# FIRE PROTECTION

*Leading the innovation*

CLA-VAL Europe
AUTOMATIC CONTROL VALVES

CLA-VAL

CLA-VAL Europe
AUTOMATIC CONTROL VALVES

CLA-VAL

# FIRE PROTECTION

Since 1936, CLA-VAL has been a leading manufacturer of automatic control valves, serving waterworks, industrial, fire protection, aviation fueling and marine customers throughout the world.

Our commitment to excellence and continuous improvement shows in each valve we produce and in the many new products we introduce to the marketplace each year.

CLA-VAL's long history of manufacturing and industry excellence also enables us to provide the industry's most comprehensive program of hands-on, personalized technical/product training at our in-house training facilities in the US, Canada, Switzerland, the UK and France.

CLA-VAL is a specialist in the fire protection networks for both onshore and offshore applications, developing products that protect lives and property.

Our foundry produces castings in over 50 different alloys utilizing decades of production experience to ensure quality for the most demanding applications.

**WWW.CLA-VAL.CH**

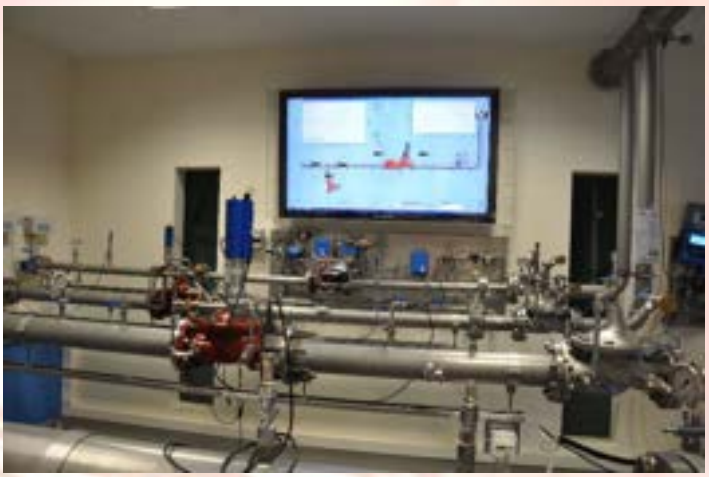
**fire@cla-val.ch**

CLA-VAL Europe
AUTOMATIC CONTROL VALVES

# Know-How

## Onsite Foundires

By having on-site foundries, CLA-VAL is able to provide castings in over 50 different alloys, making our product offering one of the most extensive in the valve industry. It also allows us to respond more quickly to our customer's unique requirements.



## Training capabilities and facilities

CLA-VAL offers personalized technical assistance, maintenance support, and end-user training programs, including comprehensive engineering, service training and application seminars at the factory and on-site. This, in turn, helps our customers to achieve optimal performance of CLA-VAL products during start-up, after installation and through decades of reliable trouble-free service.

# Know-How


## Approvals and certifications

CLA-VAL's waterworks and fire protection products meet all applicable standards and specifications prescribed by industry organizations such as AWWA, FDA, NSF, UL and FM International. Along with ISO 9001 certifications for our production facilities in Switzerland and the UK, and ISO 9002 for our manufacturing facility in Canada, CLA-VAL also currently holds many other certifications, listings, and approvals in North America and around the world.


## CLA-VAL quality control program

All of CLA-VAL's manufacturing processes and practices are verified by the procedures outlined in the CLA-VAL Quality Control Manual, which outlines inspection points and controls on product as it moves through the manufacturing steps.

swiss safety center

# Certificate

swiss safety center
ISO 9001
ISO 14001
ISO 45001
certified system

**The certification body of Swiss Safety Center AG**
hereby confirms that the company

**CLA-VAL Europe Sàrl**
**Chemin des Mésanges 1**
**CH-1032 Romanel-sur-Lausanne**

for the scope

**Design, manufacture and distribution of automatic control valves and associated accessories, electronic devices and communication interfaces**

successfully applies a **management system for quality, environment, occupational health and safety** according to

**ISO 9001:2015 ISO 14001:2015 ISO 45001:2018**

| | ISO 9001 | ISO 14001 | ISO 45001 |
|---|---|---|---|
| Registration number: | **06-272-155** | **20-272-513** | **21-272-826** |
| Initial certification: | **25.02.2010** | **15.07.2020** | **14.06.2021** |
| Recertification: | **07.03.2022** | **07.03.2022** | **07.03.2022** |
| Valid from: | **25.02.2022** | **07.03.2022** | **07.03.2022** |
| Valid until: | **24.02.2025** | **06.03.2025** | **06.03.2025** |

Heinrich A. Bieler
Head of the certification body

Wallisellen, 08.03.2022

Swiss Safety Center AG, Certifications
Richtistrasse 15, CH-8304 Wallisellen
A company of the SVTI Group, member of TÜV Association.

IAF

SWISS ACCREDITATION sas.admin.ch SCESm 0013

# FIRE PROTECTION

*Product Line*

CLA-VAL

FIRE PROTECTION

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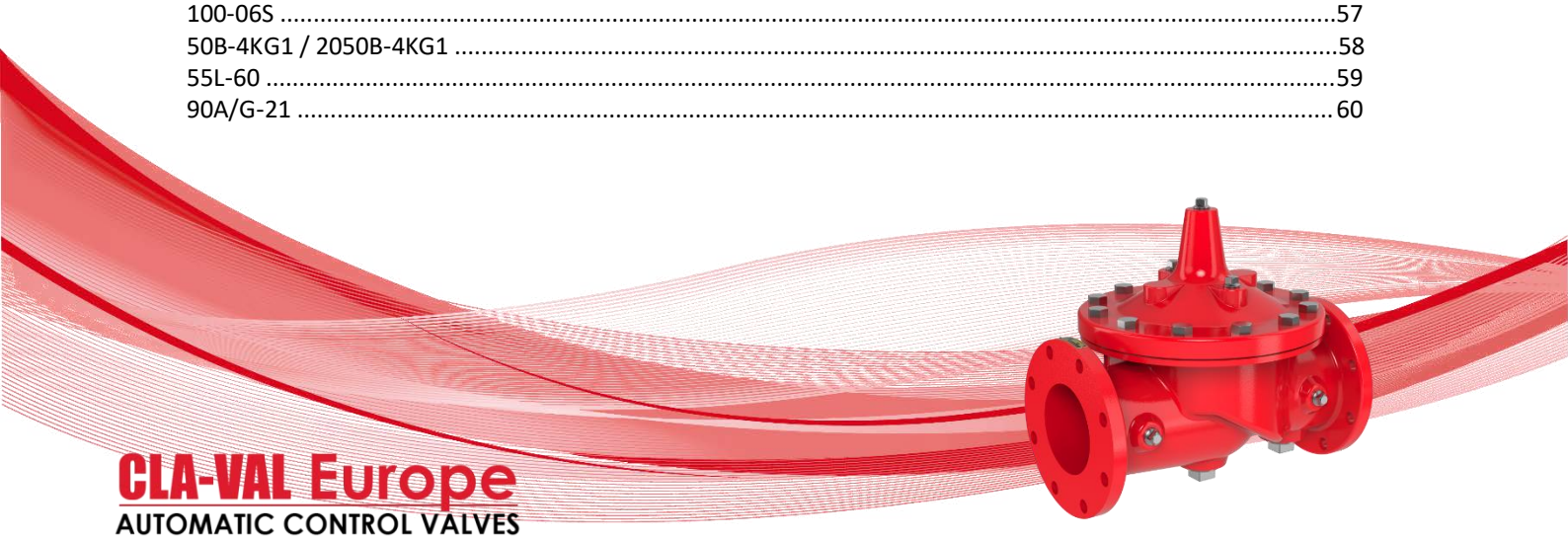


CLA-VAL Europe
AUTOMATIC CONTROL VALVES

CLA-VAL®

# PRESSURE RELIEF VALVE

# CLA-VAL **50B-4KG1 / 2050B-4KG1**

## Fire Protection Pressure Relief Valve

## Simple, Reliable and Accurate

- **U.L. Listed**
- **Factory Mutual Approved**
- **Fast Opening to Maintain Steady Line Pressure**
- **Accommodates Wide Range of Flow Rates**
- **Closes Gradually for Surge-Free Operation**
- **Adjustable Pressure Settings, not Affected by Pressure at Valve Discharge**

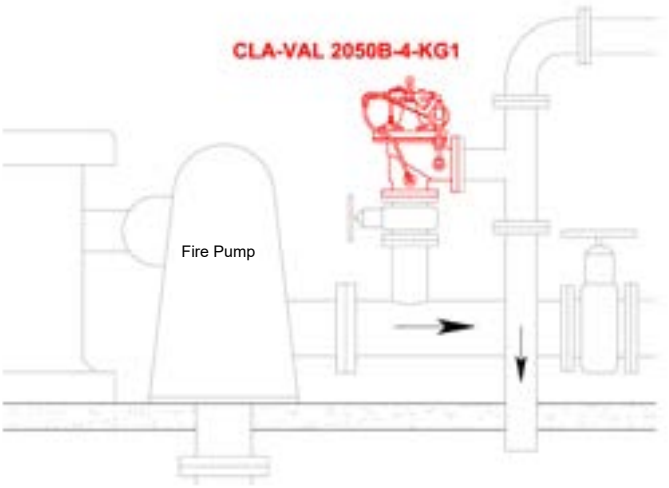
50B-4KG1 (Globe)

The CLA-VAL Model 50B-4KG1 Globe / 2050B-4KG1 Angle Pressure Relief Valve is designed specifically to automatically relieve excess pressure in fire protection pumping systems. Pilot controlled, it maintains constant system pressure at the pump discharge within very close limits as demands change.

| | |
|---|---|
| **U.L. Listed** | **Sizes 3" thru 8"** |
| **F.M. Approved** | **Sizes 3" thru 8"** |

2050B-4KG1 (Angle)

## Typical Application




**Operation Sequence:**

At pump start, CLA-VAL Relief Valve modulates to relieve excess pump capacity, maintaining positive system pressure at the pump discharge.

