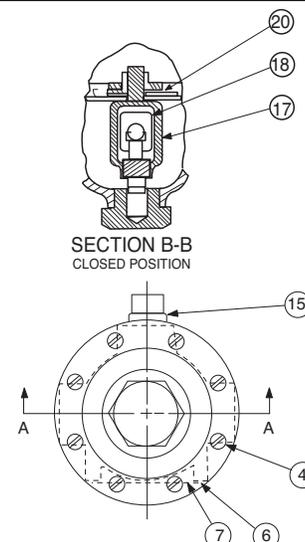
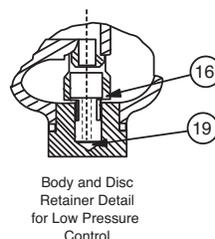
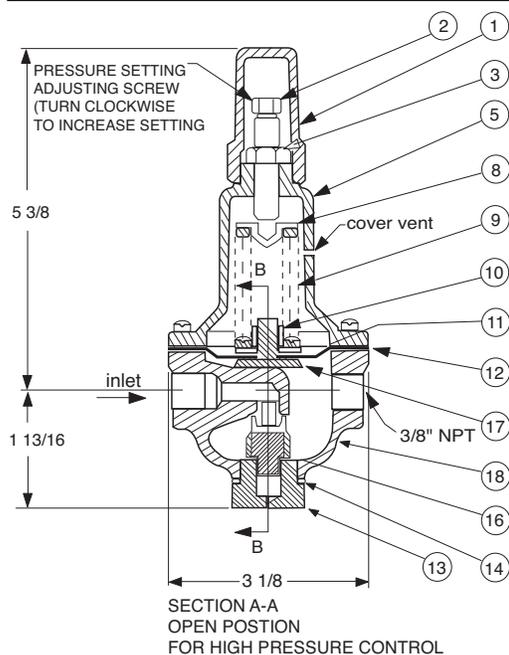




CRD

Pressure Reducing Control

(Bronze Body with 303SS Trim)



Size (inch)	Stock Number	Adjustment Range	
		psi	Ft of Water
3/8	7194307A	2 - 6.5	4.5 - 15
3/8	7194308J	2 - 30	4.5 - 69
3/8	7194303K	15 - 75	35 - 173
3/8	7194311C	20 - 105	46 - 242
3/8	7194304H	30 - 300	69 - 692
Factory Set Pressure		PSI per Turn*	
	2 - 6.5 set @ 3.5 psi	.61	
	2 - 30 set @ 10 psi	3.0	
	15 - 75 set @ 20 psi	9.0	
	20 - 105 set @ 40 psi	12.0	
	30 - 300 set @ 60 psi	27.0	

*Approximate-Final Adjustment should be with a pressure gauge and with flow.

When ordering parts specify:

- All nameplate data
- Item Description
- Item number

Item	Description	Material	Part Number
1	Cap	PL	67628J
2	Adjusting Screw	BRS	7188201D
3	Jam Nut (3/8-16)	SS	6780106J
4*	Machine Screw (Fil.Hd.) 8 Req'd	303	6757821B
5	Cover	BRS	C2544K
6	Nameplate Screw	SS	67999D
7	Nameplate	BRS	C0022001G
8	Spring Guide	302	71881H
	Spring Guide (20 - 105 psi)	303	205620F
9	Spring (15-75 psi)	CHR/VAN	71884B
	Spring (2 - 6.5 psi)	SS	82575C
	Spring (2 - 30 psi)	SS	81594E
	Spring (20 - 105 psi)	316	20632101E
	Spring (30 - 300 psi)	CHR/VAN	71885J
10	Hex Nut	303	71883D
11	Diaphragm Washer	302	71891G
12*	Diaphragm	NBR	C6936D
13	Plug, Body	BRS	V5653A
14*	Gasket	Fiber	40174F
15	Plug	BRS	6766003F
16*	Disc Retainer Assy. (2 - 30 psi)	SS/Rub	C8348K
	Disc Retainer Assy. (15 - 75 psi)	SS/Rub	37133G
	Disc Retainer Assy. (20 - 105 psi)	SS/Rub	37133G
	Disc Retainer Assy. (30 - 300 psi)	SS/Rub	37133G
17	Yoke	VBZ	V6951H
18	Body & 1/4" Seat Assy	BR/SS	8339702G
19*	Bucking Spring (2 - 6.5 psi)(2 - 30psi)	302	V0558G
20	Belleville Washer	STL	7055007E
*	Repair Kit (No Bucking Spring)	Buna®-N	9170003K
*	Repair Kit (with Bucking Spring)	Buna®-N	9170002B

*SUGGESTED REPAIR PARTS



— MODELS — **CRA & CRD**

Pressure Reducing Control Valves



CRA



CRD
with X140-1
Security Cap Option

- Direct Acting
- Hydraulic or Pneumatic Operation
- Simplified Design, Easy Adjustments
- Operates in Any Position
- Gauge Connection Port

The Cla-Val Models CRA and CRD Pressure Reducing Control automatically reduce a higher inlet pressure to a lower outlet pressure. They are direct acting, spring loaded, diaphragm type control regulators that operate hydraulically or pneumatically. These valves are held open by the force of the compression spring above the diaphragm, and close when the downstream pressure acting on the underside of the diaphragm exceeds the spring setting. The CRD senses downstream pressure directly and the CRA senses downstream pressure remotely.

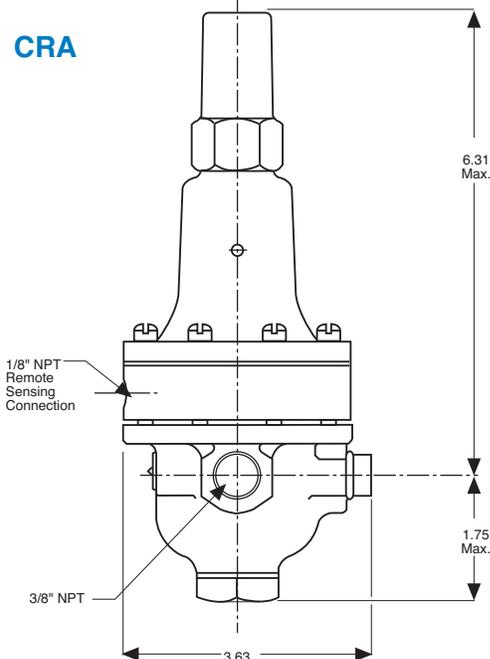
Flow through the control responds to changes in downstream pressure. Turning the adjusting screw clockwise increases the delivery pressure. Turning it counterclockwise decreases the pressure. A resilient disc assures tight shut-off on dead-end service.

Models CRA and CRD may be installed in any position. There is one inlet port and two outlets for either straight or angle installation. The second outlet port can be used for a gauge connection.

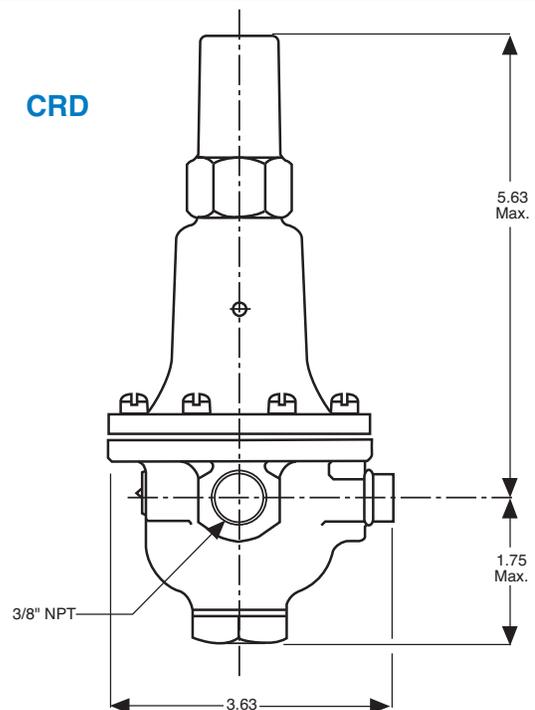
These valves are ideal small capacity regulators for applications such as water coolers, fountains, humidifiers, gas refrigerators, and air supply to tools and instruments. Remote pressure sensing is available with the CRA. They also have numerous applications as pilot controls on many Cla-Val Automatic Control Valves.

Dimensions (In Inches)

CRA



CRD



Specifications

Size	3/8" NPT Threaded
Temperature Range	Water: to 180°F Max.
Materials	
Body & Cover:	UNS C87850 Low Lead Bronze
Trim:	Brass & Stainless Steel 303
Rubber:	Buna-N® Rubber
Optional Materials	Cast Aluminum 356-T6 Stainless Steel 303
Pressure Ratings	Cast Bronze 400 psi Max. Cast Aluminum 275 psi Max. Stainless Steel 400 psi Max.

