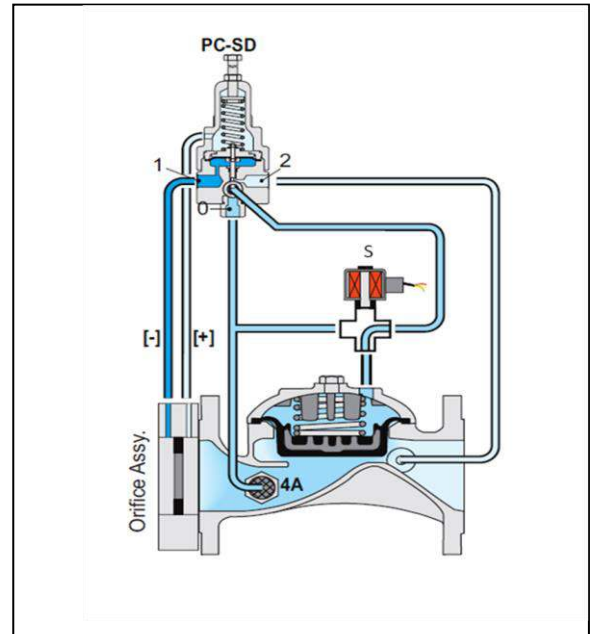## Flow Control Valve with Solenoid Control
(Sizes 3"- 12"; DN80-400)

Description:
The BERMAD Flow Control Valve with Solenoid Control
is a hydraulically operated, diaphragm actuated control
valve that controls system demand to a preset maximum
flow rate. It either opens or shuts in response to an
electric signal.

Installation:
1. Ensure enough space around the valve assembly for future maintenance and adjustments.
2. Prior to valve installation, flush the pipeline to insure flow of clean fluid through the valve.
3. For future maintenance, install Isolation gate valves upstream and downstream from Bermad control valve.
4. Install the valve in the pipeline with the valve flow direction arrow in the actual flow direction.
5. The orifice assembly should be attached to the valve inlet flange, with a resilient gasket between them. Determine tightening bolts length according to flanges, gaskets and orifice assembly thickness.
    Note: if the valve end connections are Thread, then the orifice assembly is already connected to the valve.
6. Install the orifice assembly with the flow-arrow in the designed flow direction and confirm connection of the sensing ports, marked [+] and [-], according to control drawing below.
7. For best performance, it is recommended to install the valve horizontally and upright.
8. Cross-Check solenoid specifications with design requirements and solenoid/coil label.
9. Ensure approved cable protection. Confirm that the wires data meet solenoid specifications.
    Note: Energizing the solenoid coil when it is not fixed in its place, is dangerous and might burn the coil.
10. After installation carefully inspect/correct any damaged accessories, piping, tubing, or fittings.

Commissioning & Calibration:
1. Confirm that the In-line filter (4A) arrow direction is in the valve flow direction.
2. Allow the valve to start regulation by using the solenoid manual override or by: Operating the solenoid.
3. Open fully the upstream isolating valve and slowly open the downstream isolating valve, to fill-up, carefully, the consumers' line downstream from the Valve.
4. Vent air from the valve's control loop by loosening cover tube fitting at the highest point, allowing all air to bleed. Then Retighten the tube fitting.
5. The Model IR- 470-55-RUb is factory set according to the design maximum flow request. The set flow is marked on the pilot label. Allow the flow inspected in the system to stabilize, meeting the marked set flow.
6. If the set pressure is either different from the design or the requirements have been changed, change settings according to the following:
    6.1. Unlock the pilot locking nut and slowly turn the pilot adjusting screw Clock-Wise to increase the set Flow and Counter Clock-Wise to decrease it. Allow the IR- 470-55-RUb to react and the flow to stabilize.
    6.2. After the Flow is stabilized lock the pilot nut and open fully the downstream isolating valve.
7. Check valve solenoid control feature by De-Energizing & Energizing the solenoid to close & open the valve.

Trouble-Shooting:

Symptoms	Cause	Remedy
Valve fails to open	1. Not sufficient inlet pressure 2. Not sufficient flow 3. Adjusting screws 4. Solenoid functioning.	1. Check for sufficient inlet pressure. 2. Create demand/flow, confirm pilot setting. 3. Check that the Pilot adjusting screw is not loose. 4. Check solenoid power supply, coil & Manual Override Handle position.
Valve fails to close	1. Control circuit is clogged. 2. Solenoid functioning. 3. Debris. 4. Diaphragm.	1. Check for any debris trapped in the valve control circuit. 2. Check solenoid power supply, coil & Manual Override Handle position 3. Check for any debris trapped in the valve body. 4. Check diaphragm is not leaking.
Valve fails to regulate	1. Not sufficient inlet pressure 2. Not sufficient flow. 3. Solenoid functioning. 4. Pilots setting. 5. Air trapped in the control-chamber.	1. Check for sufficient inlet pressure 2. Create demand/flow, confirm pilot setting. 3. Check solenoid power supply, coil & Manual Override Handle position 4. Check Pilot setting. 5. Release air trapped in the control chamber by loosening cover tube fitting at the highest point.

Preventive Maintenance:

1. System operating conditions that effect on the valve should be checked periodically to determent the required preventative maintenance schedule.
2. Maintenance instructions:
   2.1. Tools required:
      2.1.1. Metric and imperial wrenches
      2.1.2. Anti-seize grease
      2.1.3. Visual inspection to locate leaks and external damages
   2.2. Functional inspection including: closing, opening and regulation.
   2.3. Close upstream and downstream isolating valves (and external operating pressure when used)
   2.4. Once the valve is fully isolated vent pressure by loosening a plug or a fitting.
   2.5. Open the screw nuts and remove the cover unit from the valve body. Disassemble necessary control tubs.
   2.6. It is highly recommended to stock a reserve parts assembly for each size. This allows minimum system field work. And system down time.
   2.7. Disassemble the cover and examine the inside parts carefully for signs of wear, corrosion, or any other abnormal conditions.
   2.8. Replace worn parts and all the Elastomers. Lubricate the bolts and screws threads with Anti seize grease.
   2.9. Winterizing /freezing prevention: drain the valve & the valve accessories (pilot, solenoid) on time.

Spare Parts

Bermad has a convenient and easy to use ordering guide for valve spare-parts and control system components.
For solenoid valves refer to model and S/N on solenoid tags.