When fire demand slows or ceases, CLA-VAL Model 50B-4KG1 opens, diverting entire pump output to discharge, allowing fire pump to be stopped without causing surging in the lines.

(Please note that if the Model 50B-4KG1 is to be used on a continuous duty basis to maintain fire-system pressure, suitable back pressure must be provided on the valve to prevent cavitation damage. Consult the factory for details.)

## Valve Capacity

| **Valve size** [mm] | **50** | **65** | **80** | **100** | **150** | **200** | **250** | **300** |
|---|---|---|---|---|---|---|---|---|
| **NFPA 20 Pump Rating** [gpm] | 250 | 300 | 500 | 1000 | 2500 | 5000 | 11000 | 16000 |

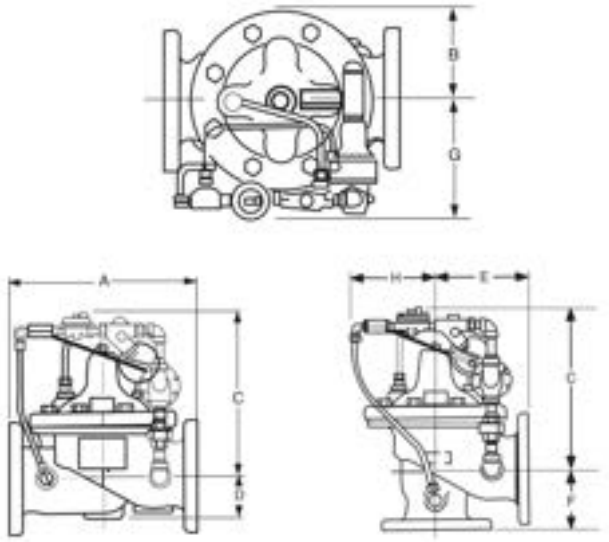
# CLA-VAL **50B-4KG1 / 2050B-4KG1**

## Fire Protection Pressure Relief Valve

### Dimensions

| **Valve size** [mm] | **50** | **65** | **80** | **100** | **150** | **200** | **250** | **300** |
|---|---|---|---|---|---|---|---|---|
| **Threaded Ends** | 238 | 279 | 318 | - | - | - | - | - |
| **A** 150 Flanged | 238 | 279 | 305 | 381 | 508 | 645 | 756 | 864 |
| **A** 300 Flanged | 254 | 295 | 337 | 397 | 533 | 670 | 790 | 902 |
| 300 x 150 | - | - | 327 | 389 | 522 | 657 | 773 | 883 |
| **B** | 84 | 102 | 116 | 146 | 200 | 254 | 300 | 356 |
| **C** | 305 | 311 | 318 | 330 | 363 | 414 | 457 | 522 |
| **D** | 38 | 43 | 65 | 81 | 109 | 135 | 235 | 273 |
| **Threaded Ends** | 121 | 140 | 159 | - | - | - | - | - |
| **E** 150 Flanged | 121 | 140 | 152 | 191 | 254 | 324 | 378 | 432 |
| **E** 300 Flanged | 127 | 149 | 162 | 200 | 267 | 337 | 395 | 451 |
| **Threaded Ends** | 83 | 102 | 114 | - | - | - | - | - |
| **F** 150 Flanged | 83 | 102 | 102 | 127 | 152 | 203 | 219 | 349 |
| **F** 300 Flanged | 89 | 109 | 111 | 135 | 165 | 216 | 236 | 368 |
| **G & H** | 152 | 170 | 197 | 200 | 216 | 248 | 337 | 362 |

**Note:** We recommend providing adequate space around valve for maintenance work.




Model 50B-4KG1 Globe

Model 2050B-4KG1 Angle

### Specifications

**Size:**

Globe 2" - 12" flanged

Angle 2" - 12" flanged

**End Details:**

Flanged: 150 and 300 ANSI B16.5

Flanged: ISO PN10, 16, 25

Other end details available

**Pressure Ratings:**

Class 150 - 250 psi max.

Class 300 - 300 psi max.

**Pressure Adjustment Range:**

Available in the following relief pressure ranges:

20-200 psi (150 Class / 300 Class) - UL / FM

100-300 psi (300 Class) - UL / FM

**Temperature Range:**

Water Max. 180°F / 82°C

### Materials

**Main Valve Body & Cover:**

Ductile iron - ASTM A536 / EN-GJS-400

Nickel-Aluminium-Bronze ASTM B148

Protective epoxy resin coating of wetted surfaces of main valve cast iron components (UL listed HNFX EX2855

Other material available

**Standard Main Valve Internal Trim:**

Stainless Steel 316 seat and disc guide

Stainless Steel 303 stem, stem nut and cover bearing

**Standard Pilot Control System:**

Bronze ASTM B62 with Stainless Steel 303 internal trim

Stainless Steel 303 tubing with Stainless Steel 316 fittings (UL CLA-VAL Europe Standard)

**Main Valve and Pilot Valve:**

Diaphragm and disc: Buna-N® synthetic rubber

### Purchase Specifications

The Fire Pump Pressure Relief Valve shall modulate to relieve excess pressure in a fire protection system. It shall maintain constant pressure in the system regardless of demand changes. It shall be pilot controlled and back pressure shall not affect its set point. It shall be actuated by line pressure through a pilot control system and open fast in order to maintain steady system pressure as system demand decreases. It shall close gradually to control surges and shall re-seat drip-tight within 5% of its pressure setting. The main valve shall be of the hydraulically-operated, pilot-controlled, diaphragm-type, globe or angle valve. It shall have a single, removable, Teflon-coated seat, a grooved stem guided at both ends, and a resilient disc with a rectangular cross section, being contained on 3 1/2 sides. No external packing glands shall be permitted and the diaphragm shall not be used as a seating surface. The pilot control shall be a direct-acting, adjustable, spring-loaded, diaphragm-type valve designed for modulating service to permit flow when controlling pressure exceeds spring setting. This valve shall be UL Listed and Factory Mutual approved. It shall be the Model 50B-4KG1 (globe) or Model 2050B-4KG1 (angle) Pressure Relief Valve as manufactured by CLA-VAL Europe.

**Special Note:** The Model 50B-4KG1 Pressure Relief Valve is available with 300# ANSI inlet flange and 150# ANSI outlet flange. This valve is used on higher pressure systems where 300# flange connections are required, and allows for adapting of a discharge cone (generally supplied with 150# flange) to accommodate "atmospheric break" at relief valve discharge. This relief valve, with 300# / 150# flanges is available on special order, and is UNDERWRITERS LABORATORIES LISTED AND FACTORY MUTUAL APPROVED.

# CLA-VAL **50B-4KG1KOL/2050B-4KG1KOL**

## Pressure Relief Valve with Anti-Cavitation Trim

## Simple, Reliable and Accurate

- **For Onshore and Offshore Applications**
- **KOL Anti-Cavitation Trim Seat:**
  - **Protects Against Cavitation**
  - **Reduces Noise and Vibration**
  - **Extends Valve Life**
- **Compliant with NFPA 20 Standards**

The CLA-VAL Globe Pattern Model 50B-4KG1KOL and Angle Pattern Model 2050B-4KG1KOL Relief Valve is designed to relieve excess pressure in a fire protection system, while eliminating the damaging effects of cavitation.

The valve features an adjustable pressure setting, fast opening to maintain steady line pressure, and gradual closing for surge free operation.

2050B-4KG1KOL (Angle)

UL LISTED

Sizes 3" thru 8"

FM APPROVED

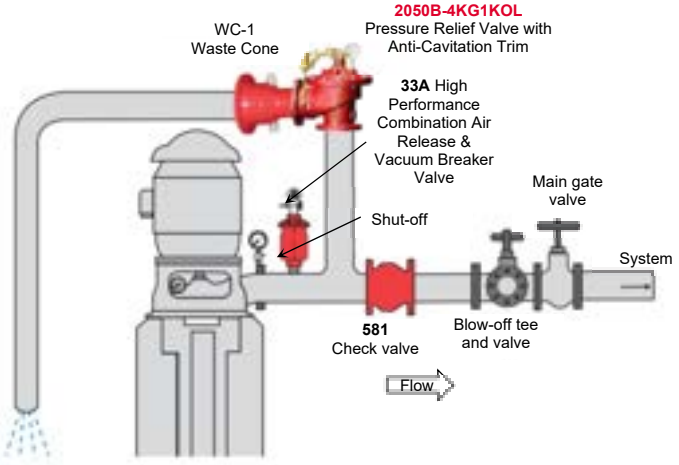
ABS

Type Approved

### KOL Anti-Cavitation Seat Features & Benefits

- Ideal for applications with high pressure differentials
- Meets flow requirements set forth by applicable approval agencies
- Provides a safer work environment by preventing valve damage
- Teflon-Coated Seat available in 316 Stainless Steel, Monel and Super Duplex Stainless Steel

## Typical Application




**Operation Sequence:**

At pump start, CLA-VAL Relief Valve modulates to relieve excess pump capacity, maintaining positive system pressure at the pump discharge.

When fire demand slows or ceases, CLA-VAL Model 50B-4KG1KOL opens, diverting entire pump output to discharge, allowing fire pump to be stopped without causing surging in the lines.