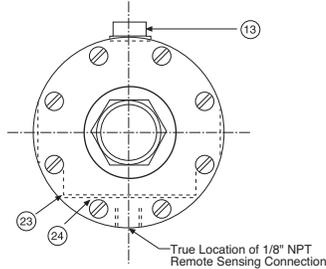
Adjustment Ranges

psi:	2 - 7	feet of water:	4.5 - 15
	2 - 30		5 - 70
	15 - 75		35 - 170
	20 - 105		46 - 242
	30 - 300		70 - 695

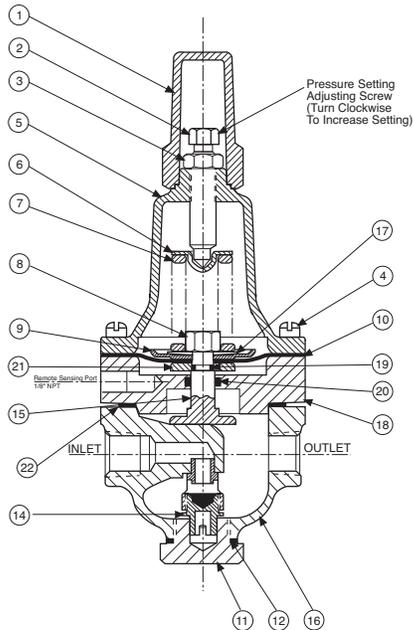
When Ordering, Please Specify

1. Catalog No. CRA or No. CRD
2. Adjustment Range Desired
3. Materials Desired

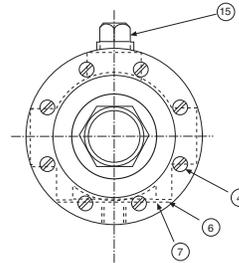
CRA



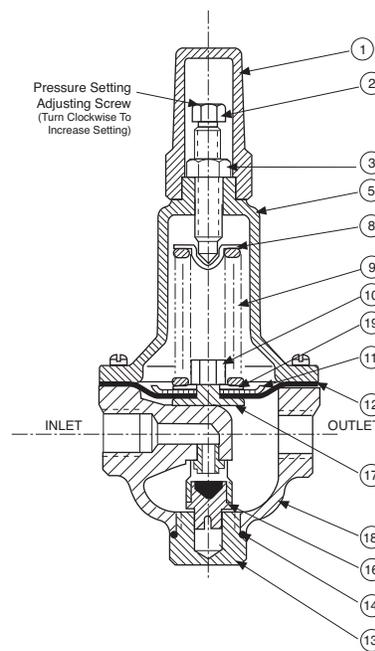
1. Cap
2. Screw, Adjusting
3. Jam Nut
4. Machine Screw-Fil H.D.
5. Cover
6. Spring Guide
7. Spring
8. Hex Nut
9. Diaphragm Washer (Upper)
10. Diaphragm
11. Plug (Body)
12. Gasket
13. Plug, 3/8 NPT
14. Disc Retainer Assembly
15. Yoke
16. Body & Seat Assembly
17. Belleville Washer
18. Powertrol Body
19. O-Ring
20. O-Ring
21. Diaphragm Washer (Lower)
22. Gasket
23. Nameplate Screw
24. Nameplate



CRD



1. Cap
2. Screw, Adjusting
3. Jam Nut
4. Machine Screw-Fil. HD.
5. Cover
6. Nameplate Screw
7. Nameplate
8. Spring Guide
9. Spring
10. Hex Nut
11. Diaphragm Washer
12. Diaphragm
13. Plug (Body)
14. Gasket
15. Plug 3/8 NPT
16. Disc Retainer Assembly
17. Yoke
18. Body and Seat Assembly
19. Belleville Washer



OPTIONAL X140 SECURITY CAP



- Controlled Security for Pilot Control Adjustment
- Long Life Stainless Steel Construction
- Tamper-Resistant Design
- X140-1 Key and Six Pin Cylinder Lock Supplied



E-CRA/CRD (R-11/2015)

CLA-VAL

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Phone: 949-722-4800 • Fax: 949-548-5441

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Represented By:



— MODEL — **CRD**

Pressure Reducing Control



DESCRIPTION

The Cla-Val Model CRD Pressure Reducing Control automatically reduces a higher inlet pressure to a lower outlet pressure. It is a direct acting, spring loaded, diaphragm type control that operates hydraulically or pneumatically. It may be used as a self-contained valve or as a pilot control for a Cla-Val main valve. It will hold a constant downstream pressure within very close pressure limits.

OPERATION

The CRD Pressure Reducing Control is normally held open by the force of the compression spring above the diaphragm; and delivery pressure acts on the underside of the diaphragm. Flow through the valve responds to changes in downstream demand to maintain a pressure.

INSTALLATION

The CRD Pressure Reducing Control may be installed in any position. There is one inlet port and two outlets, for either straight or angle installation. The second outlet port can be used for a gage connection. A flow arrow is marked on the body casting.

ADJUSTMENT PROCEDURE

The CRD Pressure Reducing Control can be adjusted to provide a delivery pressure range as specified on the nameplate. Pressure adjustment is made by turning the adjustment screw to vary the spring pressure on the diaphragm. The greater the compression on the spring the higher the pressure setting.

1. Turn the adjustment screw in (clockwise) to increase delivery pressure.
2. Turn the adjustment screw out (counter-clockwise) to decrease the delivery pressure.
3. When pressure adjustment is completed tighten jam nut on adjusting screw and replace protective cap.
4. When this control is used, as a pilot control on a Cla-Val main valve, the adjustment should be made under flowing conditions. The flow rate is not critical, but generally should be somewhat lower than normal in order to provide an inlet pressure several psi higher than the desired setting

The approximate minimum flow rates given in the table are for the main valve on which the CRD is installed.

Valve Size	1 1/4" -3"	4"-8"	10"-16"
Minimum Flow GPM	15-30	50-200	300-650

SYMPTOM	PROBABLE CAUSE	REMEDY
Fails to open when deliver pressure lowers	No spring compression	Tighten adjusting screw
	Damaged spring	Disassemble and replace
	Spring guide (8) 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 diaphragm nut	Remove cover and tighten nut

MAINTENANCE

Disassembly

To disassemble follow the sequence of the item numbers assigned to parts in the sectional illustration.

Reassembly

Reassembly is the reverse of disassembly. Caution must be taken to avoid having the yoke (17) drag on the inlet nozzle of the body (18). Follow this procedure:

1. Place yoke (17) in body and screw the disc retainer assembly (16) until it bottoms.
2. Install gasket (14) and spring (19) for 2-30 and 2-6.5 psi range onto plug (13) and fasten into body. Disc retainer must enter guide hole in plug as it is assembled. Screw the plug in by hand. Use wrench to tighten only.
3. Place diaphragm (12) diaphragm washer (11) and belleville washer (20) on yoke. Screw on hex nut (10).
4. Hold the diaphragm so that the screw holes in the diaphragm and body align. Tighten diaphragm nut with a wrench. At the final tightening release the diaphragm and permit it to rotate 5° to 10°. The diaphragm holes should now be properly aligned with the body holes.

To check for proper alignment proceed as follows:

Rotate diaphragm clockwise and counterclockwise as far as possible. Diaphragm screw holes should rotate equal distance on either side of body screw holes ±1/8".

Repeat assembly procedure until diaphragm and yoke are properly aligned. There must be no contact between yoke and body nozzle during its normal movement. To simulate this movement hold body and diaphragm holes aligned. Move yoke to open and closed positions. There must be no evidence of contact or dragging.

