



LPO System Manual

Introduction

The Sigma Valves LPO System is a stand-alone, compact actuator control system for utilizing line pressure to operate an actuator safety system for remote locations, i.e., single well installations where external supply source is unavailable. The all stainless steel construction makes it suitable for all locations and environments with corresponding seal configurations to meet the requirements for temperature and media compatibility. The overall assembly measures 10 inches tall by 8 inches long by 6 inches deep, making it one of the most compact LPO systems available.

System Components

The LPO system is made up of the following operating components:

1. High Trip High Pressure Sensor - 72HPH
2. Low Trip High Pressure Sensor - 72HPL
3. Velocity Check Valve with Manual Reset 14SVC
4. Needle Valve for Low Sensor Bypass/Override (for start-up)

These above components are manifold mounted on a pilot yoke with stainless steel 3/8" OD x .065 wall interconnecting tubing. A connection from the line/wellhead to be monitored and the connection to the actuator is all that are required. Optional exhaust connection is available standard and may be made if desired.

Operation

The operating principle of the LPO System is based on the admittance of line pressure to the pressure sensors and actuator by means of the Velocity Check which also is the master control valve for blocking the line pressure supply in response to action by either the High or Low Sensor. The sequence of operation is:

1. Make the necessary connections to the system by mounting the system via a 1/2" male connector directly to the bottom of the pilot yoke and the flowline or wellhead port supply source. Connect the actuator to the tubing tee on the high pilot supply side port.
2. To open the actuator, close the needle valve located on the Low Pressure Sensor inlet.
3. Push in on the Velocity Check and hold. Pressure will flow and fill the system thus opening the actuator. When the actuator has completely opened and pressure in the system is stabilized, release the handle on the Velocity Check, The handle will automatically return to the extended position. The Velocity Check will allow small amounts of flow in order to maintain system pressure.
4. When pressure in the flowline has achieved normal operating range, open the Needle valve on Low Pressure sensor to place system in automatic operation mode. No further intervention is required.
5. The system will maintain this state until an abnormal condition occurs in line pressure outside of the established range which will in turn cause a trip by either the High or Low Pressure Sensors. This action will bleed of system pressure which in turn will activate the ball check on the Velocity Check shutting off the supply pressure allowing the activated Pressure Sensor to complete the pressure exhausting cycle and closing the actuator.
6. Upon correction of the abnormal condition, the system may be re-started by following the sequence at step 2 above.

