

CLA VAL RP4

SIZE

2", 2 1/2", 3", 4", 6", 8", 10"

DESCRIPTION

This is a reduced pressure assembly. Production began in 1991. The 2" size was discontinued in 2003. The 2 1/2"-4" sizes were discontinued in 2005. The 6"-10" were discontinued in 2012. The RP4 was a redesign of the RP1-EX. Slight changes in design of the internal parts of the check and relief valve were implemented. The 2 1/2"-10" check bodies are cast iron with a fused epoxy coating. The 2" design is a bronze check body. The toggle lever check design used is the 3084. The workings of the 3084 are very similar to the 3081 check design as used in the RP1 series. Changes in the disc, disc retainer, and disc guide were implemented. Most internal check hardware parts are made of bronze. The relief valve used on the RP4 series is the CDHS 24. The CDHS 24 is similar to the CDHS 20 used in the RP1 series. The body is made of bronze. Changes in the stem, disc holder, and disc retainer were implemented. Most internal RV hardware parts are made of plastic. All seats are replaceable and check springs are not contained when the cover is removed. A seat removal tool is needed to change the check seats. This unit utilizes a single external relief valve sensing line. The relief valve spring is not contained when the relief valve body is disassembled. The relief valve can be removed from the check body and can be mounted on either side of the check body.

BASIC REPAIR KIT

The repair kit contains all rubber discs, diaphragm, rolling diaphragm, O-rings, washers, and cover seals.

<u>SIZE</u>	<u>KIT NO</u>
2"	RP4200 *
2 1/2"	RP4250 *
3"	RP4250 *
4"	RP4400 *
6"	RP4600 *
8"	RP4800 *
10"	RP4001 *

IMPORTANT FEATURES

- ~2" has a bronze check body
- ~2 1/2"-10" has a cast iron fused epoxy coated check body
- ~Springs are not contained
- ~Seats are replaceable
- ~RV is detachable
- ~External RV sensing line



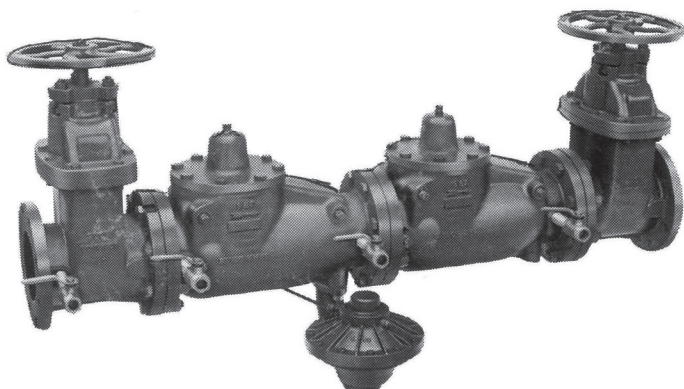


MODEL RP-4 Backflow Preventer

Reduced Pressure Principle

The Cla-Val Co. Model RP-4 Backflow Preventer protects potable water lines against contamination. This device combines protection against backflow with exceptionally low head loss characteristics. It operates on the reduced pressure principle, which is an accepted method of safeguarding potable water supplies against the hazards of cross-connections. The Model RP-4 is approved by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California and complies with the AWWA Standard C51189, the ASSE Standard 1013, and the CSA Standard B64.4.

The Model RP-4 is carefully constructed of corrosion resisting materials. It consists of two independently acting Toggle Lever Check Valves, an automatic Pressure Differential Relief Valve located between the two check valves, two shutoff valves and four test cocks. The levers, links and pins are rugged, simple and direct with ample clearances to insure long, trouble free operation, even in very hard water and over prolonged periods of time. All internal parts are readily accessible without removing the device from the line. Field testing is easily performed by means of the test cocks.



