

Quick Pressure Relief Valve

Model 83Q

1. DESCRIPTION

Bermad Model 83Q Quick Pressure-Relief Valve is a hydraulically operated, piston-actuated, control valve that relieves excessive system-pressure that rises above maximum pre-set. It responds immediately, accurately, and with high repeatability by fully opening. The Quick Pressure Relief Valve provides smooth drip-tight closing.

2. SAFETY

- 2.1. Prior to performing any procedure, read this document through to the end and understand it. If anything is not clear, consult the appropriate authority.
- 2.2. Take all required precautions should the system is located in a closed place liable to flood.
- 2.3. Confirm that the steps you required to perform will not damage systems and consumers.
- 2.4. Avoid from disassembling the valve or/and its components when it's pressurized.
- 2.5. When handling electricity, take all necessary precautions according to electric safety regulations.

3. INSTALLATION

- 3.1. Allow enough room around the valve assembly for any adjustments and future maintenance/disassembly work, according to the dimensions & weights table.
- 3.2. Install isolating valves upstream and downstream from the valve, to allow future maintenance.
- 3.3. Install a strainer upstream from the valve, to prevent debris from damaging valve operation.
- 3.4. Install a high-quality pressure gauge/s on a manometer cock-valve/s at a see-able location/s in the system, for calibration & follow-up.
- 3.5. Install at least one auxiliary or flexible coupling, upstream or downstream from the valve, for future disassembling of components from the line.
- 3.6. Flush the pipeline to remove any dirt, scale, debris etc. before the valve is installed.
Note: Not flushing the line might result in the valve being damaged or inoperative.
- 3.7. For 4" (100 mm) valves & larger, use standard lifting mechanization. Use the lifting rings provided on the main valve cover for locating the valve in its place.
- 3.8. Install the valve in the pipeline with the flow-arrow in the designed flow direction.
- 3.9. For best performance, install the valve with the cover up. However other positions are acceptable with some adaptations (consult Bermad local technical support).
- 3.10. After installation carefully inspect/correct any damaged accessories, piping, tubing or fittings. Ensure that there are no leaks.
- 3.11. Should the valve include electric or electronic indication accessories, perform preparations according to each accessory specification. Such accessories might be Limit Switches, Opening Rate Transmitters, Pressure or Flow Switches/Transducers etc.



4. PREPARE THE VALVE FOR OPERATION

- 4.1. Confirm that cock-valve [25] for valves up to 4", or cock-valve [1] for 6" valves and larger are open (handle parallel to cock-valve body).
- 4.2. Confirm that needle valve [21] (when applied) is open (Counter-Clock-Wise) - 1 turn, for 6" valves; 2 turns, for valves up to 10"; 2½ turns, for valves larger than 12".

5. COMMISSIONING & CALIBRATION

- 5.1. Close the Quick Pressure-Relief (QPR) Valve's upstream isolating valve.
- 5.2. Fill-up, in a slow and controlled manner, the consumer line until the line pressure reaches the designed working pressure.
- 5.3. Open carefully the QPR Valve's upstream isolating valve. The QPR Valve should remain closed.
- 5.4. Vent air from the valve's control loop by loosening cover tube fitting at the highest point, allowing all air to bleed. Retighten the tube fitting eyebolt.
- 5.5. The Model 83Q is factory set slightly above system working pressure, according to design definitions. The set pressure is marked on the pilot's label.
- 5.6. Increase system pressure by closing an isolating valve downstream from the QPR Valve's off-line installation-detail, reducing the flow. The valve should open as pressure reaches the set point.
- 5.7. Re-open the isolating valve downstream from the QPR Valve's off-line installation detail. The pressure should drop to below setting and the valve should close.
- 5.8. If the requirements have been changed, unlock the pilots locking nut and **slowly** turn the pilot adjusting screw Counter-Clock-Wise until the valve starts opening. Stop and turn the pilot adjusting screw **very slowly** Clock-Wise until the valve closes again + a 1/4 turn more. The QPR Valve is now set to approximately 0.5-1 bar above current working pressure.

Note: Each turn of the pilot adjusting screw changes the set pressure by approximately 1½ bar.

- 5.9. After the desired line pressure is set and stabilized, lock the pilots locking nut and open fully the partially closed isolating valve downstream from the QPR Valve's off-line installation detail.

6. TROUBLE- SHOOTING

| Symptom | Probable cause | Action |
|--------------------------------|---|--|
| QPR Valve fails to open | Downstream tube fitting or hub is blocked | Open downstream blocked fitting |
| | Pilot internal restriction is damaged or Needle valve opening too wide. | Check and fix pilot internal restriction or reduce needle valve opening. |
| | Pilot spring compression is too high. | Turn the pilot's adjusting screw CCW until the main valve opens. Caution: Do not set below design recommendations |
| | Insufficient inlet pressure | Check/create inlet pressure. |



| | | |
|---|--|---|
| QPR Valve fails to close | Upstream Cock valve closed and drains | Open Upstream cock valve. |
| | Pilot internal restriction is plugged or Needle valve is plugged or closed | Check and clean pilot internal restriction or open and adjust needle valve (refer item 5.3) |
| | Insufficient Pilot spring compression | Turn the pilot's adjusting screw CW on until the main valve closes. Caution: Do not set above design recommendations |
| | Filter is blocked. | Clean the filter element. |
| | piston-seal in main valve is leaking | Test for leakage. Close cock valves and remove plug on the main valve cover. If continuous flows exist, the piston-seal is probably damaged or loose. Caution: This test will cause the valve to go fully open. Close downstream isolating valve or omit this test if this may cause system damage. |
| | Debris trapped in main valve assembly | Close isolating valves. Remove valve cover / actuator. Inspect seat and valve seal. |
| Air trapped in main valve control chamber | Loosen cover tube fitting at the highest point, allow the air to escape and retighten. | |

