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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Pump Wisdom : Problem Solving for Operators and Specialists; Table of Contents; 1. Principles of Centrifugal Process Pumps; Pump performance: Head and flow; Operation at zero flow; Impellers and rotors; The meaning of specific speed; Process pump types; Process pump mechanical response to flow changes; Recirculation and cavitation; The importance of suction specific speed; What we have learned; References; 2. Pump Selection and Industry Standards; Why insist on better pumps; ANSI and ISO versus API pumps; What we have learned; References; 3. Foundations and Base Plates Securing pumps in place-with one exceptionWhy not to install pump sets in the as-shipped condition; Conventional versus pre-filled base plate installations; Epoxy prefilled base plates; How to proceed if there is no access to specialist firms; What we have learned: Checklist of foundation and base plate topics; References; 4. Piping, Stationary Seals, and Gasketing; Pipe installation and support; Sliding supports and installation sequence deserve special attention; Monitoring pipe stress while bolting up; Flange leakage; What to do prior to gasket

insertion

Spiral wound and kammprofile gaskets Pipe, hydraulic tubing, or flexible connections?; Gusseting; Concentric versus eccentric reducers; Vibration problems in piping; What we have learned on piping and gasketing topics; References; 5. Rolling Element Bearings; Bearing selection overview and windage as a design problem; Radial versus axial (thrust) bearings; Oil levels, multiple bearings, and different bearing orientations; Upgrading and retrofit opportunities; Bearing cages; Bearing preload and clearance effects; Bearing dimensions and mounting tolerances; What we have learned; References

6. Lubricant Application and Cooling Considerations Lubricant level and oil application; Issues with oil rings; Pressure and temperature balance in bearing housings; Cooling not needed on pumps with rolling element bearings; Oil delivery by constant level lubricators; Black oil; Lube application as oil mist (oil fog); Desiccant breathers and expansion chambers; What we have learned; References; 7. Lubricant Types and Key Properties; Lubricant viscosities; When and why high film strength synthetic lubricants are used; Lubricants for oil mist systems; What we have learned; References

8. Bearing Housing Protection and Cost Justification Noncontacting bearing protector seals; Contacting bearing protector seals; How venting and housing pressurization affect bearing protector seal performance; Cost justification overview; Advanced bearing housing (bearing protector) seal summary; What we have learned; References; 9. Mechanical Sealing Options for Long Life; Still using packing?; General overview of mechanical seals; All flush plans have advantages and disadvantages; Always obtain the full picture; Seal chamber pumping ring (circulating device) technologies  
Lessons apply to many services

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## Sommario/riassunto

Learn all the basics about pumps in one place. Clearly written by an ace consultant, this manual for operators and specialists in the petroleum industry gives readers a concise overview of the mechanics of various pumps and reviews the specifications to be considered before a pump is purchased and installed. The straight-forward text explains pump hydraulics without need of involved mathematics and provides expert advice on installing centrifugal pumps in process plants. The book also emphasizes the mechanical aspects of pumps as it delves into misunderstandings and oversights on bearings, sea

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