

S/136/62/000/012/001/001
E081/E483

AUTHORS: Tret'yakov, A.V., Lokshin, B.Ye., Trofimov, G.K.
TITLE: A study of cold rolling of armco iron/ACM (ASM)
alloy bimetal strip

PERIODICAL: Tsvetnyye metally, no.12, 1962, 48-53

TEXT: The authors studied the effect of total reduction in rolling on the relative thickness of the bimetal strip components, the latter parameter being characterized by $c = h_{zh}/h_p$, where h_p and h_{zh} denote the total thickness of the strip and the thickness of the iron layer respectively. It was found that, irrespective of the initial value of c , its magnitude increased linearly with increasing total reduction, reached a maximum at 45 to 50% reduction and then remained practically constant. The final value of c depended only on its initial value and on the total reduction of the strip, being practically unaffected by the initial thickness and width of the strip or by the roll diameter. The experimental results were used to derive formulae expressing the final thickness of the iron layer in a bimetal strip as a function of the initial value of c and vice versa. In the

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A study of cold rolling ...

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second stage of the investigation the roll pressure in cold rolling of iron/ASM alloy bimetal strip was evaluated. Based on experimental data, formulae were first derived expressing the UTS and 0.2% proof stress of the bimetal strip as a function of the UTS and 0.2% proof stress of the two component materials and the relative thickness of each component layer. These formulae were then used for deriving expressions for the roll pressure whose reliability is proved by the fact that they yielded values differing only by 10 to 15% from experimental data. Analysis of the formulae obtained showed that the roll pressure in rolling bimetal strip is, in addition to the usual factors, greatly affected by the initial value of c and by the difference in the contact friction of the two components of the strip. There are 5 figures.

Card 2/2

TRET'YAKOV, A.V., kand. tekhn. nauk; LONCHIN, D.Ye., inzh.

Investigating the rigidity of the working stand of a
490/1370X1680 reversing cold rolling mill. Sbor. st.
NITTIAZHMASHa Uralmashaavoda no.6:244-249 '65.

(MIRA 18:11)

TRET'YAKOV, A.V., kand.tekhn.nauk; LOKSHIN, B.Ye., inzh.; TROFIMOV, G.K., inzh.

Changes in the mechanical properties of steel and power
consumption during cold rolling on a 1680 reversing mill.
Sbor. st. NIITIAZHMASH, Uralmashzavoda no.6:250-254 '65.
(MIRA 18:11)

TRET'YAKOV, A.V.; LOKSHIN, B.Ye.; GARBER, E.A.; TROFIMOV, G.K.

Use of methods of mathematical processing of experimental data
in the engineering and construction laboratory of the Scientific
Research Institute of Heavy Machinery at the Ural Heavy Machinery
Plant. Zav.lab. 31 no.10:1237-1238 '65.

(MIRA 19:1)

Author: Prot'yakov, A. V. Candidate of Technical Sciences, Senior Researcher
Co-author: Trofimov, I. K. Engineer

TITLE: Modification of the mechanical properties of steels and the power expenditure during cold rolling on a reversing mill 1400

SOURCE: Ural'skiy mashinostroitel'nyy zavod, Sverdlovsk. Nauchno-issledovatel'skiy institut tyazhelogo mashinostroyeniya. Proizvodstvo krupnykh mashin, no. 1, 1973. Prokatnoye oborudovaniye; konstruirovaniye mashin i issledovaniye. Equipment; construction, design and investigation of machines.

KEYWORDS: cold rolling, steel, metal, properties, mechanical, rolling, mill, reversing

ABSTRACT: The purpose of the investigation was to determine the effect of the design calculations for the cold rolling of steel on a reversing mill. The steel was cold-rolled on a reversing mill with a diameter of 1400 mm working rolls drive by a 1000 kW, 1500 rpm DC motor. Two coilers with gear reducers were driven by 200 kW, 1500 rpm DC motors. The maximal rolling speed was 1.75 m/sec, and the width of the material was up to 1500 mm. An emulsion type of lubricant was used. The tensile strength, yield point, and Brinell hardness were determined as functions of the

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ACCESSION NR: AT5018186

thickness reduction. The greatest increase of mechanical properties was observed
 in the case of the 1.5 mm thick steel. The yield strength increased from 20 to 25 kg/mm².
 The ultimate strength increased from 40 to 45 kg/mm². The elongation at break
 increased from 10 to 15%. The impact strength increased from 10 to 15 kg-m/m².
 The 1.5 mm steel required the power input of 1.5 kW. The 2 mm steel required
 the power input of 2.0 kW. The 3 mm steel required the power input of 3.0 kW.
 The lowest input was required by the 1.5 mm steel with a
 thickness of 1.5 mm reduced to 1.0 mm. The steel tested were of the
 type 15 and 30MnGSA. Orig. art. has 2 graphs.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: 1E, MM

NO REF SOV: .002

OTHER: 000

LOKSHIN, D.V.

Experimental study of steels used in electrical machines. Fiz.met.1
metalloved. 1 no.1:124-131 '55. (MLRA 9:3)

1. Zavod "Uralelektroapparat".
(Sheet steel--Electric properties)

LOKSHIN, D.V., inzhener; NEYMAN, Z.B., inzhener.

Using cold-rolled steel in electric machinery. Elektrichestvo no.5:
46-50 My '56. (MLRA 9:8)

1. Zavod "Urarelektroapparat".
(Steel) (Electric machinery)

SOV/110-59-8-5/24.

AUTHORS: Lokshin, D.V., Neyman, Z.B. Engineers.

TITLE: The Rational Use of Cold-rolled Steel in Electrical Machines.

PERIODICAL: Vestnik elektropromyshlennosti 1959, Nr 8, pp 18-23 (USSR)

ABSTRACT: The relative merits of hot-and cold-rolled steel for the manufacture of electrical machines are discussed in general terms. Because of the magnetic anisotropy of cold-rolled steel, the advantages to be gained by its use depend on the geometry of the stator segments. It is very difficult to calculate the magnetic characteristics of a stator core made of cold-rolled steel from test results obtained on the Epstein square. Accordingly the authors tested packets of stator stampings by a method which has been described previously and may be readily understood by reference to Fig 2. Experimental determinations were made of the magnitude of the magnetic flux in the teeth and in the body of the stampings. The results that are given relate to

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two types of machine with stator external diameters of 213 and 325 cm respectively. The stampings were of steel grade E320, 0.5 mm thick, which is a medium grade of cold-rolled steel, and were compared with stampings of hot-rolled steel grade E42, 0.5 mm thick. The stampings were not annealed. Results of a.c. and d.c. tests were practically identical. The test conditions were such that with both types of stamping the magnetic induction in the teeth was much greater than in the body of the stamping and, therefore, it was mainly the teeth that were being tested. Test results for stampings of the smaller diameter are given in Fig 3a; these curves show the magnetic flux densities in the designed section of the teeth as functions of the magnetising force applied to the stampings divided by the length of the magnetic flux path in the teeth. This ratio, though arbitrary, is useful. It will be seen from Fig 3a that with equal values of m.m.f. the magnetising flux in the cold-rolled stampings is 1.13 to 1.26 greater than in those hot-rolled. In this case the stampings were in line with the grain of rolling. In testing the second and larger size of stampings, the direction of the magnetic flux in the teeth was at 6.5 to 11° to the direction of

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the grain; the test results are given in Fig 3b. The ratio of the magnetic flux in the cold-rolled steel to that in the hot-rolled is greater than would be expected from Epstein square test results. This is partly because the cold-rolled steel has a high stacking-factor; also, it carries an appreciably higher field intensity in the narrow part of the tooth. The latter effect is demonstrated in Fig 4 by the curves of distribution of the magnetic field intensity along the teeth; curve (1) relates to hot-rolled and curve (2) to cold rolled steel. It is concluded from the test results that in machines in which the external diameter of the stator exceeds 200 cm, the properties of cold-rolled steel in the direction of the grain can be exploited. If cold-rolled steel is used in place of hot and no other changes are made, the overall losses are reduced. The reduction is explained by the lower iron losses in those parts of the steel in which the flux is in line with the direction of rolling, and also by some saving in field current. The resulting reduction in losses

