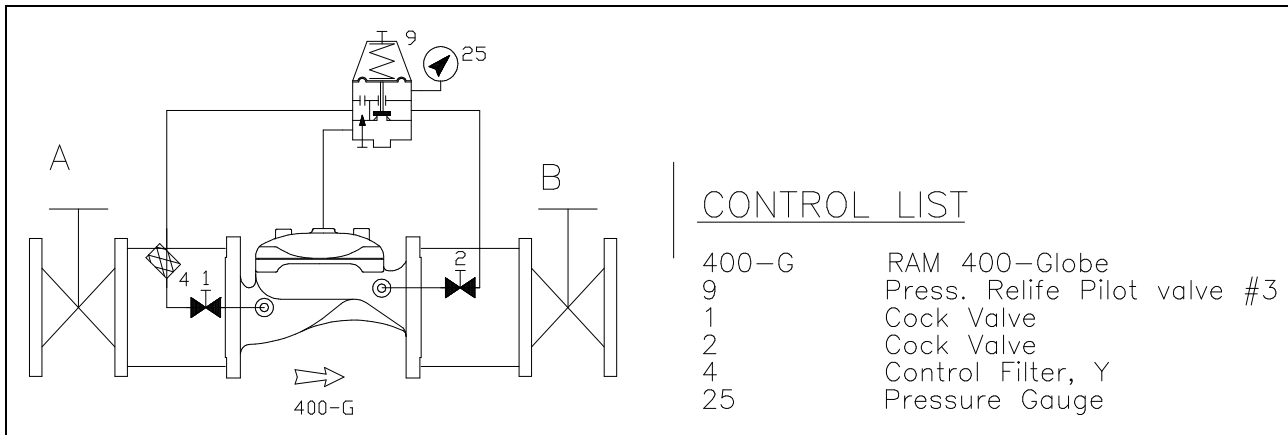


PRESSURE SUSTAINING VALVE

■ MAINTENANCE ■ OPERATION ■ INSTALLATION



DESCRIPTION

Model 430 pressure sustaining valve is an automatic control valve designed to relieve excess pressure or sustain a minimum upstream back-pressure.

It is a pilot controlled, hydraulically operated diaphragm type globe or angle 405 valve.

The pressure regulating pilot senses upstream pressure and modulates open or closed, causing the main valve to throttle. The pressure regulating pilot has an adjusting screw to preset the desired pressure, and a closing speed control needle valve.

When upstream pressure rises above the pilot setting, the pilot and the main valve modulate to open to relieve main line pressure and maintain pilot setting pressure. When upstream pressure falls below the pilot setting, pilot and main valve throttle close to maintain the preset pilot setting pressure. Pressure relief / sustaining pilot are stamped with number 3 on the side of the pilot body.

INSTALLATION

1. Allow enough room around the valve assembly for any adjustments and future maintenance/disassembly work.
2. Thoroughly flush the pipeline to remove any dirt, scale, debris, etc. - failure to do this may result in the valve being inoperable.
3. Isolation valves A and B should be installed upstream and downstream of the Bermad control valve to allow future maintenance operations.
4. Install the valve in the pipeline with the valve flow arrow on the body casting in the proper direction. Use the lifting eye provided on the main valve cover for raising and lowering the valve. For best performance, install the valve horizontally with the cover up. Ensure that the valve is position so that the diaphragm assembly can be easily removed for future maintenance.
5. After installation, carefully inspect/correct any damaged accessories, piping, tubing or fittings.

ON LINE STATIC TEST PROCEDURES

OPEN VALVE: STATIC TEST

1. Close cock valves 1 and 2 to isolate the pilot control system. This prevents dirt exposure in the control loop.
 2. Remove the cover plug on the main valve cover.
- Caution:** This will allow the valve to fully open. Make sure that this condition does not cause system damage.
3. Check for leaks at the flange connection, fittings etc.

CLOSED VALVE: STATIC TEST

1. Close cock valve 2 and open cock valve
2. Vent any trapped air in the main valve cover by loosening the tube fitting at the highest point on the cover. This will trap the main valve in a closed position while the pipeline is pressurized.
3. Check the valve cover and diaphragm for leaks, and tighten bolts if necessary.

START-UP OPERATION

Note: Ensure upstream pressure is available by starting a pump and opening upstream gate valve. Create the desired valve operating pressure at the valve inlet, such as opening a bypass upstream of the valve. Use gauge 25 for pressure indication.

1. Close the main valve by fully turning the adjusting screw CW on the pressure relief pilot valve (9).
2. Open cock valve 1 and the needle valve (only pilot valve [9]) is factory set at a one to one-and-a-half turns. Turn the needle valve clockwise - to reduce the closing rate speed of the main valve - or vice versa.
3. Fully open downstream isolating valve B; the main valve will remain closed.
4. Slowly turn the adjusting screw counter clockwise (CCW) on the pressure sustaining pilot (9) until the main valve begins to open. (Valve opening may be indicated by a slight drop in gauge pressure) Tighten the locknut on the adjusting screw.
5. Cycle valve to check operation. An increase in upstream pressure above the set point will open the valve. A decrease in upstream pressure below the set point will close the valve, readjust the pilot as required. (CCW will decrease and CW will increase the pressure setting).

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TROUBLESHOOTING

SYMPTOM

Valve fails to open.

CAUSE

1. Excessive pilot (9) spring compression
2. Needle valve (21) opening too wide.
3. Insufficient inlet pressure.
4. Cock valve (2) closed.

REMEDY

1. Turn the adjusting screw CCW on pilot (9) until the valve opens.
2. Reduce needle valve opening.
3. Check / create inlet pressure.
4. Open cock valve (2).

Valve fails to close.

1. Filter (4) blocked.
2. Cock valve (1) closed.
3. Needle valve (21) on pilot (9) blocked or too tightly closed.
4. Insufficient pilot (9) spring compression.
5. Debris trapped in main valve.

1. Remove filter cap and screen to clean.
2. Open cock valve.
3. Open needle valve on pilot (9) and readjust by one to one-and-a-half turns on.
4. Turn adjusting screw CW on pilot (9) until the valve closes.
5. Remove and inspect diaphragm assembly. Check seat area.

Valve fails to regulate.

1. Air trapped in main valve cover.
2. Needle valve (21) on pilot (9) not properly adjusted.

1. Loosen cover tube fitting at its highest point and allow the air to escape. Re-tighten.
2. Readjust needle valve one to one-and-a-half turns on.