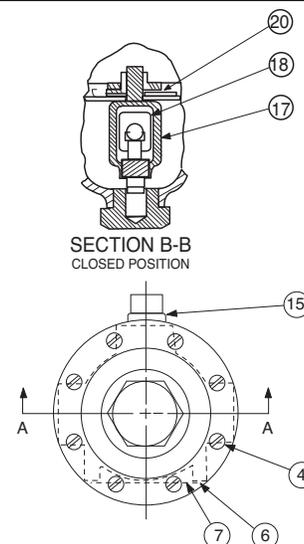
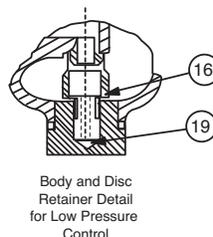
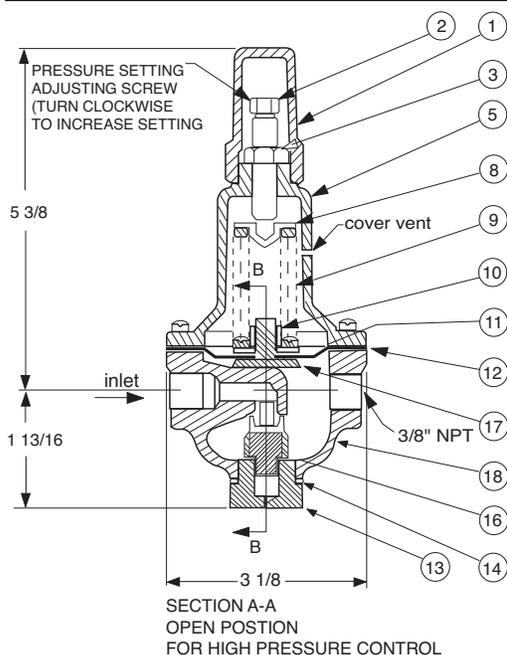
5. Install spring (9) with spring guide (8).
6. Install cover (5), adjusting screw (2) and nut (3), then cap (1).



CRD

Pressure Reducing Control

(Bronze Body with 303SS Trim)



Size (inch)	Stock Number	Adjustment Range	
		psi	Ft of Water
3/8	7194307A	2 - 6.5	4.5 - 15
3/8	7194308J	2 - 30	4.5 - 69
3/8	7194303K	15 - 75	35 - 173
3/8	7194311C	20 - 105	46 - 242
3/8	7194304H	30 - 300	69 - 692
Factory Set Pressure			PSI per Turn*
	2 - 6.5 set @ 3.5 psi		.61
	2 - 30 set @ 10 psi		3.0
	15 - 75 set @ 20 psi		9.0
	20 - 105 set @ 60 psi		12.0
	30 - 300 set @ 60 psi		27.0

*Approximate-Final Adjustment should be with a pressure gauge and with flow.

When ordering parts specify:

- All nameplate data
- Item Description
- Item number

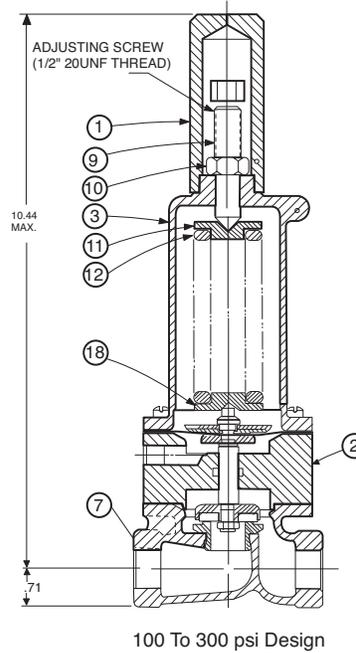
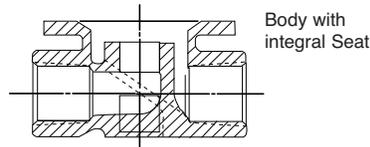
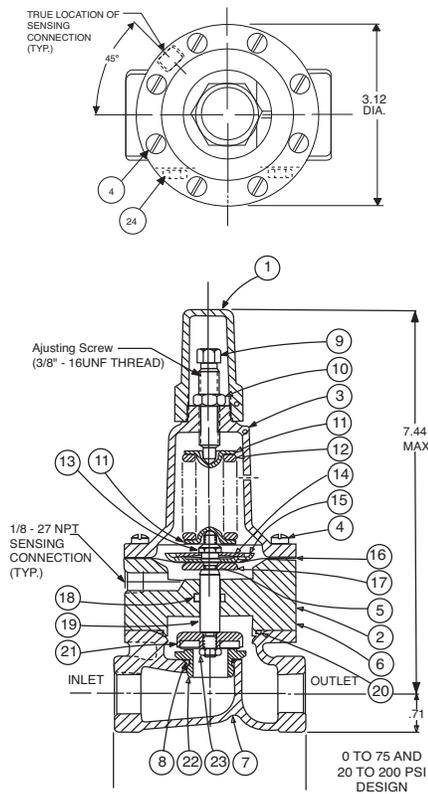
Item	Description	Material	Part Number	List Price
1	Cap	PL	67628J	
2	Adjusting Screw	BRS	7188201D	
3	Jam Nut (3/8-16)	SS	6780106J	
4*	Machine Screw (Fil.Hd.) 8 Req'd	303	6757821B	
5	Cover	BRS	C2544K	
6	Nameplate Screw	SS	67999D	
7	Nameplate	BRS	C0022001G	
8	Spring Guide	302	71881H	
	Spring Guide (20 - 105 psi)	303	205620F	
9	Spring (15-75 psi)	CHR/VAN	71884B	
	Spring (2 - 6.5 psi)	SS	82575C	
	Spring (2 - 30 psi)	SS	81594E	
	Spring (20 - 105 psi)	316	20632101E	
	Spring (30 - 300 psi)	CHR/VAN	71885J	
10	Hex Nut	303	71883D	
11	Diaphragm Washer	302	71891G	
12*	Diaphragm	NBR	C6936D	
13	Plug, Body	BRS	V5653A	
14*	Gasket	Fiber	40174F	
15	Plug	BRS	6766003F	
16*	Disc Retainer Assy. (2 - 30 psi)	SS/Rub	C8348K	
	Disc Retainer Assy. (15 - 75 psi)	SS/Rub	37133G	
	Disc Retainer Assy. (20 - 105 psi)	SS/Rub	37133G	
	Disc Retainer Assy. (30 - 300 psi)	SS/Rub	37133G	
17	Yoke	VBZ	V6951H	
18	Body & 1/4" Seat Assy	BR/SS	8339702G	
19*	Bucking Spring (2 - 6.5 psi)(2 - 30psi)	302	V0558G	
20	Belleville Washer	STL	7055007E	
*	Repair Kit (No Bucking Spring)	Buna®-N	9170003K	
*	Repair Kit (with Bucking Spring)	Buna®-N	9170002B	

*SUGGESTED REPAIR PARTS



1/2" & 3/4" PRESSURE RELIEF CONTROL

(Bronze Body with 303SS Trim)



SIZE	SPRING	PART NUMBER
1/2"	0-75 PSI	7922201E
1/2"	20-105 PSI	7922205F
1/2"	20-200 PSI	7922202C
1/2"	100-300 PSI	8280901D
3/4"	0-75 PSI	7922901K
3/4"	20-105 PSI	7922903F
3/4"	20-200 PSI	7922902H
3/4"	100-300 PSI	8600501E

For 250-600 PSI Contact Factory

CRL Range PSI	APPROX. INCREASE FOR EACH CLOCKWISE TURN OF ADJUSTING SCREW
0 to 75	8.5 PSI
20 to 105	12.5 PSI
20 to 200	28.0 PSI
100 to 300	18.0 PSI

When ordering parts please specify:

1. All Nameplate Data
2. Item Part Number
3. Item Description

Item	Description	Material	Part Number	Part Number	Part Number	Part Number
			0-75	20-105	20-200	100-300
1	Cap	Plastic	67628J	67628J	67628J	1257601D
2	Nameplate	Brass	--	--	--	--
3	Cover	Bronze	C2544K	C2544K	C2544K	44587E
4*	Screw Fil. Hd. 10-32 x 1.88 (Qty 8)	303 SS	6757867E	6757867E	6757867E	6757867E
5*	O-Ring	Rubber	00902H	00902H	00902H	00902H
6	Body, Powerunit	Bronze	7920504D	7920504D	7920504D	7920504D
7	1/2" Body	Bronze	C7928K	C7928K	C7928K	C7928K
	3/4" Body	Bronze	C9083B	C9083B	C9083B	C9083B
8*	O-Ring, Seat	Rubber	00718H	00718H	00718H	00718H
9	Screw, Adjusting	Brass	7188201D	7188201D	7188201D	82811B
10	Nut Hex (Locking)	303 SS	6780106J	6780106J	6780106J	6780606H
11	Guide, Spring	303 SS	71881H	71881H	71881H	1630301J
12	Spring	CHR/VAN	71884B	20632101E	71885J	1630201A
13	Nut, Stem Upper	Bronze	73034B	73034B	73034B	73034B
14	Washer, Belleville	Steel	7055007E	7055007E	7055007E	7055007E
15	Washer, Diaphragm (upper)	303 SS	71891G	71891G	71891G	71891G
16*	Diaphragm	Rubber	C1505B	C1505B	C1505B	C1505B
17	Washer, Diaphragm (lower)	303 SS	45871B	45871B	45871B	45871B
18*	O-Ring, Stem	Rubber	00746J	00746J	00746J	00746J
19	Stem	303 SS	8982401F	8982401F	8982401F	8982401F
20*	O-Ring, Body	Rubber	00767E	00767E	00767E	00767E
21*	Retainer Assembly, Disc	303 SS	C9158B	C9158B	C9158B	C9158B
22	Seat	303Rub	62187A	62187A	62187A	62187A
23	Nut, Hex, Stem, Lower	Bronze	6779806G	6779806G	6779806G	6779806G
24	Pipe Plug	Bronze	6784701C	6784701C	6784701C	6784701C
	FACTORY SET POINT		50 PSI	60 PSI	60 PSI	100 PSI
	REPAIR KIT*		9170007A	9170007A	9170007A	9170007A



Pressure Relief Control

DESCRIPTION

The CRL Pressure Relief Control is a direct acting, spring loaded, diaphragm type relief valve. It may be used as a self-contained valve or as a pilot control for a Cla-Val Main valve. It opens and closes within very close pressure limits.

