

Selecting A Positive Displacement Pump Using Performance

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Chemical Process Equipment - Selection and Design (Revised 2nd Edition) - James R. Couper 2009-08-11

A facility is only as efficient and profitable as the equipment that is in it: this highly influential book is a powerful resource for chemical, process, or plant engineers who need to select, design or configures plant successfully and profitably. It includes updated information on design methods for all standard equipment, with an emphasis on real-world process design and performance. The comprehensive and influential guide to the selection and design of a wide range of chemical process equipment, used by engineers globally • Copious examples of successful applications, with supporting schematics and data to illustrate the functioning and performance of equipment Revised edition, new material includes updated equipment cost data, liquid-solid and solid systems, and the latest information on membrane separation technology Provides equipment rating forms and manufacturers' data, worked examples, valuable shortcut methods, rules of thumb, and equipment rating forms to demonstrate and support the design process Heavily illustrated with many line drawings and schematics to aid understanding, graphs and tables to illustrate performance data

4. Forsthoffer's Rotating Equipment Handbooks -

William E. Forsthoffer 2006-02-09

Will enhance rotating equipment reliability and

safety throughout the many industries where such equipment is vital to a successful business. The volumes are: pumps; compressors; auxiliary systems; component condition monitoring/ root cause analysis; best practice/ lessons learned.

Variable Speed Pumping - Europump & the Hydraulic Insti 2004-06-10

Prepared by industry experts from the pump, motor and drive industries under the auspices of Europump and the Hydraulic Institute, this reference book provides a comprehensive guide to variable speed pumping. It includes technical descriptions of pumping systems and their components, and guides the reader through the evaluation of different speed control options. Case studies help illustrate the life cycle cost savings and process improvements that appropriate variable speed pumping can deliver. • Authoritative, global reference to Variable Speed Pumping, by Europump and the Hydraulic Institute • Combines the technical knowledge of pump, motor and control systems in one guide • Brings together all the concepts, metrics and step-by-step decision-making support you need to help you decide which VSD strategies are most appropriate • Will help you design and specify pumping applications that minimise life-cycle costs

Positive-displacement Pumps and Fluid Motors -

Warren Elvin Wilson 1950

Heat Transfer XIII - B. Sundén 2014-07-01

This book contains the proceedings of the thirteenth conference in the well established series on Simulation and Experiments in Heat Transfer and its applications

How to Select the Right Centrifugal Pump - Robert X. Perez 2015-07-30

Choosing a centrifugal pump from the countless options available can be daunting, but someone has to make the decision. Many factors -such as the required flow, differential pressure, suction conditions, etc.- must be weighed against the capital costs and cost of energy for the pumps considered. To determine the right pump, you must consider the overall cost of ownership, which includes capital cost, operating costs, and maintenance cost. What good is a low cost pump if it is inefficient or if is costly to maintain? The selection methodology offered in this book focuses mainly on hydraulic design considerations, but it also touches on mechanical design details. Analyzing basic pump hydraulic parameters allows you to quickly determine if a centrifugal pump makes sense for your particular application. If you do decide a centrifugal pump will work for your application, then you need to be able to evaluate the various bids returned by pump manufacturers. A complete chapter is devoted to tabulating quotes from pump manufacturers in order to properly evaluate their bids and select the best overall option.

Electric Motor Drives and their Applications with Simulation Practices - V Indragandhi 2022-05-01

Electric Motor Drives and Its Applications with Simulation Practices provides comprehensive coverage of the concepts of electric motor drives and their applications, along with their simulation using MATLAB and other software tools. The book helps engineers and students improve their software skills by learning to simulate various electric drives and applications and assists with new ideas in the simulation of electrical, electronics and

instrumentations systems. Covering power electronic converter fed drives and simulation model building using all possible software as well as the operation and relevant applications discussed, the book provides a number of examples and step-by-step procedures for successful implementation. Intended for engineers, students and research scholars in industry who are working in the field of power electronics and drives, this book provides a brief introduction to simulation software under different environments. Provides an in-depth analysis of Electric motors and drives, specifically focused on practical approaches Includes simulations of electric drives using best proven software tools like MATLAB and PSIM Details step-by-step approaches for creating and applying simulation of electric drives

