MODELS 106-DW / 206-DW
DEEP WELL PUMP CONTROL VALVE – DOUBLE CHAMBER

KEY FEATURES

- Prevents pump starting and stopping surges
- No energy loss while pump is running
- Separate opening and closing speed controls
- Discharges initial air/water silt to waste, on well applications
- Discharges stagnant water at start-up from dormant wells

PRODUCT OVERVIEW

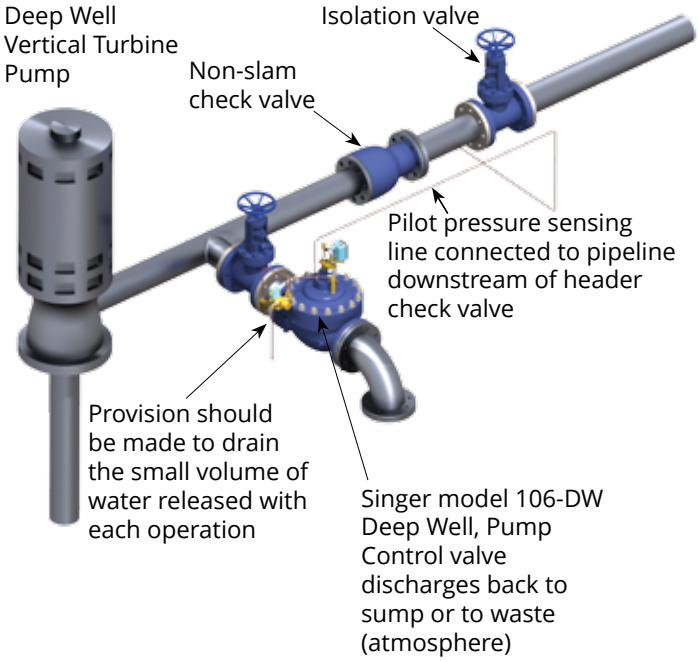
The 106-DW and 206-DW deep well pump control valves are installed in a tee between the pump discharge and the check valve.

The valve is normally open, and, on pump start-up, a pilot solenoid is energized to start closing the valve at a rate governed by the closing speed control.

Initially, the valve discharges air, water and sand to waste. The open valve discharges all pump flow. As the valve closes slowly, flow is transferred to the main line smoothly, increasing the pipeline flow without surges. When the valve is fully closed, all pump flow is in the pipeline, with no control valve losses.

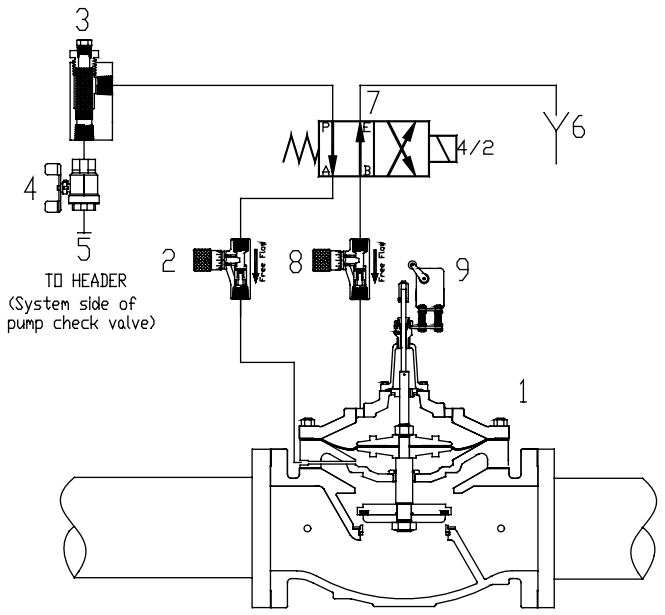
When shut-down is required, the pilot solenoid on the valve is de-energized to commence opening. The pump is kept running while the valve slowly opens. Increasing proportion of the flow is diverted to waste with less passing through the check valve, until all flow is diverted through the nearly fully open DW valve. The pipeline check valve closes quietly without surges. When the DW valve is almost fully open, a stem mounted cam triggers the limit switch to stop the pump.

