



ABSTRACT

The bibliography of Russian books on power transformers and reactors is a continuation of the bibliography of books on power transformers in the German language, published earlier. It was compiled at accessible Internet addresses for a period from 1924 (F. I. Kholuyanov, *Single-phase and three-phase transformers, 1924 - the first Russian book on transformers*) until April 2020. The purpose of the compilation of published books is to give a historical resume on the topic, which may also be useful to other specialists in their research. Part I of this compilation covers the period from 1924 until 1969.

KEYWORDS

calculation, construction, design, GOST, historical development, power transformers, testing

Books on power transformers in Russian - A bibliography 1924 - 1969

Preface

This is in continuation of the bibliography of books on power transformers in the German language published earlier [1]. To compile a bibliography of Russian

books on power transformers and reactors, we have considered the time period from 1924 (F. I. Kholuyanov, *Single-phase and three-phase transformers, 1924 - the first book in Russian on transformers*) until April 2020.

The bibliography of Russian books on power transformers and reactors has been compiled from accessible Internet addresses for a period from 1924 (F. I. Kholuyanov, single-phase and three-phase transformers, 1924 - the first Russian book on transformers) until April 2020

The bibliography is compiled manually from available Internet addresses. There are a very large number of books in Russian. About half of them are textbooks for universities and technical schools, as well as manuals for workers, often less than 100 pages in volume and not of scientific value. The bibliography includes only the most important textbooks for universities that have become widespread (for example, the book by P. Tikhomirov, *Calculation of transformers*).

Books in the bibliography are grouped in chronological order by year. For each year, the books are listed in alphabetical order by the name of the first author, except for 1959, in which the books are located by the issue number of the Transformers series.

The full names of the authors or their abbreviations and the location of the

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name (before or after the surname) in the bibliography are indicated both on the cover and on the book's title page.

The description of the book is given in this order: author, the title of the book, edition number, the name of the publisher, the city where the book was published, number of pages, and the year.

If the book has been published only once, the edition number is not indicated. When a book has been published repeatedly, and the names of the publisher, city, and / or the number of

pages coincide, the latter is not indicated. Unfortunately, in those cases, not all editions were found. Only the found editions are indicated.

Book titles are in italics in English. In parentheses is the title of the book in the original language (Russian). All other data is also translated into English.

After the description of most books, a hyperlink to the book is given, and in the vast majority of cases, a hyperlink to its electronic resource, which is freely available on the Russian-speaking Internet.

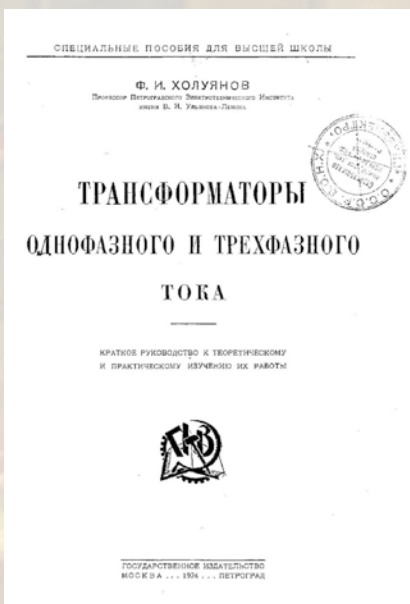
Almost all listed books are provided with excerpts from annotations or brief comments by the authors (in the frame)

Single-phase and three-phase transformers by F. I. Kholuyanov is the first book on transformers published in the Russian language, and it contains a brief theory of transformers and a description of design aspects

Almost all books are provided with excerpts from annotations or brief comments by the authors (in the frame).

A. Power transformers

1924



F. I. Kholuyanov, *Single-phase and three-phase transformers* (Трансформаторы однофазного и трёхфазного тока), Gosizdat, Moscow-Petrograd, 135 pages, 1924; Ed. 4, Gostekhizdat, Leningrad-Moscow, pages 256, 1934; Reprint Moscow, 2013 <https://www.elec.ru/library/nauchnaya-i-tehnicheskaya-literatura/holuyanov-transformatory-toka/>

Fedor Ivanovich Kholuyanov (1879–1936), was the head of the Department of Electrical Machines at the Electrotechnical Institute of Emperor Alexander III (later the Leningrad Electrotechnical Institute of LETI). He authored the first Russian textbooks on electrical machines and transformers. “A guide to the calculation of alternators” of 87 pages was published by him way back in 1913. The first edition of “Single-phase and three-phase transformers” contains a brief theory of transformers and a description of design aspects. Kholuyanov was a professor at LETI.