INSTALLATION

The CRL Pressure Relief Control may be installed in any position. The control body (7) has one inlet and one outlet port with a side pipe plug (24) at each port. These plugs are used for control connections or gauge applications. The inlet in the power unit body (6) is the sensing line port. A flow arrow is marked on the body casting.

OPERATION

The CRL Pressure Relief Control is normally held closed by the force of the compression spring above the diaphragm; control pressure is applied under the diaphragm.

When the controlling pressure exceeds the spring setting, the disc is lifted off its seat, permitting flow through the control.

When controlling pressure drops below spring setting, the spring returns the control to its normally closed position.

ADJUSTMENT PROCEDURE

The CRL Pressure Relief Control can be adjusted to provide a relief setting at any point within the range found on the nameplate.

Pressure adjustment is made by turning the adjustment screw (9) to vary the spring pressure on the diaphragm. Turning the adjustment screw clockwise increases the pressure required to open the valve. Counterclockwise decreases the pressure required to open the valve.

When pressure adjustments are complete the jam nut (10) should be tightened and the protective cap (1) replaced. If there is a problem of tampering, lock wire holes have been provided in cap and cover. Wire the cap to cover and secure with lead seal.

DISASSEMBLY

The CRL Pressure Relief Control does not need to be removed from the line for disassembly. Make sure that pressure shut down is accompanied prior to disassembly. If the CRL is removed from the line for disassembly be sure to use a soft jawed vise to hold body during work.

Refer to Parts List Drawing for Item Numbers.

1. Remove cap (1), loosen jam nut (10) and turn adjusting screw counterclockwise until spring tension is relieved.
2. Remove the eight screws (4) holding the cover (3) and powerunit body (6). Hold the cover and powerunit together and place on a suitable work surface.
See NOTE under REASSEMBLY.
3. Remove the cover (3) from powerunit body (6). The spring (12) and two spring guides (11).
4. Remove nut (13) from stem (19) and slide off the Belleville washer (14), the upper diaphragm washer (15) and the diaphragm (16).
5. Pull the stem (19) with the disc retainer assembly (21) through the bottom of powerunit. The lower diaphragm washer (17) will slide off of stem top.
6. Remove jam nut (23) and disc retainer assembly (21) from stem. Use soft jawed pliers or vise to hold stem. The polished surface of stem must not be scored or scratched.
7. The seat (22) need not be removed unless it is damaged. If removal is necessary use proper size socket wrench and turn counterclockwise.

Note: Some models have an integral seat in the body (7).

INSPECTION

Inspect all parts for damage, or evidence of cross threading. Check diaphragm and disc retainer assembly for tears, abrasions or other damage. Check all metal parts for damage, corrosion or excessive wear.

REPAIR AND REPLACEMENT

Minor nicks and scratches may be polished out using 400 grit wet or dry sandpaper fine emery or crocus cloth. Replace all O-rings and any damaged parts.

When ordering replacement parts, be sure to specify parts list item number and all nameplate data.

REASSEMBLY

In general, reassembly is the reverse of disassembly. However, the following steps should be observed:

1. Lubricate the O-Ring (18) with a small amount of a good grade of waterproof grease, (Dow Corning 44 medium grade or equal). Use grease sparingly and install O-ring in powerunit body (6).
Do Not Cut O-Ring.
2. Install stem (19) in powerunit body (6). Use a rotating motion with minimum pressure to let stem pass through O-ring.
3. Install O-ring (5) at top of stem (19). Place lower diaphragm washer (17) on the stem with the serrated side up. Position diaphragm (16), upper diaphragm washer (15), with serration down, and Belleville washer (14) with concave side down.
4. Position powerunit body (6) as shown on parts list drawing (top view).
5. Continue reassembly as outlined in disassembly steps 1 through 3.

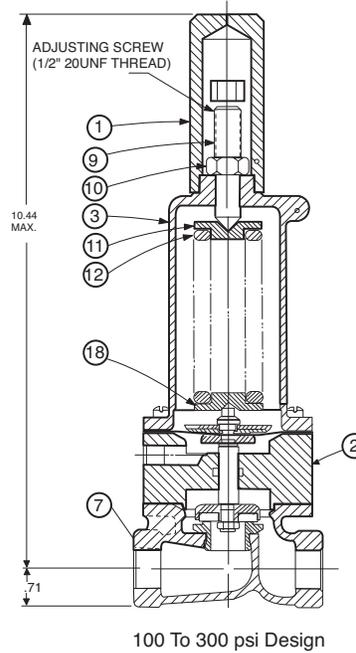
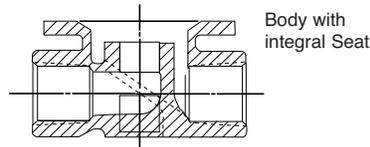
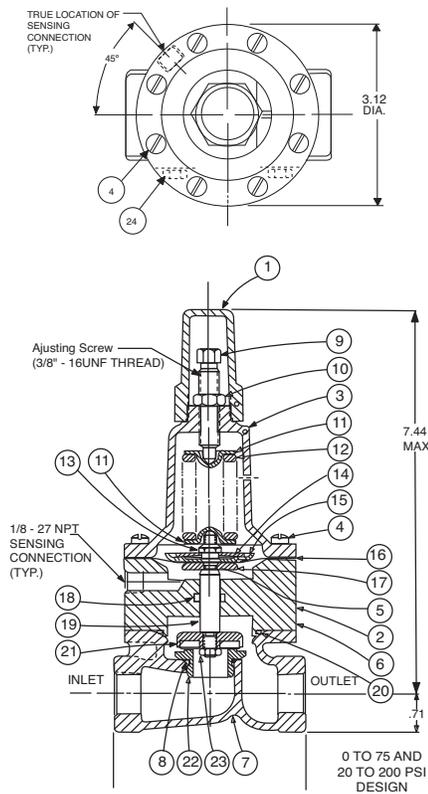
Note: Item (4) Screw will have a quantity of 8 for the 0-75 and 20-200psi design and a quantity of 4 for the 100-300psi design. Item (25) Screw is used on the 100-300psi design only. Install item (25), before item (4) for preload of item (12) spring.

SYMPTOM	PROBABLE CAUSE	REMEDY
Fails to open.	Controlling pressure too low.	Back off adjusting screw until valve opens.
Fails to open with spring compression removed.	Mechanical obstruction, corrosion, scale build-up on stem.	Disassemble, locate, and remove obstruction, scale.
Leakage from cover vent hole when controlling pressure is applied.	Diaphragm Damage	Disassembly replace damaged diaphragm.
	Loose diaphragm assembly.	Tighten upper diaphragm washer.
Fails to close.	No spring compression.	Re-set pressure adjustment.
Fails to close with spring compressed.	Mechanical obstruction.	Disassemble, locate and remove obstruction.