TYPICAL APPLICATION



SCHEMATIC DRAWING

1. Main Valve - 106-PT or 206-PT
2. Closing speed control
3. Strainer - 40 mesh stainless steel screen
4. Isolation Valve
5. Connection to the pipeline system side of header check valve - complete in the field
6. Exhaust to drain - complete in the field
7. Solenoid Valve - four way, NEMA 4
8. Opening speed control
9. Model X129 Limit Switch Assembly - NEMA 4, SPDT



Schematic A-7514C

SELECTION SUMMARY

1. The Singer model DW deep well pump control valve is sized to ensure that the pump discharge pressure is less than the system static pressure when the pump starts; that the main check valve will remain closed and no surges will be generated.
2. From the pump performance curve, determine the pump flow when the pressure at the pump discharge is 80% of the static pressure against the check valve. When the pump is discharging at full start-up flow, the combined losses of the DW control valve, the piping and the discharge losses must be less than 80% of the static pressure.
3. For pump control other than deep well applications - by-pass control - the discharge from the DW control valve can be returned to the wet well, tank or even the pump suction header. Providing there is sufficient static differential pressure (e.g., 70 to 80% of the pumping differential pressure) the DW control valve should be considered preferable to a BPC, in-line booster pump control valve because of reduced sizing and operating benefits.
4. Refer to the 106 and 206 performance curves, page 231, angle or globe style (straight lines) (see Technical & Sizing Information section, page 231) and select the smallest size with the pressure drop that is acceptable. Bulletins 106-PT(C) and 206-PT(C) (see Main Valves section, page 28) provide / specifications and details of construction of the main valves. Standard configuration provides for NEMA 4 watertight enclosures for the Honeywell model OP-AR, SPDT limit switch and the ASCO solenoid with 120 VAC / 60 Hz (or 220 VAC / 50 Hz or 240 VAC / 60 Hz) coil. For other electrical service or higher pressure ratings consult with Singer Valve. A manual override is available upon request. Other functions may be combined with DW valves, e.g. model 106-DW-RPS, pump control with pressure sustaining feature.

STANDARD MATERIALS

Standard materials for pilot system components are:

- ASTM B-62 bronze or ASTM B-16 brass
- AISI 303 /316 stainless steel trim

Refer to Electronic Control section (SPC product), see page 203, and consult Singer Valve for pump control panel options.

ORDERING INSTRUCTIONS

Refer to page 244 for the order form and ordering instructions.

Additionally, include the following information for this product:

1. Double chamber (106) or (206)
2. Solenoid voltage
3. Maximum inlet pressure

106-DW	Flow Coefficient C_v (See 106-PT in Main Valve section for other valve data)			
Size (inches)	2 in	2-1/2 in	3 in	4 in
Size (mm)	50 mm	65 mm	80 mm	100 mm
C_v[1] - Globe	55	80	110	200
K_v[2] - Globe	13	19	26	47
C_v[1] - Angle	61	90	135	230
K_v[2] - Angle	15	21	32	55

106-DW	Flow Coefficient C_v (See 106-PT in Main Valve section for other valve data)							
Size (inches)	6 in	8 in	10 in	12 in	14 in	16 in	20 in	24 in
Size (mm)	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	50 mm	600 mm
C_v[1] - Globe	460	800	1300	2100	2575	3300	5100	7600
K_v[2] - Globe	110	190	310	500	610	780	1210	1800
C_v[1] - Angle	520	950	1400	2400	-	3000	-	-
K_v[2] - Angle	123	225	332	570	-	710	-	-

206-DW	Flow Coefficient C_v (See 206-PT in Main Valve section for other valve data)			
Size (inches)	4 in	6 in	8 in	10 in
Size (mm)	100 mm	150 mm	200 mm	250 mm
C_v[1] - Globe	150	250	505	985
K_v[2] - Globe	36	60	120	230
C_v[1] - Angle	150	250	580	-
K_v[2] - Angle	36	60	138	-

206-DW	Flow Coefficient C_v (See 206-PT in Main Valve section for other valve data)									
Size (inches)	12 in	16 in	18 in	20 in	24 x 16 in	24 x 20 in	28 in	30 in	32 in	36 in
Size (mm)	300 mm	400 mm	450 mm	500 mm	600 x 400 mm	600 x 500 mm	700 mm	750 mm	800 mm	900 mm
C_v[1] - Globe	1550	2200	3300	3400	3500	5100	7800	7800	7900	8000
K_v[2] - Globe	370	520	780	810	830	1210	1850	1850	1870	1900
C_v[1] - Angle	-	-	-	-	-	-	-	-	-	-
K_v[2] - Angle	-	-	-	-	-	-	-	-	-	-

*C_v = USGPM at 1 psi pressure drop

**K_v = L / s at 1 bar pressure drop

($Q=C_v\sqrt{\Delta P}$)