Practical Introduction to Pumping Technology - Uno Wahren 1997-12-12

Front Cover; Practical Introduction to Pumping Technology; Copyright Page; Chapter 1. Parameters; Chapter 2. Pump Calculations; Chapter 3. Required Data for Specifying Pumps; Chapter 4. Pump Types; Chapter 5. Specifications; Chapter 6. Pump Curves; Chapter 7. Effects of Viscosity on Pump Performance; Chapter 8. Vibration; Chapter 9. Net Positive Suction Head (NPSH); Chapter 10. Pump Shaft Sealing; Chapter 11. Pump Bearings; Chapter 12. Metallurgy; Chapter 13. Pump Drivers; Chapter 14. Gears; Chapter 15. Couplings; Chapter 16. Pump Controls; Chapter 17. Instrumentation. *Compressor Technology Advances* - Hurler Elliott 2021-02-22

This book describes fresh approaches to compression technology. The authors describe in detail where, why, and how these can be of value to process plants. As such plants have become ever larger and more complex, more technology-intensive solutions have had to be developed for process machinery. The best practices that have emerged to address these requirements are assembled in this book.

Biermann's Handbook of Pulp and Paper - Pratima Bajpai 2018-05-17

Biermann's Handbook of Pulp and Paper: Paper and Board Making, Third Edition provides a thorough introduction to paper and board making, providing paper technologists recent information. The book emphasizes principles and concepts behind papermaking, detailing both the physical and chemical processes. It has been updated, revised and extended. Several new chapters have been added. Papermaking chemistry has found an adequate scope covering this important area by basics and practical application. Scientific and technical advances in refining, including the latest developments have been presented. The process of stock preparation describes the unit processes. An exhaustive overview of Chemical additives in Pulp and Paper Industry is included. Paper and pulp processing and additive chemicals are an integral part of the total papermaking process from pulp slurry, through sheet formation, to effluent disposal. Water circuits with loop designs and circuit closure are presented. The chapter on paper and board manufacture covers the different sections in the paper machine and also fabrics, rolls and roll covers, and describes the different types of machines producing the various paper and board grades. Coating is dealt with in a separate chapter covering color formulation and preparation and also coating application. Paper finishing gives an insight into what happens at roll slitting and handling. The chapter on environmental impact includes waste water treatment and handling, air emissions, utilization and solid residue generation and mitigation . The major paper and board grades and their properties, are described. Biotechnological methods for paper processing are also presented. This handbook is essential reading for Applied Chemists, Foresters, Chemical Engineers, Wood Scientists, and Pulp and Paper technologist/Engineers, and anyone else interested or involved in the pulp and paper industry. Provides comprehensive coverage on all aspects of papermaking Covers the latest science and technology in papermaking Includes traditional and

biotechnological methods, a unique feature of this book Presents the environmental impact of papermaking industries Sets itself apart as a valuable reference that every pulp and papermaker/engineer/chemist will find extremely useful

Agricultural and Horticultural Engineering -

Clifford J Studman 2013-10-22

Agricultural and Horticultural Engineering: Principles, Models, Systems, and Techniques focuses on the developments in agriculture and horticulture, including the role of engineers in employing measures in the management of plants, animals, and machinery. The book first offers information on the process of surveying, including tape, compass, and aerial surveying, leveling, barometric leveling with the aneroid, plane tabling, and electronic distance measurement and electronic total. The text then takes a look at models of the environment, material properties, and the relationship between stress and strain. The publication examines workshop methods and hydraulics. Topics include soldering, electric arc welding, low temperature brazing, welding using oxygen-acetylene apparatus, hydrodynamics, and water supply requirements. The text also reviews electricity and electronics and power and thermal systems, as well as alternating voltage supplies, electrical motors, electrical safety, power and energy consumption, and the fundamental principles of electronics. The manuscript is a dependable reference for engineers and readers interested in agricultural and horticultural engineering.

