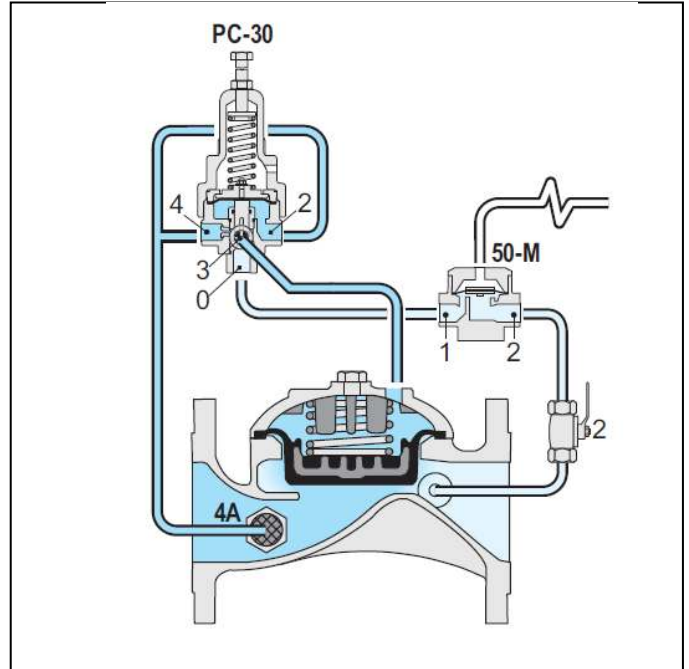


## Pressure Relief/ Sustaining Valve with Hydraulic Control

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

### Description:

The BERMAD Model IR-430-50-R is a hydraulically operated, diaphragm actuated control valve that sustains minimum preset upstream (back) pressure regardless of fluctuating flow or varying downstream pressure. It either opens or shuts in response to a remote pressure commands. When installed offline, the BERMAD Model IR-430-50-R relieves line pressure in excess of preset.



### 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 (4A) arrow direction is in the valve flow direction.
2. Confirm that cock valve (2) are open (handle is parallel to 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.
 

**Note:** When upstream pressure is below the 430-R setting, the valve is closed.
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- 430-50-R is factory set according to design definitions. The set pressure is marked on the pilot label.
6. If the set pressure is either different from the design or the requirements have been changed follow the steps described below:
  - 6.1. IR-430-50-R @ In-Line Installation:
    - 6.1.1. Close the upstream isolating valve to reduce 430-50-R inlet pressure. Ensure that the 430-50-R sustains the upstream pressure, preventing it from decreasing below setting, even when the upstream isolating valve is almost closed.
    - 6.1.2. Unlock the pilot locking nut and slowly turn the pilot adjusting screw Clock-Wise to increase set pressure and Counter-Clock-Wise to decrease it.
    - 6.1.3. After the pressure is stabilized, lock the pilot locking nut and open fully the upstream isolating valve.
  - 6.2. IR-430-50-R @ Off-Line (Circulation) Installation:
    - 6.2.1. Confirm that the line pressure is the designed dynamic operating pressure.
 

**Note:** When setting is below the designed dynamic operating pressure, the valve is partially/fully open.
    - 6.2.2. Unlock pilot locking nut & slowly turn the adjusting screw Clock-Wise until the valve close & seal.
    - 6.2.3. Slowly turn the pilot adjusting screw Counter-Clock-Wise until the valve starts leaking, re-tighten the setting screw until the 430-R seals again plus 1/4 – 1/2 turn and lock the locking nut.
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) is 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 that Cock valve (2) handle is parallel to valve body.</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 Pilot adjusting screw is not loose.</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 Pilot 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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