1/2" & 3/4" PRESSURE RELIEF CONTROL

(Bronze Body with 303SS Trim)



SIZE	SPRING	PART NUMBER
1/2"	0-75 PSI	7922201E
1/2"	20-105 PSI	7922205F
1/2"	20-200 PSI	7922202C
1/2"	100-300 PSI	8280901D
3/4"	0-75 PSI	7922901K
3/4"	20-105 PSI	7922903F
3/4"	20-200 PSI	7922902H
3/4"	100-300 PSI	8600501E

For 250-600 PSI Contact Factory

CRL Range PSI	APPROX. INCREASE FOR EACH CLOCKWISE TURN OF ADJUSTING SCREW
0 to 75	8.5 PSI
20 to 105	12.5 PSI
20 to 200	28.0 PSI
100 to 300	18.0 PSI

When ordering parts please specify:

1. All Nameplate Data
2. Item Part Number
3. Item Description

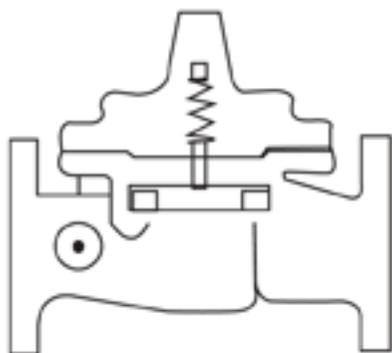
Item	Description	Material	Part Number	Part Number	Part Number	Part Number
			0-75	20-105	20-200	100-300
1	Cap	Plastic	67628J	67628J	67628J	1257601D
2	Nameplate	Brass	--	--	--	--
3	Cover	Bronze	C2544K	C2544K	C2544K	44587E
4*	Screw Fil. Hd. 10-32 x 1.88 (Qty 8)	303 SS	6757867E	6757867E	6757867E	6757867E
5*	O-Ring	Rubber	00902H	00902H	00902H	00902H
6	Body, Powerunit	Bronze	7920504D	7920504D	7920504D	7920504D
7	1/2" Body	Bronze	C7928K	C7928K	C7928K	C7928K
	3/4" Body	Bronze	C9083B	C9083B	C9083B	C9083B
8*	O-Ring, Seat	Rubber	00718H	00718H	00718H	00718H
9	Screw, Adjusting	Brass	7188201D	7188201D	7188201D	82811B
10	Nut Hex (Locking)	303 SS	6780106J	6780106J	6780106J	6780606H
11	Guide, Spring	303 SS	71881H	71881H	71881H	1630301J
12	Spring	CHR/VAN	71884B	20632101E	71885J	1630201A
13	Nut, Stem Upper	Bronze	73034B	73034B	73034B	73034B
14	Washer, Belleville	Steel	7055007E	7055007E	7055007E	7055007E
15	Washer, Diaphragm (upper)	303 SS	71891G	71891G	71891G	71891G
16*	Diaphragm	Rubber	C1505B	C1505B	C1505B	C1505B
17	Washer, Diaphragm (lower)	303 SS	45871B	45871B	45871B	45871B
18*	O-Ring, Stem	Rubber	00746J	00746J	00746J	00746J
19	Stem	303 SS	8982401F	8982401F	8982401F	8982401F
20*	O-Ring, Body	Rubber	00767E	00767E	00767E	00767E
21*	Retainer Assembly, Disc	303 SS	C9158B	C9158B	C9158B	C9158B
22	Seat	303Rub	62187A	62187A	62187A	62187A
23	Nut, Hex, Stem, Lower	Bronze	6779806G	6779806G	6779806G	6779806G
24	Pipe Plug	Bronze	6784701C	6784701C	6784701C	6784701C
	FACTORY SET POINT		50 PSI	60 PSI	60 PSI	100 PSI
	REPAIR KIT*		9170007A	9170007A	9170007A	9170007A

CLA-VAL

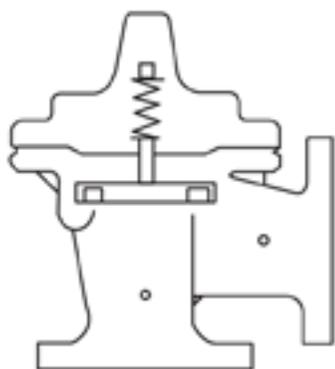
AUTOMATIC CONTROL VALVES

CRL & 55F

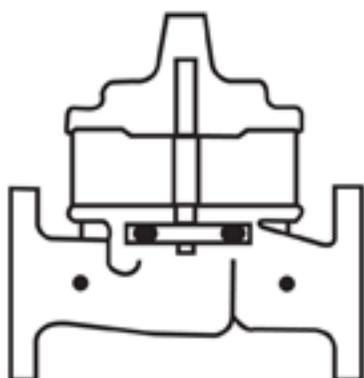
Place this manual with personal responsible
for maintenance of this valve



INSTALLATION



OPERATION



MAINTENANCE



Pressure Relief Valves



- **Direct Acting - Precise Pressure Control**
- **Positive Dependable Opening**
- **Drip Tight Closure**
- **No Packing Glands or Stuffing Boxes**
- **Sensitive to Small Pressure Variations**

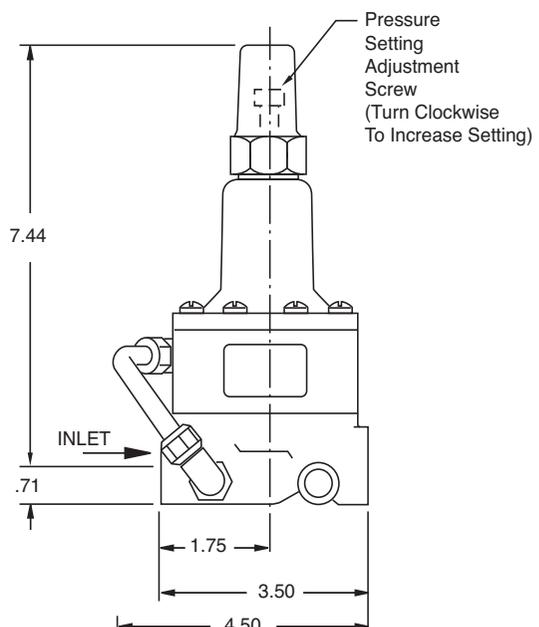
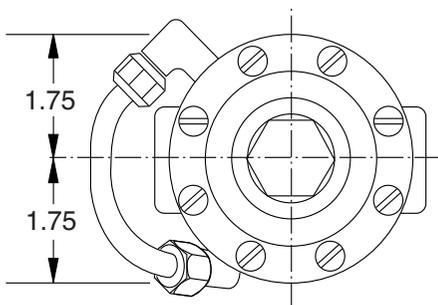
The Cla-Val Model CRL and 55F Pressure Relief Valves are direct-acting, spring loaded, diaphragm type relief valves. Often used as pilot controls for Cla-Val Hytrol valves, they can also be used as self-contained pressure relief valves. These valves may be installed in any position and open and close within very close pressure limits.

The Model CRL and 55F are normally held closed by the force of the compression spring above the diaphragm. Control pressure is applied under the diaphragm. When the controlling pressure exceeds the spring setting, the disc is lifted off its seat, permitting flow through the control. When control pressure drops below the spring setting, the spring forces the control back to its normally closed position. The controlling pressure is applied to the chamber beneath the diaphragm through an external tube on the Model 55F and a sensing port on the CRL.

Pressure adjustment is simply a matter of turning the adjusting screw to vary the spring pressure on the diaphragm. To prevent tampering, the adjustment cap can be wire sealed by using the lock wire holes provided in the cap and cover.

Note: Also Available in Seawater Service Material

Dimensions (In Inches) 55F Model



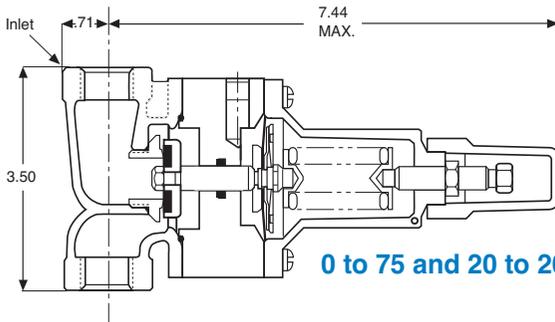
Specifications

Size 1/2" & 3/4" Threaded
Temperature Range Water, Air: to 180°F Max.
Materials

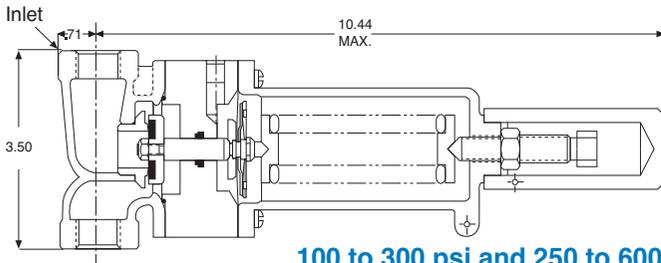
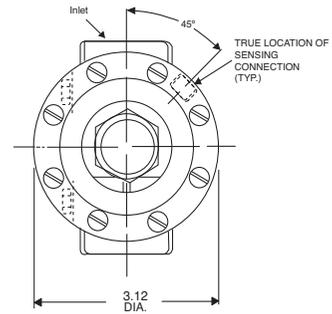
Body & Cover: Cast Bronze ASTM B62
 Cast Aluminum 356-T6
 Stainless Steel ASTM A743C7-167A
Trim: Brass & Stainless Steel 303
Rubber: Buna-N® Synthetic Rubber

