

BOOK REVIEW — BUCHBESPRECHUNG

Electric Machinery Vol. III. Synchronous Machines

by J. LISKA, with the co-operation of A. MÁNDI. Tankönyvkiadó, Budapest 1955. 332 pp. 320 figs.

The present book written by Professor J. Liska, as the third volume of his comprehensive work on Electric Machinery, was preceded by the publication of Vols. I and II on transformers and d. c. motors, respectively, and Vol. V, written together with several co-authors describing the design principles of electric machinery. The present volume is an excellent textbook dealing with the theory and practical designing of synchronous machines.

As regards the structure of the book three main parts may be distinguished. Chapters I to VIII contain the necessary basic information on the operation of synchronous machines including a detailed treatment on the theory and practical applications of the work diagram and vector diagram, respectively.

The second main part comprises Chapters IX to XIII devoted to winding and wiring problems of synchronous machines. Corollary to this subject matter a discussion on the magnetic circuit is given.

The last part including Chapters XIV to XXIV provides detailed information on characteristic curves of the machine, as well as on the determination of data required for the computation of several characteristics, such as the necessary excitation values, reactances and losses. Chapters on the parallel operation of synchronous generators, on synchronous motors, on hunting phenomena of synchronous machinery as well as on sudden changes in operating conditions (the problem of short-circuits) as well as a detailed description of the testing methods of synchronous machines, together the full design computations of two of them have also been included in this part.

Besides the computation procedure the reader becomes familiar with observed data of these actually constructed machines. Values obtained by computation may thus directly be compared with results of these actually conducted.

Chapter XXV, contributed by A. Mándi, presents original and theoretically well substantiated ideas on the heating problems of synchronous machines including turbo-generators.

The careful selection of subject matter from the very wide and divergent material minute distinction between essential and non-essential topics, between important subjects and subjects less interesting in the practical sense make this outstanding even among foreign publications of similar nature. We refer hereby in the first place to the great comprehensive monographies by Arnold, Richter and Liwshitz. As will be revealed by a closer study of the book, Professor Liska includes, with the accuracy and modesty of an excellent teacher, only such chapters as are essential for satisfying the needs of education and introduces the subject in an advanced form meeting the approval of the practical engineer as well. The omittance of obscuring details contributes to the clearness and at the same time to the usefulness of this handbook. The essential chapters of the comprehensive material have been written by Professor Liska in a systematic, coherent and clear fashion. A new, excellent book of reference of the highest technical standard has thereby been made available to Hungarian electrical engineers.

K. P. Kovács