1929

Milan Vidmar, *Operation of transformers* (Эксплуатация трансформаторов), Book, Leningrad-Moscow, 408 pages, 1929 <https://www.twirpx.com/file/2489055/>

The book covered the following: Cost and efficiency of transformers. Profitability of the lighting transformer. No-load current. Connections. Over currents. Over voltages. Cooling. Various operational problems.

1930

Milan Vidmar, *Theory and operation of electrical machines* (Теория и работа электрических машин), Gostekhizdat, Moscow, 212 pages, 1930 <https://www.twirpx.com/file/335798/>

Theory of electrical machines and transformer. The mechanisation of transformation. Synchronous machines. Asynchronous machine. Induction machines.

1931

Milan Vidmar, *Transformers* (Трансформаторы), GONTI, Moscow, 592 pages, 1931 <https://www.springer.com/la/book/9783034869614>



Milan Vidmar was one of the leading global experts in the field of transformers, having authored some of the best textbooks on electrical machines and transformers, studied by generations of European students. He was the director of several companies –dealing with both power and electrical motors and also the president of the Yugoslav chess federation. His literary heritage is huge - the works on transformers and electrical machines have been translated into all European languages, but how many more chess and philosophical books he wrote! Vidmar was constantly tormented by his conscience that he spent long weeks on chess and other matters, while writing of transformers was waiting. Milan Vidmar’s books translated into Russian were extremely popular in the Russian-speaking world. This was largely due to the popularity of Vidmar as a chess player. His major ideas in transformer designs are still valid.

Any transformer engineer of the older generation had a Vidmar book in his personal library. Nowadays, it is a bibliographic rarity.

1934

G. N. Petrov, *Transformers, Volume 1, Fundamentals of the theory* (Трансформаторы, Том 1, Основы теории), Gostekhizdat, Moscow–Leningrad, 445 pages, 1934, Ed. 2.0, 1956 <https://www.twirpx.com/file/960472/>

Milan Vidmar was one of the leading global experts in the field of transformers, having authored some of the best textbooks on electrical machines and transformers, but he was also a top-class chess player

The book is intended for university students of electrical engineering, as well as for engineers engaged in the production and operation of transformers. Content includes the following: Transformer workflow. Principle of operation of the double-winding transformer. Winding connections. Study of the multi-winding transformer workflow. Auto-transformers and auxiliary transformers. Transformer operation at unbalanced voltages and load. Parallel operation of transformers. Transformer magnetic circuit and magnetisation process. Magnetic scattering. Additional losses in transformers. Short circuit process. Transformer overvoltages.

1935

R. Rikhter, *Electrical machines, Volume 3. Transformers*, a translation from German (Электрические машины, Том 3, Трансформаторы, Пер. с нем), ONTI NKTP USSR, Moscow–Leningrad, 292 pages, 1935
<http://padabum.com/d.php?id=61908>

A quote from the author's preface to the first German edition of book: "A thorough interpretation may seem unnecessary to others ... if he recalls the extensive work on transformers by M. Vidmar. However, I hope to give a lot of new information in my book in a condensed form ... from the field of achievements and calculation of transformers, so that the reader, when comparing with Vidmar's book, will be convinced that neither of the two can completely replace the other."

1936

A. V. Koritskij, *Transformer Design* (Конструирование трансформаторов), Ed. 2.0, ONTI NKTP USSR, Moscow–Leningrad, 300 pages, 1936
<http://em.fea.kpi.ua/index.php/starovinni-posibniki-ta-monografi-ji-z-elektromekhaniki/204-konstruivanie-transformatorov-koritskij>

1938

E. G. Marquardt, *Electromagnetic calculations of transformers* (Электромагнитные расчёты трансформаторов), ONTI NKTP, Moscow–Leningrad, 136 pages, 1938

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Calculation of transformers by A. V. Trambitsky, written in 1938, have remained one of the most comprehensive books on the transformer design calculations of until the mid-1950s



A. V. Trambitsky, *Calculation of transformers* (Расчет трансформаторов), Moscow–Leningrad, Gostekhizdat, 380 pages, 1938
<https://www.elec.ru/files/2020/01/16/trambickiy-av-raschet-transformatorov-ac7dc5ee790.PDF>

As of 1938, one of the most comprehensive books on the transformer design calculations. It contains an extensive bibliography of 181 sources. The appendix contains the standard OST 2524. Power transformers. Definitions. Standard specifications. Tests. The book remained valid until the mid-1950s.

