

Steam And Gas Turbine By R Yadav

Everything you wanted to know about industrial gas turbines for electric power generation in one source with hard-to-find, hands-on technical information.

"There is currently no comparable book available that covers both the history and future potential applications of closed-cycle gas turbines. This book is intended for design engineers and engineering managers in the worldwide gas turbine/power generation industry. Upper-level engineering students and schools of engineering would also benefit from this book, as it allows students to work and calculate different cycles and encourages them to make their own innovations."--Jacket.

Select low cost, high quality steam turbines quickly and easily A must for plant engineers looking to stay competitive in today's intense global marketplace., Heinz P. Bloch's Practical Guide to Steam Turbine Technology takes you step-by-step through the art of designing and selecting more reliable, cost-efficient turbomachinery. It includes everything you need to master steam turbine technology--from basic types and controls to the Elliot Shortcut selection method for multivalve, multistage systems. You get fingertip access to critical data on casing design. . .mechanical drive bearings. . .impulse and reaction turbine rotors. . .blade design. . .governors and control systems. . .couplings. . .rotor dynamics. . .reaction vs. impulse steam turbines. . .performance degradation. . .transmission elements. . .shortcut graphical selection methods. . .and

more.

This book takes an operational approach to the turbine relative to its function as part of an overall power plant. It focuses on principles, essential applications, and performance rather than construction, hardware, and design variation. It provides new sections on fuels, combustion, gas properties, and turbines in the gas engine.

Gas-Turbine Power Generation is a concise, up-to-date, and readable guide providing an introduction to gas turbine power generation technology. It includes detailed descriptions of gas fired generation systems, demystifies the functions of gas fired technology, and explores the economic and environmental risk factors Engineers, managers, policymakers and those involved in planning and delivering energy resources will find this reference a valuable guide that will help them establish a reliable power supply as they also account for both social and economic objectives. Provides a concise, up-to-date, and readable guide on gas turbine power generation technology Focuses on the evolution of gas-fired power generation using gas turbines Evaluates the economic and environmental viability of the system with concise diagrams and accessible explanations

This title provides a reference on technical and economic factors of combined-cycle applications within the utility and cogeneration markets. Kehlhofer - and his co-authors give the reader tips on system layout, details on controls and automation, and operating instructions.

THE LATEST STEAM TURBINE BLADE DESIGN AND ANALYTICAL TECHNIQUES Blade Design and Analysis for Steam Turbines provides a concise reference for practicing engineers involved in the design, specification, and evaluation of industrial steam turbines, particularly critical process compressor drivers. A unified view of blade design concepts and techniques is presented. The book covers advances in modal analysis, fatigue and creep analysis, and aerodynamic theories, along with an overview of commonly used materials and manufacturing processes. This authoritative guide will aid in the design of powerful, efficient, and reliable turbines. **COVERAGE INCLUDES:** Performance fundamentals and blade loading determination Turbine blade construction, materials, and manufacture System of stress and damage mechanisms Fundamentals of vibration Damping concepts applicable to turbine blades Bladed disk systems Reliability evaluation for blade design Blade life assessment aspects Estimation of risk

100 Years of Power Plant Development presents the evolution of power plant concepts. The author provides thermodynamic design concepts of a large variety of power plants, with comparisons, based on realistic performance levels. The historical overview extends to plant concepts for the future, and considers the latest advances with improved thermodynamic performance and

emissions/carbon dioxide discharge. Key areas include: Fossil steam turbine power plants, Nuclear power plants, Co-generation plants, Gas turbine peaking power plants, Repowering steam turbines with gas turbines, and Coal gasification and other advanced combined-cycle plants. In addition, the author examines issues such as available fuel sources and developing/applying the best technology for converting the fuel into electric power with the lowest adverse effect on the environment.

Advances in Steam Turbines for Modern Power Plants provides an authoritative review of steam turbine design optimization, analysis and measurement, the development of steam turbine blades, and other critical components, including turbine retrofitting and steam turbines for renewable power plants. As a very large proportion of the world's electricity is currently generated in systems driven by steam turbines, (and will most likely remain the case in the future) with steam turbines operating in fossil-fuel, cogeneration, combined cycle, integrated gasification combined cycle, geothermal, solar thermal, and nuclear plants across the world, this book provides a comprehensive assessment of the research and work that has been completed over the past decades. Presents an in-depth review on steam turbine design optimization, analysis, and measurement Written by a range of experts in the area Provides an overview of turbine retrofitting and

advanced applications in power generation

When installed and operated properly, general purpose steam turbines are reliable and tend to be forgotten, i.e., out of sound and out of mind. But, they can be sleeping giants that can result in major headaches if ignored. Three real steam turbine undesirable consequences that immediately come to mind are: Injury and secondary damage due to an overspeed failure. An overspeed failure on a big steam or gas turbine is one of the most frightening of industrial accidents. The high cost of an extensive overhaul due to an undetected component failure. A major steam turbine repair can cost ten or more times that of a garden variety centrifugal pump repair. Costly production losses due an extended outage if the driven pump or compressor train is unspared. The value of lost production can quickly exceed repair costs. A major goal of this book is to provide readers with detailed operating procedure aimed at reducing these risks to minimal levels. Start-ups are complicated by the fact that operators must deal with numerous start-up scenarios, such as: Commissioning a newly installed steam turbine Starting ups after a major steam turbine repair Starting up a proven steam turbine after an outage Overspeed trip testing It is not enough to simply have a set of procedures in the control room for reference. To be effective, operating procedures must be clearly written down, taught, and practiced—until they become habit.

This book covers the design, analysis, and optimization of the cleanest, most efficient fossil fuel-fired electric power generation technology at present and in the foreseeable

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future. The book contains a wealth of first principles-based calculation methods comprising key formulae, charts, rules of thumb, and other tools developed by the author over the course of 25+ years spent in the power generation industry. It is focused exclusively on actual power plant systems and actual field and/or rating data providing a comprehensive picture of the gas turbine combined cycle technology from performance and cost perspectives. Material presented in this book is applicable for research and development studies in academia and government/industry laboratories, as well as practical, day-to-day problems encountered in the industry (including OEMs, consulting engineers and plant operators).

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