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Nota di contenuto	Compressors and Modern Process Applications; Contents; Preface; Illustration Credits and Photo Acknowledgments; PART I; Chapter 1. Positive Displacement Compressors; 1.1 Reciprocating Compressors; 1.2 Major Components Described; 1.2.1 Crankcase; 1.2.2 Crankshaft; 1.2.3 Connecting Rod; 1.2.4 Crosshead; 1.2.5 Lubrication; 1.2.6 Cylinder Materials; 1.2.7 Cylinder Sizing; 1.2.8 Cylinder Cooling; 1.2.9 Pistons; 1.2.10 Piston Rods; 1.2.11 Packing; 1.2.12 Gaskets; 1.3 Comparison between Reciprocating and Centrifugal Compressors; 1.3.1 Gas Properties and Process Conditions; Gas Analysis Molecular WeightPolytropic Exponent; Flow Rate; Inlet and Discharge Pressure; Temperature; Heat Balance; 1.4 Series and Parallel Operation; Chapter 2. Rotary Compressors as a Category; 2.1 Helical Screw Compressors; 2.2 Overview of Operating Principles and Basic Construction; 2.3 Considerations for Screw Compressor Staging; 2.4 Reasons for Using Screw Compressors; 2.5 Oil-Free Versus Oil-Flooded Twin-Screw Compressors; 2.5.1 Bearings; 2.5.2 Shaft Seals; 2.5.3 Internal Seals; 2.6 Screw Compressor Volume Control; Control by Variable Speed; Bypass; Full-Load/Idling Speed Governor Suction Throttle Control2.6.1 Volume Control for Screw Compressors

Equipped with Oil Injection (Oil-Flooded Compressors); 2.7 Screw Compressor Auxiliaries; 2.7.1 Suction Scrubber and Drain Seal Drum; 2.7.2 Primary Oil Separator and Oil Reservoir Principles of Oil Separation; 2.7.3 Secondary Separator; 2.7.4 Oil Cooler; 2.7.5 Compressor Aftercooler and Discharge Scrubber; 2.7.6 Oil Purifier or Oil Conditioner; 2.8 Issues with H₂S in All Gas Compressors; 2.9 Considerations for Upstream Separators; 2.9.1 Process Example; 2.9.2 Reviewing the Problem and Outlining the Solution Contaminant Removal Design Peculiarities of Self-Cleaning, Reverse-Flow Mist Coalescers; Conventional Equipment Examined; Case Histories Involving KTCs and Claimed "Equivalents"; Gas Analysis and Its Value; Upstream Separator Recommendations Can Be Generalized; Chapter 3. Understanding Centrifugal Process Gas Compressors; 3.1 Where Centrifugal Compressors Excel; 3.2 Centrifugal Compressors, Fans, or Blowers?; 3.3 Centrifugal Compressor Configurations and Components; 3.3.1 Horizontally Split Compressor Casings; 3.3.2 Vertically Split Compressor Casings; 3.3.3 Compression Stages Versus Sections 3.3.4 Compressor Impellers Impeller Geometry; 3.3.5 Impeller Arrangements on Compressor Shafts; 3.3.6 Diffusers; 3.3.7 Internal Labyrinths; 3.3.8 Bearings; 3.3.9 Shaft Seals; Dry Gas Seals and Support Systems: Benefits and Options; Life Cycle Cost Comparison of Dry Gas Versus Wet Sealing Systems; Principles of Dry Gas Seals and Construction Features; Dry Gas Seal Support Systems; Reliable Auxiliaries are Important for Dry Gas Seals; Chapter 4. Power Transmission and Advanced Bearing Technology; 4.1 Couplings for Rotary Positive-Displacement and Centrifugal Compressors 4.1.1 Coupling Functional Parameters Types, and Configurations

Sommario/riassunto

A modern reference to the principles, operation, and applications of the most important compressor types Thoroughly addressing process-related information and a wider variety of the major compressor types of interest to process plants, Compressors and Modern Process Applications uniquely covers the systematic linkage of fluid processing machinery to the processes they serve. This book is a highly practical resource for professionals responsible for purchasing, servicing, or operating compressors. It describes the main features of over 300 petrochemical and refining schematics
