

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.



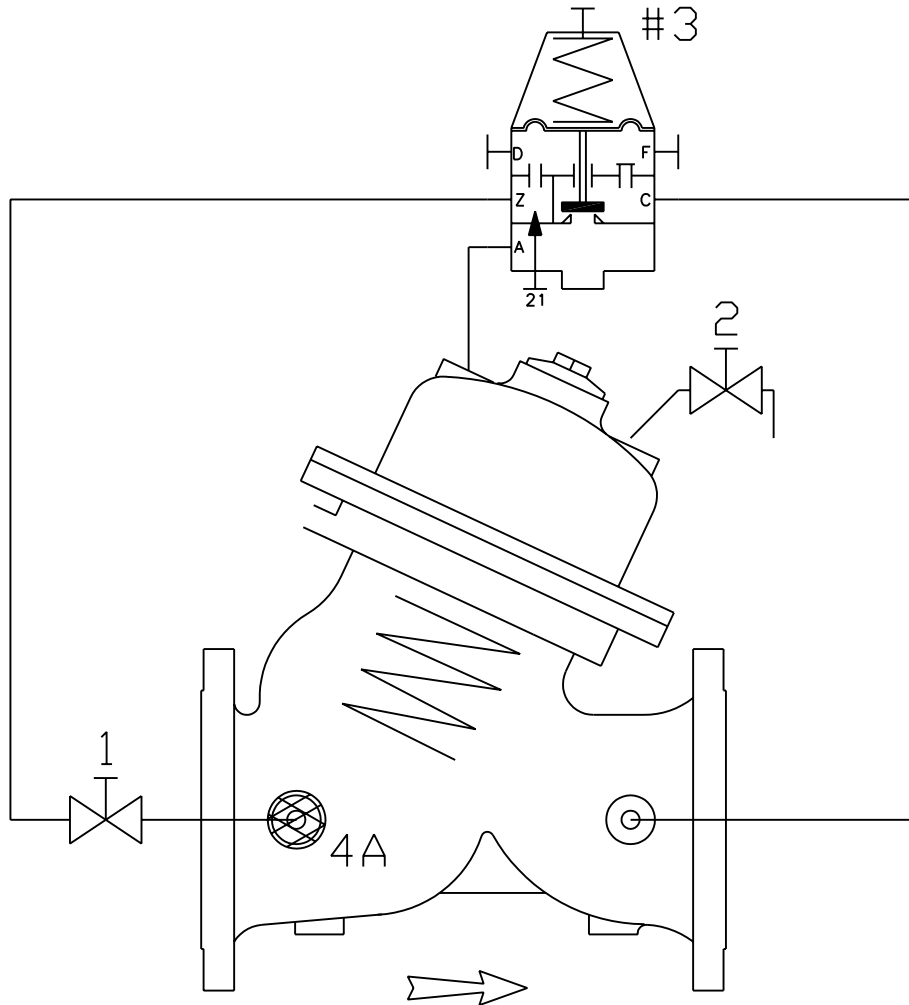
QPR Valve fails to close	Upstream Cock valve closed and drains	Open Upstream cock valve.
	Pilot internal restriction is plugged or Needle valve is plugged or closed	Check and clean pilot internal restriction or open and adjust needle valve (refer item 5.3)
	Insufficient Pilot spring compression	Turn 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"

