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Nota di contenuto	Cover; Contents; Prologue; About the Authors; Chapter 1. Basic Pump Principles; Introduction; How do pumps work?; Pressure measurement; Atmospheric pressure (ATM); Absolute pressure (psia); Gauge pressure (psig); Vacuum; Pump head; Specific gravity; Pressure measurement; Pressures inside the pump; Chapter 2. NPSH, Net Positive Suction Head; Introduction; Definition of NPSHr (required); Definition NPSHa (available); Chapter 3. Cavitation; Introduction; Vapor pressure; Cavitation; The effects of vapor pressure on pump performance; Cavitation: A practical discussion Review for preventing cavitation Cavitation review; Do something about cavitation!; Chapter 4. The Affinity Laws; Introduction; The Laws; The Affinity Laws and the impeller diameter; What's the practical application of these laws?; Chapter 5. Useful Work and Pump Efficiency; Useful work from a pump; Flow determination; Pump efficiency; Factors that affect the efficiency; Calculating pump efficiency; Chapter 6. Pump Classification; Introduction; Positive displacement pumps; Centrifugal pumps; Conceptual difference; Centrifugal volute pumps; Types of centrifugal pumps; Overhung impeller Impeller between the bearings Turbine pumps; Specific duty pumps; The typical ANSI pump; API (American Petroleum Institute) pumps; Vertical turbine pumps; Non-metallic pumps; Magnetic drive pumps; Canned motor pumps; Pump impellers; Turbine impellers; Conventional

impellers; Suction specific speed, N_{ss} ; Open impellers; Semi open impeller; Totally enclosed impeller; Wear bands; Specific speed, N_s ; Chapter 7. Understanding Pump Curves; Pump performance curves; History; Head versus pressure; H-Q; Pump efficiency; The energy (BHp) curve; The pump's minimum requirements (NPSH); Special design pumps
Family curves Chapter 8. The System Curve; The system controls the pump; The elements of the Total Dynamic Head (TDH); Determining the H_s ; Determining the H_p ; Calculating the H_f and H_v ; The dynamic system; Variable elevations; The happy zone; Dynamic pressures; Variable resistances; Short term resistance changes; Long term resistance changes; Pumps in parallel and pumps in series; Pumps in parallel; Three tips; Pumps running in series; Combined parallel and series pump operation; Chapter 9. Shaft Deflection; Introduction; Operation, design and maintenance; Signs of shaft deflection Interpreting the evidence The sweet zone; The dual volute pump; Chapter 10. Pump and Motor Alignment; Introduction; Types of misalignment; Alignment techniques; Equipment alignment sequence; Coupling alignment; Chapter 11. Bearings; Introduction; Bearing lubrication; Bearing failure; Bearing maintenance; Bearing seals; Chapter 12. Pump Shaft Packing; History; Vegetable fibers; Reciprocating action; Packing; Rotary action; Synthetic fibers; Compression packing; The lantern ring; The packing lubricant; Stages in the life of packing; Chapter 13. Mechanical Seals; Pump packing; History
The mechanical seal

Sommario/riassunto

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.