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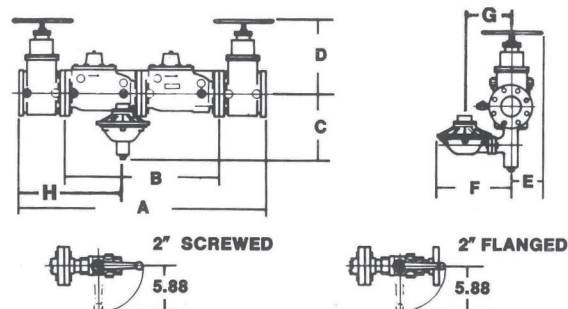
Operation

Under a normal flow condition, both Check Valves are open and the Pressure Differential Relief Valve is closed. During normal flow and at the cessation of flow, the pressure in the zone between the two Check Valves is maintained at least 2 PSI less than the supply pressure by action of the Pressure Differential Relief Valve.

Under a no flow condition, both Check Valves are closed. When supply pressure drops to 2 PSI above the "zone" pressure, then the Relief Valve discharges as necessary to maintain the "zone" pressure at 2 PSI below supply pressure. When supply pressure drops below 2 PSI above the "zone" pressure, then the Relief Valve opens fully.

The Model RP-4 operates efficiently at either high or low pressures. There are no pressure adjustments. The flow curves show the slight pressure drop at rated flow.

It is recommended that this unit be installed in a horizontal position and that provisions for adequate drainage be made. Right hand mount of Relief Valve is standard. Left hand mount is optional. Shut-off valves on 2" are resilient seat ball valves. Standard Shut-off valves on 2½" and larger are a resilient seat non-rising stem design. When used in fire service, OS&Y Shut-off Valves must be used, which are available at extra cost.



Dimensions (in inches)

Size	2" Screwed	2" Flanged	2½"	3"	4"	6"	8"	10"
A	33.66	37.16	42.19	42.19	48.19	61.19	73.94	85.69
B	20.06	20.06	27.06	27.06	30.06	40.06	50.81	59.56
C	7.94	7.94	9.44	9.44	12.56	13.56	14.75	17.06
D Max	5.25	5.25	19.00	19.00	24.75	31.25	40.25	48.50
E	5.88	5.88	4.50	4.50	5.00	6.00	8.00	10.00
F	9.25	9.25	9.25	9.25	14.25	14.25	14.25	14.25
G	7.70	7.70	7.70	7.70	9.00	9.00	9.00	9.00
H	14.74	16.49	18.56	18.56	20.56	26.81	32.94	38.31
End Details	2-11½ NPT screwed B1	150 Lb ANSI 16.24	125 Lb ANSI B 16.21					

Specifications

Sizes

2", 2½", 3", 4", 6", 8", 10"

End Detail

125 ANSI B16.1

Maximum Working Pressure

175 PSI

Hydrostatic Test Pressure

350 PSI

E-RP4 (6/90)

Temperature Range

to 110° F

Fluid

Water

Material

2" main valve body and cover:

Bronze ASTM B-61

2½" and larger

main valve body and cover:

Cast Iron ASTM A-126

interior epoxy coated

main valve trim:

