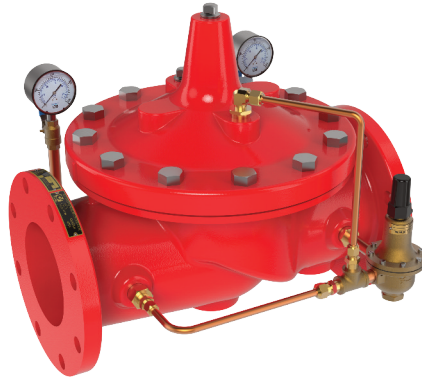




MODELS **90G-21**
90A-21

Fire Protection Pressure Reducing Valves



90-21 UL Listed Fire Protection Pressure Reducing Valve

Special System Water Control Valves – Class II
UL Product Category VLMT – File No. Ex 2534

- **UL & ULC Listed**
- **Globe or Angle Pattern**
- **Proven Reliable Design**
- **Available in Cast Bronze, Ductile Iron and Cast Steel**
- **Accurate Pressure Control**
- **In Line Service**
- **Grooved Ends (1-1/2" - 8")**

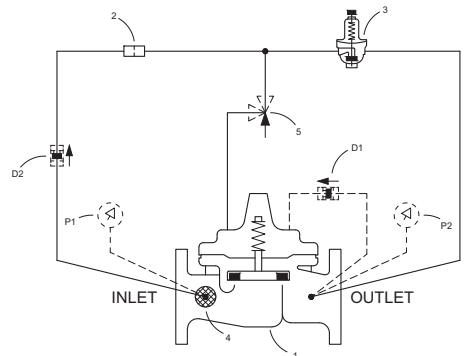
Cla-Val 90-21 Pressure Reducing Valves are indispensable in any fire protection system. Available in globe (90G-21) and angle patterns (90A-21), our diaphragm actuated design is proven to be highly reliable and easy to maintain. Globe and angle pattern valves feature a full range of adjustments. These valves are also available in a variety of material options. Epoxy coating is strongly recommended for all fire system valves (excluding bronze valves). All configurations of the valve can be supplied with optional internal and external epoxy coating of the main valve wetted surfaces.

Function

Cla-Val 90G-21 (globe) and 90A-21 (angle) Pressure Reducing Valves automatically reduce a higher inlet pressure to a steady lower outlet pressure regardless of changing flow rate and/or varying inlet pressure. The valves pilot control system is very sensitive to slight downstream pressure fluctuations, and will automatically open or close to maintain the desired pressure setting. The downstream pressure can be set over a wide range by turning the adjustment screw on the CRD pilot control. The adjustment screw is protected by a screw-down cover, which can be sealed to discourage tampering.

Schematic Diagram

Item	Description
1	100KX Hytrol Main Valve
2	X58C Restriction Assembly
3	CRD Pressure Reducing Control (see note)
4	X46A Flow Clean Strainer
5	CV Flow Control (opening)
D	Check Valve Option
P	Gauge Option



Note:

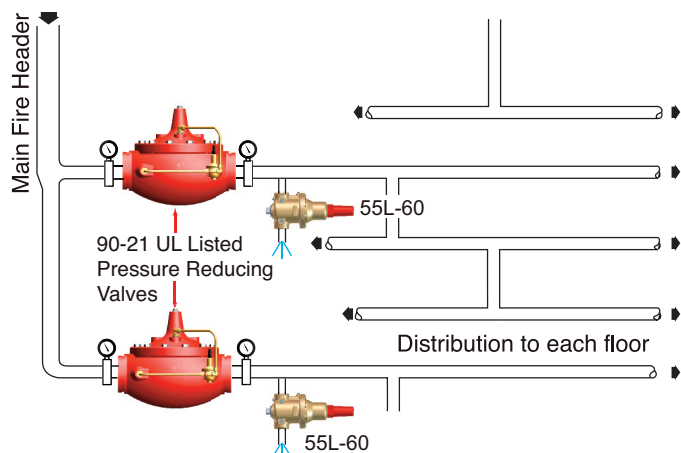
For Steel and Ductile Iron 300 Class Valves, use CRDKX with a special diaphragm washer, yoke and screws

Typical Application

Underwriters Laboratories requires the installation of pressure gauges upstream and downstream of the Pressure Reducing Valve.

A relief valve of not less than 1/2 inch in size must also be installed on the downstream side of the pressure control valve. Adequate drainage for the relief valve discharge must be provided.

The valve may be installed in either vertical or horizontal positions.



Dimensions

Valve Size (Inches)	1 1/2	2	2 1/2	3	4	6	8	10	12
A Threaded	7.25	9.38	11.00	12.50	—	—	—	—	—
AA 150 ANSI	8.50	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00
AAA 300 ANSI	9.00	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50
AAAA Grooved End	8.50	9.00	11.00	12.50	15.00	20.00	25.38	—	—
B	1.12	1.50	1.69	2.06	3.19	4.31	5.31	9.25	10.75
BB Grooved End	2.00	2.50	2.88	3.12	4.25	6.00	7.56	—	—
C Max.	5.50	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88
CC Max. Grooved End	4.75	5.75	6.88	7.25	9.31	12.12	14.62	—	—
E Threaded	3.25	4.75	5.50	6.25	—	—	—	—	—
EE 150 ANSI	4.00	4.75	5.50	6.00	7.50	10.00	12.69	14.88	17.00
EEE 300 ANSI	4.25	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75
EEEE Grooved End	—	4.75	—	6.00	7.50	—	—	—	—
F Threaded	1.88	3.25	4.00	4.50	—	—	—	—	—
FF 150 ANSI	4.00	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75
FFF 300 ANSI	4.25	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50
FFFF Grooved End	—	3.25	—	4.25	5.00	—	—	—	—
Y	9	9	10	11	12	20	22	24	26
Z	9	9	10	11	12	20	22	24	26