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may often be appreciable but is not the best that can be obtained. Calculations are then made to show that the optimum geometry of the machine is altered when cold-rolled steel is used. Expressions are derived for the iron losses and these are then applied to particular machines. The first machine considered is one with a stator 213 cm diameter of hot-rolled steel grade E-42, in the output range of 900 to 7500 kVA and the speed range of 375 to 600 rpm: a number of other typical characteristics are given. Using this machine as a basis for comparison, curves are plotted in Fig 5a relating the stator length to the losses, weight and field current of corresponding machines made of cold-rolled steel. The curves show that if the stator length is reduced by 10 to 15% when the cold-rolled steel is used, the iron losses are increased by some 6 to 12%. However, the total losses in the active material are reduced by 4 to 5% and the weight of active material is reduced by 9 to 10%; or alternatively, the losses may be reduced by 6 to 6.5% and the weight of material by 6 to 8%. If the length of stator is unaltered,

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the steel losses are reduced by 4% and the overall losses by only 1%, with an economy of copper of 3.5%. A similar comparison is then made for machines with an external stator diameter of 325 cm covering the range of 1000 to 10000 kVA and 150 to 250 rpm; the corresponding curves for a machine using cold-rolled steel are in Fig 5b. It will be seen from these curves that the use of cold-rolled steel gives the best result when the stator length is reduced by about 10%. The total losses in the active materials are then reduced by 4% if the weight of copper is cut by 11%, or are reduced by 8% if the weight of copper is cut by 6%. The reduction in the length of the stator also gives economy in insulation and other constructional materials. The curves of Fig 5a and b relate to machines of average characteristics, but in particular cases the effectiveness of using cold-rolled steel may be very much greater. By way of example, Fig 5B gives curves of loss and weight ratios on altering the length of a hydro-alternator with an output of 26300 kVA running at 130 rpm with an external stator diameter of 700 cm. It will

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SOV/11D-59-8-5/24.

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* be seen that here the use of cold-rolled steel makes it possible to reduce the stator length by 10% and simultaneously to reduce the losses in the active material by 4% and the weight of copper by more than 15%; alternatively, the losses may be reduced by 10% and the weight of copper by 7%. These examples clearly show that when cold-rolled steel is used the optimum proportions of the machine are in general not the same as when hot-rolled steel is used. There are 5 figures and 3 Soviet references.

SUBMITTED: January 26, 1959.

Card 6/6.

ACC NR: AP6025598

SOURCE CODE: UR/0413/66/000/013/0038/0038

INVENTOR: Lokshin, D. V.; Heyman, Z. B.

22
B

ORG: none

TITLE: Unipolar machine. Class 21, No. 183263

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 38

TOPIC TAGS: electric generator, *ELECTRIC ROTATING EQUIPMENT*

ABSTRACT: This Author Certificate introduces a unipolar electric generator with a liquid sliding contact (see Fig. 1). The generator contains a stator with a built-in

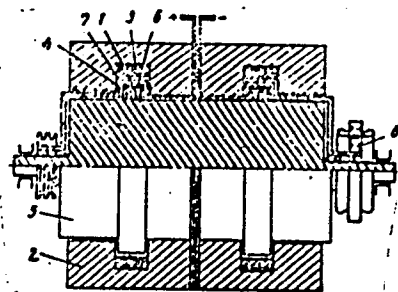


Fig. 1. Unipolar generator

1 - Liquid sliding contact; 2 - stator; 3 - excitation winding; 4 - rotating contact ring; 5 - rotor; 6 - fixed contact ring; 7 - auxiliary contact ring; 8 - drive.

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UDC: 621.313.291.3.067

L 40153-66

ACC NR: AP6025598

excitation winding. The rotating contact ring is mounted on the rotor. To assure stable operation, the machine is provided with a fixed contact ring which serves as a current carrier and an auxiliary contact ring which covers both rings and is rotated by a separate drive. Orig. part. has: 1 figure. [IV]

SUB CODE: 10/ SUBM DATE: 15Jun64/ATD PRESS: 5049

Card

2/2 mcl

ACC NR: AP6035860

(A, N)

SOURCE CODE: UR/0413/66/000/020/0071/0071

INVENTOR: Lokshin, D. V.; Neyman, Z. B.; Tsirkunenko, A. T.

ORG: none

TITLE: Homopolar generator. Class 21, No. 187131

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 71

TOPIC TAGS: electric generator, homopolar generator, *generator rotor, electric rotating equipment part*

ABSTRACT: An Author Certificate has been issued for a radial-type multi-rotor homopolar generator with rotors which revolve in opposite directions. Each rotor consists

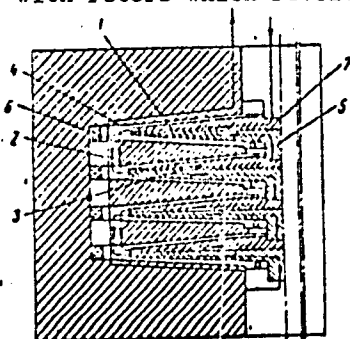


Fig. 1. Homopolar generator

- 1 - Rotor; 2 - upper disk of rotor;
- 3 - lower disk of rotor; 4 - peripheral liquid contact; 5 - central liquid contact; 6 - magnetic ring; 7 - rotor bearing.

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UDC: 621.313.291-233.2

ACC NR: AP6035860

of two conductive disks separated by insulation which are connected in series by liquid contacts along the periphery. To increase reliability and mechanical stability the magnetic rings are placed between the rotors (see Fig. 1). These rings are fastened on one side to the magnet yoke; their other side is used for rotor-bearing mounting. Orig. art. has: 1 figure.

SUB CODE: 10/ SUBM DATE: 15Jun64/

Card 2/2

LOKSHIN, E.

Obstacles in a big job. Fin. SSSR 23 no.10:67-68 0 '62.
(MIRA 15:10)

1. Starshiy kontroler-revizor Kontrol'no-revizionnogo upravleniya po Donetskoy oblasti.
(Donetsk Province--Auditing and inspection)

VAYNSHTEYN, German Mendeleovich; LOKSHIN, Efroim Pinkhusovich; TSENER, Yakov Al'terovich; GULYANITSKIY, B.S., red.; KAMAYEVA, O.M., red. izd-va; OBUKHOVSKAYA, G.P., tekhn. red.

[Improving the procedure of melting and casting primary magnesium and magnesium alloys]Usovershenstvovanie tekhnologii plavki i lit'ia pervichnogo magnia i magnievykh splavov. Moskva, Metallurgizdat, 1962. 34 p. (MIRA 16:3)
(Magnesium--Metallurgy)

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7. Industrial training at Industrial training schools of clothing industry during the period of apprenticeship. Log. Prom. 12, no. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

LOKSHIN, EFRAIM YULOVICH

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Industry of the USSR during 15 years.

DLC: HC335.L6484

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

LOKSHIN, EFRAIM IUDOVICH

LOKSHIN, EFRAIM IUDOVICH. Tiazhelaiia industriia v tret'em godu piatiletka. Moskva,
Gos. izd. ekonomicheskoi lit-ry, 1932. 136 p.

MM NHC

SO: LC, Soviet Geography, Part I, 1951. Uncl.

Heavy Industry - "Industry of the Future"

LOKSHIN, EFRAIM IUDOVICH

LOKSHIN, EFRAIM IUDOVICH. Kratkii ocherk razvitiia promyshlennosti SSSR. Moskva, Gos.
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NH HNC

SO: LC, Soviet Geography, Part I, 1951, Uncl.

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LOKSHIN, EFRAIM IUDOVICH. Promyshlennost' SSSR v pervoi pletiletke. Moskva,
Partincoe izd-vo, 1934. 149 p. DLC: HC335.L6485

SO: LC, Soviet Geography, Part I, 1951, Uncl.

LOKSHIN, EFRAIM IUDOVICH

LOKSHIN, EFRAIM IUDOVICH. Sovetskii soiuz - moguchaiia industrial' naia derzhava.
Moskva, Gospolitizdat, 1943. 63 p.
NM

DLC: HC335.L65

SO: LC, Soviet Geography, Part I, 1951, UNcl.

*Soviet Union - Industrial
Strength*

LOKSHIN, EFRAIM YUDOVICH

Promyshlennost' SSSR. Moskva, Gosplanizdat, 1947. 94 p.

