



DEEP WELL PUMP CONTROL VALVE with PRESSURE RELIEF FEATURE

01/05

Mustang Series

M513-14 or M6513-14 (Globe)
M1513-14 or M61513-14 (Angle)

Operation

The Watts ACV Deep Well Pump Control Valve with Pressure Relief Feature is designed to minimize the surges associated with the starting and stopping of well pumps, and open, relieving excessive pressure, during the pumping cycle. The valve slowly opens and closes as required to control pumping related surges. The pump starts and stops against an open valve.

Pump start up: When the pump is signaled to start, the 4-Way Solenoid is energized and directs fluid and pressure into the cover chamber (above the diaphragm), and relieves fluid and pressure from the power chamber (below the diaphragm). The fluid and pressure relieved from the cover chamber is vented to atmosphere or available floor drain. The valve closes at an adjustable rate, gradually admitting pumping pressure into the distribution system. Rate of valve closure is controlled by the adjustable closing speed control, which restricts the speed at which fluid and pressure evacuate the power chamber. The valve remains closed during the pumping cycle.

Pressure Relief Feature: During the pumping cycle, the valve acts as a pressure relief valve. The valve, which is closed during the pumping cycle, senses header pressure and quickly opens when header pressure exceeds the pilot setting, relieving excess pressure. When header pressure is lowered below the pilot setting, the valve closes.

Pump shutdown: When the pump is signaled to shut-off, the 4-Way Solenoid is de-energized, and directs fluid and pressure into the power chamber (below the diaphragm), and relieves fluid and pressure from the cover chamber (above the diaphragm). The fluid and pressure relieved from the cover chamber is vented to atmosphere or available floor drain. The valve opens at an adjustable rate, gradually reducing pumping pressure, allowing the system check valve to slowly close. Rate of valve opening is controlled by the adjustable opening speed control, which restricts the speed at which fluid and pressure evacuate the cover chamber. When the valve reaches the full open position, the limit switch is actuated, turning the pump off.

Manual Operation: Engaging the Solenoid Manual operator simulates power to the solenoid, manually closing the main valve. Disengaging the Solenoid Manual operator returns the valve to the open position.

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Installation Guidelines

- Prior to installation, flush line to remove debris.
- Install valve horizontally “in line” (cover facing UP), so flow arrow matches flow through the line. Avoid installing valves 6” and larger vertically. Consult factory **prior** to ordering if installation is other than described.
- Install inlet and outlet isolation valves. **NOTE:** When using butterfly valves, insure disc does not contact control valve. Damage or improper valve seating may occur.
- Provide adequate clearance for valve servicing and maintenance.
- Provide adequate drain for cover chamber and power chamber discharge. Consult “Valve Cover Capacity” chart on appropriate main valve Engineering Bulletin.
- Install pressure gauges to monitor valve inlet and outlet pressure.
- Connect Solenoid and Limit Switch to appropriate pump control panel locations and power source in compliance with local electrical codes.

Other Watts ACV Pump Control Valves

M113-21 / M6113-21	Pump Control Valve
M113-19 / M6113-19	Pump Control Valve with Backpressure Feature
M113-29 / M6113-29	Pump Control Valve with Pressure Reducing Feature
M113-41 / M6113-41	Pump Control Valve with Rate-of-Flow Feature
M513-5 / M6513-5	Pump Control Valve
M513-AK / M6513-AK	Pump Control Valve with High Capacity Pilot System
M513-6 / M6513-6	Deep Well Pump Control Valve