nauk, SHPIL'RAYN, E.E., kand.tekhn. nauk; SYCHEV, V.V., inzh.

Heat capacity C_p of water and steam at the saturation line. Teploenergetika 7 no.7:23-27 Jl '60. (MIRA 13:7)

1. Moskovskiy energeticheskiy institut.
(Heat capacity)
(Water--Thermal properties)

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B004/B056

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11.5100

AUTHORS: Kirillin, V. A., Corresponding Member AS USSR, Sheyndlin, A. Ye., and Chekhovskoy, V. Ya.

TITLE: The Experimental Determination of the Enthalpy of Corundum (Al_2O_3) at Temperatures of From 500 to 2000°C

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 1, pp. 125-128

TEXT: It was the aim of the present paper to check the data for the enthalpy of corundum, which was obtained at the Moskovskiy energeticheskiy institut (Moscow Power Engineering Institute) and by other research workers. The method of mixing in a massive metal calorimeter was applied, which was electrically heated by means of a ТВВ-2 (TVV-2)-type furnace. The authors describe the calibration of the calorimeter, the determination of its calorific value, and of the function $t = f(\tau)$ (τ = temperature of the heating period). The following was found on this occasion: 1) Experiments with a different course taken by the temperature

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The Experimental Determination of the Enthalpy of Corundum (Al_2O_3) at Temperatures of From 500 to 2000°C

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curve in the main period were in agreement within the range of calibration precision. 2) The heat exchange in the calorimeter did not depend on the direction of the heat flow. The validity of the cooling equation, by means of which the heat exchange δt was calculated, was within the temperature interval $(t - t_c) \leqslant 5 - 6°C$ (t_c = convergence temperature). 3) The readings of the outside- and inside thermometer did not deviate from each other by more than ±0.1%. The temperature of the corundum samples was measured up to 1318°C by means of Pt-PtRh-thermocouples (maximum measuring error ±0.5%), above this temperature by means of an optical pyrometer (maximum measuring error ±0.9%), which was calibrated at the Vsesoyuznyy nauchno-issledovatel'skiy institut Komiteta standartov, mer i izmeritel'nykh priborov (All-Union Scientific Research Institute of the Bureau of Standards, Measures, and Measuring Instruments). The measurements were carried out between 498 and 1993°C. The results of measurements are shown in Fig. 1 and are compared with the data obtained by the Moscow Power Engineering Institute and those obtained by other research workers. The maximum deviations were ±1%. There are 1 figure and 13 references:

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AUTHOR: Sheyndlin, A. Ye., Professor

TITLE: Magnetohydrodynamic generators

PERIODICAL: Priroda, no. 10, 1961, 82-87

TEXT: A general description of a magnetohydrodynamic generator is given. It is pointed out that a power plant using such a generator would have a considerably higher efficiency. The magnetohydrodynamic method of electric power generation is based on the principle of electric current induction during the motion of a conductor in a magnetic field. The difference between an ordinary electric and a magnetohydrodynamic generator is, that, in the latter, the magnetic field is cut by a quickly flowing gas or liquid that conducts electric current. Due to this machineless conversion of thermal into electric energy, the working substance can have a considerably higher temperature than in an ordinary thermal power plant. The best working substance would be a thermally ionized equilibrium plasma. For the majority of the known gases a noticeable thermal ionization occurs at a temperature ranging between 5,000 and 6,000°K; in many cases the gas is fully ionized

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Magnetohydrodynamic generators

only at 10,000-15,000°K. It has been found, however, that for a number of alkali metals, and in particular for potassium vapors, thermal ionization takes place at lower temperatures. Moreover, the addition of a small quantity of potassium vapor to ordinary gases will considerably raise the composition's ionization degree. In actual fact, by admixing only 1% of potassium to the combustion products, at temperatures of 3,000-4,000°K, sufficient ionization takes place in order to impart the required electric conductivity to the plasma. A large thermal electric power plant with magnetohydrodynamic power generation is now being designed. Its operation is as follows: A small amount of potassium, most simply in the form of K_2CO_3, is added to the products obtained during the high-pressure combustion of sufficiently calorific liquid and gaseous fuels. These products have a temperature of 3,000°C and sometimes higher. By the addition of potassium, the combustion products become a weakly ionized gas with a low, but nevertheless sufficient, electric conductivity. The obtained plasma is fed to the magnetohydrodynamic generator's nozzle, where it obtains a high pressure (almost atmospheric pressure). Due to this, the plasma accelerates to 1,000 and

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Magnetohydrodynamic generators

more meters per sec. The nozzle's outlet is accommodated in a powerful electromagnet. The plasma moving in the nozzle, cuts the magnet lines of force and generates electric energy. The output of this energy is proportional to the intensity of the magnetic field, the flow speed of the gas in the nozzle, and the electric conductivity of the gas. The generated current is then carried off through electrodes which are washed by the gas flow. While leaving the generator, the gas still has a temperature of more than 2,000°C. This heat can also be utilized. A part of it is used in an air regenerator for preheating the air which is fed into the combustion chamber. The heat of gases leaving the air regenerator is then used for the production of steam in an ordinary steam power plant which generates about half of the total electric power produced. In fact, there are two power plants operating on one fuel. A similar scheme can also be used for a power plant operating on nuclear fuel. The article contains two flow sheets: that of an open-cycle magnetohydrodynamic electric power plant and that of a closed-cycle magnetohydrodynamic power plant operating on nuclear fuel. In some variants of the above-described thermal power plant with magnetohydrodynamic power generation, the efficiency is 55-60%. This increase, in comparison with other

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Magnetohydrodynamic generators

plants, corresponds to an annual economy of about 0.5 million tons of mazut or another fuel for a 1,000,000-kw power plant. At present, the Soviet Union is conducting extensive research work on the development of the new-type power plants. It can be assumed that in the near future such power plants will be built. There are 5 figures.

ASSOCIATION: Moskovskiy Energeticheskiy Institut (Moscow Power Engineering Institute.

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AUTHORS: Kirillin, V. A., Sheyndlin, A. Ye., Chekhovskoy, V. Ya.

TITLE: Experimental Determination of the Enthalpy of Corundum (Al_2O_3) at Temperatures of 500° to 2000°C

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1961, Vol. 4, No. 2, pp. 3-17

TEXT: A description is given of an experimental arrangement for measuring the enthalpy and the specific heat of substances by the mixing method. The system basically consists of a 50-kw furnace, heated by a tungsten heating conductor, and the calorimeter proper. The furnace stood above the calorimeter. The latter consisted of a copper block 118-mm in diameter and 179 mm high. Furnace and calorimeter formed a hermetically sealed system, which was either filled with air (10^{-3} mm Hg) or with argon (1.05 ata). The copper block had a bore inside and on the outside was sealed off by extra-bright finished Al sheet. The system was placed in a water thermostat. The temperature in the calorimeter was measured by a resistance thermometer, and that in the furnace by an optical pyrometer (at temperatures

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