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Switches

4.4 Examples of Commercially Available Special Valves 4.4.1 Crossing of Two Piggable Pipes; 4.4.2 Manifolds; 4.4.3 Piggable Loading Facilities; 4.4.4 Drum-loading Valves; 4.5 Pressure Drop in Piggable Valves; 4.6 Stress on Pig Traps; 5 Pipework; 5.1 Requirements for Piggable Pipes; 5.2 Materials for Piggable Pipes; 5.3 Piping Elements; 5.3.1 Pipes; 5.3.2 Pipe Bends; 5.3.3 Tees; 5.4 Pipe Joints; 5.4.1 Flange Connections; 5.4.2 Welded Pipe Joints; 5.5 Example of a Pipe Specification; 5.6 Construction of Piggable Pipes; 5.7 Piggable Hoses; 6 Additional Equipment; 6.1 Pressure-Relief Vessel
6.2 Propellant Tank 6.3 Filters; 6.4 Pumps; 7 Propellants; 7.1 Gaseous Propellants; 7.1.1 Speed Behavior of Gas-Driven Pigs; 7.1.2 Remedial Actions; 7.2 Liquid Propellants; 7.2.1 Properties of Liquid Propellants; 7.2.2 Dimensioning of Liquid-Propelled Pigging Units; 8 Control System; 8.1 Components of the Control System; 8.1.1 Sensors; 8.1.2 Permanent Magnets and Magnet Sensors; 8.1.3 Actuators; 8.2 Operating Modes of the Sequence Control; 8.2.1 Manual Operation; 8.2.2 Enhanced Manual Operation; 8.2.3 Touch-Controlled Operation; 8.2.4 Automatic Operation; 8.3 Examples of Sequence Control
8.3.1 Sequence Control of a One-Pig System 8.3.2 Sequence Control of a Two-Pig-System; 8.3.3 Sequence Control of a Cleaning Procedure; III Applications; 9 Decision Criteria for Pigging; 9.1 General Criteria; 9.1.1 Product - Infrastructure - Technology; 9.1.2 Physical and Chemical Properties of the Products; 9.2 Economic Criteria; 9.2.1 Long Pipeline without Cleaning Procedures; 9.2.2 Omission of Tracing; 9.2.3 Multiproduct Pipe; 9.2.4 Evaluation of the Examples; 9.3 Quality Criteria; 9.4 Environmental Criteria; 10 Cleaning Degree after Pigging; 10.1 Qualitative Classification
10.2 Precalculation for the Cleaning Degree

Sommario/riassunto

Pigs are snug-fitting plugs which are able to perform various maintenance tasks such as cleaning or removing deposits or blockages in pipe and pipeline systems from the inside. A gaseous or liquid propellant is used to push the pig through the system. This strategy avoids rinsing loss of valuable product, provides reduction of adverse environmental impacts, and gains high efficiency for less investment. The book describes clearly and methodically the important basic equipment required for the planning and design of pigging units. Many practical examples are shown for the operation of industr
