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Die behandelten Themen des technischen Lärmschutzes und des eng mit ihm verbundenen Schwingungsschutzes machen das Buch für Ingenieure zu einer bewährten Wissensquelle. Das gilt sowohl für die tägliche Arbeit als auch für das Studium und die individuelle Wissenserweiterung. Das Fachbuch enthält physikalische Erläuterungen, Bemessungs-, Mess- und Bewertungsmethoden, mit umfangreichen Literatur- und Normenzitaten und ist mit vielen Bildern und Tabellen ausgestattet. Die Darstellungsweise orientiert sich an kompakten Fortbildungsveranstaltungen für Ingenieure. Die Neuauflage stellt eine intensive Überarbeitung und Aktualisierung (insbesondere im Bereich der Messtechnik), eine Erweiterung auf aktuelle Tendenzen (z. B. Adaptronik) jedoch konzeptionelle Fortsetzung des zuletzt 1996 im VDI-Verlag erschienenen Buches dar. Unter dem 1971 bis 1979 geführten Titel "Lärmbekämpfung" ist es in ganz Deutschland seit langem bekannt.

For more than 50 years, the Springer VDI Heat Atlas has been an indispensable working means for engineers dealing with questions of heat transfer. Featuring 50% more content, this new edition covers most fields of heat transfer in industrial and engineering applications. It presents the interrelationships between basic scientific methods, experimental techniques, model-based analysis and their transfer to technical applications.

This popular reference describes the integration of wind-generated power into electrical power systems and, with the use of advanced control systems, illustrates how wind farms can be made to operate like conventional power plants. Fully revised, the third edition provides up-to-date coverage on new generator developments for wind turbines, recent technical developments in electrical power conversion systems, control design and essential operating conditions. With expanded coverage of offshore technologies, this edition looks at the characteristics and static and dynamic behaviour of offshore wind farms and their connection to the mainland grid. Brand new material includes: comprehensive treatment of onshore and offshore grid integration updated legislative guidelines for the design, construction and installation of wind power plants the fundamental characteristics and theoretical tools of electrical and mechanical components and their interactions new and future types of generators, converters, power electronics and controller designs improved use of grid capacities and grid support for fixed- and variable-speed controlled wind power plants options for grid control and power reserve provision in wind power plants and wind farms This resource is an excellent guide for researchers and practitioners involved in the planning, installation and grid integration of wind turbines and power plants. It is also highly beneficial to university students studying wind power technology, renewable energy and power systems, and to practitioners in wind engineering, turbine design and manufacture and electrical power engineering.

Das Buch behandelt die physikalischen und physiologischen Grundlagen, Probleme der Raumakustik und der Meßtechnik (einschließlich der relevanten Normen und Richtlinien), die bei der täglichen Arbeit auf diesem Gebiet benötigt werden. Breiten Raum nehmen Fragen der Schallentstehung, Luft- und Körperschallausbreitung und der Lärminderung ein, wie sie im Maschinenbau, Fahrzeugbau sowie Hoch- und Tiefbau vorkommen. Die einzelnen Beiträge wurden gründlich überarbeitet, aktualisiert und erweitert. Neue Abschnitte: Aktive Lärminderung (Antischall), Numerische Methoden und Schallentstehung bei der Holz- und Metallbearbeitung.

This is the first volume in a major new series comprising the proceedings of the Annual International Industrial Ergonomics and Safety conference - the official conference of the International Foundation for Industrial Ergonomics and Safety Research, held in Cincinnati in June 1989.

This volume is concerned with vibration-free and quiet operation of hydraulic machines. It deals with the problems caused by mechanical and hydraulic excitations in hydraulic machinery (except for transients which are treated in a separate volume). The invited authors from five continents are internationally recognized experts in their fields. The book looks at the fundamentals for analysis of fluid structure systems, structural vibration, shaft rotordynamics and system instability; noise and diagnosis are introduced with examples from practical experience.

There is a driving need for naval professionals to focus on human factors issues. The number of maritime accidents is increasing and the chief cause is human error, both by the designer and the operator. Decreasing crew size, lack of experienced operators, operations in higher sea states and fatigue worsen the situation. Automation can be a partial solution, but flawed automated systems actually contribute to accidents at sea. Up to now, there has been no overarching resource available to naval marine vehicle designers and human factors professionals which bridges the gap between the human and the machine in this context. Designers understand the marine vehicle; human factors professionals understand how a particular environment affects people. Yet neither has a practical understanding of the other's field, and thus communicating requirements and solutions is difficult. This book integrates knowledge from numerous sources as well as the advice of a panel of eight recognized experts in the fields of related research, development and operation. The result is a reference that bridges the communications gap, and stands to help enhance the design and operation of all naval marine vehicles.