Valve Size (mm)	40	50	65	80	100	150	200	250	300
A Threaded	184	238	279	318	—	—	—	—	—
AA 150 ANSI	216	238	279	305	381	508	645	756	864
AAA 300 ANSI	229	254	295	337	397	533	670	790	902
AAAA Grooved End	216	228	279	318	381	508	645	—	—
B	29	38	43	52	81	110	135	235	273
BB Grooved End	52	64	73	79	108	152	192	—	—
C Max.	140	165	192	208	270	340	406	435	530
CC Max. Grooved End	120	146	175	184	236	308	371	—	—
E Threaded	83	121	140	159	—	—	—	—	—
EE 150 ANSI	102	121	140	152	191	254	322	378	432
EEE 300 ANSI	108	127	149	162	200	267	337	395	451
EEEE Grooved End	—	121	—	152	191	—	—	—	—
F Threaded	48	83	102	114	—	—	—	—	—
FF 150 ANSI	102	83	102	102	127	152	203	219	349
FFF 300 ANSI	102	89	110	111	135	165	216	236	368
FFFF Grooved End	—	83	—	108	127	—	—	—	—
Y	229	229	254	280	305	508	559	610	661
Z	229	229	254	280	305	508	559	610	661

Selection Guidelines

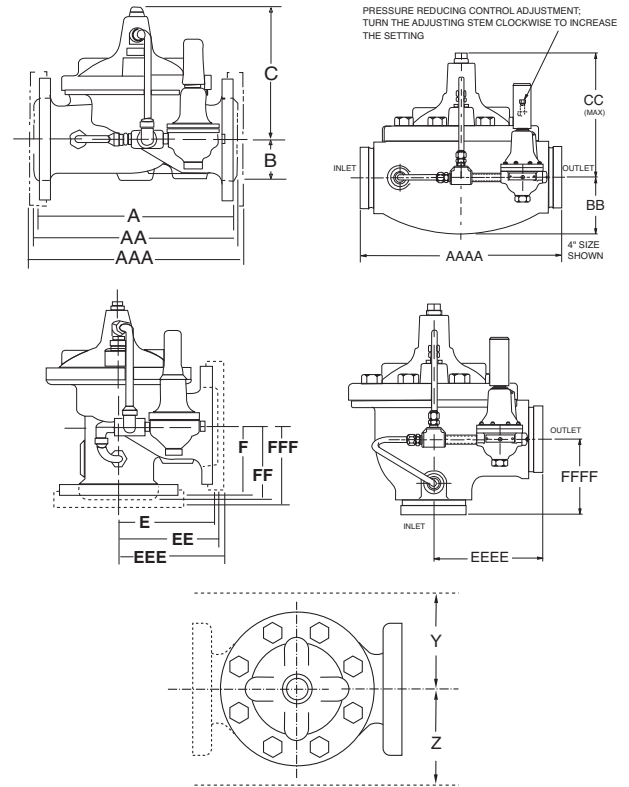
Flow Capacity Table

Flow Rate (GPM of Water)

Valve Size	Maximum	Minimum
1 1/2"	110	40
2"	196	45
2 1/2"	306	50
3"	441	57
4"	783	100
6"	1763	220
8"	3133	390
10"	4896	620
12"	7050	880

Optional UL Listed Materials for Seawater and Severe Service Applications:

- Nickel Aluminum Bronze (NAB) - ASTM B148 Alloy C95800
- Monel - QQ-N-288 Comp B - ASTM A494 Grade M30H
- Cast Steel - ASTM A216 Grade WCB
- 316 Stainless Steel - ASTM A743 Grades CF3M and CFM8
- Super Austenitic Stainless Steel - ASTM A351 Grade CK3MCuN (SMO 254)
- Super Duplex Stainless Steel - ASTM A890 Grade 5A (CE3MN)



End Details	150 and 300 ANSI B16.42								
Pressure Ratings	Class 150 - 250 psi Max. Class 300 - 300 psi Max. Water to 180°F Max.								
Standard Materials	Main Valve Body & Cover: Ductile Iron ASTM A536 Grade 65-45-12 Standard Main Valve Trim: Stainless Steel Seat Stainless Steel Stem Standard Pilot Control System: Cast Bronze with Stainless Steel Trim								
Pressure Adjustment Ranges	<table border="1"> <thead> <tr> <th>Size</th> <th>UL / ULC</th> </tr> </thead> <tbody> <tr> <td>1-1/2"</td> <td>50-175</td> </tr> <tr> <td>2"- 8"</td> <td>30-165</td> </tr> <tr> <td>10"- 12"</td> <td>30-175</td> </tr> </tbody> </table>	Size	UL / ULC	1-1/2"	50-175	2"- 8"	30-165	10"- 12"	30-175
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1-1/2"	20 psid Minimum								
2" - 8"	10 psid Minimum								
10"	20 psid Minimum								
12"	45 psid Minimum								
Temperature Range	Water to 180°F Maximum								

The pressure rating of the components installed downstream of the valve shall not be exceeded.

SPECIAL NOTE: THE MODEL 90-21/90-21P CAN BE SUPPLIED WITH INTERNAL EPOXY COATING OF THE MAIN VALVE. THIS OPTION IS U.L. FILE NO. EX2855, C.C. NO. HNFX EPOXY COATING IS STRONGLY RECOMMENDED FOR ALL CAST VALVES.



E-90-21 (R-02/2021)

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When Ordering, Specify:

- Model Number 90-21
- Size
- Globe or Angle Pattern
- Main Valve Body and Cover Material
- Threaded, Flanged or Grooved
- Pressure Class
- Optional Epoxy Coating (specify w/ suffix KC)