(Please note that if the Model 50B-4KG1KOL is to be used on a continuous duty basis to maintain fire-system pressure, suitable back pressure must be provided on the valve to prevent cavitation damage. Consult the factory for details.)

## Valve Capacity

| **Valve size** [mm] | **80** | **100** | **150** | **200** | **250** |
|---|---|---|---|---|---|
| **NFPA 20 Pump Rating** [gpm] | 500 | 1000 | 2500 | 4000 | 11000 |

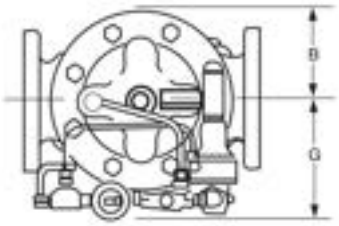
# CLA-VAL **50B-4KG1KOL/2050B-4KG1KOL**

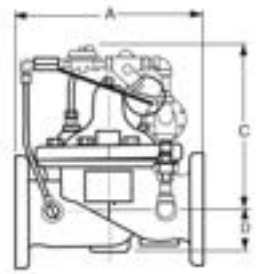
## Pressure Relief Valve with Anti-Cavitation Trim

### Dimensions

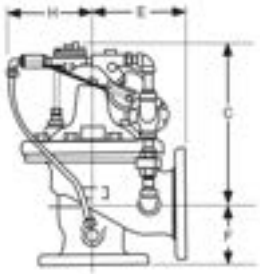
| **Valve size** [mm] | **80** | **100** | **150** | **200** | **250** |
|---|---|---|---|---|---|
| **Threaded Ends** | 318 | - | - | - | - |
| **A** 150 Flanged | 305 | 381 | 508 | 645 | 756 |
| **A** 300 Flanged | 337 | 397 | 533 | 670 | 790 |
| 300 x 150 | 327 | 389 | 522 | 657 | 773 |
| **B** | 116 | 146 | 200 | 254 | 300 |
| **C** | 318 | 330 | 363 | 414 | 457 |
| **D** | 65 | 81 | 109 | 135 | 235 |
| **Threaded Ends** | 159 | - | - | - | - |
| **E** 150 Flanged | 152 | 191 | 254 | 324 | 378 |
| **E** 300 Flanged | 162 | 200 | 267 | 337 | 395 |
| **Threaded Ends** | 114 | - | - | - | - |
| **F** 150 Flanged | 102 | 127 | 152 | 203 | 219 |
| **F** 300 Flanged | 111 | 135 | 165 | 216 | 236 |
| **G & H** | 197 | 200 | 216 | 248 | 337 |

**Note:** We recommend providing adequate space around valve for maintenance work.




Model 50B-4KG1KOL Globe




Model 2050B-4KG1KOL Angle

Model 2050B-4KG1 Angle

### Specifications

**Size:**

Globe 3" - 8" flanged

Angle 3" - 8" flanged

**End Details:**

Flanged: 150 and 300 ANSI B16.5

Flanged: ISO PN10, 16, 25

Other end details available

**Pressure Ratings:**

Class: 175 psi max.

Class: 300 psi max.

**Pressure Adjustment Range:**

Available in the following relief pressure ranges:

20-200 psi (150 Class)

100-300 psi (300 Class)

**Temperature Range:**

Water Max. 180°F / 82°C

### Materials

**Main Valve Body & Cover:**

Ductile iron - ASTM A536 / EN-GJS-400

Nickel-Aluminium-Bronze ASTM B148

Protective epoxy resin coating of wetted surfaces of main valve cast iron components (UL listed HNFX EX2855

Other material available

**Standard Main Valve Internal Trim:**

Stainless Steel 316 seat and disc guide

Stainless Steel 303 stem, stem nut and cover bearing

**Standard Pilot Control System:**

Bronze ASTM B62 with Stainless Steel 303 internal trim

Stainless Steel 303 tubing with Stainless Steel 316 fittings (UL CLA-VAL Europe Standard)

**Main Valve and Pilot Valve:**

Diaphragm and disc: Buna-N® synthetic rubber

### Purchase Specifications

The Fire Pump Pressure Relief Valve shall modulate to relieve excess pressure in a fire protection system, maintaining constant pressure in the system regardless of demand changes. It shall be pilot controlled and back pressure shall not affect its set point. It shall be actuated by line pressure through a pilot control system and open fast in order to maintain steady system pressure as system demand decreases. It shall close gradually to control surges and shall re-seat drip-tight within 5% of its pressure setting.

The main valve shall be of the hydraulically-operated, pilot-controlled, diaphragm-type, globe or angle valve. It shall be equipped with a teflon-coated anti-cavitation seat, a grooved stem guided at both ends, and a resilient disc with a rectangular cross section, being contained on 3-1/2 sides. No external packing glands shall be permitted and the diaphragm shall not be used as a seating surface. The pilot control shall be a direct-acting, adjustable, spring-loaded, diaphragm-type valve designed for modulating service to permit flow when controlling pressure exceeds spring setting. This valve shall be UL Listed and Factory Mutual approved. It shall be the Model 50B-4KG1KOL (globe) or Model 2050B-4KG1KOL (angle) Pressure Relief Valve as manufactured by CLA-VAL Europe.

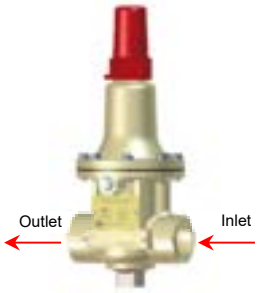
**Special Note:** The Model 50B-4KG1KOL/2050B-4KG1KOL Pressure Relief Valve is available with 300# ANSI inlet flange and 150# ANSI outlet flange for high pressure systems where 300# flange connections are required, to allow for adapting of a discharge cone (generally supplied with 150# flange) to accommodate "atmospheric break" at relief valve discharge. This relief valve, with 300# / 150# flanges is available on special order, and is UNDERWRITERS LABORATORIES LISTED AND FACTORY MUTUAL APPROVED.

# CLA-VAL **55L-60**

## Pressure Relief Valve / Pump Casing Relief Valve

## Simple, Reliable and Accurate

**1/2" and 3/4" Globe Configuration**

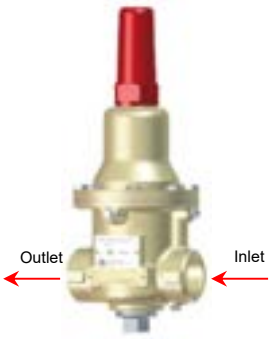



0-75 psi
20-200 psi

**1/2", 3/4"and 1" Angle Configuration**


**1" Size**
20-75 psi
40-200 psi
100-300 psi


100-300 psi




More materials available

- **Sizes 1/2", 3/4" are UL Listed and FM Approved for use as Fire Pump Casing Relief Valves**
- **The 1" model is UL Listed for use as a Fire Fire Pump Casing Relief Valve**
- **Direct Acting - Precise Pressure Control**
- **Drip Tight Closure**
- **No Packing Glands or Stuffing Boxes**
- **Globe or Angle configurations available**
- **Sensitive to Small Pressure Variations**
- **Meets low lead requirements**
- **Available in Cast Bronze, 316 Stainless Steel, Monel & Super Duplex Stainless Steel**

The CLA-VAL Model 55L-60 (UL Listed, FM Approved) Pressure Relief Valve is a direct-acting, spring loaded, diaphragm type relief valve. The valve may be installed in any position and will open and close 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 55L-60 is normally held closed by the force of the compression spring above the diaphragm. When the controlling pressure applied under the diaphragm 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 internal passage. A gauge port is provided for accurate pressure setting.
Pressure adjustment is done by turning the adjusting screw to vary the spring load on the diaphragm. The 55L-60 is available in pressure ranges suited to agency approval tests. To prevent tampering, the adjustment cap can be wire sealed by using the lock wire holes provided in the cap and cover.

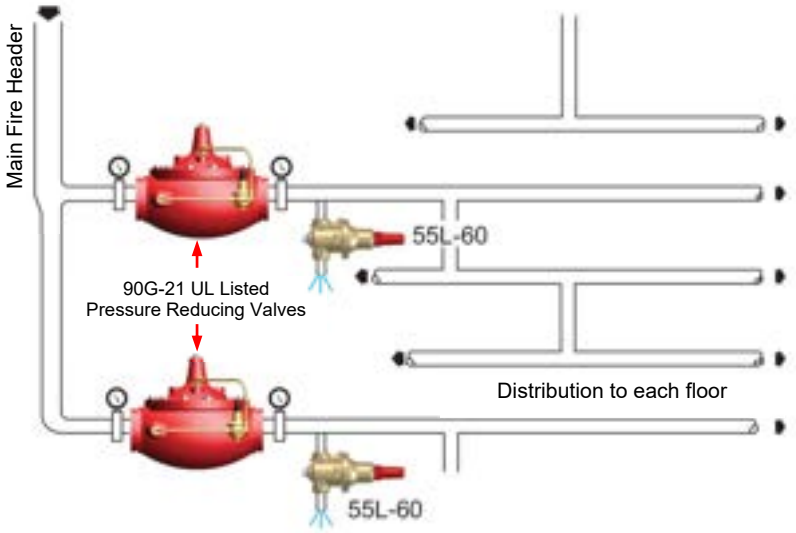
## Typical Applications for Fresh Water or Seawater Service

### Fire Protection System Service

The Model 55L-60 is typically used in a fire protection system to trim water pressure, thus preventing pressure build-up whenever line pressure exceeds the setting of the spring.