Bibliographical footnotes.

Industry of the USSR.

DLC: HC335.L648

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of congress, 1953.

LOKSHIN, EFRAIM YUDOVICH

"Lokshin Efraim Yudovich. Planirovaniye Material'no-Tekhnicheskogo Snabzheniya Narodnogo Khozyaystva SSSR (Material-Technical Planning for Supplying the People's Economy of the USSR) Moskva, Gosstatizdat, 1952. 162 p."

LOKSHIN, Efraim Yudovich.

Economic law of the planned proportional development of the national economy. Moskva, Znanie, 1953. 31 p.

MH

1. Russia - Economic policy - 1917-
2. Russia - Indus.

LOKSHIN, E.Yu., doktor ekon. nauk, prof.; ANDREYEVA, O.I., kand.
ekon. nauk; VOROSHILOVA, T.S., kand. ekon. nauk, dots.;
TARAS'YANTS, R.B., kand. ekon. nauk, dots.; FASOLYAK,
N.D., kand. ekon. nauk, dots.; EYDEL'MAN, M.R., kand.
ekon. nauk; YAKOBI, A.A., kand. ekon. nauk, dots.;
TYAGAY, Ye., red.; MUKHIN, Yu., tekhn. red.

[Economics of the supply of materials and equipment] Eko-
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posobie. 2., perer. i dop. izd. Moskva, Gospolitizdat,
1953. 510 p. (Industrial procurement) (MIRA 16:7)

LOKSHIN, E.

[Industry of the U.S.S.R. and its branch structure] Promyshlennost'
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REPORT, 1984

1/2
1984
1/2

REPORT FROM THE VICTIMS OF THE REVOLUTIONARY
(WORKING CLASS AND PEASANT) PARTY, 1984,
1984.

33 P.

AT HEAD OF TITLE: KOMUNISTICHESKAYA PARTIYA S VYSS. SOVETZ.
VYSS.AYA PARTIYAYA SOKRATA.

Name: LOKSHIN, Efraim Yudovich

Dissertation: Basic problems of economics of material resources
in industry of the USSR

Degree: Doc Economic Sci

Affiliation: [Not indicated]

Defense Date, Place: 16 Jun 55, Council of Moscow State Economics Inst

Certification Date: 6 Apr 57

Source: BMVO 14/57

LOKSHIN, Efraim Yudovich, kandidat ekonomicheskikh nauk; ANDRONOV, I.I.
redaktor; ISLENT'YEVA, P.G., tekhnicheskij redaktor

[Possibilities for economizing materials in heavy industry]
Rezervy ekonomii material'nykh resursov v tiasheloi promyshlennosti SSSR. Moskva, Izd-vo "Znanie," 1955. 39 p. (MLRA 8:7)
(Metal industries)

LOKSHIN, E.Yu., prof., doktor ekon. nauk; FALALEYVA, G.F., red.; BERLOV, A.P., tekhn. red.

[Outlook for the development of Soviet industry during the next fifteen years] Perspektivy razvitiia promyshlennosti SSSR na blizhaishie piatnadtsat' let. Moskva, Izd-vo "Znanie," 1958. 39 p. (Vsesoiuznoe obshchestvo po rasprostraneniю politicheskikh i nauchnykh znanii. Ser.3, no.19). (MIRA 11:9)
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RUMYANTSEV, A.F.; YEFIMOV, A.N.; TEPLYOV, G.V.; LOKSHIN, E.Yu.; KARPENKO, A.P.; GRIGOR'YEV, A.Ye.; FILIPPOV, V.P.; PERESLEGIN, V.I.. Prini-
mal uchastiye VOLODARSKIY, L.M.; TYAGAY, Ye., red.; POPOVA, T.,
tekhn.red.

[Economy of socialist industrial enterprises; textbook] Ekonomika
sotsialisticheskikh promyshlennykh predpriyatii; uchebnik. Moskva,
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1. Kommunisticheskaya partiya Sovetskogo Soyuza. Vysshaya partiynaya
shkola. 2. Zamestitel' nachal'nika Tsentral'nogo statisticheskogo
upravleniya SSSR (for Volodarskiy).
(Industrial management)

PHASE I BOOK EXPLOITATION

SOV/4786

Lokshin, Efraim Yudovich, Doctor of Economic Sciences, Professor

Voprosy ekonomii material'nykh resursov v promyshlennosti SSSR (Problems of Economy of Material Resources in Soviet Industry) Moscow, Gosplanizdat, 1960. 364 p. 6,000 copies printed.

Ed.: I.S. Maksimov; Tech. Ed.: Ye. S. Gerasimova.

PURPOSE: This book is intended for designers, scientists, economists, and managerial personnel in industrial establishments.

COVERAGE: The book deals with the effectiveness of efforts to achieve economy of the material resources of the national economy of the USSR. The topics discussed include the level of utilization of material resources in Soviet industry, reduction of weight of machinery and goods, reduction of waste, new sources of raw and other materials and the normalization of their consumption, socialist competition, and economical industrial organization. No personalities are mentioned. There are no references.

Card 1/6

LOKSHIN, E.Yu., prof., doktor ekon.nauk; ANDREYEVA, O.I., kand.ekon.nauk;
VOROSHILOVA, T.S., dotsent, kand.ekon.nauk; TARAS'YANTS, dotsent,
kand.ekon.nauk; PASOLYAK, N.D., dotsent, kand.ekon.nauk; EYDEL'MAN,
M.R., kand.ekon.nauk; YAKOBI, A.A., dotsent, kand.ekon.nauk;
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Moskva, Gos.izd-vo polit.lit-ry, 1960. 510 p.

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(Industrial procurement)

KHRUTSKIY, Ye.A.; LOKSHIN, E.Yu., doktor ekon. nauk, prof., red.;
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[Problems of economic relations in socialist industry; text-
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(MIRA 15:8)

(Division of labor) (Industrial management)

RUMYANTSEV, A.F.; YEFIMOV, A.N.; TEPLOV, G.V.; LOKSHIN, E.Yu.;
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[Economics of industrial enterprises; textbook] Ekonomika pro-
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LOKSHIN, E. Yu.

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951 p. (MIRA 15:10)

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E.I., kand. ekon. nauk, dots.; GERASHCHENKO, B.S., kand.
ekon. nauk; GRIGOR'YEV, A.Ye., doktor ekon. nauk, prof.;
ITIN, L.I., doktor ekon. nauk, prof.; LOKSHIN, E.Yu., doktor
ekon. nauk, prof.; KAMENITSER, S.Ye., doktor ekon. nauk, prof.;
OBLOMSKIY, Ya.A., kand. ekon. nauk, dots.; SOKOLOV, B.M.,
doktor ekon.nauk, prof.; SHASS, M.Ye., doktor ekon.nauk;
STEPANOV, A.Ya.; ULITSKIY, L.I., doktor ekon. nauk, prof.;
PODGORNOVA, V., red.; TROYANOVSKAYA, N., tekhn. red.

[Economics of socialist industry; textbook] Ekonomika sotsiali-
sticheskoi promyshlennosti; uchebnik. Pod red. L.I.Itina,
B.S.Gerashchenko. 2., dop. i perer. izd. Moskva, Gospolitiz-
dat, 1961. 775 p. (MIRA 15:10)

1. Moscow. Gosudarstvennyy ekonomicheskii institut. 2. Zavedu-
yushchiy kafedroy ekonomiki promyshlennosti Moskovskogo gosu-
darstvennogo ekonomicheskogo instituta (for Itin).
(Russia--Industries)

RUMYANTSEV, A.F.; YEFIMOV, A.N.; TEPOV, G.V.; LOKSHIN, E.Yu.;
KARPENKO, A.P.; GRIGOR'YEV, A.Ye.; FILIPPOV, V.F.;
PERESLEGIN, V.I.; TYAGAY, Ye., red.; TROYANOVSKAYA, N.,
tekhn. red.