Fluid Machinery - Heinz Bloch 2020-06-22

Fluid movers are extensively used in the process industries. New machines are specified, designed, manufactured and installed in a way that ensures their safety and reliability. Existing machines may be upgraded or retrofitted during maintenance or repair. This book describes how improved components and better lubricant application provisions, among other experience-based measures,

can safely extend operating life and increase profitability.

Rules of Thumb for Chemical Engineers - Stephen Hall 2012-06-18

Annotation A handbook for chemical and process engineers who need a solution to their practical on-the-job problems. It solves process design problems quickly, accurately and safely, with hundreds of techniques, shortcuts and calculations.

Handbook of Pumps and Pumping - Brian Nesbitt 2006-10-18

Written by an experienced engineer, this book contains practical information on all aspects of pumps including classifications, materials, seals, installation, commissioning and maintenance. In addition you will find essential information on units, manufacturers and suppliers worldwide, providing a unique reference for your desk, R&D lab, maintenance shop or library. * Includes maintenance techniques, helping you get the optimal performance out of your pump and reducing maintenance costs * Will help you to understand seals, couplings and ancillary equipment, ensuring systems are set up properly to save time and money * Provides useful contacts for manufacturers and suppliers who specialise in pumps, pumping and ancillary equipment

Practical Design, Construction and Operation of Food Facilities - J. Peter Clark 2008-09-12

Around the world concerns about cost, efficiency, and safety - employee, product, process and consumer -- have led to changes in the way food plants are planned, constructed and evaluated. From initiation of major capital requests to legal design requirements to project management and plant operations, food engineers and scientists must understand the myriad of requirements and responsibilities of successful food facilities. J. Peter Clark provides that guidance in this complete volume. Included are: A summary of lessons on understanding how management evaluates potential investments and how they can contribute to ultimate shareholder value, and checklists to help

accurately estimate capital and operating costs

Important, and in some cases unique, features of a food plant including focus on food safety. Addresses not only consumer products, but ingredients for consumer products and the concerns of distribution and flexibility that must be considered. Also considered are the support facilities that are equally essential to the safe production of food An effective approach to understanding production lines and optimizing operations during expansion by briefly introducing Goldratt's Theory of Constraints. The book explores the challenges of construction while maintaining safe and sanitary operations An approach and methodology that can be extended beyond the case studies presented in order to effectively plan development processes and make correct equipment selections Project management and plant operations guidance to assist engineers who find themselves in the role of managing a design or construction process project, or of supervising a portion of a plant. Includes suggestions for effectively troubleshooting an unsatisfactory operation Provides real-world insights including guides for proper project estimation, understanding the role and importance of support facilities, maintaining standards while under construction and other vital considerations Includes checklists and proven approaches to guide the reader through the wide range of necessary planning and implementation steps Considers factors for both new plant construction and expansion of existing plants

Forsthoffer's Best Practice Handbook for Rotating Machinery - William E. Forsthoffer 2011-06-03

Forsthoffer summarizes, expands, and updates the content from previous books in a convenient all-in-one volume. This titles offers comprehensive technical coverage and insider information on best practices derived from lessons learned in the engineering, operation, and maintenance of a wide array of rotating equipment.

Hydraulic and Pneumatic Power and Control - Franklin D. Yeaple 1966

Fundamentals of Food Process Engineering -

Romeo T. Toledo 2018-10-09

Written for the upper level undergraduate, this updated book is also a solid reference for the graduate food engineering student and professional. This edition features the addition of sections on freezing, pumps, the use of chemical reaction kinetic data for thermal process optimization, and vacuum belt drying. New sections on accurate temperature measurements, microbiological inactivation curves, inactivation of microorganisms and enzymes, pasteurization, and entrainment are included, as are non-linear curve fitting and processes dependent on fluid film thickness. Other sections have been expanded.