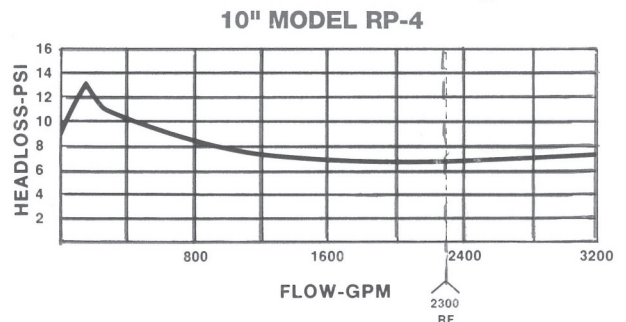
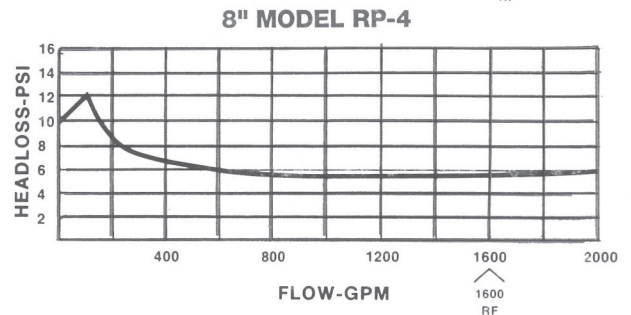
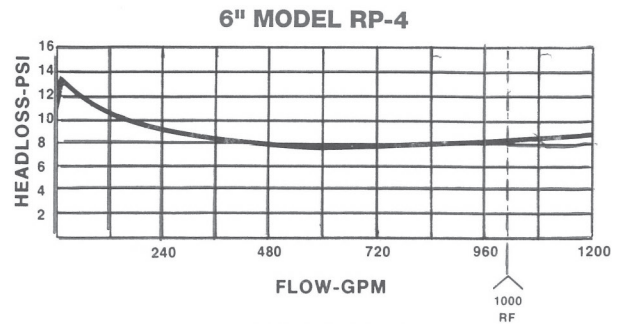
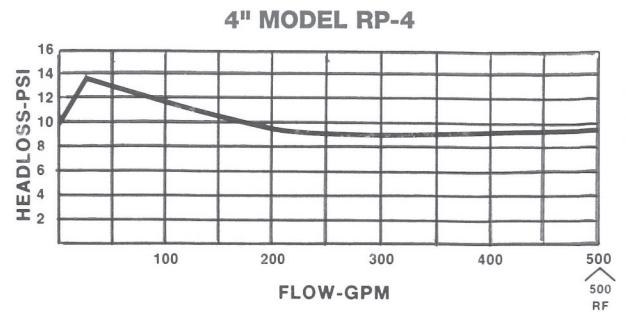
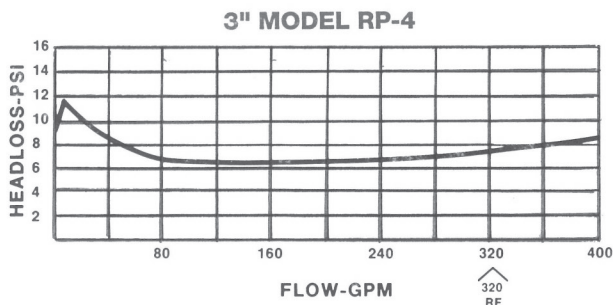
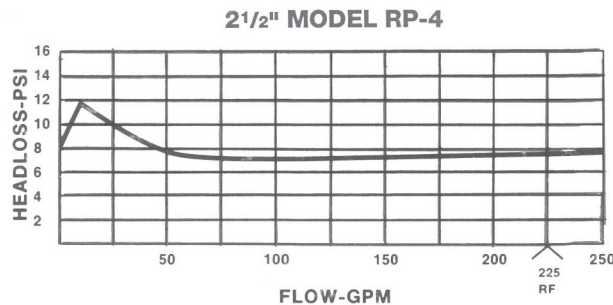
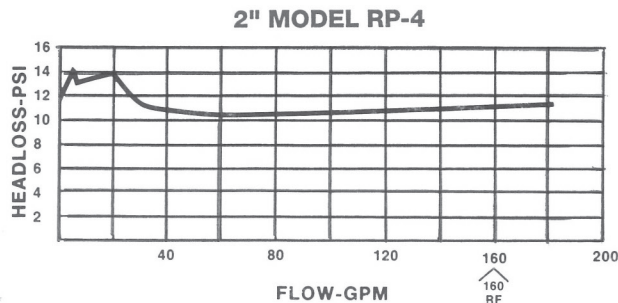
Bronze ASTM B-61

Differential relief valve:

Bronze ASTM B-61 with

Stainless Steel 316 Trim

RP-4 Reduced Pressure Principle Backflow Preventer Flow Curves



*"Rated Flow" Values adopted by the American Water Works Association and the New England Water Works Association.

Purchase Specifications

The reduced pressure principle backflow preventer shall be a complete assembly consisting of two independently acting spring-loaded toggle lever check valves together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve shall reduce the supply pressure a predetermined amount so that during normal flow and at the cessation of normal flow, the pressure between the checks is less than the supply pressure. In the case of leakage of either check valve, the differential relief valve shall discharge to atmosphere to maintain the pressure between the checks at least 2 PSI less than the supply pressure.

The unit shall include tightly closing shut-off valves located at each end of the device, and shall be fitted with properly located test cocks. Operation shall be completely automatic. All internal parts of the toggle lever check valves and the pressure differential relief valve must be removable or replaceable without removal of the unit from the line. The total head loss through the complete backflow device shall not exceed 10 PSI at the "rated flow".* The reduced pressure principle Backflow Preventer shall be the Model RP-4 BACKFLOW PREVENTER as manufactured by Cla-Val Co., Newport Beach, California.