[Economics of industrial enterprises] Ekonomika promyshlen-
nykh predpriatii; uchebnik. 3. izd., perer. Moskva, Gos-
politizdat, 1963. 574 p. (MIRA 16:10)

1. Kommunisticheskaya partiya Sovetskogo Soyuza. Vysshaya
partiynaya shkola.

(Industrial management)

AKOPOV, R.Ya., kand. ekon. nauk, dots.; BASYUK, T.L., doktor ekon. nauk, prof.; BIRMAN, A. M., doktor ekon. nauk, prof.; GRIGOR'YEV, A.Ye., doktor ekon. nauk, prof.; DOKUKIN, V.I., prof.; IKONNIKOV, V.V., prof.; KONDRASHEV, D.D., doktor ekon. nauk; KURSKIY, A.D., doktor ekon. nauk; LOKSHIN, E.Yu., doktor ekon. nauk, prof.; MALYY, I.G., kand. ekon. nauk, dots.; PERVUSHIN, S.P., kand. ekon. nauk; PLOTNIKOV, K.N., TYAPKIN, N.K., kand. ekon. nauk; FILIMONOV, N.P., kand. ekon. nauk; SHAFIYEV, K.N., doktor ekon. nauk, prof.; BAKOVETSKIY, O., red.; KOKOSHKINA, I., mladshiy red.; MOSKVINA, R., tekhn. red.

[Economics; communist means of production] Politicheskaya ekonomiya; kommunisticheskiy sposob proizvodstva. Uchebnik 2., pe-
rer. i dop. izd. Moskva, Sotsekgiz, 1963. 599 p.

(MIRA 16:5)

1. Chlen-korrespondent Akademii nauk SSSR (for Plotnikov).
(Economics) (Communism)

BERRI, L.Ya., doktor ekon. nauk, prof.; MAKSIMOV, I.S.; BRAGINSKIY, B.I., doktor ekon. nauk; GRIGOR'YEV, A.Ye., doktor ekon. nauk, prof.; ITIN, L.I., doktor ekon. nauk, prof.; LOKSHIN, E.Yu., prof.; KAMENITSER, S.Ye., doktor ekon. nauk, prof.; OBLOMSKIY, Ya.A., kand. ekon. nauk, dots.; SHASS, M.Ye., doktor ekon.nauk, prof.; STEPANOV, A.Ya.; ULITSKIY, L.I., prof., doktor ekon. nauk; PODGORNOVA, V., red.; TROYANOVSKAYA, N., tekhn. red.

[Economics of socialist industry] Ekonomika sotsialisticheskoi promyshlennosti; uchebnik. 3., dop. 1 perer. izd. Pod red.L.I. Itina. Moskva, Gospolitizdat, 1963. 646 p. (MIRA 16:8)

1. Moscow. Gosudarstvennyy ekonomicheskii institut. 2. Zaveduyushchiy kafedroy ekonomiki promyshlennosti Moskovskogo instituta narodnogo khozyaystva im.G.V.Plekhanova (for Itin).
(Russia--Industry)

LOKSHIN, E.Yu., doktor ekon. nauk; ANDREYEVA, O.I., kand. ekon. nauk, dots.; VOROSHILOVA, T.S., kand. ekon. nauk, dots.; SADOMTSEV, V.K., kand. ekon. nauk, dots.; SMIRNOV, P.V., kand. ekon. nauk, dots.; TARAS'YANTS, R.B., kand. ekon. nauk, dots.; FASOLYAK, N.D., kand. ekon. nauk, dots.; LOZOV, Ya.D., st. prepod.; SHMELEVA, Z.S., st. prepod.; NOVIKOV, D.T., aspirant; PORA-LEONOVICH, B.N.; ALEKSANDROVSKIY, V.V.; BURSHTEYN, I.I.; EYDEL'MAN, B.I., red.; MOZGALEVSKAYA, S.A., mlad. red.; GERASIMOVA, Ye.S., tekhn. red.

[Manual for the supplying and selling of materials and equipment] Spravochnik po material'no-tehnicheskomu snabzheniiu i sbytu. Moskva, Ekonomizdat, 1963. 344 p.
(MIRA 17:1)

1. Nachal'nik ekonomicheskogo otdela Upravleniya material'no-tehnicheskogo snabzheniya Soveta narodnogo khozyaystva Moskovskogo gorodskogo ekonomicheskogo rayona (for Pora-Leonovich).
2. Nachal'nik otdela snabzheniya 1-go Gosudarstvennogo podshipnikovogo zavoda (for Aleksandrovskiy).

LYUBOVICH, Yuriy Osipovich; LOKSHIN, E.Yu., doktor ekon. nauk,
retsenzent; LETENKO, V.A., kand. ekon. nauk, retsenzent;
TURETSKIY, I.L., retsenzent; FASOLYAK, N.D., kand. ekon.
nauk, retsenzent; YAKOBI, A.A., kand. ekon.nauk, retsenzent;
LEPNIKOVA, Ye., red.

[Working capital and its use in U.S.S.R. industry] Oborotnye
fondy i ikh ispol'zovanie v promyshlennosti SSSR. Moskva,
Izd-vo "Mysl'," 1964. 302 p. (MIRA 17:4)

LOKSHIN, Efraim Yudovich; KUZNETSOV, V., red.; VOSKRESENSKAYA, T.,
red.

[U.S.S.R. industry in 1940-1963; an historical essay] Pro-
myshlennost' SSSR 1940-1963; ocherk istorii. Moskva, Mysl',
1964. 382 p. (MIRA 17:10)

137-58-6-13269

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 300 (USSR)

AUTHOR: Lokshin, F. L.

TITLE: Dynamic Theory of the Martensite Transformation (Dinamicheskaya teoriya martensitnogo prevrashcheniya)

PERIODICAL: Tr. Novocherk. politekhn. in-ta, 1957, Vol 71/85, 161 pp, ill.

ABSTRACT: Description of a new dynamic theory of martensite transformation (MT) developed by the author, and results of an investigation of the effect of one-directional (ODC) and omni-lateral dynamic compression (OLDC) on the MT process. The experiment was carried out with seven alloys, containing (in %): C 0.4-0.75, Mn up to 19.82, Si 0.15-3.85, Cr (in one alloy) 11.5, Ni (in two alloys) 0.12-10.3, Cu (in two alloys) 0.04-1.98. ODC was achieved by explosion of a TNT charge. For OLDC the sample was placed inside the TNT charge. The rate of growth of martensite crystals was also investigated by measuring the speed of propagation of the detonation. It was established that ODC and OLDC cause MT when the intensity of the stress surpasses a certain critical value. This critical value, for the al-

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137-58-6-13269

Dynamic Theory of the Martensite Transformation

alloys under investigation, lies in the range between 1.4 and $1.7 \cdot 10^5$ kg/cm². The quantity of martensite which forms as a result of an explosion in the zone of plastic deformation, is the same as in the zone of elastic deformation. Consequently, MT under dynamic stress is regulated by the intensity of the stress on the front of shock wave moving along the metal, and not by the amount of plastic deformation. It is established that the speed of the process of MF is faster than the speed of sound in steel and is 6500 m/sec (speed of sound in steel $\sim 5,000$ m/sec). According to the dynamic theory of MT, the process of formation of martensite crystals is treated as a process of formation of crystallization nuclei and their spontaneous growth. The formation of crystallization nuclei takes place in corners of microdefects as a result of stress concentrations created during quick cooling of steel or in the process of plastic deformation. Formation of crystallization nuclei as a result of usual fluctuations of energy is possible also. The spontaneous propagation of the MT reaction can take place only when the difference between the squares of the pressures in the martensite and austenite in the boundary zone between the phases equals or exceeds a certain critical value which depends upon temperature. With an increase in C content the difference between the pressures in the martensite and austenite at the temperature T_M increases, whereas the speed of the MT process decreases. The dynamic theory of Mt explains such

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137-58-6-13269

Dynamic Theory of the Martensite Transformation

features of MT as limitations in the growth of martensite crystals, development of the MT process in certain temperature ranges, the existence of temperatures of a beginning and end of MT, stabilization of austenite, etc.

M.Sh.