The 55L-60 will relieve excess pressure to atmosphere to prevent damage to the distribution network.

**Note:** Model 55L-60 is not suitable for discharging the full-rated pump capacity of a fire pump. See Model 50B-4KG1 Fire Pump Relief Valve for such applications.



# CLA-VAL **55L-60**

## Pressure Relief Valve / Pump Casing Relief Valve

### Specifications

**Size:** 1/2", 3/4" and 1" Threaded NPT
**Temperature Range:** Water, Air: to 180°F Max.
**Materials:**
Body & Cover: Cast Bronze UNS C87850 -Standard
Stainless Steel ASTM A743-CF-16F
Monel
Super Duplex Stainless Steel
Trim: Stainless Steel 303 & Monel
Rubber: Buna-N® Synthetic Rubber
**Pressure Ratings:** Cast Bronze 400 psi max.
Stainless Steel 400 psi max.
**Other Materials:** Available on special order
**Adjustment Ranges UL Listed:**
10 to 75 psi - 20 to 200 psi - 100 to 300 psi
**Adjustment Ranges FM Approved:**
0 to 75 psi - 20 to 200 psi - 100 to 300 psi

### Pressure Drop Chart [in gpm and psi]

(Full open valve)

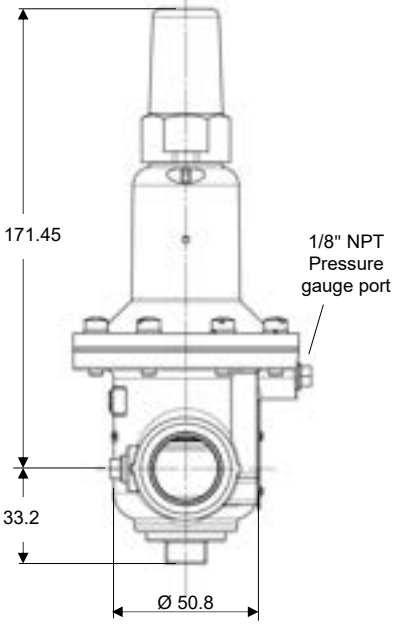
| Valve size | Cv Factor | Max Flow [gpm] |
|---|---|---|
| 1/2" | 6 | 25 |
| 3/4" | 8.5 | 40 |
| 1" | 12.8 | 65 |

### When Ordering, Please Specify

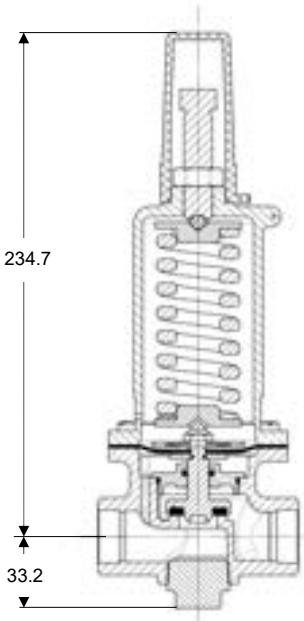
1. Catalog No. 55L-60
2. Valve size
3. Adjustment Range Desired
4. Optional Materials

### Basic Valve Dimensions [in mm]

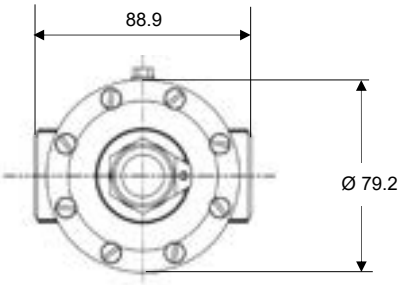
**Size 1/2" and 3/4"**




0 to 75 psi
20 to 200 psi

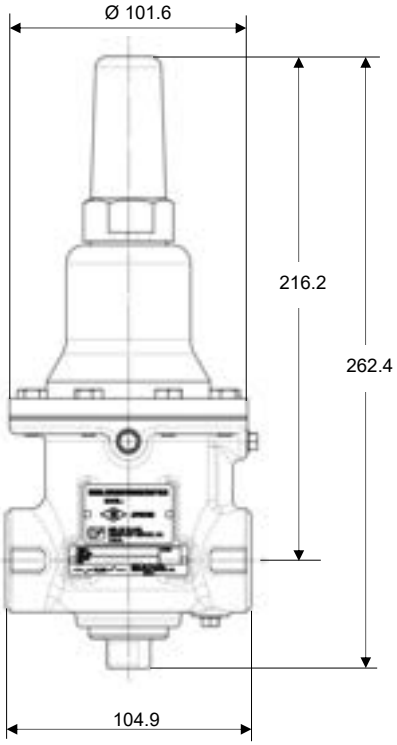



100 to 300 psi




(Applies to size 1/2" and 3/4")

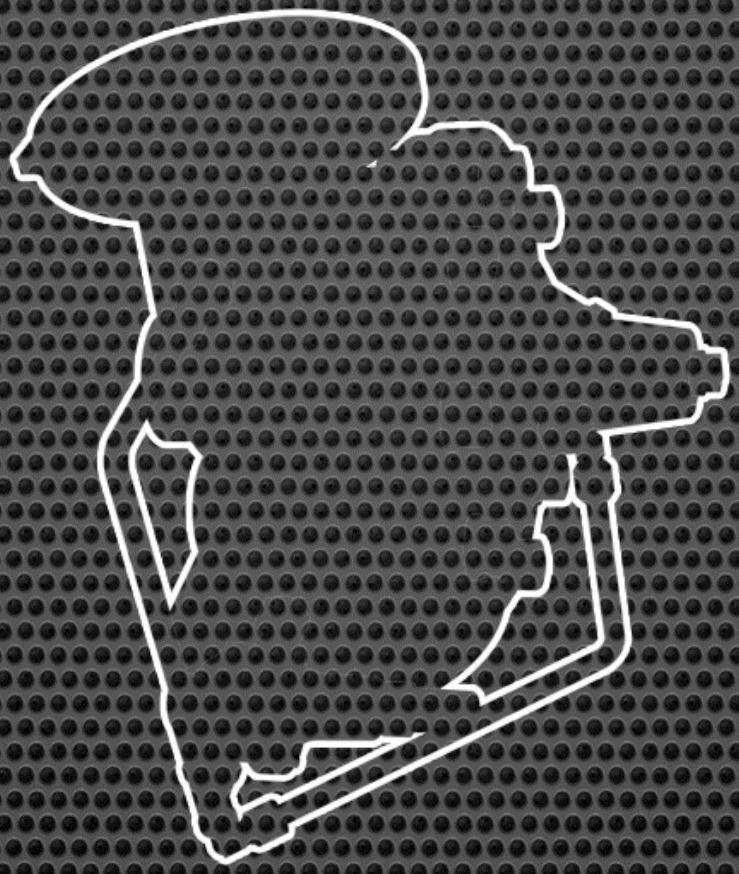
**Size 1"**




Spring range:
20 - 75 psi
40 - 200 psi
100 - 300 psi

# PRESSURE REDUCING VALVE

CLA-VAL™



# CLA-VAL **90A/G-21**

## Fire Protection Pressure Reducing Valve

## Simple, Reliable and Accurate

- **U.L. Listed, MEA Approved**
- **Globe or Angle Pattern**
- **Proven Reliable Design**
- **Accurate Pressure Control**
- **In Line Service**
- **Flanged, Grooved or Threaded Ends**

CLA-VAL 90G-21 (globe) and 90A-21 (angle) Pressure Reducing Valves are indispensable in any fire protection system. Our diaphragm actuated design is proven highly reliable and easy to maintain. We offer both a globe or angle pattern with 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). The 90G-21 and 90A-21 can be supplied with optional internal and external epoxy coating of the main valve wetted surfaces.

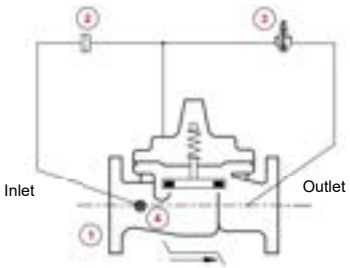
90-21 UL Listed
Flanged End

UL LISTED

90-21 UL Listed
Grooved End

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

## Function



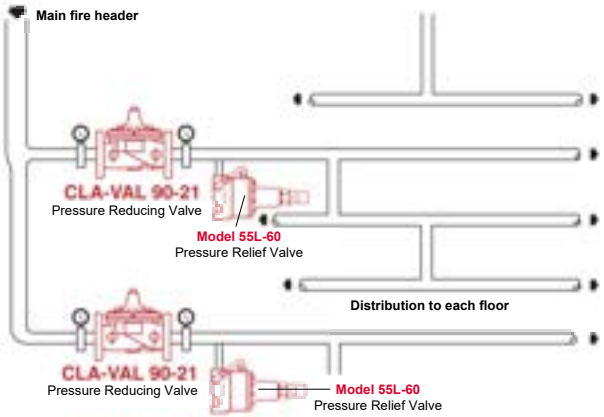

| ITEM | DESCRIPTION |
|---|---|
| 1 | Model HYTROL AE/GE 100-01/KX |
| 2 | X58C Restriction Tube Fitting |
| 3 | CRD Pressure Reducing Control |
| 4 | X46A Flow Clean Strainer |

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-on cover, which can be sealed to discourage tampering.

## Typical Application

Underwriters Laboratories requires the installation of pressure gauges upstream and downstream of the Pressure Reducing Valve. Also, a relief valve of not less than 1/2 inch in size must be installed on the downstream side of the pressure control valve. Adequate drainage for the relief valve discharge must be provided.