Adjustment Range PSI	Approximate Increase For Each Clockwise Turn Of Adjusting Screw
0 to 75	8.5 psi
20 to 105	12.0 psi
20 to 200	28.0 psi
100 to 300	18.0 psi
250 to 600	37.0 psi

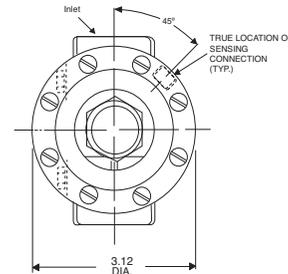
CRL Basic Valve Dimensions (In Inches)



0 to 75 and 20 to 200 psi Design



100 to 300 psi and 250 to 600 psi Design



Pressure Ratings Cast Bronze 400 psi Max.
 Cast Aluminum 275 psi Max.
 Stainless steel 400 psi Max.
Other Materials Available on special order
Adjustment Ranges 0 to 75 psi
 20 to 105 psi
 20 to 200 psi
 100 to 300 psi
 250 to 600 psi (model CRL-18)

Flow Loss Chart (Full Open Valve)

Valve Size	C _V Factor	Flow of Water - gpm				
		5	10	15	20	30
1/2"	6	0.7	2.7	6	11	---
3/4"	8.5	0.3	1.4	3.1	5.5	12.2

OPTIONAL X140 SECURITY CAP



X140-1
 Locking
 Security
 Cap

- Controlled Security for Pilot Control Adjustment
- Long Life Stainless Steel Construction
- Tamper-Resistant Design
- X140-1 Key and Six Pin Cylinder Lock Supplied

When Ordering, Please Specify

1. Catalog No. CRL & 55F
2. Valve Size
3. Adjustment Range Desired
4. Optional Materials
5. Optional Security Cap



E-CRL/55F (R-4/2012)

CLA-VAL

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 Phone: 949-722-4800 • Fax: 949-548-5441

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CLA-VAL EUROPE

Chemin des Mesanges 1
 CH-1032 Romanel/
 Lausanne, Switzerland
 Phone: 41-21-643-15-55
 Fax: 41-21-643-15-50

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Represented By:



Pressure Relief Control



Available in a wide range of materials including seawater service nickel aluminum bronze and stainless steel. Certified to meet low lead requirements.



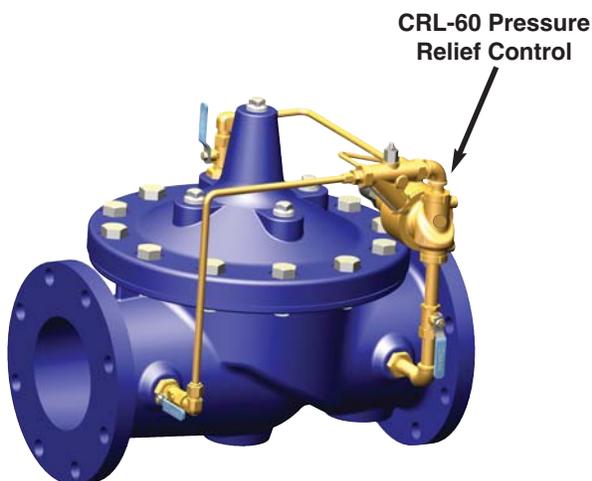
- **Direct Acting - Precise Pressure Control**
- **Positive Dependable Opening**
- **Drip Tight Closure**
- **Remote Sensing**
- **Sensitive to Small Pressure Variations**

The Cla-Val Model CRL-60 Pressure Relief Valve is a direct-acting, spring loaded, diaphragm type relief valve. Often used as a pilot control for Cla-Val Hytrol valves, it can also be used as a standalone pressure relief valve. The CRL-60 may be installed in any position. It opens and closes within very close pressure limits. The bottom plug may be removed and installed in the inlet to convert it to an angle pattern flow path.

The Model CRL-60 is normally held closed by the force of the compression spring above the diaphragm. Control pressure is applied under the diaphragm. When the controlling pressure exceeds the spring setting, the disc is lifted off its seat, permitting flow through the control. When control pressure drops below the spring setting, the spring forces the control back to its normally closed position. The controlling pressure is applied to the chamber beneath the diaphragm through a sensing port on the CRL-60 body.

Pressure adjustment is simply a matter of turning the adjusting screw to vary the spring pressure on the diaphragm. The CRL-60 is available in four pressure ranges: 0 to 75 psi, 20 to 105 psi, 20 to 200 psi, and 100 to 300 psi. To prevent tampering, the adjustment cap can be wire sealed by using the lock wire holes provided in the cap and cover; or supplied with a X140-1 Locking Cap. The X140-1 is a key and six-pin cylinder locking security cap that completely encapsulates the pilot control adjustment screw and cannot be removed without the appropriate key.

Typical Application for CRL-60 Pressure Relief Control



50 Series Pressure Relief Control Valve

Model CRL-60 Pressure Relief Control is ideally suited as pilot control for Cla-Val Series 50 pressure relief or pressure sustaining automatic control valves. The 50 Series valves are hydraulically operated, pilot controlled, modulating type valves, used where pressure relief is needed in a waterworks pipeline distribution system downstream of any high pressure source, such as pressure reducing stations or pump stations, or they can also be used in a bypass to control pump delivery pressure.

Model CRL-60 is designed to maintain constant upstream pressure to close limits at a remote point in many Cla-Val pilot control systems. Cla-Val 50 Series Pressure Relief Valves use CRL-60 to sense and actuate main valve using inlet line pressure through pilot system. In event of a pressure surge in pipeline, CRL-60 remotely sensing valve inlet pressure opens quickly to control main valve opening and maintains water flow to atmosphere to dissipate pressure surge. CRL-60 closes slowly as the inlet pressure lowers to a safe pressure to prevent new surges, and finally when inlet pressure is below the pressure setting, the main valve closes drip tight. Pressure setting adjustment is made with a single adjusting screw that has a protective cap to discourage tampering.

Specifications

Size	1/2" & 3/4" Threaded
Temperature Range	Water, Air: to 180°F Max.
Materials	
Body & Cover:	Cast Bronze UNS C87850 Low Lead Stainless Steel ASTM A743-CF-16Fa
Trim:	Brass & Stainless Steel 303
Rubber:	Buna-N® Synthetic Rubber

Pressure Ratings	Bronze 400 psi Max. Stainless Steel 400 psi Max.
Other Materials	Available on special order
Adjustment Ranges	0 to 75 psi 20 to 105 psi 20 to 200 psi 100 to 300 psi

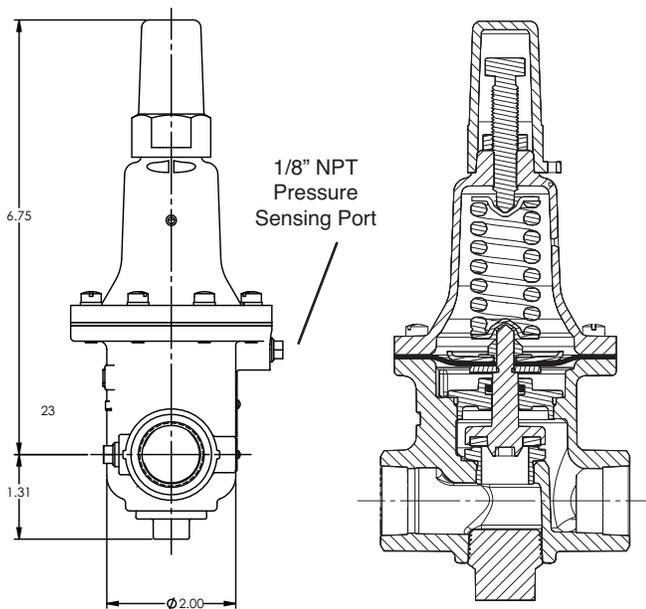
CRL-60 PSI	Approximate Increase For Each Clockwise Turn Of Adjusting Screw
0 to 75	8.5 psi
20 to 105	12.0 psi
20 to 200	28.0 psi
100 to 300	18.0 psi

Pressure Drop Chart (Full Open Valve)