1946

V. A. Karasev, *Theory of electromagnetic processes in windings* (Теория электромагнитных процессов в обмотках), Gosenergoizdat, Moscow–Leningrad, 88 pages, 1946
http://lib.sut.ru/jirbis2_spbgut/index.php?option=com_irbis&view=irbis&Itemid=108&task=set_static_req&bns_string=IBIS&req_irb=%3C.%3EI%3D621.3%2F%D0%9A+21-668965788%3C.%3E

1950

N. I. Bulgakov, *Calculation of transformers* (Расчёт трансформаторов), Gostekhizdat, Moscow–Leningrad, 303 pages, 1950
<https://ru.b-ok2.org/book/2396892/d7352f>

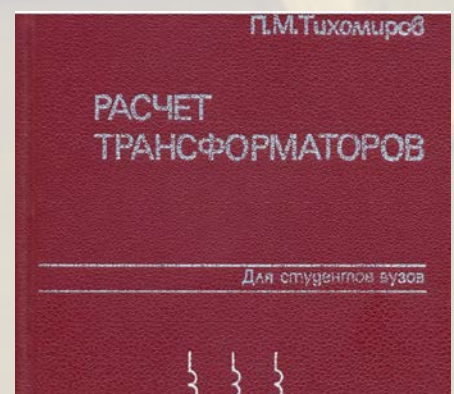
Transformer design theory and calculation examples. Brief descriptions of the design of the main transformer parts. Reference tables for the design calculation of transformers are given.

L. M. Piotrovskij, *Electrical machines* (Электрические машины), Gostekhizdat, Moscow–Leningrad, 528 pages, 1950
<http://padabum.com/d.php?id=23089>

Division two. Transformers, pp. 163-248

1953

P. M. Tikhomirov, *Calculation of transformers* (Расчёт трансформаторов), Gosenergoizdat, Moscow, 254 pages, 1953; Ed. 2, Gosenergoizdat, 432 pages, 1962; Ed. 3, Energy, 456 pages, 1968; Ed. 4, Energy, 544 pages, 1976; Ed. 5, Energoatomizdat, 528 pages, 1986; Ed. 6, Allians, 526 pages, 2009; Allians, 2013; Lenand, 2014
<https://www.elec.ru/library/nauchnaya-i-tehnicheskaya-literatura/tikhomirov-raschet-transform-v/>



The book provides basic information on the design theory of transformers, sets out in detail the methodology for designing power transformers with flat and spatial magnetic systems made of cold-rolled electrical steel, with windings of copper and aluminium wires with oil and air cooling. The book contains the necessary information for the calculation of the design of magnetic systems, windings, cooling systems of modern power transformers and reference materials.

Contains sections: General design issues of transformers. The design of the main transformer parts. Calculation of main dimensions of transformers. Insulation in transformers. Selection and design of transformer windings. Calculation of short circuit characteristics. Calculation of magnetic system of transformer. Thermal calculations. Examples of transformer calculation. Analysis of the influence of the initial calculation data on the characteristics of the transformer. Designing a series of transformers.

Each edition was redesigned in accordance with the latest developments in the field of transformer construction. The book was initially intended for students of electrical engineering and as a teaching aid for a machine design course, but it has become and is still a reference book for engineers involved in the design of transformers around the world. It is also popular with engineers and technicians working in the field of production, operation and repair of transformers.

See also the author's book in 1959.

L. M. Shnitser, *Load capacity of power transformers* (Нагрузочная способность силовых трансформаторов), Gostekhizdat, Moscow–Leningrad, 112 pages, 1953
<https://www.twirpx.com/file/1913706/>

See also 1959 for the author's more popular book.

