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drives for other AC motors; 7.4 Variable speed drives for DC motors; 7.5 Drive controller algorithms; 7.6 Energy optimizing or "flux optimizing" techniques; 7.7 Power drive systems; 7.8 Integrated motors and drives; Chapter Eight. Control principles for variable speed pumping; 8.1 Methods of controlling a rotodynamic pump; 8.2 Control principles for rotodynamic pumps; 8.3 Speed variation for positive displacement pumps; 8.4 Control principles for PD pumps; 8.5 Implementation of control systems; 8.6 Soft starting and stopping Chapter Nine. Selection process - new systems 9.1 Selection for optimum life cycle cost; 9.2 Flow charts; Chapter Ten. Selection process - retrofitting to existing equipment; 10.1 Justification; 10.2 Motor suitability and de-rating; 10.3 Flow charts; 10.4 Retrofitting a motor mounted VFD; Chapter Eleven. Benefits, drawbacks and operational issues; 11.1 Tangible benefits to the user; 11.2 Additional benefits; 11.3 Potential drawbacks of PWM VFDs; 11.4 Operational issues; 11.5 Power drive system integration; 11.6 Low base speed motors; 11.7 Motor design; Chapter Twelve. Financial justification 12.1 Life cycle cost (LCC) 12.2 Capital cost savings; Chapter Thirteen. Case studies; Introduction; Case study 1; Case study 2; Case study 3; Case study 4; Case study 5; Case study 6; Case study 7; Case study 8; Appendix A1. Electric motors; A1.1 Energy efficiency; A1.2 Efficiency labeling; A1.3 Motor sizing; Appendix A2. Frequency converters; A2.1 Inverter designs; A2.2 Rectifier design; A2.3 Control strategies; A2.4 Factors to be considered in sizing variable frequency drives; Appendix A3. Legal obligations and harmonic suppression; A3.1 European Directives A3.2 United States regulations and standards

Sommario/riassunto

Prepared by industry experts from the pump, motor and drive industries under the auspices of Europump and the Hydraulic Institute, this reference book provides a comprehensive guide to variable speed pumping. It includes technical descriptions of pumping systems and their components, and guides the reader through the evaluation of different speed control options. Case studies help illustrate the life cycle cost savings and process improvements that appropriate variable speed pumping can deliver. Authoritative, global reference to Variable Speed Pumping, by Europump and the Hydraulic Inst
