



—MODEL— **CRD-L**

Pressure Reducing Control



Description

The Cla-Val Model CRDL Pressure Reducing Valve is designed for installation on potable water lines to automatically reduce high inlet pressure to a steady lower outlet pressure. This valve is an accurate regulator capable of holding downstream pressure to a predetermined amount regardless of upstream pressure fluctuations.

Operation

The Cla-Val Model CRDL Pressure Reducing Valve is a direct-acting, spring loaded, diaphragm type control, single seat design. The upstream pressure acts equally on the disc assembly, balancing the forces so that the opening and closing action is controlled by the downstream pressure acting on the underside of the diaphragm. The spring acts on the upper side of the diaphragm to provide an adjustable downstream pressure.

Installation

1. Before the CRDL is installed and commissioned, the water supply pipelines should be thoroughly flushed of all dirt, scale and foreign matter.
2. The CRDL can be installed in the vertical or horizontal position.
3. Place the valve in the pipeline with the flow through the valve in the direction of the arrow cast into the valve body.
4. Allow sufficient room around the valve to make adjustments and for maintenance.
5. It is recommended that isolating valves be installed at both ends of the CRDL for ease of isolating the valve during start-up, testing and maintenance.
6. Caution: Prior to pressurizing, a pressure gauge must be installed downstream of the CRDL to verify correct pressure setting.

Start-up and Adjustment

After initial installation or after any servicing of the CRDL, it is necessary to follow these steps.

1. Adjustment of the CRDL pressure reducing valve takes place exclusively under the responsibility of the person carrying it out.
2. With downstream isolating valve closed, slowly open upstream isolating valve.
3. With CRDL pressurized, slowly open downstream isolating valve, establishing a small amount of flow through the valve.
4. Remove plastic cap (22) and turn adjusting screw (21) to desired pressure setting. To increase pressure setting, turn clockwise. To decrease pressure setting, turn counter-clockwise.
5. Adjust pressure setting to desired downstream pressure. Adjust the screw slowly, in short increments. Check the result each time you make an adjustment.
6. Securely tighten locknut (20).

Note: It is always more accurate to fine tune and adjust the valve's pressure setting under actual flowing conditions. When in flowing condition, pressure will lower from static setting.

A minimum pressure differential of 15 PSI must be maintained.

SYMPTOM	PROBABLE CAUSE	REMEDY
Fails to open when deliver pressure lowers	No spring compression	Tighten adjusting screw
	Damaged spring	Disassemble and replace
	Spring guide (17) is not in place	Assemble properly
	Yoke dragging on inlet nozzle	Disassemble and reassemble properly (refer to Reassembly)
Fails to close when delivery pressure rises	Spring compressed solid	Back off adjusting screw
	Mechanical obstruction	Disassemble and reassemble properly (refer to Reassembly)
	Worn disc	Disassemble remove and replace disc retainer assembly
	Yoke dragging on inlet nozzle	Disassemble and reassemble properly (refer to Reassembly)
Leakage from cover vent hole	Damaged diaphragm	Disassemble and replace
	Loose socket screw (15)	Remove cover and tighten screw

When more than one valve is installed in series, check the pressure differential across each valve and adjust the valve downstream first.

When more than one valve is installed in parallel, adjust them to handle possible low flow conditions. This is done by setting one valve approximately 3 to 4 PSI greater than the setting on the other valves. It may be desirable to set all valves to same setting when flow rate fluctuations are not severe.

After completing pressure adjustment fully open the isolating valves.

Maintenance

Disassembly

Before starting any disassembly, close upstream and downstream isolation valves. Remove pressure from valve. Follow the sequence of the item numbers assigned to parts in the sectional illustration. To access, inspect, clean and/or replace internal parts:

1. Remove cap (22). Measure and mark distance of adjustment screw (21) as it is currently protruding from cover (18).
2. Loosen the lock-nut (20) and back off the adjusting screw (21) to release any spring tension.
3. Remove the eight cover screws (19). Remove cover (18), spring (16) and spring guide (17).
4. Unthread and remove the bottom plug (1) and O-ring (2) which exposes the disc retainer assembly. Unthread the disc retainer assembly (3) from the yoke (6); inspect, clean or replace disc retainer assembly (3) as required.
5. Unthread cap screw (15). Remove diaphragm washer (13) and Belleville washer (14) which exposes the diaphragm (12); inspect, clean or replace diaphragm (12) as required.
6. To replace seat (7), carefully detach the yoke (6) from the yoke holder (10) which allows access to the seat (7); inspect, clean or replace seat (7) and seat O-ring (8) as required.