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




| UL Listings | | | | | | | | F - Flanged // G - Grooved // T - Threaded |
|---|---|---|---|---|---|---|---|---|
| **Size** | **Globe Class 150 F by F** | **Globe Class 300 F by F** | **Globe Class 150 and 300 G by G** | **Globe Class 300 T by T** | **Angle Class 150 F by F** | **Angle Class 300 F by F** | **Angle Class 150 and 300 G by G** | **Angle Class 300 T by T** |
| **1 1/2"** | UL | UL | UL | UL | UL | UL | UL | UL |
| **2"** | UL | UL | UL | UL | UL | UL | UL | UL |
| **2 1/2"** | UL | UL | UL | UL | UL | UL | UL | UL |
| **3"** | UL | UL | UL | UL | UL | UL | UL | UL |
| **4"** | UL | UL | UL | | UL | UL | UL | |
| **6"** | UL | UL | UL | | UL | UL | UL | |
| **8"** | UL | UL | UL | | | UL | UL | |
| **10"** | UL | UL | | | | UL | | |
| **12"** | UL | UL | | | | UL | | |

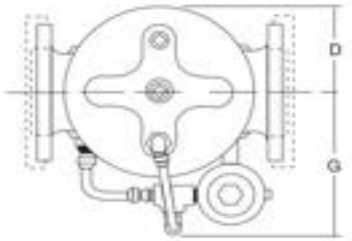
# CLA-VAL **90A/G-21**

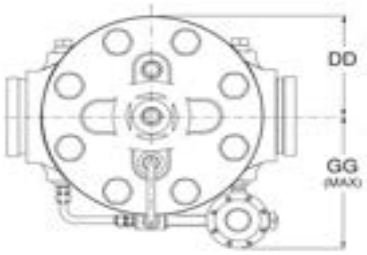
## Fire Protection Pressure Reducing Valve

### Dimensions

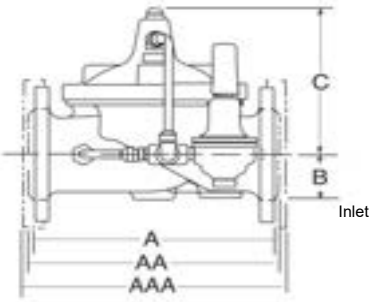
| **Valve size** [mm] | **40** | **50** | **65** | **76,1** | **80** | **100** | **150** | **165,1** | **200** | **250** | **300** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** Threaded | 184 | 238 | 279 | - | 318 | - | - | - | - | - | - |
| **AA** 150 ANSI | 216 | 238 | 279 | - | 305 | 381 | 508 | - | 645 | 756 | 864 |
| **AAA** 300 ANSI | 229 | 254 | 295 | - | 337 | 397 | 533 | - | 670 | 790 | 902 |
| **AAAA** Grooved (*) | 216 | 228 | 279 | 318 | 318 | 381 | 508 | 508 | 645 | - | - |
| **B** | 28 | 38 | 43 | - | 65 | 81 | 109 | - | 135 | 235 | 273 |
| **BB** Grooved (*) | 52 | 54 | 63 | - | 77 | 105 | 152 | - | 184 | - | - |
| **C** (max.) | 140 | 161 | 192 | - | 208 | 270 | 340 | - | 406 | 435 | 530 |
| **CC** (max.) Grooved (*) | 104 | 127 | 175 | 165 | 165 | 223 | 281 | 281 | 369 | - | - |
| **D** | 71 | 84 | 102 | - | 116 | 146 | 200 | - | 254 | - | - |
| **DD** Grooved (*) | 71 | 84 | 102 | 116 | 116 | 146 | 200 | 200 | 254 | - | - |
| **E** Threaded | 83 | 121 | 140 | - | 159 | - | - | - | - | - | - |
| **EE** 150 ANSI | 102 | 121 | 140 | - | 152 | 191 | 254 | - | 324 | 378 | 432 |
| **EEE** 300 ANSI | 108 | 127 | 149 | - | 162 | 200 | 267 | - | 349 | 395 | 451 |
| **EEEE** Grooved (*) | - | 121 | - | - | 152 | 191 | - | - | - | - | - |
| **F** Threaded | 48 | 83 | 102 | - | 114 | - | - | - | - | - | - |
| **FF** 150 ANSI | 102 | 83 | 102 | - | 102 | 127 | 152 | - | 203 | 219 | 349 |
| **FFF** 300 ANSI | 108 | 89 | 109 | - | 111 | 135 | 165 | - | 216 | 236 | 368 |
| **FFFF** Grooved (*) | - | 121 | - | - | 114 | 127 | - | - | - | - | - |
| **G** (max.) | 191 | 197 | 197 | 203 | 203 | 228 | 241 | 241 | 267 | | |
| **GG** (max.) | 206 | 203 | - | 207 | 207 | 236 | 267 | 267 | 292 | | |

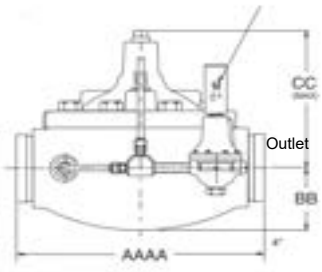
(*) Groove Ends per IPS Steel Specifications

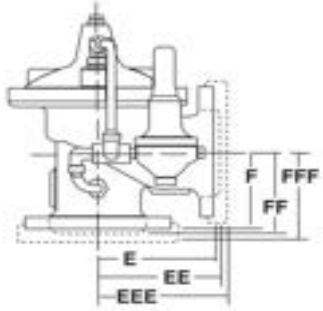


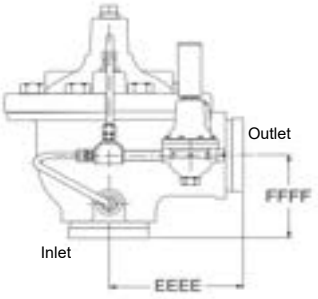




Pressure Reducing Control adjustment: Turn the adjusting stem clockwise to increase the setting.



# CLA-VAL **90A/G-21**

## Fire Protection Pressure Reducing Valve

### Standard Specifications

**Size:**

1,1/2" - 12"

**End Details:**

Flanged: 150 ANSI B16.5
Flanged: 300 ANSI B16.5
Grooved: 150# or 300#

**Pressure Differential:**

Min. 10 psi / 0.7 bar

**Pressure Adjustment Range:**

1,1/2" - 8": 30 - 165 psi / 2.1-11.4 bar

10" - 12": 30 - 175 psi / 2.1-12.1 bar

**Temperature Range:**

Water max. 180°F / 82°C

**Pressure Rating:**

Class 150 - 250 psi Max.
Class 300 - 300 psi Max.

### Standard Materials

**Main Valve Body & Cover:**

Ductile iron - ASTM A536 / EN-GJS-400

**Main Valve Internal Trim:**

Stainless Steel 316 seat and disc guide

Stainless Steel 303 stem, stem nut and cover bearing

**Pilot Control System- Pilot Control Valve:**

Bronze ASTM B62 with Stainless Steel 303 internal trim

Stainless Steel 303 tubing with Stainless Steel 316 fittings

**Main Valve and Pilot Valve:**

Diaphragm and disc: Buna-N® synthetic rubber

### Optional Materials for Seawater and Severe Service Applications

Bronze, Nickel Aluminum Bronze, Stainless steel 300 series, Carbon Steel WCB, Monel 400, Super Austenitic Stainless Steel, Super Duplex Stainless Steel

### Selection Guidelines

| FLOW CAPACITY TABLE | | |
|---|---|---|
| **Valve size** | **Maximum flow rate** | |
| [inch] | [gpm] | [$m^3/h$] |
| **1 1/2** | 160 | 36 |
| **2** | 262 | 59 |
| **2 1/2** | 373 | 85 |
| **3** | 576 | 131 |
| **4** | 992 | 225 |
| **6** | 2251 | 511 |
| **8** | 3900 | 886 |
| **10** | 6000 | 1361 |
| **12** | 8900 | 2019 |

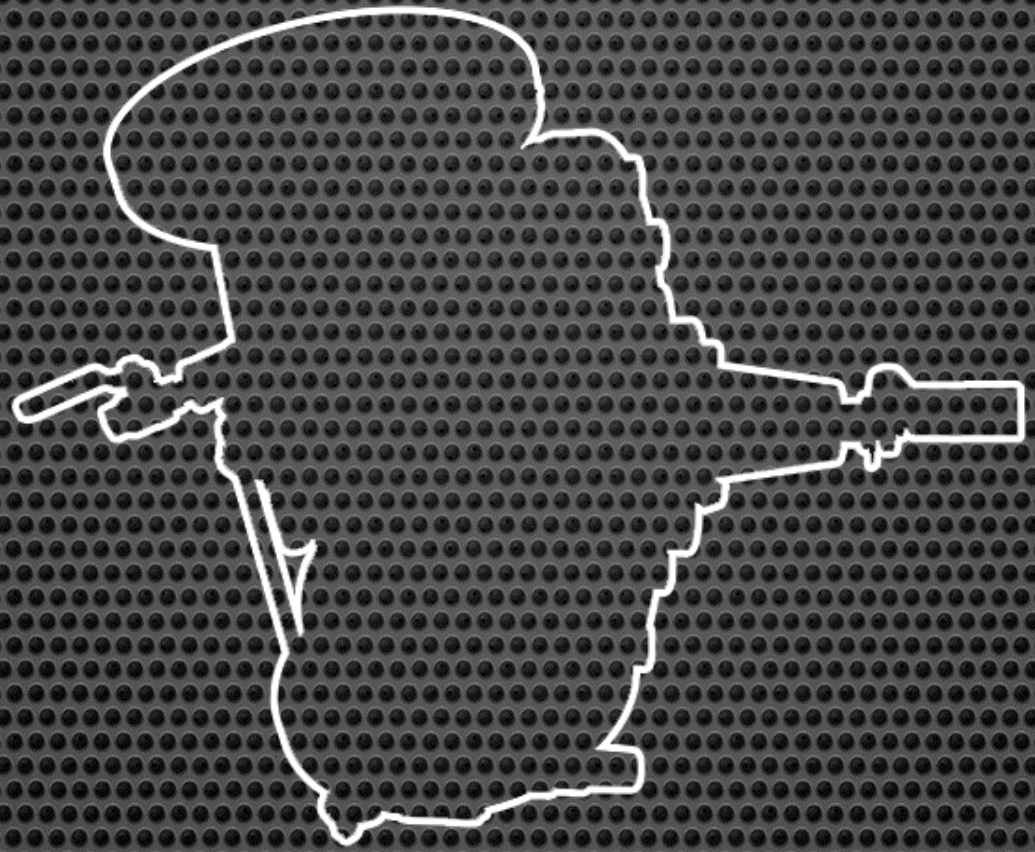
**Note**: The actual capacity is limited by available Differential Pressure. For accurate sizing contact CLA-VAL Europe.