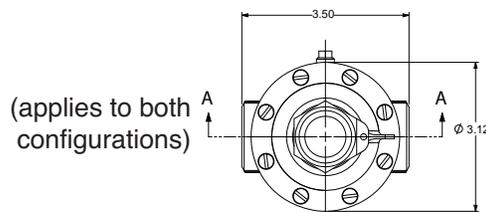
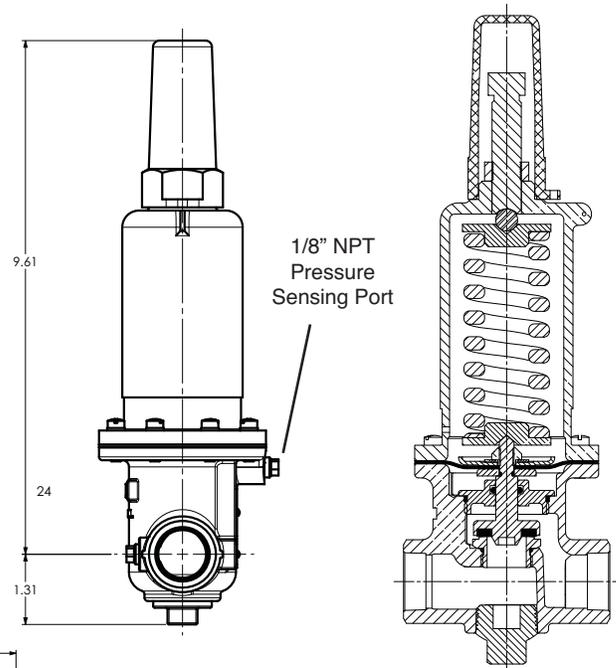
Valve Size	C _v Factor	Flow of Water - gpm				
		5	10	15	20	30
1/2"	6	0.7	2.7	6	11	---
3/4"	8.5	0.3	1.4	3.1	5.5	12.2

Dimensions

0 to 75 and 20 to 200 psi design



100 to 300 psi design



When Ordering, Please Specify

1. Catalog No. CRL-60
2. Valve Size
3. Adjustment Range Desired
4. Optional Materials
5. Optional Security Cap



CLA-VAL

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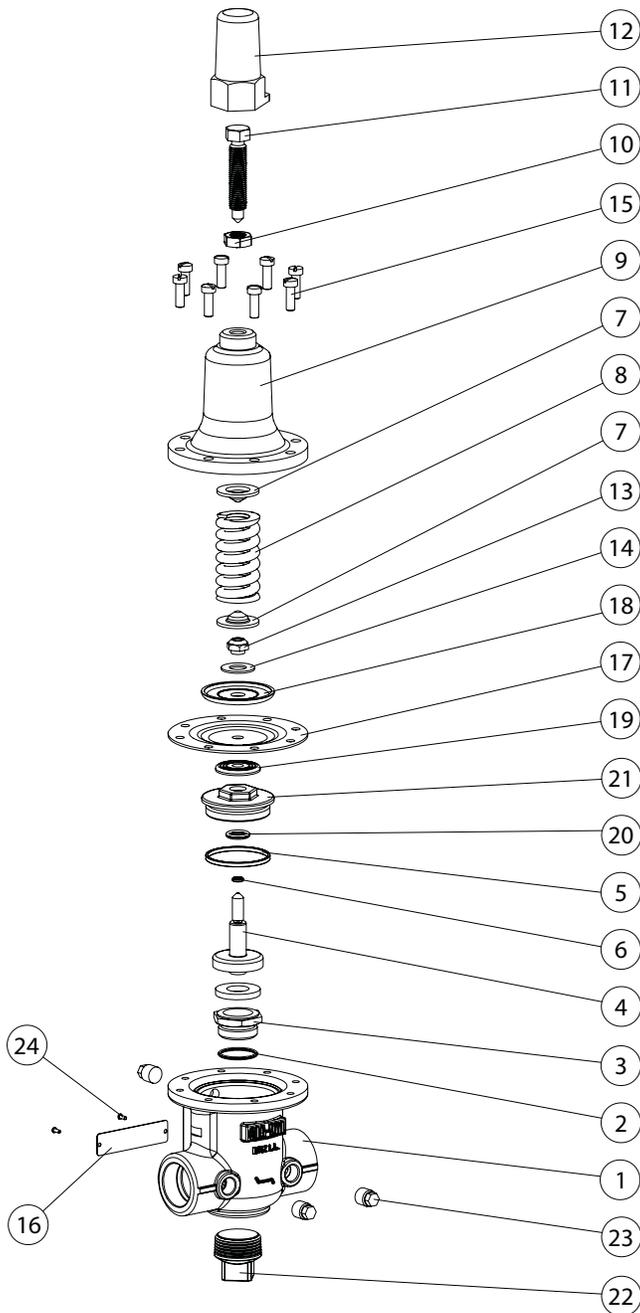
www.cla-val.com

Represented By:



CRL-60

1/2" & 3/4" PRESSURE RELIEF CONTROL



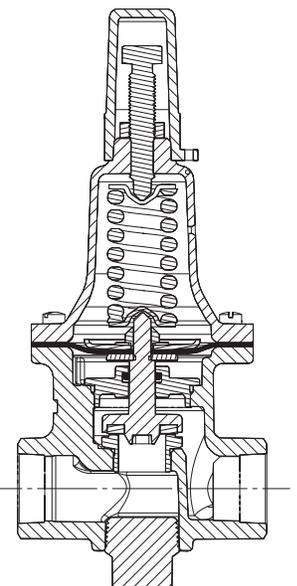
Item	Description	Quantity
1	BODY	1
* 2	O--RING	1
3	SEAT 1/2" & 3/4"	1
* 4	STEM ASSEMBLY	1
* 5	O--RING	1
* 6	O--RING	1
7	Guide Spring	2
8	SPRING	1
9	COVER	1
10	Hexnut .375--16 UNC	1
11	Adjusting Screw	1
12	Cap	1
13	NUT, STEM	1
14	BELLEVILLE WASHER FLAT	1
15	FIL HD SCREW #10--32 UNF	8
16	NAMEPLATE	1
* 17	DIAPHRAGM	1
18	Washer Diaphragm Upper	1
19	DIAPHRAGM WASHER	1
* 20	O--RING	1
21	GUIDE STEM	1
22	3/4" NPT PIPE PLUG	1
23	1/8" NPT PIPE PLUG	3
24	DRIVE SCREW	2

* SUGGESTED REPAIR PARTS REPAIR KIT;
1/2" & 3/4".....P/N 9170033G

SIZE	SPRING	PART NUMBER
1/2"	0-75 PSI	20840401A
1/2"	20-105 PSI	20840408D
1/2"	20-200 PSI	20840402K
1/2"	100-300 PSI	20861201J
3/4"	20-200 PSI	20840404H
3/4"	100-300 PSI	20861202H

For 250-600 PSI Contact Factory

CRL-60 Spring Range PSI	APPROX. INCREASE FOR EACH CLOCKWISE TURN OF ADJUSTING SCREW
0 to 75	8.5 PSI
20 to 105	12.5 PSI
20 to 200	28.0 PSI
100 to 300	18.0 PSI



When ordering parts please specify:

1. All Nameplate Data
2. Item Part Number
3. Item Description



—MODEL— **CRL-60**

Pressure Relief Control

DESCRIPTION

The CRL-60 Pressure Relief Control is a direct acting, spring loaded, diaphragm type relief valve. It may be used as a self-contained valve or as a pilot control for a Cla-Val Main valve. It opens and closes within very close pressure limits.

INSTALLATION

The CRL-60 Pressure Relief Control may be installed in any position. The control body (1) has one inlet and one outlet port. Body (1) also has smaller side ports; one on inlet, one on outlet, each with pipe plugs (23) installed. These smaller side ports are used for control connections or gauge applications. The body (1) also has one center side port, used as the sensing line port. A flow arrow is marked on the body casting.

OPERATION

The CRL-60 Pressure Relief Control is normally held closed by the force of the compression spring above the diaphragm; control pressure is applied under the diaphragm.

When the controlling pressure exceeds the spring setting, the disc is lifted off its seat, permitting flow through the control.

When controlling pressure drops below spring setting, the spring returns the control to its normally closed position.

ADJUSTMENT PROCEDURE

The CRL-60 Pressure Relief Control can be adjusted to provide a relief setting at any point within the range found on the nameplate.

Pressure adjustment is made by turning the adjustment screw (11) to vary the spring pressure on the diaphragm. Turning the adjustment screw clockwise increases the pressure required to open the valve. Counterclockwise decreases the pressure required to open the valve.