3084 TOGGLE LEVER CHECK

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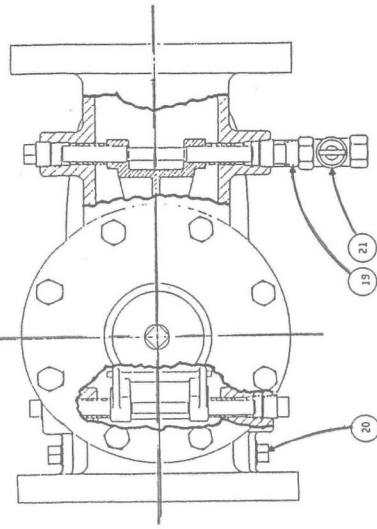


FIG. 12 3084 CHECK VALVE SHOWN (TOP VIEW)

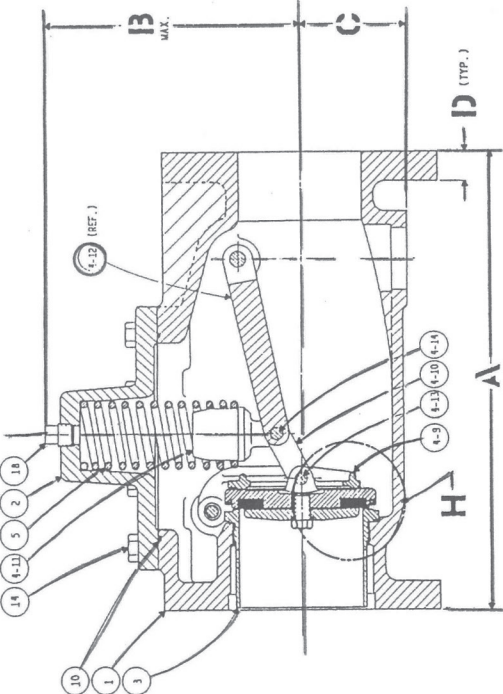


FIG. 11 3084 CHECK VALVE SHOWN (SIDE VIEW)

SECTION G-G

SIZE	2"	2-1/2"	3"	4"	5"	6"	8"	10"
A DIM.	10.00	13.50	13.00	15.00	20.00	25.36	28.75	33.75
B MAX.	5.25	7.25	7.25	8.31	11.00	13.00	15.75	18.75
C DIM.	2.38	3.88	3.88	4.50	5.50	6.69	8.00	9.50
D MIN.	50	69	75	94	120	142	168	200
E 2 MIN.	2.75	3.25	3.25	4.31	4.88	5.06	7.56	11.38
F MAX.	5.00	6.50	6.50	7.62	9.50	10.25	11.38	13.75
FLANGE PER DETAIL	150 LB.	150 LB.	150 LB.	150 LB.	150 LB.	150 LB.	150 LB.	150 LB.
END PER DETAIL	ANSI 316.24	ANSI 316.24	ANSI 316.24	ANSI 316.24	ANSI 316.24	ANSI 316.24	ANSI 316.24	ANSI 316.24