7. MAINTENANCE

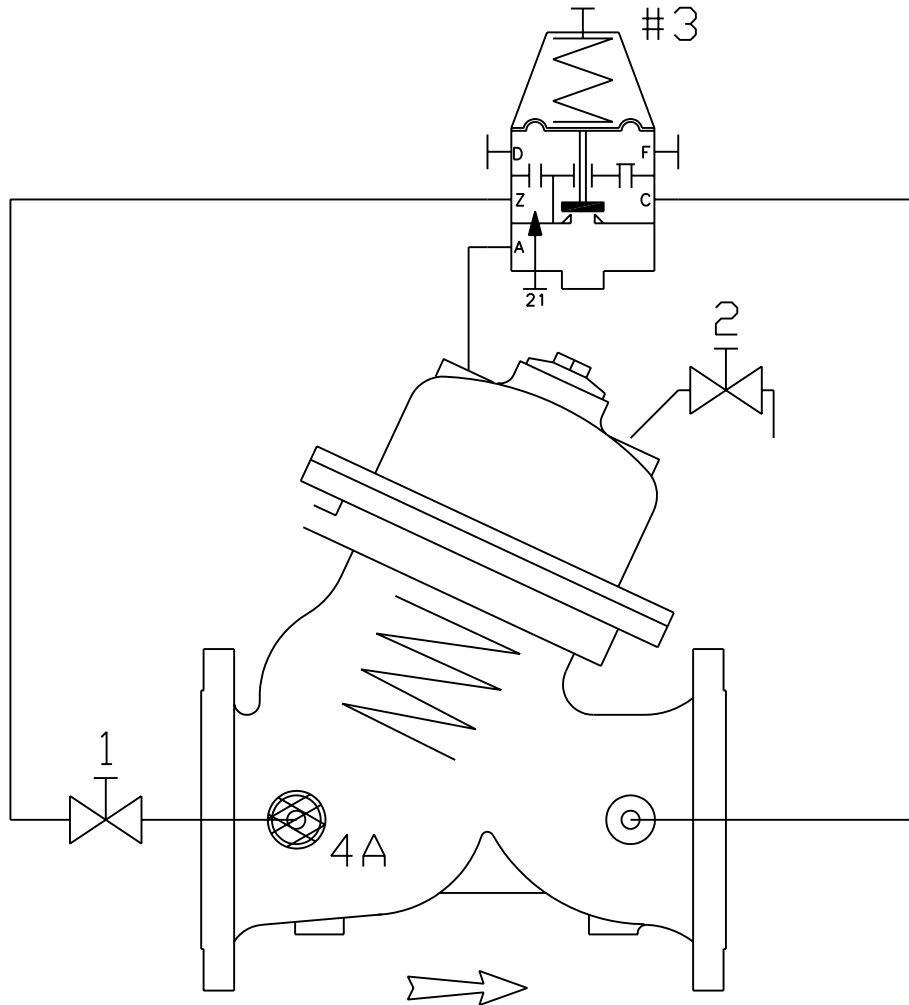
- 7.1. Bermad valves maintenance characteristics and frequency varieties according to valve operating & environment conditions and to the water quality.
- 7.2. Confirm that the steps you are about to perform; will not damage systems and consumers.
- 7.3. perform periodic check which includes:
 - Control filter cleaning
 - External bolts, nuts and lock-nuts tightening
 - Control-loop leak inspection
 - Electric connections and wiring check up

Note: When handling electricity, take all necessary precautions according to electric safety regulations

 - Mechanical examination of assemblies such as Indicators, Limit-Switches etc.
 - Floats functioning and mechanical condition review
 - Valve shutting and opening capabilities testing (using valve manual-closing cock-valve)
 - Valve functioning test under its different operating conditions
 - Pilots and/or Floats adjustment (according to items 5 & 6)
- 7.4. Should the valve situation require valve and/or accessories disassembling, contact your Bermad local support center for consulting and to obtain preliminary supply of original spare-parts.
- 7.5. Use Bermad Spare-parts Ordering Guide for more efficient definition of required spare-parts.
- 7.6. Avoid from disassembling the valve or/and its components when it's pressurized.
- 7.7. Solenoid and other electric accessories maintenance should be perform according to the enclosed manufacturer use instructions.



Control Loop Drawing & Information



PARTS LIST

- 1 2W Cock Valve
- 2 2W Cock Valve
- 4A In-Line Filter
- #3 2W P.S. Pilot

MODEL: WW-83Q-SC

SIZE: 12"

ID NO: D800_000017-b

19/05/2003

Pressure-Relief Valve, Quick Type

STATUS: Released

DESIGN: rami

15/05/2001

COMMENTS:

COSTUMER:

PROJECT:



800 Series
PISTON ACTUATED BASIC CONTROL VALVES
DOUBLE CHAMBER
 Sizes: 6" - 20"

