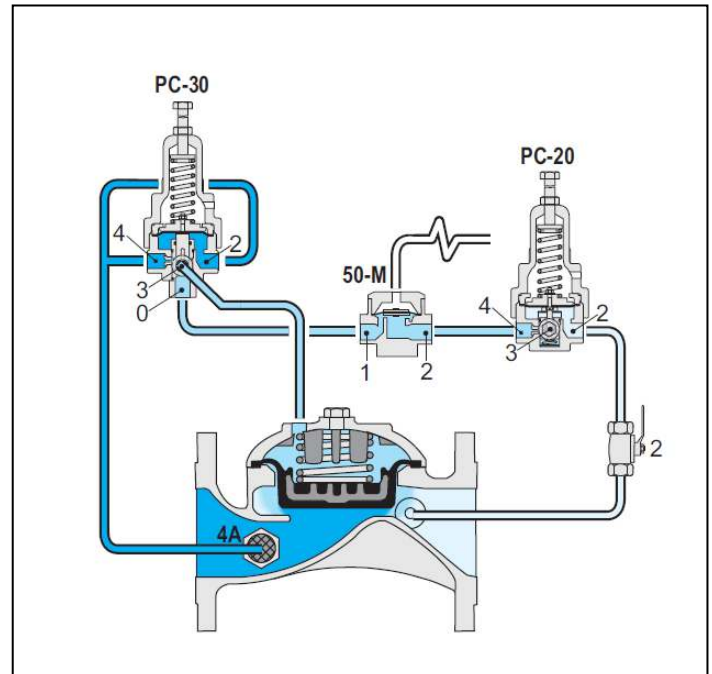


## Pressure Reducing & Sustaining Valve with Hydraulic Control

(Sizes 1.5"- 4"; DN40-100)

### Description:

The BERMAD Model IR-423-50-R Pressure Reducing and Sustaining Valve is a hydraulically operated, diaphragm Actuated control valve with two independent functions. It sustains minimum preset upstream pressure regardless Of fluctuating flow or varying downstream pressure, and it Prevents downstream pressure from rising above maximum Preset regardless of fluctuating flow or excessive upstream pressure, and it either opens or shuts in response to a remote pressure command.



### 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. For best performance, it is recommended to install the valve horizontally and upright.
6. After installation carefully inspect/correct any damaged accessories, piping, tubing, or fittings.

### Commissioning & Calibration:

1. Confirm that the In-line filter arrow [4A] direction is in the valve flow direction.
2. Confirm that the cock valve (2) is open (handle parallel to cock-valve body).
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 control loop by loosening cover tube fitting at the highest point, allowing all air to bleed. Then Retighten the tube fitting.
5. The IR-423-50-R is factory set according to the design. The set pressure is marked on each of the pilot's label.
  - 5.1. Pressure Sustaining Pilot [PSP]: the pilot with ports 2&4 connected to the valve upstream.
  - 5.2. Pressure reducing Pilot [PRP]: the pilot with port 2 connected to the valve downstream.
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 PRP locking nut and slowly turn the pilot adjusting screw Clock-Wise to increase set pressure and Counter Clock-Wise to decrease it. Allow the 423-50-R to react and the downstream pressure to stabilize.
  - 6.2. Close the upstream isolating valve to reduce 423-50-R inlet pressures. Ensure that the 423-50-R sustains the upstream pressure, preventing it from decreasing below setting, even when the upstream isolating valve is almost closed.
  - 6.3. Unlock the PSP locking nut and slowly turn the pilot adjusting screw Clock-Wise to increase set pressure and Counter Clock-Wise to decrease it. Allow the 423-50-R to react and the upstream pressure to stabilize.
  - 6.4. After the pressure is stabilized, lock the pilots locking nut and open fully the upstream isolating valve.
7. Connect the remote control to the opening port in the hydraulic relay valve (50 -M).

## Trouble-Shooting:

| Symptoms                       | Cause   | Remedy   |
|--------------------------------|---|--|
| <b>Valve fails to open</b>     | <ol style="list-style-type: none"> <li>1. Cock valve (2) close.</li> <li>2. Hydraulic control command.</li> <li>3. Not sufficient inlet pressure-</li> <li>4. Not sufficient flow.</li> <li>5. Adjusting screws.</li> </ol> | <ol style="list-style-type: none"> <li>1. Confirm cock valve is open.</li> <li>2. Check no existence of hydraulic pressure command in the relay (50-M).</li> <li>3. Check for sufficient inlet pressure-</li> <li>4. Create demand/flow, confirm pilot setting-</li> <li>5. Check that the PRP adjusting screw- Is not loose and that the PSP adjusting screw is not too tighten-</li> </ol> |
| <b>Valve fails to close</b>    | <ol style="list-style-type: none"> <li>1. Hydraulic control command.</li> <li>2. Control circuit is clogged.</li> <li>3. Debris-</li> <li>4. Diaphragm-</li> </ol>  | <ol style="list-style-type: none"> <li>1. Check existence of hydraulic pressure command in the relay (50-M).</li> <li>2. Check for any debris trapped in the valve control circuit.</li> <li>3. Check for any debris trapped in the valve body.</li> <li>4. Check diaphragm is not leaking-</li> </ol>   |
| <b>Valve fails to regulate</b> | <ol style="list-style-type: none"> <li>1. Not sufficient inlet pressure.</li> <li>2. Not sufficient flow.</li> <li>3. Pilots setting-</li> <li>4. Air trapped in the control-chamber-</li> </ol>                            | <ol style="list-style-type: none"> <li>1. Check for sufficient inlet pressure.</li> <li>2. Create demand/flow, confirm pilot setting.</li> <li>3. Check PRP and PSP Pilot's setting-</li> <li>4. Release air trapped in the control chamber by loosening cover tube fitting at the highest point.</li> </ol>   |

## 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.

|                                 |              |              |  |            |
|---------------------------------|--------------|--------------|--|------------|
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