Process Pump Selection - John Davidson 2000

This fully revised and up-dated Second Edition of the highly successful Process Pump Selection eases the daunting task that faces a process industries' engineer employed in the process industries and responsible for the specification, selection, and purchase of process equipment. This volume provides essential guidelines, based on the operational experience of large numbers of plumbing installations over many years on a diverse range of duties and process plants. Process Pump Selection: A Systems Approach will be an invaluable source of information for engineers and others working for user organizations in the process and service sector industries. It will not only be of great assistance to engineers faced with the specification, selection, and procurement of pumps, but will also provide pump manufacturers with a great insight into the problems facing pump users and plant designers. COMPLETE CONTENTS: Pump specification and selection Positive displacement pumps: reciprocating metering Positive displacement pumps: reciprocating special purpose Positive displacement pumps: rotary Centrifugal pumps Centrifugal pumps: special purpose and multistage Common points Sealing considerations Pump and system combined Appendices Index

Pumps - G. K. Sahu 2000

This Book, Written With An Applications-Oriented Approach, Is Divided Into Four Parts. Part I Covers The General Aspects Of Fluid Flow And Pumps Including The Governing Theories Of Fluid Flow. Part Ii Covers The Design And Construction Of Pumps And Auxiliaries, Drives Etc. Part Iii Presents Pump Selection Criteria And Procurement Actions Including Fittings And Maintenance Requirements. Part Iv Includes Miscellaneous Items Like Key To Symbols, Conversion Tables Etc. For Reference. Various Aspects Of Pumps Have Been Explained In Systematic Detail, Starting From Basic Concepts And Going On To Industrial Applications. The Exposition Is Well Illustrated With Diagrams And Solved Examples. With All These Features, This Is An Invaluable Book For Practicing Engineers And Designers. Mechanical Engineering Students Would Also Find It Extremely Useful.

The Handbook of Fluid Dynamics - Richard W.

Johnson 1998-08-18

Providing professionals in the field with a comprehensive guide and resource, this book balances three traditional areas of fluid mechanics - theoretical, computational, and experimental - and expounds on basic science and engineering techniques. Each chapter discusses the primary issues related to the topic in question, outlines expert approaches, and supplies references for further information.

Manual, bioventing principles and practices -

Forsthoffer's Proven Guidelines for Rotating Machinery Excellence - William E. Forsthoffer
2021-12-03

Forsthoffer's Proven Guidelines for Rotating Machinery Excellence draws on Forsthoffer's 60 years of industry experience to get new operatives up to speed fast. Each of the topics covered are selected based on hard-won knowledge of where problems with rotating machinery originate. This easy to use, highly-illustrated book is designed to elevate the competence of entry level personnel to

enable them to immediately contribute to providing optimum rotating machinery reliability for their companies. The first 3 chapters address practical personal rotating machinery awareness, detail how to optimize this awareness to identify "low hanging fruit" safety and reliability improvement opportunities and how to define and implement a cost-effective action plan. The remaining chapters focus on the function of key components in each type of rotating machinery and how to monitor and correct their condition before failure. The last chapter is an RCA (Root Cause Analysis) procedure chapter detailing effective Root Cause Identification before a Failure to prevent a costly failure and the need for a RCFA. Real-life examples are provided from the field of operation and maintenance of rotating machinery, helping readers to implement effectively Includes important advice on monitoring approaches for different types of machines, highlighting differences between working with pumps and compressors A chapter on Root Cause Identification features proven methods to help your organization to prevent machinery failures

Irrigation Theory And Practice - 2Nd Edn - A M Michael 2009-11

It is a comprehensive treatise on Water Resources Development and Irrigation Management. For the last 30 years the book has enjoyed the status of an definitive textbook on the subject. It has now been thoroughly revised and updated, and thus substantially enlarged. In addition to the wholesale revision of the existing chapters, three new chapters have been added to the book, namely,

☐ Lift Irrigation Systems and their Design☐ , Water Requirement of Crops and Irrigation Management☐ , and ☐ Economic Evaluation of Irrigation Projects and Water Pricing Policy☐ .

