

Hydraulic Check Valve with Closing & Opening Speed Control

(Sizes 1½-24"; DN40-600)

Description

The Model 760-03 Hydraulic, Non-Slam Check Valve with Closing & Opening Speed Control is a double chambered hydraulically operated, diaphragm actuated control valve which is hydraulically powered to fully open during system flow when upstream pressure exceeds downstream pressure. If pressure conditions reverse, the valve gradually shuts off drip tight, preventing back flow.

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. Use the lifting ring provided on the main valve cover for installing the valve.
5. For best performance, it is recommended to install the valve horizontally and upright. For different valve positions – consult Bermad.
6. After installation carefully inspect/correct any damaged accessories, piping, tubing, or fittings.
7. It is highly recommended to install a strainer Bermad model 70F upstream from the pressure reducing valve, to prevent debris from damaging valve operation.

Commissioning & Calibration

1. Confirm that cock valves [1] & [2] are open (handle parallel to cock-valve body).
2. Start the pump or introduce upstream pressure and flow to the pipeline.
3. Open fully the upstream isolating valve and partially the downstream isolating valve, to fill-up, in a slow and controlled manner, the consumers line downstream from the 760-03.
4. Confirm that the supply pressure and the flow through the system are typical. If necessary, create flow by opening a hydrant, or reduce the flow/pressure by adjusting the downstream/upstream isolating valves.
5. Vent air from the valve's control loops at both control chambers by loosening cover/separation partition tube fittings at the highest points, allowing all air to bleed. Retighten the tube fittings eyebolt.
6. Open fully the upstream and the downstream isolating valves.
7. Open fully One Way Flow Controls 19 and 19.1 Counter-Clock-Wiese (CCW), and turn the pump off or reverse pipeline pressure conditions.
Note: Valve is open and will allow return flow. If necessary, take precautionary measures to protect the pump and other system equipment.
8. Turn One Way Flow Control 19 adjusting screw Clock-Wise (CW) to decrease the 760-03 closing speed and CCW to increase it. After achieving the desired closing speed, lock the One Way Flow Control screw locking nut.
9. Start the pump or introduce upstream pipeline pressure and flow. Valve should start opening.
10. Turn One Way Flow Control 19.1 adjusting screw CW to decrease the 760-03 opening speed and CCW to increase it. After achieving the desired opening speed, lock the One Way Flow Control screw locking nut.
11. Turn One Way Flow Control 19 adjusting screw CW to decrease the 760-03 closing speed and CCW to increase it. After achieving the desired closing speed, lock the speed control screw locking nut.

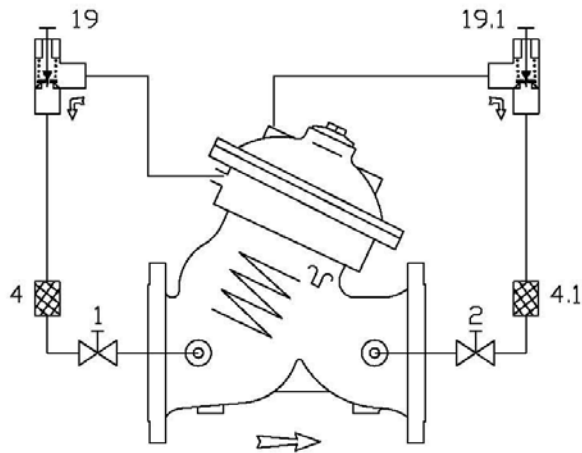
Note: You may have to repeat above sections 7 through 11 several times until achieving the desired closing & opening speed.

12. One Way Flow Control 19 controls only the closing speed and does not effect opening speed.
13. One Way Flow Control 19.1 controls only the opening speed and does not effect closing speed.

Control Drawing

PARTS LIST

- | | |
|------|--------------------------------|
| 1 | 2W Cock Valve |
| 2 | 2W Cock Valve |
| 4 | Control Filter |
| 4.1 | Control Filter |
| 19 | One Way Flow Control (Closing) |
| 19.1 | One Way Flow Control (Opening) |



Trouble-Shooting

1. **Valve fails to Open:** Check for sufficient inlet pressure, create demand/flow, confirm One Way Flow Controls setting & check cock valves status, clean control filters & detect for clogged ports or fittings, confirm diaphragm is not leaking.
2. **Valve fails to Close:** Check for sufficient downstream line pressure, confirm One Way Flow Controls setting & check cock valves status, clean control filters & detect for clogged ports or fittings, check if any debris trapped in the main valve, confirm diaphragm is not leaking.

Preventative 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
 - 2.2. Visual inspection to locate leaks and external damages
 - 2.3. Functional inspection including: closing, opening and regulation.
 - 2.4. Close upstream and downstream isolating valves (and external operating pressure when used).
 - 2.5. Once the valve is fully isolated vent pressure by loosening a plug or a fitting.
 - 2.6. Open the stud nuts and remove the actuator as one unit from the valve body. Disassemble necessary control tubs.
 - 2.7. It is highly recommended to stock a reserve actuator assembly for each size. This allows minimum system field work and system down time.
 - 2.8. Disassemble the actuator and examine its parts carefully for signs of wear, corrosion, or any other abnormal conditions.
 - 2.9. Replace worn parts and all the Elastomers. Lubricate the bolts and studs threads with Anti seize grease.

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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