1. Martensite--Analysis 2. Martensite--Theory 3. Martensite--Thermodynamic properties
4. Alloys--Transformations 5. Nitrotoluenes--Applications 6. Martensite crystals
--Growth

Card 3/3

AUTHOR: Lokshin, F. L. SOV/ 163-58-2-37/46

TITLE: The Rate of Martensite Transformation (Skorost' martensitnogo prevrashcheniya)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 2, pp. 205 - 208 (USSR)

ABSTRACT: To determine the rate of martensite transformation a method was devised which is based on the evaluation of the effect of the propagation of a detonation through steel. It was shown that the rate of the martensite transformation may be determined by the determination of the detonation velocity. Tetryl was used as explosive; it has a velocity of detonation of 7200 m/sec. The velocity of the propagation of the detonation was determined by means of steel samples of a content of 0,35% carbon, 8% manganese and 100% austenite. A martensite transformation occurs in the austenite steel in the explosion. The rate of martensite transformation in steel is about 6500 m/sec. This value agrees with that of the oscillogram by Bunshah and Mehl. The experiments carried out for the determination of the martensite transformation with steel platelets of different

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The Rate of Martensite Transformation

SOV/163-58-2-37/46

thickness showed in all cases the same rate. This points to the fact that the rate of martensite transformation in a steel sample of given composition represents a constant magnitude. There are 1 figure, 1 table, and 10 references, 6 of which are Soviet.

ASSOCIATION: Novochoerkasskiy politekhnicheskiy institut (Novochoerkassk Polytechnical Institute)

SUBMITTED: November 4, 1957

Card 2/2

18(7)

AUTHEOR:

Lokshin, F. L.

SOV/163-58-4-30/47

TITLE:

Influence of a One-Sided and All-Sided Dynamic Compression on the Conversion of Austenite to Martensite (Vliyaniye odnostoronnogo i vsestoronnogo dinamicheskogo szhatiya na prevrashcheniye austenita v martensit)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 4, pp 178 - 183 (USSR)

ABSTRACT:

In order to obtain a stress speed comparable to the conversion speed of martensite; the pressure at the explosion of bursting charges was used as dynamic stress. The explosion pressure was determined by the method worked out by the author, which is based on measuring the speed of the plastic metal flux. The speed of the plastic metal flux at the explosion was measured by the methods of impulse X-ray photography. The investigations showed that the plastic metal flux at the explosion has the character of a steadily retarded process. The experiments showed that the initial speed of the plastic flux depends on the explosion pressure, and is virtually independent of the chemical composition and the structure. The magnitude of the negative acceleration of the plastic

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Influence of a One-Sided and All-Sided Dynamic
Compression on the Conversion of Austenite to
Martensite

SOV/163-58-4-30/47

flux, however, depends on the chemical composition and the structure, being independent of the magnitude of the explosion pressure. The curves obtained allow the following conclusions: 1) The dynamic stress of a one-sided compression applied at temperatures higher and lower than T_M causes a conversion of austenite to martensite. 2) The conversion of austenite at dynamic, one-sided compression occurs, in all alloys investigated here, only at a pressure higher than a certain critical pressure P_{or} . 3) In the alloys investigated here, this pressure lies in the range of $1.5 \cdot 10^5 - 1.7 \cdot 10^5$ kg/cm². P_{or} is somewhat greater for alloys with a stressing temperature higher than T_M . 4) At pressure higher than P_{or} the quantity of the forming martensite increases with an increase in pressure.- For investigating all-sided dynamic compression on the martensite conversion in a standardized trotyl blasting charge weighing 400 g, a hole measuring 20 by 20 by

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Influence of a One-Sided and All-Sided Dynamic
Compression on the Conversion of Austenite to
Martensite

SOV/163-58-4-30/47

30 mm was cut out. In this hole a cylindrical sample, 5 by 10 mm high, was inserted. The remaining free space was filled with the explosive. The following ascertainties were made in the investigation: 1) The all-sided dynamic compression under high pressure (about 430,000 kg/cm²) guarantees an intensive martensite conversion, irrespective of whether the alloys have a higher or lower initial temperature in the martensite conversion than the one at which the all-sided compression took place.

2) The course of the martensite conversion process at all-sided dynamic compression, also in the splintering plane, and the obtaining of the same martensite quantity in the different points of the sample show that the martensite conversion process is not determined by a plastic deformation but by elastic tensions. There are 6 figures and 3 tables.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut (Novocherkassk
Polytechnic Institute)

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SOV/137-59-3-7001

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 296 (USSR)

AUTHORS: Lokshin, F. L., Pertseva, A. P.

TITLE: On the Problem of Quenching of Steel in a Field of Ultrasonic Hydraulic Shock Waves (K voprosu o zakalke stal: v pole gidravlicheskikh udarov ul'trazvukovoy chastoty)

PERIODICAL: Byul. tekhn-ekon. inform. Sovnarkhoz Rostovsk. ekon. adm. r-na, 1958, Nr 7, pp 37-38

ABSTRACT: The authors describe a device which utilizes an under-water electrical discharge to simultaneously initiate a hydraulic shock wave and produce mechanical vibrations of ultrasonic frequencies (HSWUSF). A portion of specimens of steel U12 were heated to a temperature of 950°C and were then quenched in water; other specimens were quenched from a temperature of 950° in a field of HSWUSF, the frequency of mechanical vibrations constituting 600 kilocycles per second. The time of treatment varied from $t = \tau$ to $t = \tau + 10$ min (where τ is the time of cooling of specimens from the temperature prior to quenching to the temperature of the water). The investigation established the following facts: Hydraulic shock waves and

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On the Problem of Quenching of Steel in a Field (cont)

ultrasonic vibrations limit the possibilities of the formation of a steam jacket around the specimen being cooled and thus accelerate the process of cooling; the amount of retained austenite diminishes as the duration of the HSWUSF is increased (the entire austenite was transformed into martensite in five minutes); the action of the hydraulic shock waves relieves internal stresses and reduces the tetragonal nature of martensite. Phenomena commonly occurring in steel during quenching and tempering operations are also observed in steel which is being processed in a field of HSWUSF; therefore, the employment of this process in the industry will make it possible to combine the quenching and tempering operations and thereby increase the productivity of the shops.

A. B. .

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SOV/137-59-10-23230

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 10, p 285 (USSR)

AUTHORS: Lokshin, F.L., Andreyeva, O.I.

TITLE: Quench-Hardening Aluminum Alloys in a Field of Hydraulic Shocks of Ultrasonic Frequency

PERIODICAL: Byul. tekhn.-ekon. inform. Sovnarkhoz Rostovsk. ekon. adm. r-na, 1958, Nr 12, pp 49 - 50

ABSTRACT: The peculiarity of the method consists in the simultaneous action upon the metal of hydraulic shocks and ultrasonic oscillations caused by electric discharges in water. For investigations some "D1T" Duralumin specimens (3.8% Cu, 1.4% Mg) were water quenched at 500 - 510°C; others were heated up to 500 - 510°C and quenched in a field of hydraulic shocks of ultrasonic frequency. Subsequently the specimens were subjected to natural aging. It was established by roentgenostructural analysis and hardness measurement that the quench-hardening in the field of hydraulic

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SOV/137-59-10-23230

Quench-Hardening Aluminum Alloys in a Field of Hydraulic Shocks of Ultrasonic Frequency

shocks accelerated the aging process of Al alloys, particularly at the first stage. Recrystallization processes of the D1T alloy were considerably speeded-up by treatment with hydraulic shocks of ultrasonic frequency.

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A.B.

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18(7), 18(3)

SOV/163-59-1-27/50

AUTHOR: Lokshin, F. L.