### When Ordering, Please Specify

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

# PUMP SUCTION CONTROL VALVE

CLA-VAL™



# CLA-VAL **50B-5KG / 2050B-5KG**

## Pump Suction Control Valve

## Simple, Reliable and Accurate

- **Adjustable Opening Speed for Pump Suction Protection**
- **Pilot Control Provides Wide Flow Range with Minimal Pressure Variations**
- **Controlled Closing for System Protection**
- **Modulates within 5% of Setting for Accurate Pressure Control**
- **Pressure Setting Adjustable**
- **Pressure Setting not Affected by Pressure at Valve Discharge**

The CLA-VAL Model 50B-5KG Globe / 2050B-5KG Angle Pump Suction Control Valve is designed specifically for Fire Pump Suction Control Service. It modulates to maintain the pump discharge in relation to the suction head available, thus assuring that the suction head pressure does not fall below the pre-set minimum.

The 50B-5KG can be supplied with optional internal and external epoxy coating of the main valve wetted surfaces.

FM APPROVED

**Sizes 3" thru 8"**

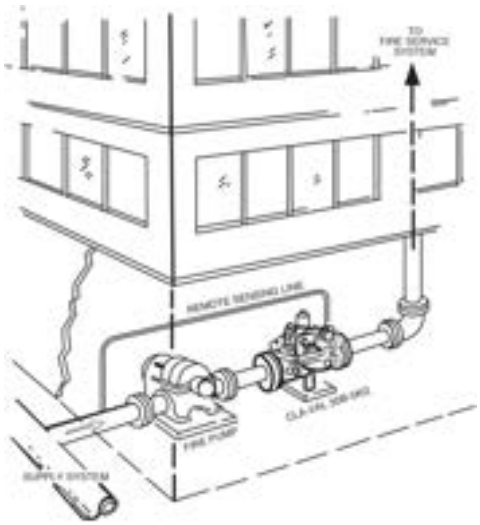
Pump Suction Control Valve

Illustration: 50B-5KG (Globe)

### Typical Application

When there is a demand in the Fire System, the pump is started, delivering water from the supply source to the area of demand. To assure that the fire pump draw does not exceed the available water supply, the Model 50B-5KG / 2050B-5KG, sensing the pump suction, modulates to prevent suction pressure from dropping below a pre-set minimum.

By maintaining minimum pressure requirements in the supply main, the main is protected from possible damage or backflow conditions. Also, a minimum supply pressure is provided for local fire apparatus.



### Specifications

**Sizes:**

Globe flanged: 3" - 10"
Angle flanged: 3" - 10"

**End Details:**

150 and 300 ANSI B16.42

**Pressure Ratings:**

150 class 250 psi max.
300 class 400 psi max.

**Temperature Range:**

Water max. 180°F / 82°C

**Pressure Adjustment Range:**

Available in the following pressure range only:
5 to 25 psi - Set at 10 psi

### Materials

**Main Valve Body & Cover:**

Ductile iron* ASTM A536 / EN-GJS-400

**Main Valve Trim:**

Brass QQ-B-626
Bronze seat ASTM B61
Stainless steel 303 stem
Delrin sleeved

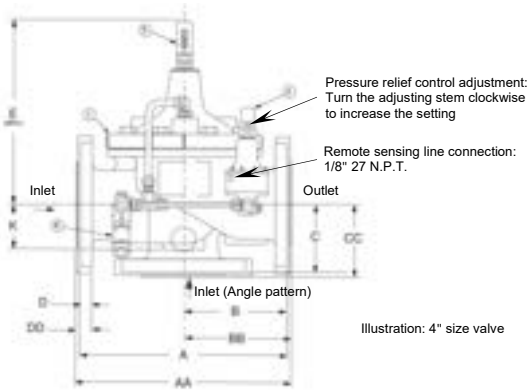
**Pilot Control System:**

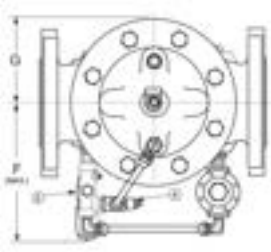
Cast bronze ASTM B62 with 303 Stainless steel trim

# CLA-VAL **50B-5KG / 2050B-5KG**

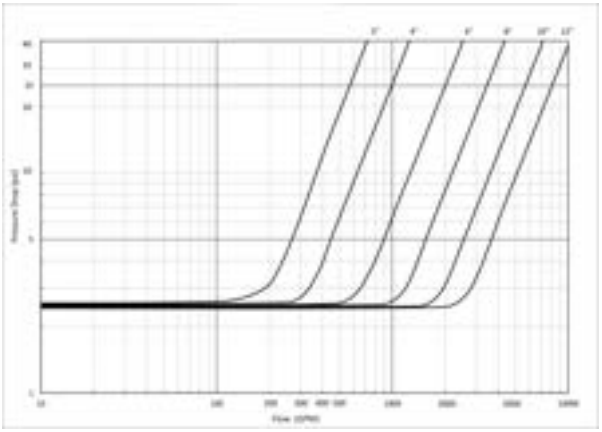
## Pump Suction Control Valve

### Dimensions [Inches]



### Flow Chart



| ITEM No. | DESCRIPTION |
|---|---|
| 1 | 100KCGVX Hytrol (Main Valve) |
| 2 | CRL5A Pressure Relief Control |
| 3 | X44A Strainer and Orifice Assembly |
| 4 | CV Flow Control (Opening) |
| 5 | X101C Valve Position Indicator |
| 6 | CK2 (Blow-Off Valve) |

| VALVE SIZE [inch] | A 150 LB. Flanges | AA 300 LB. Flanges | B 150 LB. Flanges | BB 300 LB. Flanges | C 150 LB. Flanges | CC 300 LB. Flanges | D (Typ.) 150LB flanges (min.) | DD (Typ.) 300LB flanges (min.) | E (max.) | F (max.) | E (max.) | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3" | 12.00 | 13.25 | 6.00 | 6.38 | 4.00 | 4.38 | .75 | 1.12 | 15.75 | 13.50 | 4.62 | 2.56 |
| 4" | 15.00 | 15.62 | 7.50 | 7.88 | 5.00 | 5.31 | .94 | 1.25 | 17.75 | 15.00 | 5.75 | 3.19 |
| 6" | 20.00 | 21.00 | 10.00 | 10.50 | 6.00 | 6.50 | 1.00 | 1.44 | 20.25 | 16.50 | 7.88 | 4.31 |
| 8" | 25.38 | 26.38 | 12.75 | 13.25 | 8.00 | 8.50 | 1.12 | 1.62 | 23.00 | 20.00 | 10.00 | 5.31 |
| 10" | 29.75 | 31.12 | 14.88 | 15.56 | 8.62 | 9.31 | 1.12 | 1.12 | - | - | - | - |

**Note**: 10" or larger size are not FM Approved but built to FM standard

### Purchase Specifications

The Fire Pump Suction Control Valve shall modulate to maintain a minimum pressure at the pump suction regardless of system demand. It shall control the pump discharge in relation to the suction head available, and shall not allow suction head pressure to fall below a pre-set minimum.

It shall be actuated by line pressure through a pilot control system which allows rapid response to changing pressure conditions without line surges. The pilot control shall be remote sensed to the pump suction head pressure.

The main valve shall be of the hydraulically-operated, pilot-controlled, diaphragm-type, globe or angle valve. It shall have a single removable seat, a delrin-sleeved guided stem and a renewable resilient synthetic rubber disc with a rectangular cross section, contained on three and one-half sides by a disc retainer and disc guide. No external packing glands shall be permitted and the diaphragm shall not be used as a seating surface. The pilot control shall be a direct-acting, adjustable, spring-loaded, diaphragm-type valve designed for modulating service to permit flow when controlling pressure exceeds spring setting.

