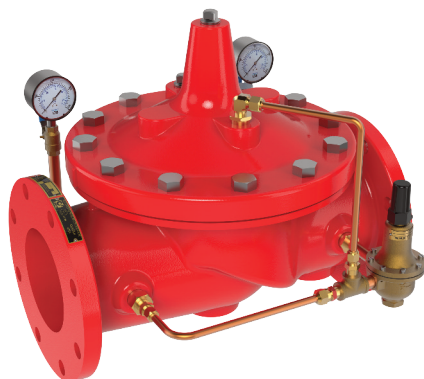




**MODELS** **90G-21**  
**90A-21**

## 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")**

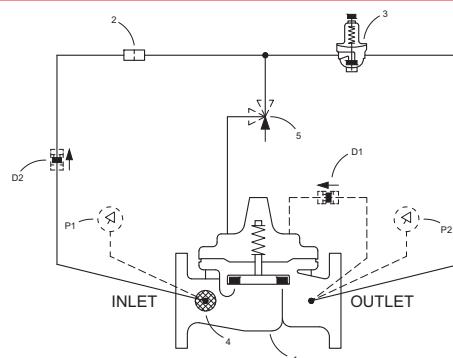
Cla-Val 90-21 Pressure Reducing Valves are indispensable in any fire protection system. Available in globe (90G-21) and angle patterns (90A-21), our diaphragm actuated design is proven to be highly reliable and easy to maintain. Globe and angle pattern valves feature a full range of adjustments. These 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:

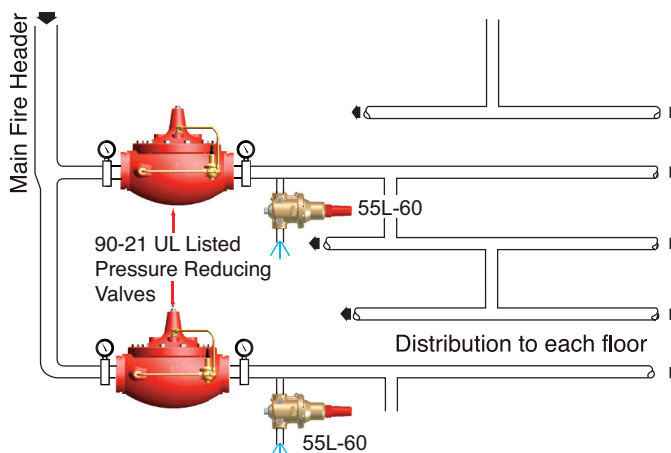
For Steel and Ductile Iron 300 Class Valves, use CRDKX with a special diaphragm washer, yoke and screws

### 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

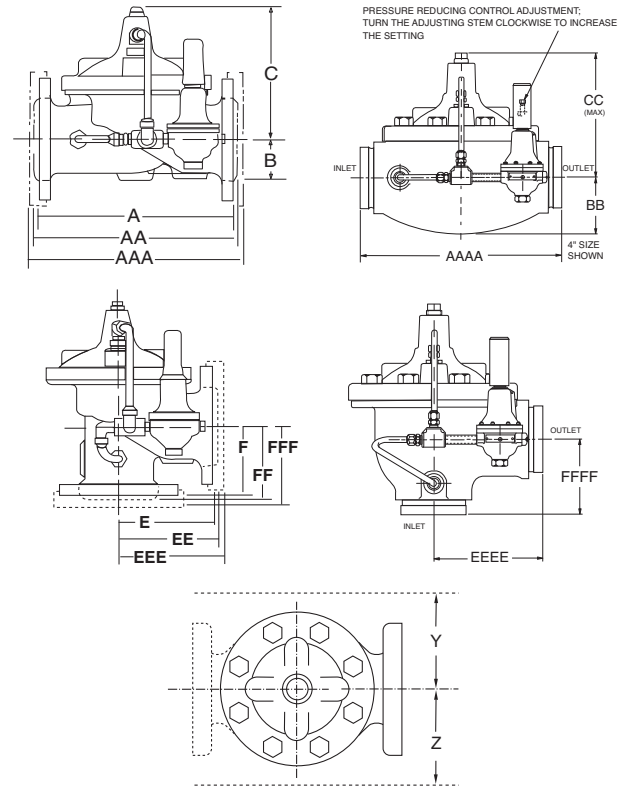
### Flow Capacity Table

#### 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

#### Size UL / ULC

|           |        |
|-----------|--------|
| 1-1/2"    | 50-175 |
| 2" - 8"   | 30-165 |
| 10" - 12" | 30-175 |

#### Pressure Differential

|         |                 |
|---------|-----------------|
| 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-03/2021)

## CLA-VAL

1701 Placentia Avenue • Costa Mesa, CA 92627 • Phone: 949-722-4800  
Fax: 949-548-5441 • Web Site: [www.cla-val.com](http://www.cla-val.com) • E-mail: [info@cla-val.com](mailto:info@cla-val.com)

#### CLA-VAL CANADA

4687 Christie Drive  
Beamsville, Ontario  
Canada L0R 1B4  
Phone: 905-563-4963  
[www.cla-val.com](http://www.cla-val.com)  
E-Mail: [sales@cla-val.ca](mailto:sales@cla-val.ca)

#### CLA-VAL EUROPE

Chemin des Mésanges 1  
CH-1032 Romanel/  
Lausanne, Switzerland  
Phone: 41-21-643-15-55  
[www.cla-val.ch](http://www.cla-val.ch)  
E-Mail: [info@cla-val.ch](mailto:info@cla-val.ch)

#### CLA-VAL UK

Dainton House, Goods Station Road  
GB - Tunbridge Wells  
Kent TN11 2 DH England  
Phone: 44-1892-514-400  
[www.cla-val.co.uk](http://www.cla-val.co.uk)  
E-Mail: [info@cla-val.co.uk](mailto:info@cla-val.co.uk)

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## When Ordering, Specify:

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