TITLE: Application of Shock Wave Theory to the Description of the Process of Martensite Crystal Growth (Primeneniye teorii udarnykh voln k opisaniyu protsessa rosta kristallov martensita)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 1, pp 146 - 150 (USSR)

ABSTRACT: At first reference is made of other articles (Refs 2,3), then the author tries to explain the curve due to R. F. Bunshah and R. F. Mehn (Ref 3). He is of opinion that the duration of the growth of the martensite crystals is determined by the ascending branch of the curve and that correspondingly the velocity of growth amounts to about 7000 m/sec. A method was developed for measuring the velocity of growth of martensite crystals which is based upon the measurements of the propagation of detonation wave in steel. Measurements carried out according to this method showed that in steel containing 0.4% C and 8% Mn this velocity is determined by $D \approx 6500$ m/sec

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Application of Shock Wave Theory to the Description of SOV/165-59-1-27/50
the Process of Martensite Crystal Growth

(Ref 7). Hence the crystals grow with a velocity exceeding the velocity of sound in steel. If, for this reason, crystal growth is considered a process of a detonation-type shock wave, this process must lend itself to an explanation by means of the "strong" shock wave concept. The author proved experimentally that during dynamical pressing of austenite the transformation to martensite takes place at a certain pressure P_{crit} . Proceeding from this fact, the growth of martensite crystals is described and it is shown that it may be considered a wave process. At the front of such a wave pressure and density undergo a jump. For the purpose of describing such an elastic wave the fundamental theory of large-amplitude wave propagation in solids is applied. The motion of the medium can be investigated by means of the Eulerian or the Lagrangian method. In this paper the fundamental equations describing the motion of the medium, the equation of conservation of mass and of conservation of momentum are derived. They are written down in their Lagrangian form expressing the motion of each particle. Equations (14) for the velocity D and equation (15)

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Application of Shock Wave Theory to the Description of the Process of Martensite Crystal Growth SCV/163-59-1-27/50

for the stress σ'_M in the martensite are derived. The values of D and σ'_M calculated according to these equations for carbon steels with a varying carbon content show a good agreement with experimental information. There are 1 table and 11 references, 8 of which are Soviet.

ASSOCIATION: Novocherkasskiy politekhnicheskii institut (Novocherkassk Polytechnical Institute)

SUBMITTED: March 11, 1958

Card 3/3

S/058/61/000/003/015/027
A001/A001

Translation from: Referativnyy zhurnal, Fizika, 1961, No. 3, p. 321, # 3E326

AUTHORS: Lokshin, F. L., Gontar', P. I.

TITLE: On Oscillographic Methods for Measuring the Growth Rate of Martensite Crystals

PERIODICAL: "Tr. Novocherk. politekhn. in-ta", 1959, Vol. 73, Raboty kafedry fiz., pp. 11-16

TEXT: The authors adhere to the viewpoint of Arskiy (RZhFiz, 1957, No. 8, 19887) which consists in the following: the rate of crystal growth in length is characterized by the part of the oscillogram corresponding to increasing electric resistance; the oscillographic curves of electric resistance changes during the formation of martensite crystal were obtained by Bunchah, R. F. and Mehl, R. F. (Journ. of Metals, 1953, No. 9). An increase of electric resistance is caused, in the authors' opinion, by appearance of distortions in the martensite crystalline lattice and, possibly, its temperature increase. The rate of crystal growth in length, based on the data of Bunchah and Mehl, is estimated to amount to $\sim 7,000$

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S/058/61/000/003/015/027
A001/A001

On Oscillographic Methods for Measuring the Growth Rate of Martensite Crystals

m/sec, which exceeds the average sound velocity in steel and coincides with the magnitude obtained by one of the authors by the detonation method (FZhFiz, 1958, No. 8, 17987).

E. Estrin

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

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S/137/61/000/001/019/043
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 1, pp. 33 - 34,
1D288

AUTHORS: Lokshin, F.L., Lyutsedarskiy, V.A., Derevyannykh, A.P., Andreyeva,
O.I.

TITLE: The Effect of Hydraulic Impacts of Ultrasonic Frequency on the Struc-
ture of Quenched Alloys

PERIODICAL: "Tr. Novocherk. politekhn. in-ta", 1959, No. 73, Raboty Kafedry fiz.
pp. 81 - 95

TEXT: The effect of hydraulic ultrasonic-frequency impacts on the struc-
ture was investigated on \bar{A} 1 (D1) type alloys (3.8% Cu, 1.4% Mg), and λ 18 H 9
(Kh18N9) and \bar{Y} 12 (U12) steel by measuring the hardness and by roentgenostructural
analysis. A description is made of a device for the excitation of ultrasonic-fre-
quency hydraulic impacts. All the investigations were made at a frequency of 500-
600 kilo-cycles. The specimens investigated were after quenching subjected to
hydraulic impacts of ultrasonic frequency in a water bath. It was found that as

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S/137/61/000/001/019/043
A006/A001

The Effect of Hydraulic Impacts of Ultrasonic Frequency on the Structure of Quenched Alloys VX

a result of hydraulic impacts of ultrasonic frequency, the aging process of duraluminum alloys was considerably accelerated; limit hardness values in time are obtained earlier than during artificial or natural aging. After the effect of hydraulic impacts of ultrasonic frequency on the quenched alloys, processes in the alloys take place which are analogous to processes during tempering. In practice, the use of hydraulic impacts of ultrasonic frequency during heat treatment of steel, reduces the probability of crack formation and assures the formation of tempering structures within a shorter time interval. When subjecting steel to hydraulic impacts of ultrasonic frequency, structural changes of the same nature as in cold treatment, may be expected. There are 26 references.

A. B.

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

Card 2/2

27372

S/194/61/000/003/038/046
D201/D306

1.1730

AUTHORS:

Lokshin, F.L., Lyutsedarskiy, V.A., Dyerevyannykh,
A.P. and Andreyeva, O.I.

TITLE:

The effect of ultrasonic frequency hydraulic shocks
on the structure of hardened alloys

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika,
no. 3, 1961, 19, abstract 3 E134 (Tr. Novocherk.
politekhn. in-ta, 1959, 73, Raboty Kafedry fiz.,
81-95)

TEXT: Structural changes are investigated in hardened steels and
aluminum alloys as resulting from their processing by hydraulic
shocks at ultrasonic frequencies (500-600 Kc/s). It is explained
that under the effect of hydraulic shocks, processes arise in alloys
similar to those in annealing. The duration of these processes is
much shorter than that in normal ageing and annealing. It is pos-
sible to put into practical use the effect of hydraulic shocks in

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D201/D306

The effect of ultrasonic frequency...

thermal processing of duraluminum (the processing time is shortened and a higher degree of hardness is obtained) and of steel (the possibility of cracks occurring is reduced, the annealed structure is obtained in a shorter time). The schematic of the installation is given. The results of the experiments are presented in the form of a table, graph and X-ray photographs. 14 figures. 26 references. ✓

[Abstracter's note: Complete translation]

Card 2/2

LOKSHIN, F. L.

"Hydraulic-Shock Treatment of Alloys"

(Hydraulic shocks of ultrasonic frequency, applied to a quenching medium, helped to transform all the residual austenite and reduced the danger of cracking. A unit with a 1.5 m³ quenching bath has been developed).

Paper presented at the All-Union Conference on Heat Treatment and Metal Science held in May 1960, Odessa.

S/810/62/000/000/007/013

AUTHORS: Lokshin, F. L., Pertseva, A. P., Mikhaylenko, G. V., Lokshin, L. F.

TITLE: The quench-hardening of steel in a field of hydraulic shocks and of ultrasonic-frequency mechanical vibrations.

SOURCE: Metallovedeniye i termicheskaya obrabotka; materialy konferentsii po metallovedeniyu i termicheskoy obrabotke, sost. v g. Odessa v 1960 g. Moscow, Metallurgizdat, 1962, 221-232.

TEXT: The paper describes an experimental investigation of a new method of heat treatment of metals in a field of hydraulic shocks and ultrasonic frequency (HSUS) mechanical vibrations, which consists in the quench-hardening (QH) of steel in water or oil under continuous electrical discharges. The resulting HS phenomena and US mechanical vibrations were made to assume frequencies from 100-600 kcps. It is shown that QH in a HSUS field is conducive to a more complete transformation of austenite (A) into martensite (M). Cylindrical specimens, 15-mm diam, 20-mm high, of steels Y8A (USA), Y10A (U10A), Y11 (U11), Y12 (U12), X15 (ShKh15), 9XC (9KhS), 7X (7Kh), and 7X3 (7Kh3), were tested. The discharge-capacitor voltage was varied from 30-80 kw (depending on the chemical composition of the steel), its capacity held at 0.24 μ f. These 2 values determine

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The quench-hardening of steel in a field of ...