Reassembly

Reassembly is the reverse of disassembly.

Caution must be taken to avoid having the yoke (6) drag on the inlet nozzle of the body (29). Follow this procedure to avoid yoke drag:

1. Place diaphragm (12), diaphragm washer (13) and Belleville washer (14) onto yoke (6). Screw on cap screw (15).
2. Hold diaphragm (12) so that the screw holes align with the body (29) screw holes.
3. Securely tighten cap screw (15) with wrench. At the final tightening release the diaphragm (12) and permit it to rotate 5° to 10°.
4. The diaphragm screw holes should now be properly aligned with the body screw holes.

To check for proper alignment proceed as follows:

After securely tightened, rotate diaphragm (12) clockwise and counterclockwise as far as possible. Diaphragm (12) screw holes should rotate equal distance on either side of body screw holes $\pm 1/8"$. Repeat assembly procedure until diaphragm (12) and yoke (6) are properly aligned. There must be no contact between yoke and body nozzle during its normal movement. To simulate this movement, align body and diaphragm holes, move yoke to open and closed positions. There must be no evidence of contact or dragging.

5. Reinstall disc retainer assembly (3).
6. Reinstall bottom plug (1), tighten securely.
7. Reinstall spring (16) spring guide (17), cover (18) and cover screws (19).
8. Securely tighten cover screws (19).
9. Reinstall adjusting screw (21) and lock nut (20).
10. Turn adjustment screw (21) into cover to the original measured setting.
11. Return valve to service.
12. Recheck or readjust pressure setting with flow through the valve.
13. To increase pressure setting, turn clockwise. To decrease pressure setting, turn counter-clockwise.
14. Once set point is established, securely tighten lock nut (20).
15. Reinstall and tighten cap (22).

Notice: To ensure proper performance and maximum service life for the CRDL, it is suggested that a program of regular inspection, testing, maintenance and cleaning be utilized. Annual inspection and maintenance is recommended.

Tools Required:

For Pressure Adjustment: Fixed or adjustable wrench

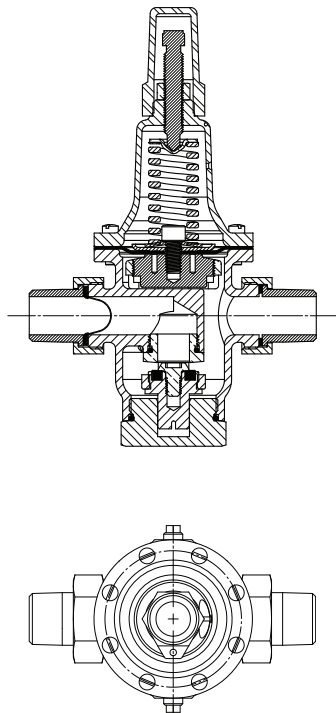
For Maintenance:

1/4" Allen hex wrench, Slotted Screwdriver

When Ordering Parts

Please Specify:

1. All nameplate data
2. CRDL Size
3. Catalog Number and Item Number



PARTS LIST		
ITEM NO.	DESCRIPTION	QUANTITY
1	PLUG	1
2	O-RING	1
3	DISC RETAINER	1
4	DISC	1
5	DISC GUIDE	1
6	YOKE	1
7	SEAT	1
8	O-RING	1
9	GASKET	1
10	YOKE HOLDER ASSEMBLY	1
11	YOKE RETAINER ASSEMBLY	1
12	DIAPHRAGM	1
13	WASHER, DIAPHRAGM	1
14	WASHER, BELLEVILLE	1
15	SCREW, SOCKET HEAD CAP	1
16	SPRING	1
17	GUIDE, SPRING	1
18	COVER	1
19	SCREW	8
20	NUT, LOCK	1
21	SCREW, ADJUSTING	1
22	CAP	1
23	DRIVE SCREW NAMEPLATE	2
24	NAMEPLATE	1
25	PLUG, PIPE	2
26	NUT, UNION	2
27	TAIL PIECE, UNION	2
28	STRAINER	1
29	BODY	1