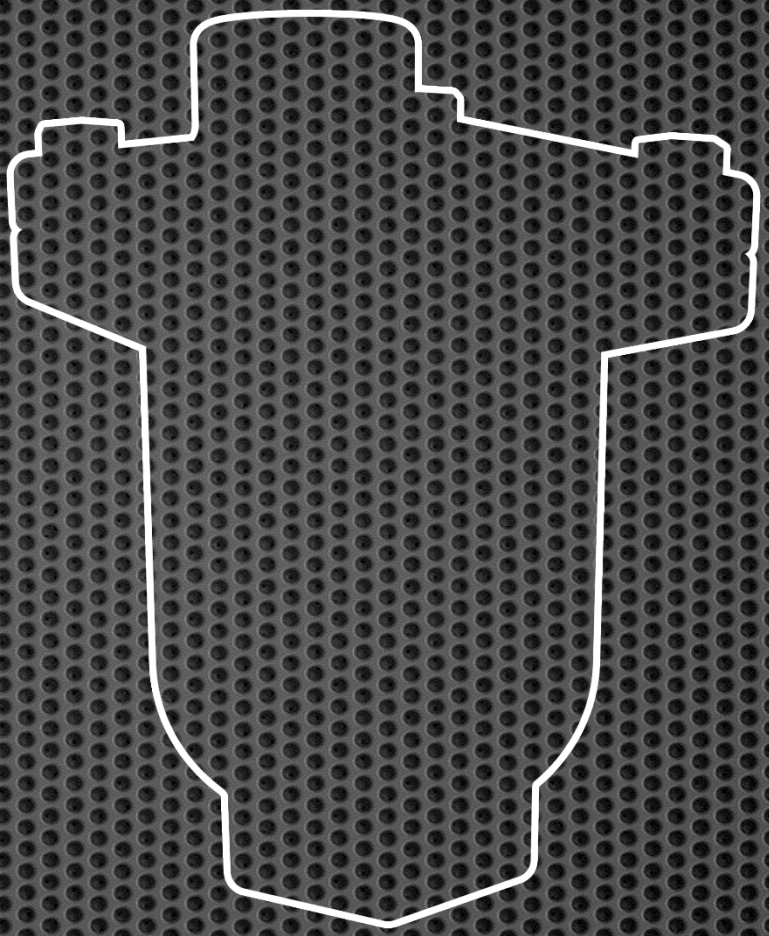
A device indicating the percent at which the valve is open or closed shall be supplied on the assembly, together with a sediment evacuator and dampening device.

The valve shall be designed to allow for repair and servicing without removing the valve body from the line.

The valve shall be Factory Mutual Approved. It shall be the MODEL 50B-5KG / 2050B-5KG FIRE PUMP SUCTION CONTROL VALVE.

CLA-VAL®

# AIR RELEASE VALVE



# CLA-VAL Series 34

## Fire Protection System
## Air Release Valve

## Simple, Reliable and Accurate

Figure A

- **Ductile Iron Body**
- **Stainless Steel Trim and Float**
- **Easily serviced without removal from pipeline**
- **Available Pressure Ratings: 175 and 300**
- **Engineered for drip tight seal at low pressures**

CLA-VAL Series 34 Fire Protection System Air Release Valves are designed to vent entrained air that collects at high points in a pipeline. This valve continuously eliminates air from a system by releasing small quantities of air before large air pockets can occur. In many installations, continuing accumulations of air in the pipeline (lacking air release valves); cause flow capacity to slowly decrease; power consumption slowly increases; un-noticeable at first, until flow drops dramatically, even stopping due to air blocks in the piping.

Another problem resulting from excessive air accumulation is unexplained pipeline rupture. These ruptures are passed off as the result of ground settling or defective pipe, where as in reality its large air pockets that greatly increase pressure surges (normally occurring) when flow stops and starts causing the rupture. During normal pipeline operation, air accumulation at the high point will displace the liquid within the air valve and lower the water level in relation to the float. As level of the liquid lowers, where the float is no longer buoyant, the float drops and opens the valve orifice seat and permitting accumulated air to be exhausted to atmosphere. After air is released, the liquid level in the air valve rises and closes the valve orifice seat. This cycle automatically repeats as air accumulates inside the air release valve, thereby preventing the formation of air pockets.

### Installation

Series 34 Fire Protection System Air Release Valves are typically installed at high-points in pipelines and at regular intervals, of approximate 1/2 mile, along uniform grade line pipe.

Mount the unit in the vertical position on top of the pipeline with an isolation valve installed below each valve in the event servicing is required. A vault with adequate air venting anddrainage is recommended.

**Note:**

Vacuum check valves can be supplied on the discharge of all size air release valves to prevent air re-entering the system; during negative pressure conditions.

### Purchase Specifications

The fire protection system air release valve shall be of the float operated, simple lever or compound lever design, and capable of automatically releasing accumulated air from a fluid system while the system is pressurized and operating.

An adjustable designed orifice button shall be used to seal the valve discharge port with drip-tight shut-off. The orifice diameter must be sized for use within a given operating pressure range to insure maximum air venting capacity.

The float shall be of all stainless steel construction and guaranteed to withstand the designed system surge pressure without failure. The body and the cover shall be ductile iron and valve internal parts shall be stainless steel and Viton TM or Buna-N ® (standard) for water tight shut-off.

The air release valve shall be manufactured per ANSI/AWWA C512-04 Series 34 from CLA-VAL.

### Product Specifications

**Sizes:**

1/2", 3/4", 1"

**Pressure Ratings:** (see note)

175 UL/FM

300 UL/FM

**Note:** Specify when operating pressure below 7 mhd (10 psi)

**Temperature Range:**

Water to 180°F

**Materials:**

Body and Cover: Ductile Iron ASTM 536 65-45-12

**Float:**

Stainless Steel

**Internal Parts:**

Stainless Steel

**Seal:**

Viton™ or Buna-N® (Standard)

## Air Release Valve Sizing

Air release valve sizing requires determining the volume of air that must be released from pipeline high points during normal operation and the diameter of the pipeline. Series 34 Fire Protection System Air Release Valves are primarily used to continuously release pockets of air (as they develop) from high point, hence it is not critical to determine exact volume of air to be released.

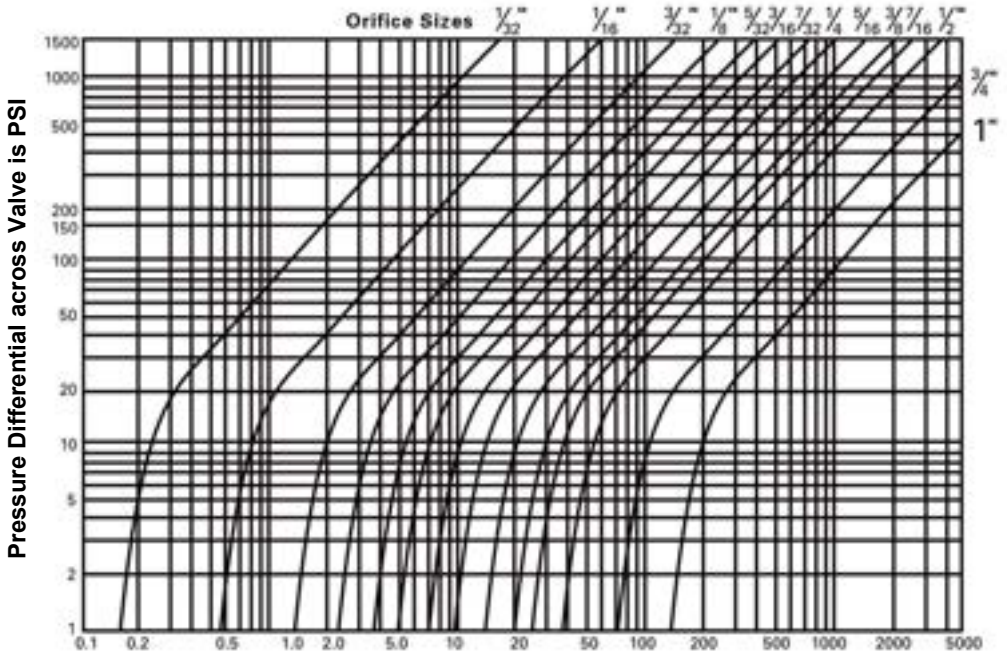
**See chart on page 3 for sizing based on venting capacity.**

### Air Release Valve Sizing Chart For Water Pipelines

| Figure A | Model No. | Inlet Size | Outlet Size | Orifice Size | GPM | MWP | Height | Width | Wt. (lbs.) |
|---|---|---|---|---|---|---|---|---|---|
|  | **UL Listed - FM Approved**<br>3450-AR332<br>3475-AR332<br>3410-AR332 | 1/2", 3/4", 1" | 1/2" | 3/32" | 200 -2200 | 175 | 5-7/8" | 3-3/4" | 6 |
| | **UL Listed - FM Approved**<br>3450-AR116.3<br>3475-AR116.3<br>3410-AR116.3 | 1/2", 3/4", 1" | 1/2" | 1/16" | 200 -2200 | 300 | 5-7/8" | 3-3/4" | 6 |