Operation of Fire Protection Systems - Arthur E. Cote 2003

Fire Science (FESHE)

Slurry Handling - N.P. Brown 1991-12-31

Pump Applications in Wastewater Treatment - Joseph Mace 2016

Non-Newtonian Flow and Applied Rheology - R. P. Chhabra 2011-04-08

This book bridges the gap between the theoretical work of the rheologist, and the practical needs of those who have to design and operate the systems in which these materials are handled or processed. It is an established and important reference for senior level mechanical engineers, chemical and process engineers, as well as any engineer or scientist who needs to study or work with these fluids, including pharmaceutical engineers, mineral processing engineers, medical researchers, water and civil engineers. This new edition covers a considerably broader range of topics than its predecessor, including computational fluid dynamics modelling techniques, liquid/solid flows and applications to areas such as food processing, among others. Written by two of the world's leading experts, this is the only dedicated non-Newtonian flow reference in print. Since first publication significant advances have been made in almost all areas covered in this book, which are incorporated in the new edition, including developments in CFD and computational techniques, velocity profiles in pipes, liquid/solid flows and applications to food processing, and new heat/mass transfer methods and models. Covers both basic rheology and the fluid mechanics of NN fluids - a truly self-contained reference for anyone studying or working with the processing and handling of fluids

Handbook of data on selected engine components for solar thermal applications - Lewis Research Center 1979

Plant Engineer's Reference Book - DENNIS A SNOW 2001-12-17

A plant engineer is responsible for a wide range of industrial activities, and may work in any industry. The Plant Engineer's Reference Book 2nd Edition is a reference work designed to provide a primary

source of information for the plant engineer.

Subjects include the selection of a suitable site for a factory and provision of basic facilities, including boilers, electrical systems, water, HVAC systems, pumping systems and floors and finishes. Detailed chapters deal with basic issues such as lubrication, corrosion, energy conservation, maintenance and materials handling as well as environmental considerations, insurance matters and financial concerns. The editor, Dennis Snow, has experience of a wide range of operations in the UK, Europe, the USA, and elsewhere in the world. Produced with the backing of the Institution of Plant Engineers, the *Plant Engineer's Reference Book*, 2nd Edition provides complete coverage of the information needed by plant engineers in any industry worldwide. Wide range of information will prove to be use to engineers in any industry Covers all the topics necessary to design and develop an engineering plant Will help engineers in industry deal with practical problems in a variety of situations

Meeting the Pump Users Needs - Yong Zhou
2013-10-22

Meeting the Pump Users Needs is a documentation of the 12th International Pump Technical Conference. Pump makers have always understood that their equipment provides an essential service to the pump users. Pumps have been designed and built to satisfy the needs of the user. The main thrust of this book is to share between users, specifiers, and makers their knowledge and experiences leading to better understanding of what the user needs now and would like for the future, and what the designer/maker can provide now and may be able to offer for the future. This book also describes an unusual method of calculating a head generated across a multistage pump when the impeller diameters are changed. The method leads to significantly larger calculated changes of head than predicted from the conventional affinity law approach. This text is a useful reference and source of information for engineering students and those

conducting research on pump manufacturing.

Introduction to Field Methods for Hydrologic and Environmental Studies - Robert R. Holmes 2001

Non-Newtonian Flow in the Process Industries - R. P. Chhabra 1999

Non-Newtonian materials are encountered in virtually all of the chemical and process industries and a full understanding of their nature and flow characteristics is an essential requirement for engineers and scientists involved in their formulation and handling. This book will bridge the gap between much of the highly theoretical and mathematically complex work of the rheologist and the practical needs of those who have to design and operate plants in which these materials are handled and processed. At the same time, numerous references are included for the benefit of those who need to delve more deeply into the subject. The starting point for any work on non-newtonian fluids is their characterisation over the range of conditions to which they are likely to be subjected during manufacture or utilisation, and this topic is treated early on in the book in a chapter commissioned from an expert in the field of rheological measurements. Coverage of topics is extensive and this book offers a unique and rich selection of material including the flow of single phase and multiphase mixtures in pipes, in packed and fluidised bed systems, heat and mass transfer in boundary layers and in simple duct flows, and mixing etc. An important and novel feature of the book is the inclusion of a wide selection of worked examples to illustrate the methods of calculation. It also incorporates a large selection of problems for the reader to tackle himself.