In occupational safety and health acts, ordinances, regulations, directives, standards and guidelines, A-weighted sound exposures, varying in level and duration, are traditionally converted to an 8-hour-average sound level by applying the 3-dB exchange rate. Under the prerequisite that the energy equivalent rating level does not exceed 85 dB(A)/8 h, even impulse noise exposures of up to 140 dB are declared harmless. Indeed, the mutual settlement of level and duration

based on the concept of energy equivalence is correct as far as sound energy or physical dose is concerned. However, between this principle and work physiological and work psychological, i.e. ergonomics paradigms, some decisive discrepancies do exist. People react to exposures according to human characteristics rather than 'function' according to the laws of physics as they apply to inert matter. This has been demonstrated by a series of new experimental approaches, in which temporary threshold shifts and their restitution associated with various energy equivalent noise exposures have been measured. Also the impact of various types of loud music has been investigated. In addition to the conventionally determined maximum threshold shift, TTS<sub>2</sub>, and the time it takes to reach the resting hearing level again, the area under the restitution curve, indicate the total physiological costs the hearing has to pay for a preceding sound exposure. This book is an attempt to increase the transparency in existing evaluation methods and – in the interest of pertinent disclosure of risks associated with common procedures – to work towards the elimination of unacceptable simplifications and dangerously erroneous assessments.

This book gives an unparalleled, up-to-date, in-depth treatment of all kinds of flow phenomena encountered in centrifugal pumps including the complex interactions of fluid flow with vibrations and wear of materials. The scope includes all aspects of hydraulic design, 3D-flow phenomena and partload operation, cavitation, numerical flow calculations, hydraulic forces, pressure pulsations, noise, pump vibrations (notably bearing housing vibration diagnostics and remedies), pipe vibrations, pump characteristics and pump operation, design of intake structures, the effects of highly viscous flows, pumping of gas-liquid mixtures, hydraulic transport of solids, fatigue damage to impellers or diffusers, material selection under the aspects of fatigue, corrosion, erosion-corrosion or hydro-abrasive wear, pump selection, and hydraulic quality criteria. As a novelty, the 3rd ed. brings a fully analytical design method for radial impellers, which eliminates the arbitrary choices inherent to former design procedures. The discussions of vibrations, noise, unsteady flow phenomena, stability, hydraulic excitation forces and cavitation have been significantly enhanced. To ease the use of the information, the methods and procedures for the various calculations and failure diagnostics discussed in the text are gathered in about 150 pages of tables which may be considered as almost unique in the open literature. The text focuses on practical application in the industry and is free of mathematical or theoretical ballast. In order to find viable solutions in practice, the physical mechanisms involved should be thoroughly understood. The book is focused on fostering this understanding which will benefit the pump engineer in industry as well as academia and students.

"Acoustics in the Built Environment is an invaluable work of reference for the building professional, covering all aspects of acoustics. It is unique in its range of topics: the environment, transport infrastructure, building design, building systems and buildings in use. Each section has been contributed by an expert in the field, and has been written in the light of

recent developments such as the Environmental Protection Act and the Health and Safety Executive's Noise at Work Regulations for minimizing hearing damage." "The book presents information relevant to the day-to-day work of project design teams in a concise, readily accessible and usable form. Frequent reference is made to appropriate Standards, Acts of Parliament and other prescriptive documents, which can be cited in performance specifications." "Its broad range of subject matter and its ease of use make Acoustics in the Built Environment an indispensable source of information for anyone concerned with building acoustics, whether they are architects, planners, engineers or environmental health officers."--BOOK JACKET.Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

This book describes the fascinating wealth of activities as they occur in the design, construction and commissioning of a chemical plant - a jigsaw puzzle of the work of chemical engineers, chemists, constructors, architects, electrical engineers, process automation engineers, economists and legal staff. The author first takes the reader through the conceptual phase, in which the economic relevance and environmental impact need to be considered and supplemented by accurate estimates of capital requirements and profitability. This phase ends with the choice of an appropriate engineering firm and the conclusion of the contract, after which the reader is guided through all aspects of the implementation phase from the engineering of the chemical plant to commissioning, equipment and material procurement, the erection phase and the successful test run, after which the new facility is handed over to its owner. The book also illustrates many potential sources of errors by means of examples from practice, and how, aside professional skills, teamwork and communication are also absolutely essential to keep such a complex project on track.

