1. Record Nr. UNINA9910840944503321

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Titolo	Liquid ring vacuum pumps, compressors and systems [[electronic resource]] : conventional and hermetic design / / Helmut Bannwarth ; translated by Christine Ahner
Pubbl/distr/stampa	Weinheim ; ; [Great Britain], : Wiley-VCH, c2005
ISBN	1-280-51996-7 9786610519965 3-527-60588-6 3-527-60472-3
Descrizione fisica	1 online resource (514 p.)
Disciplina	621.5 621.55
Soggetti	Vacuum technology Vacuum
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Liquid Ring Vacuum Pumps, Compressors and Systems; Foreword; Preface; Preface of the first edition in German language in 1991; Contents; 1 Gas Physics and Vacuum Technology; 1.1 The term ""vacuum""; 1.2 Application of vacuum technology; 1.2.1 Basic operations in process engineering; 1.2.2 Basic fields and worked-out examples for the application of vacuum technology; 1.2.3 Overview of the most important vacuum processes; 1.2.4 Basic designs of apparatus for mass transfer and mass combination; 1.2.5 Limits to the application of vacuum in process engineering 1.3 Operating ranges and measuring ranges of vacuum1.3.1 Vacuum pressure ranges; 1.3.2 Vapor pressure curve of water in vacuum; 1.3.3 Vacuum operation ranges, temperature pressure table; 1.3.4 Total pressure measuring; 1.3.5 Pressure meters; 1.3.6 Definition of terms for vacuum measuring devices; 1.4 Gas flow and vacuum ranges; 1.4.1 Vacuum ranges and types of flow; 1.4.2 Mean free path; 1.4.3 Reynolds number; 1.4.4 Gas flow, suction power, suction capacity; 1.4.5 Flow losses in pipework; 1.4.6 Effective suction capacity of vacuum pumps;

1.4.7 Gas-inflow and outflow on a vacuum chamber
1.4.8 Practice oriented application of the gas flow calculation1.5 Physical states of matter; 1.5.1 The terms gases, vapors, vacuum; 1.5.2 Physical basic principles of ideal gases; 1.5.3 Standard temperature and pressure; 1.5.4 Real gases and vapors; 1.5.5 Phase transitions and their descriptions; 1.6 Mixtures of ideal gases; 1.6.1 Mass composition; 1.6.2 Molar composition; 1.6.3 Volumetric composition; 1.6.4 Ideal gas mixtures and general equation of gas state; 1.7 Gas mixtures and their calculation; 1.7.1 Density of an ideal gas mixture; 1.7.2 Molar mass of gas mixture
1.7.3 Gas constant of an ideal gas mixture1.7.4 Relation between mass proportions and volume percentage; 1.7.5 Gas laws and their special application in vacuum technology; 1.8 Discharge of gases and vapors; 1.8.1 General state equation of gas; 1.8.2 Real gas factor Z; 1.8.3 General gas constant; 1.8.4 The special gas constant depending on the type of gas; 1.8.5 Thermal state equation for ideal gases; 1.8.6 Suction of dry gases and saturated air-water vapor mixture by liquid ring vacuum pumps; 1.8.7 Gases in mixtures with overheated vapors; 1.8.8 Condensation and cavitation
1.9 Change of gas state during the compression process1.9.1 The isothermal compression; 1.9.2 The adiabatic compression; 1.9.3 Adiabatic exponent ; 1.9.4 Especially distinguished changes of state; 1.10 Names and definitions in vacuum technology; 2 Machines for Vacuum Generation; 2.1 Overview of vacuum pumps; 2.2 Description of vacuum pumps and their functioning; 2.2.1 Gas transfer vacuum pumps; 2.2.2 Gas binding vacuum pumps; 2.3 Operating fields of pumps acc. to suction pressure; 2.4 Suction pressure and suction capacity of different pump designs
2.5 Usual designs and combinations of vacuum pumps

Sommario/riassunto

Based on the very successful German editions, this English version has been thoroughly updated and revised to reflect the developments of the last years and the latest innovations in the field.Throughout, the author makes excellent use of real-life examples and highly praised didactics to disseminate his expert knowledge needed by vacuum technology users and engineers in their daily work at industrial plants, as consultants or in design offices. He covers in detail the most modern liquid ring pumps, with chapters dedicated to maintenance, explosion prevention and general procedures for saf