Selected Water Resources Abstracts - 1987

Pump Handbook - Igor J. Karassik 2007-12-18
Rely on the #1 Guide to Pump Design and Application-- Now Updated with the Latest Technological Breakthroughs Long-established as the leading guide to pump design and application,

the Pump Handbook has been fully revised and updated with the latest developments in pump technology. Packed with 1,150 detailed illustrations and written by a team of over 100 internationally renowned pump experts, this vital tool shows you how to select, purchase, install, operate, maintain, and troubleshoot cutting-edge pumps for all types of uses. The Fourth Edition of the Pump Handbook features: State-of-the-art guidance on every aspect of pump theory, design, application, and technology Over 100 internationally renowned contributors SI units used throughout the book New sections on centrifugal pump mechanical performance, flow analysis, bearings, adjustable-speed drives, and application to cryogenic LNG services; completely revised sections on pump theory, mechanical seals, intakes and suction piping, gears, and waterhammer; application to pulp and paper mills

Inside This Updated Guide to Pump Technology • Classification and Selection of Pumps • Centrifugal Pumps • Displacement Pumps • Solids Pumping • Pump Sealing • Pump Bearings • Jet Pumps • Materials of Construction • Pump Drivers and Power Transmission • Pump Noise • Pump Systems • Pump Services • Intakes and Suction Piping • Selecting and Purchasing Pumps • Installation, Operation, and Maintenance • Pump Testing • Technical Data

Applied Fluid Mechanics Lab Manual - Habib Ahmari 2019

Basic knowledge about fluid mechanics is required in various areas of water resources engineering such as designing hydraulic structures and turbomachinery. The applied fluid mechanics laboratory course is designed to enhance civil engineering students' understanding and knowledge of experimental methods and the basic principle of fluid mechanics and apply those concepts in practice. The lab manual provides students with an overview of ten different fluid mechanics laboratory experiments and their practical applications. The objective, practical applications, methods, theory, and the equipment

required to perform each experiment are presented. The experimental procedure, data collection, and presenting the results are explained in detail. LAB Analysis of selected enhancements for soil vapor extraction -

Encyclopedia of Chemical Processing and Design -

John J. McKetta Jr 1996-06-19

Supercritical Fluid Technology: Theory and Application to Technology Forecasting

Chemical Process Design and Simulation: Aspen

Plus and Aspen Hysys Applications - Juma Haydary 2019-01-23

A comprehensive and example oriented text for the study of chemical process design and simulation

Chemical Process Design and Simulation is an accessible guide that offers information on the most important principles of chemical engineering design and includes illustrative examples of their application that uses simulation software. A comprehensive and practical resource, the text uses both Aspen Plus and Aspen Hysys simulation software. The author describes the basic methodologies for computer aided design and offers a description of the basic steps of process simulation in Aspen Plus and Aspen Hysys. The text reviews the design and simulation of individual simple unit operations that includes a mathematical model of each unit operation such as reactors, separators, and heat exchangers. The author also explores the design of new plants and simulation of existing plants where conventional chemicals and material mixtures with measurable compositions are used. In addition, to aid in comprehension, solutions to examples of real problems are included. The final section covers plant design and simulation of processes using nonconventional components. This important resource: Includes information on the application of both the Aspen Plus and Aspen Hysys software that enables a comparison of the two software systems Combines the basic theoretical principles of chemical process and design with real-world examples Covers both processes with

conventional organic chemicals and processes with more complex materials such as solids, oil blends, polymers and electrolytes. Presents examples that are solved using a new version of Aspen software, ASPEN One 9. Written for students and academics in the field of process design, *Chemical Process Design and Simulation* is a practical and accessible guide to the chemical process design and simulation using proven software.

Know and Understand Centrifugal Pumps - L.

Bachus 2003-07-25

Pumps are commonly encountered in industry and

are essential to the smooth running of many industrial complexes. Mechanical engineers entering industry often have little practical experience of pumps and their problems, and need to build up an understanding of the design, operation and appropriate use of pumps, plus how to diagnose faults and put them right. This book tackles all these aspects in a readable manner, drawing on the authors' long experience of lecturing and writing on centrifugal pumps for industrial audiences.