1957

V. S. Kondakhchan, *Operation of transformers* (Эксплуатация трансформаторов), Ed.2.0, Gostekhizdat, Moscow–Leningrad, 304 pages, 1957
<https://search.rsl.ru/ru/record/01006227395>

M. P. Kostenko, L. M. Piotrovskij, *Electrical machines Part 1 - DC machines. Transformers* (Электрические машины Часть 1. Машины постоянного тока. Трансформаторы), Energy, Leningrad, 464 pages, 1957; Ed. 3, 544 pages, 1972

<https://www.twirpx.com/file/88665/>

1959

E. G. Minsker, *Assembling of the oil-Immersed medium and small transformers* (Transformer Series, Vol. 4) (Сборка масляных трансформаторов малой и средней мощности (Трансформаторы, вып. 4)), Gosenergoizdat, Moscow–Leningrad, 135 pages, 1959

<http://padabum.com/d.php?id=222467>

A. V. Sapozhnikov, *Transformer Design* (Конструирование трансформаторов), Gostekhizdat, Moscow–Leningrad, Ed. 2, 361 pages, 1959

http://em.fea.kpi.ua/images/doc_library/book_old/Konstruirovanie_transformatorov-Sapozhnikov.pdf

The principles and details of the design of power transformers and their individual units are considered, the designs of transformers of various capacities and voltages are described, examples of the development of their parts are presented, and reference material is given.

L. M. Shnitser, *Fundamentals of the theory and load capacity of transformers* (Transformer Series, Vol. 1) (Основы теории и нагрузочная способность трансформаторов (Трансформаторы, вып. 1)), Gosenergoizdat, Moscow–Leningrad, 234 pages, 1959

<http://padabum.com/d.php?id=220665>

The first book of the transformers series (a total of 42 books in the series) sets out in elementary form the basics of the theory of a transformer as an electromagnetic apparatus designed to transmit and distribute electrical energy.

The guide for loading of the transformer and related issues of heating and ageing of the insulation of the windings are considered.

1961

G. V. Aleksenko, *Parallel operation of transformers and auto-transformers* (Transformer Series, Vol.5) (Параллельная работа трансформаторов и автотрансформаторов), Energy, Moscow–Leningrad, 344 pages, 1961; Ed. 2.0, 608 pages, 1967

<http://padabum.com/d.php?id=220660>

The book discusses the conditions of parallel operation of two-winding and three-winding three-phase transformers and auto-transformers, as well as three-phase groups of single-phase units

The second edition of the book is more informative. See 1967.

V. Sh. Anshin, A. G. Krajz, *Assembling of the large power transformers* (Transformer Series, Vol. 6) (Сборка мощных трансформаторов (Трансформаторы, вып. 6)), Energy, Moscow–Leningrad, 464 pages, 1961

<https://ua1lib.org/book/2956051/c1c9b-f?id=2956051&secret=c1c9bf>

S. A. Farbman, A. Y. Bun, *Repair and modernization of transformers* (Transformer Series, Vol.7) (Ремонт и модернизация трансформаторов (Трансформаторы, вып. 7)), Gosenergoizdat, Moscow–Leningrad, 548 pages, 1961

https://www.studmed.ru/farbman-sa-bun-ayu-remont-i-modernizaciya-transformatorov_ffa0295da6e.html

The book discusses the technology of repair and modernisation of transformers of medium and large capacities up to 110 kV inclusive.

The second edition of the book is more informative, see 1966.

1962

M. S. Libkind, *Higher harmonics generated by transformers* (Высшие гармоники, генерируемые трансформаторами), ed. USSR Academy of Sciences, Moscow, 102 pages, 1962

http://books.zntu.edu.ua/book_info.pl?id=147559

1964

S. A. Gorodetskij, *Installation of power transformers (Transformer Series, Vol. 12)* (Монтаж силовых трансформаторов (Трансформаторы, вып. 12)), Energy, Moscow–Leningrad, 512 pages, 1964

<https://almazon.com/p1063303600-montazh-silovyh-transformatorov.html>

1965

G. V. Antonov, F. F. Ovcharov, *Repair of transformer magnetic cores (Transformer Series, Vol. 14)* (Ремонт магнитопроводов трансформаторов (Трансформаторы, вып. 14)), Energy, Moscow–Leningrad, 216 pages, 1965

<http://padabum.com/d.php?id=222470>

V. V. Porudominskij, *Transformers with on-load tap-changers (Transformer Series, Vol. 15)* (Трансформаторы с переключением под нагрузкой (Трансформаторы, вып. 13)), Energy, Moscow–Leningrad, 266 pages, 1965

<http://padabum.com/d.php?id=222462>

The second edition of the book is more informative, see 1974 in “Transformer related”.

