
This volume contains papers from the XVII Symposium of the International Center for Heat and Mass Transfer on High Temperature Heat Exchangers, held in August 1985 in Dubrovnik, Yugoslavia.

The symposium was organized to focus attention on heat and mass transfer processes associated with high temperature heat exchangers. Understanding of the processes plays an essential and important role in the rapid development of high temperature exchangers for improvement of energy utilization and efficiency of energy conversion in various power and industrial plants.

The objective of the Dubrovnik meeting was to bring together researchers and engineers to exchange information on both basic and applied research and technologies in developing high temperature heat exchangers. Contributed, invited, and general papers were organized into sessions on general basic research areas and on specific fields such as heat recovery and power and industrial plants. The same format has been followed in arranging this volume. Future possibility of new development of advanced high temperature heat exchangers using new ceramics or other high technology is seen as the future strategy of heat exchangers in this symposium.

Y. Mori
N. Afgan
(from Editor's Preface)


Practicing engineers concerned with steam and energy management will find this volume to be an invaluable working tool for solving the day to day problems encountered with steam/condensate systems, as well as a key reference when designing steam production and handling facilities. In addition, students and professors will find it a comprehensive overview of how industry manages steam.

Information contained in the book is balanced between the conceptual and/or qualitative and the quantitative/practical, and cuts across all industries under the assumption that steam is steam regardless of who uses it and where it is used. Only its applications and economics change from one user to another.

The book begins with a description of how steam, condensate, and hot water are used in various industrial, commercial, institutional, and utility sectors, and how steam is generated and distributed. Sections on waste-heat recovery, fluidized-bed boilers, and cogeneration systems—which have become more prominent today compared to a decade ago—should be especially noted.

Following this is a chapter on boiler control theory since the boiler can be viewed as the originating and end point for all steam systems.

After control-theory chapter, the book moves into the hardware arena as it describes in detail the many different types of valves, valve components, regulators, steam traps, and metering devices at the engineers' disposal for managing steam and condensate. In important steam-system valve and controller services, hardware is matched to specific steam-management services singled out for complexity or unusualness of the engineering involved.

Closing the book is a chapter on maintaining steam systems for optimum service and longer life. Note that the appendix offers ten nomographs for estimating steam properties and other critical values for specific situations.

J. Makansi
(from Editor's Preface)