S/810/62/000/000/007/013

the pressure, specific impulse, and specific energy of the shock waves. Effect of HSUS field on the amount of retained A: Test results are summarized in a full-page table, showing that the A-M transformation with HSUS QH is total. Effect of HSUS on the fine structure of the M: Directly upon inception of quench (Q), the HSUS field acts on the A. Then, as the cooling in the M interval proceeds, they act also on the newly forming M. The results of X-ray diffraction analysis are shown, indicating that in the HSUS field carbide formation proceeds even during the Q process itself. The carbides detected are Fe_3C . Graphic representations of the process data show that, at any given temperature, steel QHed in a HSUS field contains less C immediately after Q and anneal than steel QHed in the ordinary way. All other conditions being equal, steel QHed in a HSUS field contains more C in the solid solution if its Cr is smaller. QH in a HSUS field is conducive to the separation of the C from the solid solution, the formation of centers of the carbide phase, and their intensive growth. Therefore, the ordinarily observed Q phenomena, in which the growth of the carbide nuclei is impaired by their C-depleted immediate surroundings, are corrected by the HSUS field. Peculiarities of the structural forms of M: The microphotographs shown manifest the nonuniform, macro-acicular M structure obtained by ordinary QH, as compared with the crypto-acicular M structure with uniformly distributed carbides obtained in the HSUS field. Effect on the hardness of the steel: The steels QHed in a HSUS

copy 2/3,

S/810/62/000/000/007/013

The quench-hardening of steel in a field of ...

field have a more elevated hardness, and the reduction in hardness of such steels begins at higher anneal temperatures. However, the differences are small in the QHed state, since the 2 processes occurring, namely, the A-M transformation on the one hand and the removal of residual C on the other hand, have opposite effects on the hardness. The deformation of the second kind in steel QHed in a HSUS field are smaller than in steel QHed in the ordinary way; hence, the more elevated hardness of such steels cannot be attributed to stresses of the second kind, but to the more refined M structure and the dispersed mosaic structure. There are 10 figures and 3 tables; no references.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut (Novoherkassk Politechnical Institute).

Card 3/3

S/810/62/000/000/008/013

AUTHORS: Lokshin, F. L., Andreyeva, O. I.

TITLE: Effect of hydraulic shocks and of ultrasonic-frequency mechanical vibrations on aging and recrystallization processes in aluminum alloys.

SOURCE: Metallovedeniye i termicheskaya obrabotka; materialy konferentsii po metallovedeniyu i termicheskoy obrabotke, sost. v g. Odessa v 1960 g. Moscow, Metallurgizdat, 1962, 233-239.

TEXT: The paper reports the results of an experimental investigation on the effect cited in the title and concludes that treatment of metals in a field of hydraulic shocks and ultrasonic (HSUS) mechanical vibrations accelerates the aging process by 120-140 times with respect to natural aging or by 6-10 times as compared with artificial (high-temperature) aging; that the hardness of freshly quenched specimens treated in a HSUS field, after natural aging, remains more elevated than the hardness of specimens treated in the ordinary manner; that the recrystallization process proceeds more intensively in a HSUS field than under ordinary conditions; that treatment in a HSUS field reduces the recrystallizational-inception (RI) temperature (T) of Al alloys Д1 (D1) and А П8 (AL8) by 270-370°C; and that the grain growth in a HSUS field is significantly greater than in ordinary conditions

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Effect of hydraulic shocks and of ultrasonic- ...

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of anneal of deformed metals. Specimens of the D1 alloy (3.8% Cu; 0.8% Mn); 15-mm diam, 20-mm high, were quenched in water at 505-510°. Some of the specimens were aged naturally, others were artificially (high-T) aged at 150° for 30 min and then aged naturally; some specimens, freshly quenched, were exposed to a HSUS field for 5 min, with subsequent natural aging. The HSUS field was produced by electrical discharges from a condenser; discharge voltage 30-70 kv, condenser capacitance 0.02-0.24 μ f, HSUS frequency 200-600 kcps. Typical effect of HSUS field on hardness: Freshly quenched specimens with a hardness H_{R_B} 47 acquired H_{R_B} 62 in 5 min exposure to the HSUS field; a like increase in H_{R_B} would have required 30 min of artificial aging and 6-7 hrs of natural aging.

Upon completion of HSUS treatment, H_{R_B} was 80, whereas specimens artificially aged for 30 min, with subsequent natural aging, did not exceed H_{R_B} 70. Test results are graphed. The effect of the duration of the HSUS exposure upon the subsequent natural aging is graphically shown. X-ray-diffraction photos show the accelerated appearance of the $CuAl_2$ line after HSUS treatment. HSUS-stimulated recrystallization experiments with Al8 alloy (3.6% Mg) are described. Initial upsetting deformation was varied from 1 to 42%. Some of the specimens were

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Effect of hydraulic shocks and of ultrasonic- ...

S/810/62/000/000/008/013

heated at various T for 50 min, and the RI T was determined by X-ray diffraction. The lowest RI T (350°C) corresponds to a deformation of 42%, whereas with treatment in a HSUS field, intensive grain growth was observed at 80°. The grain-growth rate, also, was sharply enhanced by the HSUS field. There are 7 figures and 6 Russian-language Soviet references.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut (Novocherkassk Politechnical Institute).

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S/126/62/014/002/016/018
E073/E192

AUTHORS: Lokshin, F.L., and Lokshin, L.F.

TITLE: Influence of the impact produced by a falling load on the state of martensite in carbon steel

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.2, 1962, 307-309

TEXT: Cylindrical 10 mm diameter, 10 mm long specimens of steels 40 and Y10A (U10A), water quenched from 850 °C, and of steel Y8A (U8A), water quenched from 820 °C, were subjected to an impact load produced by weights of 10, 15 and 20 kg falling from various heights. The compositions of the steels were as follows:

Steel	C	Mn	Si	S	P
40	0.43	0.50	0.30	0.028	0.032
U8A	0.81	0.38	0.25	0.018	0.026
U10A	0.98	0.28	0.23	0.020	0.025

The changes in the martensite as a result of the impact were determined by X-ray diffraction (using Debye-Sherrer 9 cm camera)
Card 1/4

Influence of the impact produced ... S/126/62/014/002/016/018
E073/E192

from the widening of the (200) lines. Fig.1 shows the change in the width of the (200) line (220) as 10^{-3} of the radius of the arc, for the steel U10A as a function of the height (metres) of fall of the weight; 1 - 10, 2 - 15, 3 - 20 kg. Fig.2 shows similar change in width of the line, (220), as a function of the number of impacts by a falling weight of 5 kg for the steel U10A (curve 1), U8A (curve 2), and steel 40 (curve 3). The decrease in width of the lines as a result of the impacts is explained by the fact that under the influence of the stresses the processes of diffusion are accelerated. Consequently, the solid solution becomes less uniform and a part of the carbon will separate from the lattice and a decrease in the stresses. With increasing impact stress the quantity of carbon rejected from the metal increases. At a constant stress the carbon rejection will be greater, the greater the load impact. With increasing number of impacts, the quantity of rejected martensite decreases; the rate of rejection of the carbon is particularly large during the first impacts. No details of the measurement of line thickness.

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Influence of the impact produced... S/126/62/014/002/016/018
E073/E192

are given.

There are 2 figures, and 1 table.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut im.
Sergo Ordzhonikidze
(Novocherkassk Polytechnical Institute imeni
Sergo Ordzhonikidze)

SUBMITTED: November 7, 1961

Card 3/4

Influence of the impact produced ... S/126/62/014/002/016/018
E073/E192

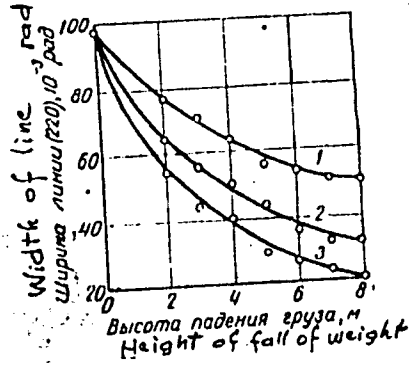


Fig. 1.

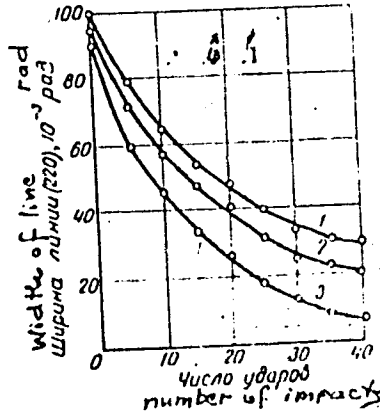


Fig. 2.