In der Zukunft wird es bei der Konzeption von automatisierten Anlagen notwendig sein, nicht nur die technischen Komponenten zu optimieren, sondern von Beginn an Funktionen, Arbeitsinhalte und Verantwortungsbereiche der Menschen gleichberechtigt einzuplanen (dualer Entwurf). In Bereichen, in denen sich Arbeitsplätze mit geringem Arbeitsinhalt abzeichnen, ist es möglich, durch duale Entwurfsverfahren andere Arbeitsgestaltungen zu ermöglichen. Bei der Gruppenarbeit z.B. wechseln die Mitarbeiter ihre Arbeitsplätze untereinander nach Absprache, so daß sich anspruchsvollere mit wenig anspruchsvollen Tätigkeiten abwechseln und insgesamt bessere Arbeitsbedingungen entstehen. Bei weiter fortschreitender Automatisierung entfernt sich der Mensch immer weiter vom eigentlichen Geschehen und übernimmt zunehmend Aufgaben der Prozeßüberwachung und -lenkung. Hier bei ist von besonderem Interesse, wie Arbeitsinhalte in Anlagen zu gestalten sind, so daß die Anzahl der auftretenden Fehler durch ein wirkungsvolles Zusammenspiel von Mensch und Maschine verringert werden. 244 6. Literatur 1. "Bopparder Kreis": Zukünftige Forschungs- und Entwicklungslinien im kombinierten Verkehr; Hrsg.: Studiengesellschaft für den kombinierten Verkehr e.V. (SGKV), Frankfurt 1984 2. Brödner, P.: Fabrik 2000, Berlin 1985 3. Cord, S. u.a.: The Psychology of Human-Computer Interaction, Hillsdale N.J. 1983 4. Henning, K.: Soziale Auswirkungen der Automatisierung. Vorlesungsmanuskript, RWTH Aachen 1986 5. Meyers großes Taschenlexikon, Mannheim 1983 6. Projektträger (BMFT)

"Fertigungstechnik": Autonome Fertigungsinsel, Karlsruhe 1984 7. Taylor, F.W.: Die Grundsätze wissenschaftlicher Betriebsführung, München/Berlin 1919 8. Trapeznikow, V.A.: Man in the Control System.

Structure-Borne Sound" is a thorough introduction to structural vibrations with emphasis on audio frequencies and the associated radiation of sound. The book presents in-depth discussions of fundamental principles and basic problems, in order to enable the reader to understand and solve his own problems. It includes chapters dealing with measurement and generation of vibrations and sound, various types of structural wave motion, structural damping and its effects, impedances and vibration responses of the important types of structures, as well as with attenuation of vibrations, and sound radiation from structures. For the third edition, the author fundamentally revised and newly organized the contents of the work. Nevertheless, the intention has been to preserve the style of the previous editions, namely to focus on the fundamentals enabling the reader to analyse further problems.

Seit seinem ersten Erscheinen vor mehr als 125 Jahren hat sich der "Kohlrausch" zu einem unentbehrlichen Ratgeber und Nachschlagewerk für jeden die Messtechnik anwendenden Wissenschaftler entwickelt. Die 24., neu bearbeitete und erweiterte Auflage soll allen Naturwissenschaftlern, Ingenieuren und fortgeschrittenen Studenten, die sich bei ihrer Arbeit physikalischer Messmethoden bedienen, eine knappe, das Gesamtgebiet der Physik umfassende Darstellung der physikalischen Messtechnik vermitteln. Dabei ist nicht daran gedacht, den Fachmann vollständig über sein Fachgebiet zu informieren. Vielmehr soll dem jeweiligen Fremdfachmann ein Nachschlagewerk geboten werden, das er für messtechnische Probleme außerhalb seines eigenen Spezialgebietes zu Rate ziehen kann. Die gegebenen Informationen sollen in möglichst vielen Fällen ausreichen, um Messmethoden mit mäßigem Aufwand ohne zusätzliches Literaturstudium anwenden zu können. An aufwändige Methoden wird der Leser durch Literaturhinweise herangeführt und auf wesentliche Gesichtspunkte aufmerksam gemacht.

This text covers the design of food processing equipment based on key unit operations, such as heating, cooling, and drying. In addition, mechanical processing operations such as separations, transport, storage, and packaging of food materials, as well as an introduction to food processes and food processing plants are discussed. Handbook of Food Processing Equipment is an essential reference for food engineers and food technologists working in the food process industries, as well as for designers of process plants. The book also serves as a basic reference for food process engineering students. The chapters cover engineering and economic issues for all important steps in food processing. This research is based on the physical properties of food, the analytical expressions of transport phenomena, and the description of typical equipment used in food processing. Illustrations that explain the structure and operation of industrial food processing equipment are presented.

