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S. ILANGO, Senior Lecturer, Department of Mechanical and Industrial Engineering, Caledonian College of Engineering, Sultanate of Oman. Prior to joining academia, he has had more than 30 years of industrial experience in manufacturing hydraulic and pneumatic components and power units, and cylinders. V. SOUNDARARAJAN, Ph.D., Principal, VJBI Janakiammal College of Engineering and Technology, Coimbatore. He received his doctoral degree from IIT Madras. He has more than 28 years of teaching experience in various capacities at leading engineering institutions. He has wide research experience in the field of manufacturing. He has more than 150 research publications, both national and international, to his credit. Book sale: save up to 30% on individual print and eBooks with free delivery. Use promo code SCIENCE30 More detailsHydraulics and Pneumatics: A Technician's and Engineer's Guide serves as a guide to the hydraulic and pneumatic systems operations. It features mathematical content that has been presented in a style understandable even to beginners and non-experts. It has nine chapters that cover both hydraulic and pneumatic machinery, their fundamental principles including safety standards and regulations. The book also features abundant referencing, updated web links, and masterful tables for easier understanding of the concepts covered. The text is written to serve as an introductory reference for novices and students in pneumatics and hydraulics. It is also invaluable and can be used as primary reference for control, manufacturing, mechanical, and electrical engineers, operations managers, and technicians working with hydraulic and pneumatic equipment. Covers both hydraulic and pneumatic machinery, with a practical, practitioner-led approach that does not demand great theoretical and mathematical understanding Thorough and updated coverage of safety standards, helping control engineers and shop floor managers to ensure their operations are in compliance with regulations More abundant referencing, new and updated web-links, look-up tables and graphical keys offer even easier referencing while providing quick access to other related materialsControl, fluid power, manufacturing, mechanical and electro-mechanical engineers, technicians and operations managers working with hydraulic and pneumatic systems and equipment. Students enrolled at lower level college or trade school students taking classes in pneumatics and hydraulics1 Fundamental Principles Industrial Prime Movers A Brief System Comparison An electrical system A hydraulic system A pneumatic system A comparison Definition of Terms Mass and force Pressure Work, energy and power Torque Pascal's Law Pressure Measurement Fluid Flow Temperature Temperature scales Temperature measurement Gas Laws2 Hydraulic Pumps and Pressure Regulation Pressure Regulation Pump Types Gear pumps Vane pumps Piston pumps Combination pumps Loading Valves Pump Problems Filters3 Air Compressors, Air Treatment and Pressure Regulation Compressor Types Piston compressors Screw compressors Rotary compressors Dynamic compressors Air Receivers and Compressor Control Air Treatment Stages of air treatment Filters Air dryers Lubricators Air classification Pressure Regulation Relief valves Non-relieving pressure regulators Relieving pressure regulators Service Units4 Control Valves Graphic Symbols Types of Control Valve Poppet valves Spool valves Rotary valves Pilot-Operated Valves Check Valves Pilot-operated check valves Restriction check valves Shuttle and Fast Exhaust Valves Sequence Valves Time-Delay Valves Proportional Valves Servo Valves Modular Valves and Manifolds Cartridge Logic Valves5 Actuators Linear Actuators Construction Mounting arrangements Cylinder dynamics Seals Rotary Actuators Constructional details Application Notes Speed control Actuator synchronization Regeneration Counterbalance and dynamic braking Pilot-operated check valves Pre-fill and compression relief Bellows Actuator6 Hydraulic and Pneumatic Accessories Hydraulic Reservoirs Hydraulic Accumulators Hydraulic Coolers and Heat Exchangers Hydraulic Fluids Viscosity Pour point Environmental fluids Pneumatic Piping, Hoses and Connections Cost of Air Leaks Silencers Hydraulic Piping, Hosing and Connections Hydraulic and Pneumatic Fuses7 Process Control Pneumatics Signals and Standards The Flapper-Nozzle Volume Boosters The Air Relay and the Force Balance Principle Pneumatic Controllers Process Control Valves and Actuators Flow control valves Actuators Valve positioners Converters I-P converters P-I converters8 Sequencing Applications Pneumatic Limit Switches Logic Elements Timers More Complex Sequences Pressure-Controlled Sequences Modular Sequence Valves Programmable Controllers Distributed Systems9 Safety, Fault-Finding and Maintenance Safety Cleanliness Fault-Finding Instruments Fault-Finding Preventive Maintenance Computer SimulationAppendix: Hydraulic and Pneumatic SymbolsNo. of pages: 248Language: EnglishCopyright: © Butterworth-Heinemann 2011Published: January 28, 2011Imprint: Butterworth-HeinemannBook ISBN: 9780080966755Paperback ISBN: 9780080966748Andrew Parr is an Industrial Control Engineer, recently retired from ASW Sheerness Steel, Sheerness, UK who worked in the steel industry for over thirty years. In 1980 he began specializing in sequence and closed loop control systems using Programmable Controllers (PLCs) with hydraulic and pneumatic actuators. He has written fifteen books on electronics and process control including Logic Designers Handbook, Industrial Control Handbook, Programmable Controllers, Control Engineering, along with many amateur-level books, among them Introduction to Operational Amplifiers. His books have been widely translated into many languages, including Japanese, Polish, and Swedish. He and has presented papers at various international conferences, including ones on "Automation Systems in the Steel Industry" and on "Automated Fault Diagnostics".Former Industrial Control Engineer, Sheerness Steel, UKWrite a reviewThere are currently no reviews for "Hydraulics and Pneumatics" Andrew Parr is an Industrial Control Engineer, recently retired from ASW Sheerness Steel, Sheerness, UK who worked in the steel industry for over thirty years. In 1980 he began specializing in sequence and closed loop control systems using Programmable Controllers (PLCs) with hydraulic and pneumatic actuators. He has written fifteen books on electronics and process control including Logic Designers Handbook, Industrial Control Handbook, Programmable Controllers, Control Engineering, along with many amateur-level books, among them Introduction to Operational Amplifiers. His books have been widely translated into many languages, including Japanese, Polish, and Swedish. He and has presented papers at various international conferences, including ones on "Automation Systems in the Steel Industry" and on "Automated Fault Diagnostics". Customer Reviews, including Product Star Ratings help customers to learn more about the product and decide whether it is the right product for them. To calculate the overall star rating and percentage breakdown by star, we don't use a simple average. 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