When pressure adjustments are complete the jam nut (10) should be tightened and the protective cap (12) replaced. If there is a problem of tampering, lock wire holes have been provided in cap and cover. Wire the cap to cover and secure with lead seal.

DISASSEMBLY

The CRL-60 Pressure Relief Control does not need to be removed from the line for disassembly. Make sure that pressure shut down is accompanied prior to disassembly. If the CRL-60 is removed from the line for disassembly be sure to use a soft jawed vise to hold body during work.

Refer to Parts List Drawing for Item Numbers.

1. Remove cap (12), loosen jam nut (10) and turn adjusting screw counterclockwise until spring tension is relieved.
2. Remove the eight screws (15) holding the cover (9). Keep the cover and eight screws together and place on a suitable work surface. See NOTE under REASSEMBLY.
3. Remove the cover (9) from body (1). The spring (8) and two spring guides (7).
4. Remove plug (22) from body (1). Using screwdriver, hold stem assembly (4) to remove nut (13).
5. Slide off the belleville washer (14), upper diaphragm washer (18), diaphragm (17) and lower diaphragm washer (19).
6. Remove stem guide (21) from body (1). Remove stem assembly (4). Inspect, replace stem assembly and/or O-rings (5), (6) and (20) if necessary. Use soft jawed pliers or vise to hold stem. The polished surface of stem must not be scored or scratched.
7. The seat (3) need not be removed unless it is damaged. If removal is necessary use proper size socket wrench and turn counterclockwise.

INSPECTION

Inspect all parts for damage, or evidence of cross threading. Check diaphragm for tears. Check stem assembly (4) for abrasions or other damage. Check all metal parts for damage, corrosion or excessive wear.

REPAIR AND REPLACEMENT

Minor nicks and scratches may be polished out using 400 grit wet or dry sandpaper fine emery or crocus cloth. Replace all O-rings and any damaged parts.

When ordering replacement parts, be sure to specify parts list item number and all nameplate data.

REASSEMBLY

In general, reassembly is the reverse of disassembly. However, the following steps should be observed:

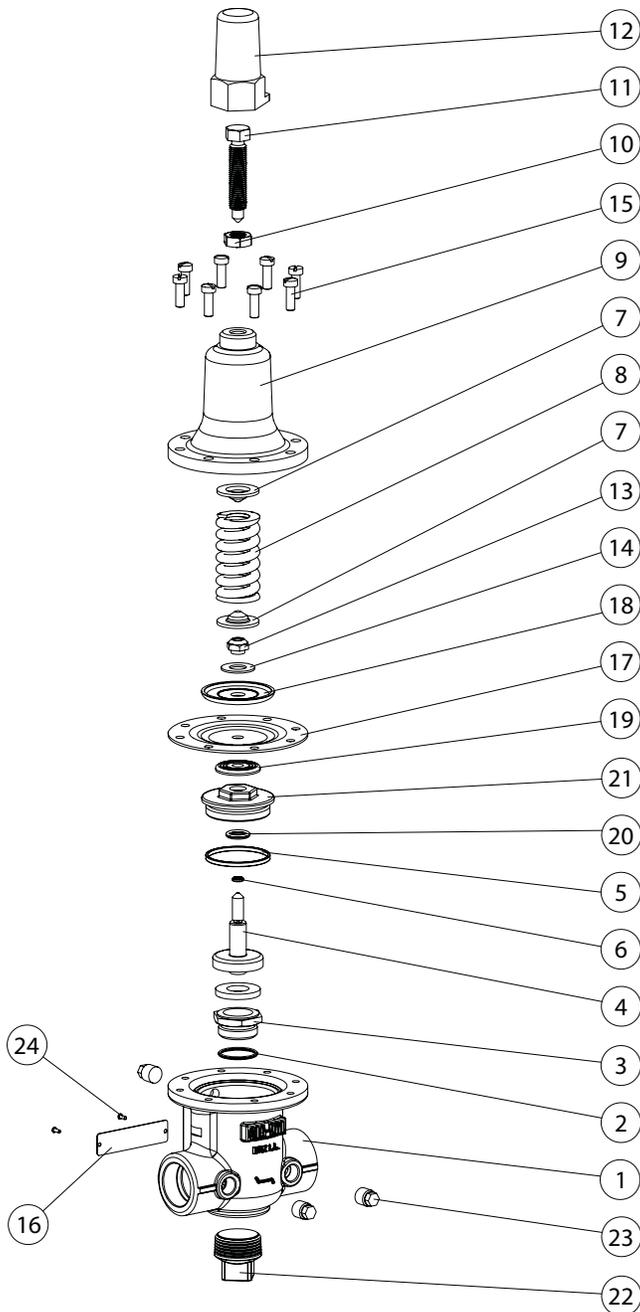
1. Lubricate the O-Ring (5) and (6) with a small amount of a good grade of waterproof grease, (Dow Corning 44 medium grade or equal). Use grease sparingly when installing O-ring (20) into guide stem (21).
2. Install stem assembly (4) into guide stem (21). Use a rotating motion with minimum pressure to let stem pass through O-ring. Do Not Cut O-Ring.
3. Install O-ring (6) at top of stem assembly (4). Install guide stem (21) and stem assembly (4) into body (1). Use socket to tighten securely. Place lower diaphragm washer (19) on the stem assembly with the serrated side up. Position diaphragm (17), upper diaphragm washer (18), with serration down, and belleville washer (14) with concave side down.
4. Install nut (13) and tighten securely.
5. Continue reassembly as outlined in disassembly steps 1 through 3.

SYMPTOM	PROBABLE CAUSE	REMEDY
Fails to open.	Controlling pressure too low.	Back off adjusting screw until valve opens.
Fails to open with spring compression removed.	Mechanical obstruction, corrosion, scale build-up on stem.	Disassemble, locate, and remove obstruction, scale.
Leakage from cover vent hole when controlling pressure is applied.	Diaphragm Damage	Disassembly replace damaged diaphragm.
	Loose diaphragm assembly.	Tighten upper diaphragm washer.
Fails to close.	No spring compression.	Re-set pressure adjustment.
Fails to close with spring compressed.	Mechanical obstruction.	Disassemble, locate and remove obstruction.



CRL-60

1/2" & 3/4" PRESSURE RELIEF CONTROL



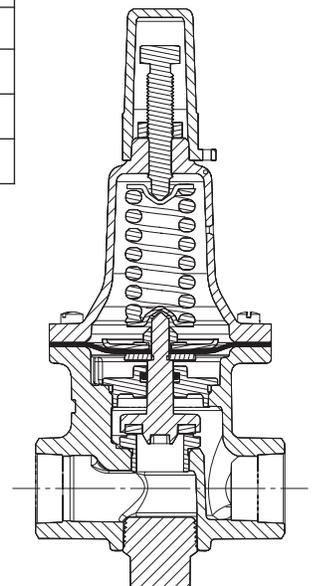
Item	Description	Quantity
1	BODY	1
* 2	O-RING	1
3	SEAT 1/2" & 3/4"	1
* 4	STEM ASSEMBLY	1
* 5	O-RING	1
* 6	O-RING	1
7	Guide Spring	2
8	SPRING	1
9	COVER	1
10	Hexnut .375--16 UNC	1
11	Adjusting Screw	1
12	Cap	1
13	NUT, STEM	1
14	BELLEVILLE WASHER FLAT	1
15	FIL HD SCREW #10--32 UNF	8
16	NAMEPLATE	1
* 17	DIAPHRAGM	1
18	Washer Diaphragm Upper	1
19	DIAPHRAGM WASHER	1
* 20	O-RING	1
21	GUIDE STEM	1
22	3/4" NPT PIPE PLUG	1
23	1/8" NPT PIPE PLUG	3
24	DRIVE SCREW	2

* SUGGESTED REPAIR PARTS REPAIR KIT;
1/2" & 3/4".....P/N 9170033G

SIZE	SPRING	PART NUMBER
1/2"	0-75 PSI	20840401A
1/2"	20-105 PSI	20840408D
1/2"	20-200 PSI	20840402K
1/2"	100-300 PSI	20861201J
3/4"	20-200 PSI	20840404H
3/4"	100-300 PSI	20861202H

For 250-600 PSI Contact Factory

CRL-60 Spring Range PSI	APPROX. INCREASE FOR EACH CLOCKWISE TURN OF ADJUSTING SCREW
0 to 75	8.5 PSI
20 to 105	12.5 PSI
20 to 200	28.0 PSI
100 to 300	18.0 PSI



When ordering parts please specify:

1. All Nameplate Data
2. Item Part Number
3. Item Description