The materials of construction and fabrication of food processing equipment are covered here, as well as the selection of the appropriate equipment for various food processing operations. Mechanical processing equipment such as size reduction, size enlargement, homogenization, and mixing are discussed. Mechanical separations equipment such as filters, centrifuges, presses, and solids/air systems, plus equipment for industrial food processing such as heat transfer, evaporation, dehydration, refrigeration, freezing, thermal processing, and dehydration, are presented. Equipment for novel food processes such

as high pressure processing, are discussed. The appendices include conversion of units, selected thermophysical properties, plant utilities, and an extensive list of manufacturers and suppliers of food equipment.

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 An attempt has been made to make the pedagogy lucid, at the same time blending the elements of mechanics, electronics and information systems in a well-defined way. The book will be very useful for degree and diploma students of mechanical and electronics engineering. Professionals from the machine tool user industry will find the book useful in their activities.

Englische bersetzung der 13. Auflage der Wrmetechnischen Arbeitsmappe. Wichtiges Arbeitsmittel fr wrmetechnische Berechnungen in Kraftwerken und anderen Wrmeenergiebetrieben, in Verfahrenstechnik und Heiztechnik. Die Arbeitsdiagramme ermöglichen eine mhelose und schnelle Ermittlung wichtiger wrmetechnischer Gren in Energiebetrieben. Der Einflu einzelner Parameter und deren Zusammenhnge sind auf einen Blick zu erkennen. Zustzlich sind die zugrundeliegenden Gleichungen fr Berechnungen mit dem Taschenrechner angegeben.

Traditional Rating of Noise Versus Physiological Costs of Sound Exposures to the HearingIOS Press

Ein Schwerpunkt der Neuauflage sind neue Messverfahren für das thermische Verhalten von Werkzeugmaschinen. Dieses wird bei ständig steigenden Vorschubgeschwindigkeiten und Achsbeschleunigungen zunehmend wichtiger. Weitere Schwerpunkte sind die Beurteilung moderner Vorschubsysteme, wobei der Autor besonders auf das Verhalten linearer Direktantriebe und die Verwendung moderner Steuerungen eingeht. Ein abschließendes Kapitel befaßt sich mit dem Geräuschverhalten von Werkzeugmaschinen. Ein Buch für Praktiker und Studenten des Maschinenbaus.

This long-awaited new edition is the complete reference for engineers and designers working on pump design and development or using centrifugal pumps in the field. This authoritative guide has been developed with access to the technical expertise of the leading centrifugal pump developer, Sulzer Pumps. In addition to providing the most comprehensive centrifugal pump theory and design reference with detailed material on cavitation, erosion, selection of materials, rotor vibration behavior and forces acting on pumps, the handbook also covers key pumping applications topics and operational issues, including operating performance in various types of circuitry, drives and acceptance testing. Enables readers to understand, specify and utilise centrifugal pumps more effectively, drawing on the industry-leading experience of Sulzer Pumps, one of the world's major centrifugal pump developers Covers theory, design and operation, with an emphasis on providing first class quality and efficiency solutions for high capital outlay pump plant users Updated to cover the latest design and technology developments, including applications, test and reliability procedures, cavitation, erosion, selection of materials, rotor vibration behaviour and operating performance in various types of circuitry

The Sulzer Centrifugal Pump Handbook takes full account of the progress that has recently been made in pump construction. All the experience gained by CCM-Sulzer and others in pump construction and pump behaviour in systems has been assembled and related to various fields of application. Production areas such as cavitation, erosion, selection of materials, rotor vibration behaviour, forces acting on pumps, operating performance in various types of circuitry, drives and acceptance testing are dealt with in detail. The Handbook is an excellent reference work by one of the world's foremost pump manufacturers. It presents the current state-of-the-art in pump construction and is directed to planners and operating companies alike.

Das Buch behandelt die physikalischen und physiologischen Grundlagen der Technischen Akustik, Probleme der Maschinen- und Raumakustik sowie die akustische Messtechnik. Breiten Raum nehmen Fragen der Schallentstehung, der Luft- und Körperschallausbreitung sowie der Lärminderung ein, wie sie etwa im Schienen- und Straßenverkehr auftreten. Die Beiträge sind gegenüber der Voraufgabe gründlich überarbeitet und erweitert worden. Das Buch schildert damit nicht nur den aktuellen Stand der Technischen Akustik, sondern ist auch Hilfe und Anleitung für Ingenieure zur Bewältigung akustischer Probleme und Aufgabenfelder.

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