



## Piston Pumps/Motors and Controls 5-Day Course

### **Description:**

This 5-day course develops operational knowledge of popular fixed, bent-axis and swashplate design piston pumps, motors and their assorted pressure and displacement controls. Maintenance technicians will utilize presented concepts and information to ensure optimized pump performance and life cycles through proper set-up, controller operation and maintenance practices. Engineers will develop their knowledge of pump and motor control selection and sizing, and investigate potential efficiencies and control enhancements through utilization of servo and variable frequency drives (VFD's)

### **Target Audience:**

Advanced, senior plant maintenance technicians and hydraulic system designers and engineers develop their knowledge of fixed and variable displacement piston pumps, motors and controls utilized in open, closed, and semi-closed loop industrial hydraulic systems.

### **Topics:**

Types and characteristics of fixed and variable displacement piston pumps and motors  
Circuit selection criteria for open loop, closed loop or semi-closed loop circuits  
Types and characteristics of open and closed loop pump controls including both hydraulic and electronic pressure and displacement controllers.  
Sizing pumps to meet the flow and pressure requirements of the hydraulic system  
Sizing motors to meet the mechanical speed and torque requirements of the machine  
Open loop pump suction, inlet and case drain condition requirements and calculations  
Low speed, high torque closed loop (LHD) drives - operation and sizing  
Hydraulic fluid cleanliness and condition monitoring requirements for axial piston pumps and motors  
Pump and motor commissioning, setup, control adjustment and troubleshooting  
Classroom lecture, discussions, laboratory exercises and lab demonstrations.  
Approximately 70% lecture and 30% hands-on

### **Prerequisites:**

Completion of ETS' Fundamentals of Hydraulics (FOH) Class

### **Length:**

4.5 days

### **Tuition:**

\$1700.<sup>00</sup>