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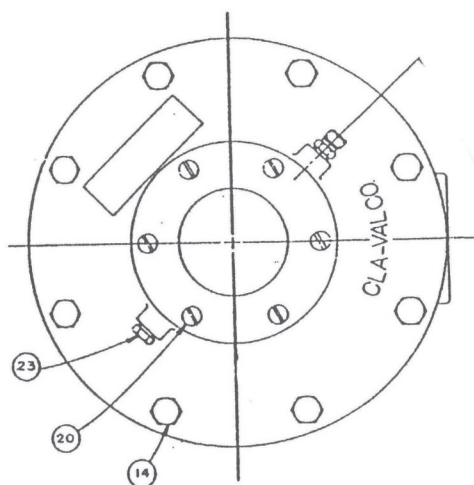
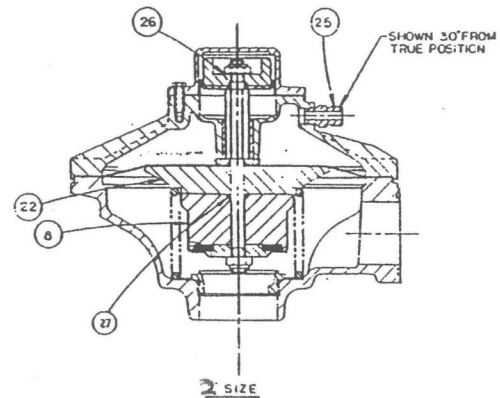
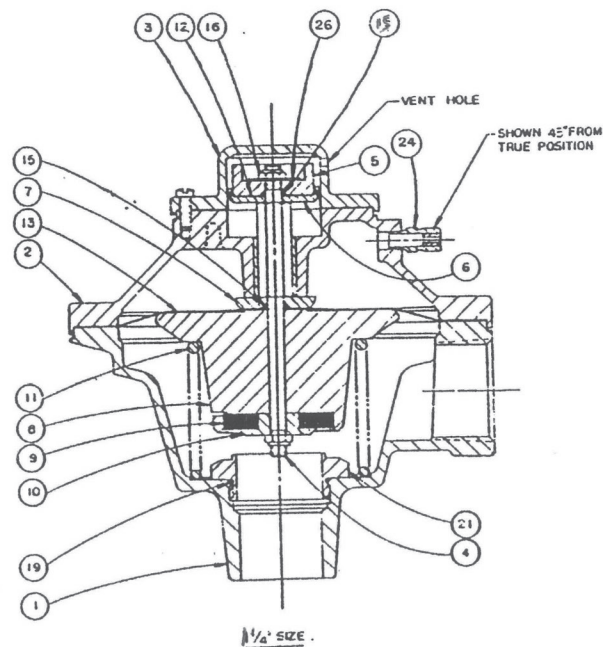
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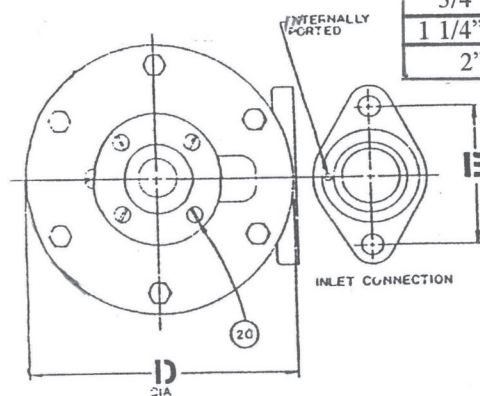
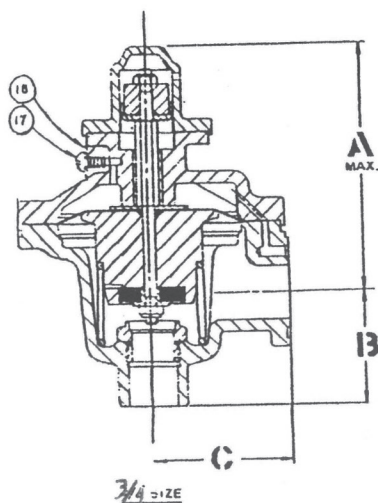
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CDHS 24 RELIEF VALVE



- 1 body
- 2 body assy inter,
- 3 cover
- 4 stem
- 5 piston
- 6 plate retainer
- 7 washer diaph
- 8 retainer, disc
- 9 disc
- 10 guide disc
- 11 spring
- 12 bellofram
- 13 diaphragm
- 14 bolt
- 15 o'ring
- 16 nut self locking
- 17 screw
- 18 washer (3/4" only)
- 19 O'ring seat
- 20 screw/ bolt
- 21 seat
- 22 washer diaph (2" only)
- 23 plug (1 1/4-2" only)
- 24 X58C restrictor (1 1/4" only)
- 25 connector
- 26 washer (1 1/4-2" only)
- 27 o'ring (2" only)



valve size	A	B	C	D	E
3/4"	4.10	1.84	2.25	4.38	2.25
1 1/4"	4.09	3.03	3.38	6.81	-
2"	4.03	2.85	5.25	10.38	4.5