



Ascension Hydraulics Training

Industrial Hydraulic Engineering Design-5 Day Course Curriculum Page 1 of 2

- 1) Physics Review
 - a. Pascal's Law
 - b. Hydraulic Power Transmission
 - c. Advantages of Hydraulics
 - d. Force, Work, and Power
- 2) Hydraulic Schematic Symbols
 - a. Pumps
 - b. Motors
 - c. Linear Actuators
 - d. Pressure Control Valves
 - e. Directional Valves
 - f. DIN/Logic Valves
- 3) Component Sizing
 - a. Cylinders
 - b. Motors
 - c. Toggle Mechanisms
 - d. Pumps
 - e. Directional Valves
 - f. Proportional Valves
 - g. Servo Valves
 - h. Reservoirs
 - i. Accumulators
 - j. Pressure Intensifiers
 - k. Heat Exchangers
 - l. Size Fluid Conductors
- 4) Hydraulic Fluids
 - a. Purposes of the Fluid
 - b. Fluid Properties
 - c. Fluid Qualities
 - d. Additives
 - e. Fluid Types

PLEASE NOTE THAT A COURSE CURRICULUM MAY ALWAYS BE MODIFIED TO MAKE THE PRESENTATION MATERIAL AS APPLICABLE AS POSSIBLE

FOR MORE INFORMATION OR TO SCHEDULE A CLASS

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- 5) Fluid Conductors and Seals
 - a. Selection Criteria
 - b. Hose
 - c. Steel Tubing
 - d. Port Connections
 - e. End Connections
 - f. O-Ring Basics
 - g. Dynamic Seals
 - h. Seal Material
- 6) Contamination Control
 - a. Sources of Contamination
 - b. Effects of Contamination
 - c. Measurement of Contamination
 - d. System Cleanliness
 - e. Filtration Products
 - f. Filter Construction
- 7) Hydraulic Power Units
 - a. Overview of HPUs
 - b. Pump Selection
 - c. Cooling
 - d. HPU Accessories
- 8) Complete System Design

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