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CIA-RDP86-00513R000930420013-9"

SOURCE CODE: UR/0370/66/000/006/0097/0100

ACC NR: AP6036440

AUTHORS: Lokshin, F. L. (Moscow); Vaynblat, Yu. M. (Moscow); Korotov, O. S. (Moscow);
Shakhanova, G. V. (Moscow)

ORG: none

TITLE: Investigation of the decomposition kinetics of a supersaturated solid solution in alloy D-16

SOURCE: AN SSSR. Izvestiya. Metally, no. 6, 1966, 97-100

TOPIC TAGS: aluminum alloy, electric resistance, thermal stability / D-16 aluminum alloy

ABSTRACT: The decomposition kinetics of the supersaturated solid solution in alloy D-16 (4.0% Cu, 1.35 % Mg, and 0.5% Mn) was investigated. The investigation supplements the results of K. S. Kirpichnikov and V. I. Kulakov (Osobennosti stareniya splava D-16. Termicheskaya obrabotka i svoystva splavov. Tr. MATI, 1962, No. 55, 133). The decomposition kinetics was studied by determining the change in the electrical resistance of the specimens as a function of time and temperature. The experimental procedure followed is described by M. A. Shtremel', I. N. Kidin, and A. V. Panov (Zavodskaya laboratoriya, 1960, No. 8, 1009). The experimental results are presented graphically (see Fig. 1). It was found that the changes in the hardness, strength limit, and creep in alloy D-16 occur at later stages in the decomposition

UDC: 669.715

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ACC NR: AP6036440

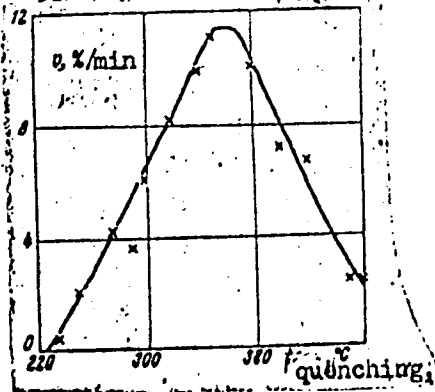


Fig. 1. Dependence between the rate of change in the electrical resistance of alloy D-16 and the quenching temperature

process of the solid solution than the change in the electrical resistance of the latter. Nevertheless, it is asserted that a proper use of electrical resistance-time curves does afford a method for determining the optimum cooling rate of D-16 alloys. Orig. art. has: 5 graphs.

SUB CODE: 11/
20/

SUBM DATE: 05Apr65/

ORIG REF: 004

Card 2/2

LOKSHIN, F.L.

Work of the Council of Factory Laboratories in Light-Alloy
Metallurgical Enterprises. Zav. lab. 31 no.11:1423 '65.
(MIRA 19:1)

KRETOV, A.Ye.; SILIN, N.F.; KORCHAGINA, A.M.; LOKSHIN, G.B.; KITAINA, S.N.

Synthesis of terephthalic acid via chloromethyl derivatives of aromatic hydrocarbons. Zhur.prikl.khim. 33 no.10:2329-2335 0 '60.

(MIRA 14:5)

(Terephthalic acid)

KRETOV, A.Ye.; SILIN, N.F.; BARANOVA, Ye.I.; LOKSHIN, G.B.

Production of terephthalic acid from commercial diethylbenzene.

Zhur.prikl.khim. 35 no.4:863-866 Ap '62.

(MIRA 15:4)

(Terephthalic acid) (Benzene)

MOSHCHINSKAYA, N. K.; SILIN, N. F.; DMITRENKO, Ye. Ye.; LIBERZON, V. A.;
LOKSHIN, G. B.; KORCHAGINA, A. M.; Prinimali uchastiye:
ZAL'TSMANOVICH, T. A.; MAMEDOV, A. A.; SAPSOVICH, L. V.;
SOKOLENKO, V., student; ZEMLYANSKAYA, L., studentka

Preparation of aromatic dicarboxylic acids and their chlorides.
Neftekhimia 2 no.4:541-549 J1-Ag '62. (MIRA 15:10)

1. Dnepropetrovskiy khimiko-tehnologicheskii institut imeni
F. E. Dzerzhinskogo.

(Acids, Organic) (Chlorides)

ROZENFEL'D, G.S.; ROSTOVTSEVA, L.I.; BAYKINA, V.M.; TRAKHTENBERG, D.M.
KHOKHLOV, A.S.. Primali uchastiye: LOKSHIN G.B.

Albonursin, a substance accompanying the antibiotics nystatin
and albofungin. Antibiotiki 8 no.3:201-207 Mr'63
(MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov
i Institut khimii prirodnykh soyedineniy AN SSSR.

KHOKHLOV, A.S.; LOKSHIN, G.B.

Some cleavage products of "albonursin." Dokl. AN SSSR 148
no.6:1320-1322 F '63. (MIRA 16:3)

1. Institut khimii prirodnykh soyedineniy AN SSSR i Vsesoyuznyy
nauchno-issledovatel'skiy institut antibiotikov. Predstavleno
akademikom M.M.Shenyakinym.

(ANTIBIOTICS)

LOKSHIN, G.B.; KHOKHLOV, A.S.; SHEYNKER, Ya.N.; SENYAVINA, L.B.

Chemical and spectroscopic study of albonoursin. Khim. prirod.
soed. no.6:395-400 '65. (MIRA 19:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR i Vsesoyuznyy
nauchno-issledovatel'skiy institut antibiotikov. Submitted
Feb. 5, 1964.

Control of such weapons would still be in the hands of the USSR. I. L. Lukhin

LOKSHIN, G. M., ECRISEVICH, V. M.

Nurseries (Horticulture) Omsk Province

Work practice of fruit growers of Omsk Province, .Sad i og., no. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, _____ 1953. Unclassified.

LOKSHIN, I.A.; SULTANOV, S.A.; PULUYAN, I.G.

Present status of the development of the Bavly oil field.
Geol.nefti 2 no.3:5-13 Mr '58. (MIRA 12:6)

1. Upravleniye neftyanoy promyshlennosti Tatsovnarkhoza.
(Bavly District--Oil fields--Production methods)

ACCESSION NR. AP4030668

S 0129/64/000/004/0033/0035

AUTHOR: Vorob'yev, V. G., Lokshin, I. Kh.; Tiskovich, N. L.

TITLE: Reducing the internal stresses in aluminum alloy products

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 4, 1964, 23-35

TOPIC TAGS: aluminum alloy, cyclic processing, dry ice, acetone, alloy cooling, thermal expansion, thermal deformation, elastic deformation, residual stress, internal stress, stress relief, alloy

ABSTRACT: Ring-shaped samples were used to investigate the effect of cooling at zero temperatures on the stress relief in AL2 and AL9 aluminum alloys.

1970-05

MISSION NR: AP4030666

reduced to 25-30%, and the stress relief after the following two operations: (d)

(1) 1% A further increase in the stress relief after the following two operations: (d)

(2) 1% A further increase in the stress relief after the following two operations: (d)

ACC NR: AP6031837

(A)

SOURCE CODE: UR/0129/66/000/007/0008/0011

AUTHOR: Vorob'yev, V. G.; Lokshin, I. Kh.;

ORG: ENIMS

Title: Using vibratory-thermal treatment to reduce residual internal stresses in metal work parts

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 7, 1966, 8-11

TOPIC TAGS: *MACHINE TOOL, CAST ALLOY,* mechanical vibration, vibration effect, high temperature effect, internal stress stress relaxation / 35L alloy, AL9 alloy, AL2 alloy

ABSTRACT: On the assumption that the effectiveness of the vibration treatment of castings for precision machine tools must increase when it is combined with heating in order to accelerate relaxation stresses, the authors performed appropriate experiments on using a specially designed test rig (Fig. 1) consisting of ST-300 electromechanical vibration stand 1, support 2, bell furnace 3 with ventilator 4, and welded frame 5 whose refractory-lined surface (table-top) supports the furnace. The frequency range of the vibration stand is from 80 to 300 cps. Specimens cast from 35L, AL9 and AL2 alloys were vibration-treated in this device for 1.5 hr

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UDC: 539.373:621.787/788