1966

S. A. Farbman, A. Y. Bun, *Repair and modernization of transformers (Transformer Series, Vol. 16)* (Ремонт и модернизация трансформаторов) (Трансформаторы, вып. 16)), Energy, Moscow–Leningrad, 627 pages, 1966

<http://padabum.com/d.php?id=220649>

The second edition of the book is more informative, see 1976.

M. Staffl, *Electrodynamic problems in the electrical machines and transformers*, a translation from Czech (Электродинамические задачи в электрических машинах и трансформаторах), Energy, Moscow–Leningrad, 202 pages, 1966

<https://www.twirpx.com/file/2285170/>

1967

G. V. Aleksenko, *Parallel operation of transformers and autotransformers*

(*Transformer Series, Vol. 17*), (Параллельная работа трансформаторов и автотрансформаторов (Трансформаторы, вып. 16)), Ed. 2.0, Energy, Moscow–Leningrad, 608 pages, 1967

<http://padabum.com/d.php?id=220660>

I. N. Popov, S. Y. Genov, *Determination of the optimal dimensions of power transformers* (Определение оптимальных размеров силовых трансформаторов), Energy, Moscow, 96 pages, 1967

https://rusneb.ru/catalog/002676_000027_IRKNB-RU_%D0%98%D0%9E%D0%93%D0%A3%D0%9D%D0%91_HOBBIT_621.31_%D0%9F+58-000000-432614/

1969

L. S. Gerasimova, A. I. Majorets, *Windings and insulation of power oil transformers (Transformer Series, Vol. 19)* (Обмотки и изоляция силовых масляных трансформаторов (Трансформаторы, вып. 19)), Energy, Moscow–Leningrad, 360 pages, 1969

<http://padabum.com/d.php?id=220666>

A. V. Sapozhnikov, *Insulation levels of high voltage electrical equipment (Уровни изоляции электрооборудования высокого напряжения)*, Energy, Moscow, 208 pages, 1969

<https://www.twirpx.com/file/898149/>

As of the end of the 1960s, the principles of normalising the electrical strength of the insulation of transformers, reactors, apparatuses and high-voltage insulators of alternating current used in Soviet energy were set out. Scientific and technical data are systematised and explained, which are the rationale for the accepted test voltages of electrical equipment of voltage classes from 3 to 500 kV and methods for testing the dielectric strength.

Transformer engineering issues (Вопросы трансформаторостроения), Ed. E. A. Mankin, Energy, Moscow, 373 pages, 1969

<https://search.rsl.ru/ru/record/01007307706>

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Authors



Vitaly Gurin graduated from Kharkov Polytechnic Institute (1962) and graduate school at the Leningrad Polytechnic Institute. Candidate of technical sciences in the Soviet scientific system (1970). For 30 years he tested transformers up to 1.150 kV at ZTZ, including the largest one of that time in Europe, and statistically analysed the test results. For over 25 years he was the Executive Director of Trafoservis Joint-Stock Company in

Sofia (the diagnosis, repair and modernisation in the operating conditions of transformers 20 – 750 kV). He has authored about 150 publications in Russian and Bulgarian, and is the main co-author of GOST 21023.



P. Ramachandran started his career in transformer industry in 1966 at TELK, Kerala, a Hitachi Joint venture, in India. He worked with ABB India during 1999–2020. He has more than 50 years of experience in the design and engineering of power products including power transformers, bushings, and tap-changers. He received Bachelor of Science Degree in Electrical Engineering from the University of Kerala, India, and Master of Business Administration Degree from Cochin University, India. He is a Fellow of Institution of Engineers (India), and he represented India in CIGRE Study Committee A2 for transformers during 2002 – 2010.