Figure A

## Venting Capacity Graph for Air Release Valves




**Venting capacity in Cubic Feet of Free Air per Minute**

## Valve Selection Based on Venting Capacity

**Follow these steps to select and size an air release valves when a specific venting capacity is required:**

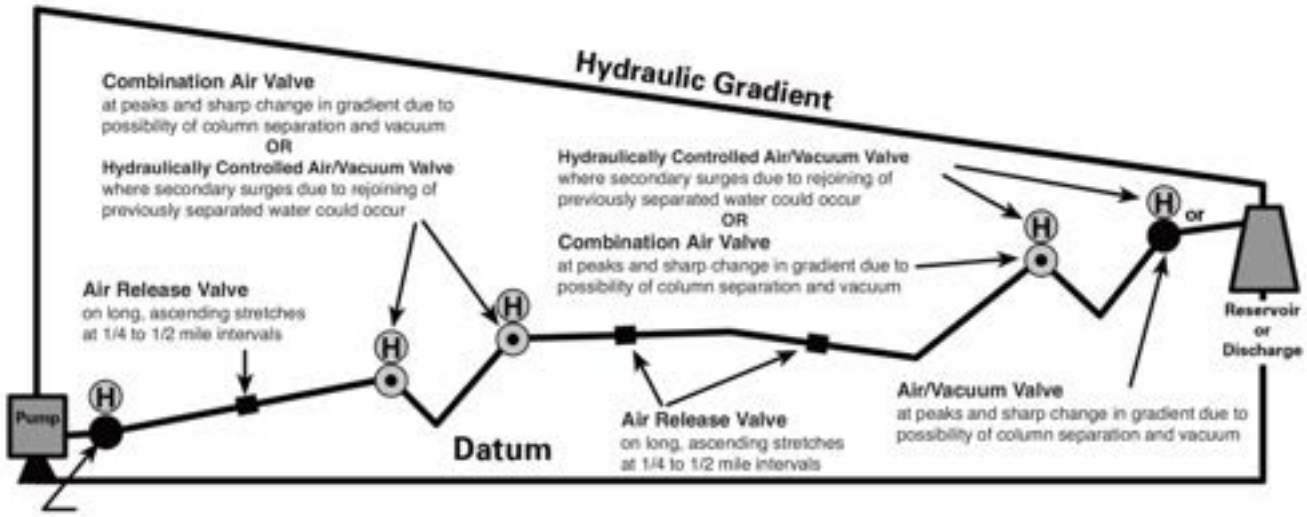
A. Enter graph with required system pressure and venting capacity
B. Read off nearest orifice diameter to intersection of pressure and capacity lines on graph
C. Enter table above with orifice diameter and select valve that can use this orifice diameter with the corresponding pressure

**Figure A**

# CLA-VAL Series 34

## Fire Protection System
## Air Release Valve

### Series 34 Fire Protection System Air Release Valve Technical Data




Air/Vacuum Valve

Air Release Valve

Combination Air Valve

Hydraulically Controlled Air/Vacuum Valve

**Figure A**

### Installation Tips

1. The effectiveness of Series 34 Fire Protection System Air Release Valve is dependent upon it being located at appropriate highpoints in a pipeline and at uniform intervals of approximately 2500 feet on horizontal pipelines.
2. There are four variables that can cause an air pocket to form slightly downstream of the true high point in a piping system:
   a. Severity of the slope adjacent to the high point or change of gradient
   b. Velocity of the liquid
   c. Texture of the inside surface of the pipe being used
   d. Viscosity of the fluid

   It is recommended where an air pocket can form slightly downstream of the high point, to install additional Series 34 Fire Protection System Air Release Valves at this point.
3. CLA-VAL has available, upon request, a Slide Rule Air Valve Calculator. It will greatly reduce the amount of time to size valves for pipeline service.

### Other typical applications include:

1. Centrifugal pumps
2. Hydropneumatic tanks
3. Enclosed systems
4. Sewage lines

### When Ordering, plesase specify:

1. Model number
2. Inlet size (NPT)
3. Inlet pressure rating
4. Orifice size

# CLA-VAL 33A

## High Performance Combination Air Release & Vacuum Breaker Valve (Threaded & Flanged) Sizes 1"-2"-3"-4"-6"

## Simple, Reliable and Accurate

Threaded

Flanged

Double flanged

- **Standard Maximum Operating Pressure 300 psi**
- **Standard Epoxy coated Ductile Iron Body**
- **Automatically Eliminates Air Pockets**
- **Easily Serviced without Removal from Pipeline**
- **Engineered for Lasting Service**

Designed to protect pipelines and vertical turbine pump applications from air lock and vacuum collapse, the CLA-VAL Model 33A High Performance Combination Air Release and Vacuum Breaker Valve eliminates air and prevents vacuum formations in pipelines. A large venting orifice and large float clearances freely exhaust or admits air during pipeline filling or draining.

During normal pipeline operation, air accumulation and buoyancy cause the float ball to lower or lift. As the water level lowers inside the valve, small amounts of accumulated air are released through the small orifice. Once air is released, the float poppet system closes drip tight.

Valve servicing is simple because the entire float poppet system, can be replaced without removal of the valve body from the pipeline.

### Installation

Series 33A Combination Air Release and Vacuum Breaker Valves are typically installed at high points in pipelines for air release, or at anticipated pipeline vacuum occurrence locations. Install Series 33A at regular intervals (approximately 1/2 mile) along uniform grade line pipe. Mount the unit in the vertical position on top of the pipeline, and include an isolation/shutoff valve.

Series 33A is often installed upstream of check valves in pump discharges to vent air during start-up and to allow air reentry when the pump stops.

### Operation

**Air Release Mode - Valve is normally open:**

When line is filled or pump started, air is exhausted through the normally open 33A valve. As liquid fills the valve, float ball rises to form a drip-tight closure and remaining air is exhausted through small orifice.

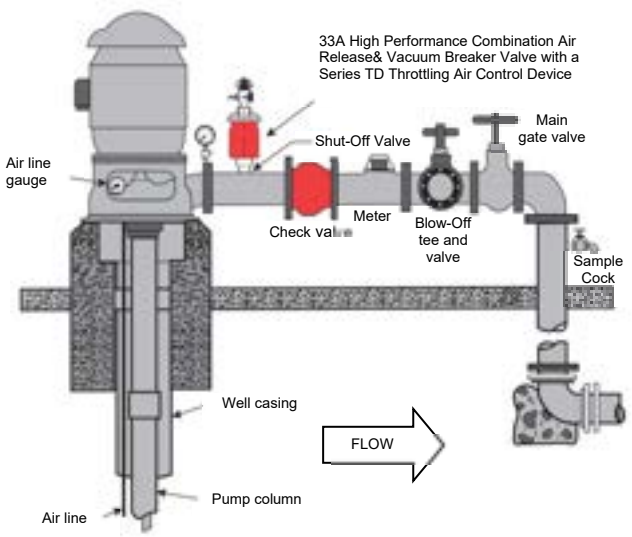
**Vacuum Prevent Mode:**

When line pressure drops below positive pressure and the liquid level lowers, the float drops, unseating the valve and allowing air into the line, thus preventing a vacuum.

**Note:** Available for Sea Water Service (see material specifications).

### Typical Application

- **Transmission Pipeline High Points**
- **Water Treatment Plant Piping High Points**
- **Vertical Turbine Pump Discharge**



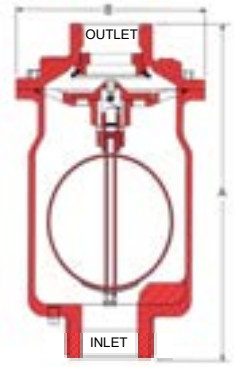
# CLA-VAL 33A

## High Performance Combination Air Release & Vacuum Breaker Valve (Threaded & Flanged) Sizes 1"-2"-3"-4"-6"

### Dimensions

| | 33A Pressure Class 300 Lb Threaded | | | |
|---|---|---|---|---|
| **Valve size** [inches] | **1"** | **2"** | **3"** | **4"** |
| **A** [mm] | 231 | 316 | 324 | 324 |
| **B** [mm] | 159 | 191 | 229 | 229 |
| **Inlet** [ANSI]* | 1" NPT | 2" NPT | 3" NPT | 4" NPT |
| **Outlet** [NPT]* | 1" NPT | 2" NPT | 3" NPT | 4" NPT |
| **Number of Holes** | - | - | - | - |
| **Diameter of Bolts** | - | - | - | - |
| Approximate calculated shipping weight [kg] | 11 | 13 | 17 | 18 |

* For BSP: ☎ CLA-VAL



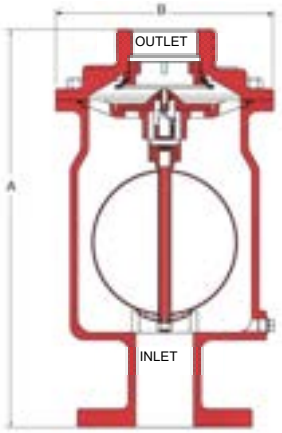
Threaded

| | 33A Pressure Class 150 Lb Flanged (INLET) | | | | |
|---|---|---|---|---|---|
| **Valve size** [inches] | **1"** | **2"** | **3"** | **4"** | **6"** |
| **A** [mm] | 256.5 | 352 | 395.5 | 400 | 416 |
| **B** [mm] | 159 | 191 | 235 | 235 | 279 |
| **Inlet** [ANSI]* | 1" | 2" | 3" | 4" | 6" |
| **Outlet** [NPT]* | 1" | 2" | 4" | 4" | 6" |
| **Number of Holes** | 4 | 4 | 4 | 8 | 8 |
| **Diameter of Bolts** | 12:5 | 16 | 16 | 16 | 19 |
| Approximate calculated shipping weight [kg] | 11 | 18 | 22 | 30 | 32 |

* For BSP: ☎ CLA-VAL

| | 33A Pressure Class 300 Lb Flanged (INLET) | | | |
|---|---|---|---|---|
| **Valve size** [inches] | **1"** | **2"** | **3"** | **4"** |
| **A** [mm] | 260 | 359 | 400 | 409 |
| **B** [mm] | 159 | 191 | 235 | 235 |
| **Inlet** [ANSI]* | 1" | 2" | 3" | 4" |
| **Outlet** [NPT]* | 1" | 2" | 4" | 4" |
| **Number of Holes** | 4 | 8 | 8 | 8 |
| **Diameter of Bolts** | 16 | 16 | 19 | 19 |
| Approximate calculated shipping weight [kg] | 12 | 19 | 23.5 | 33 |

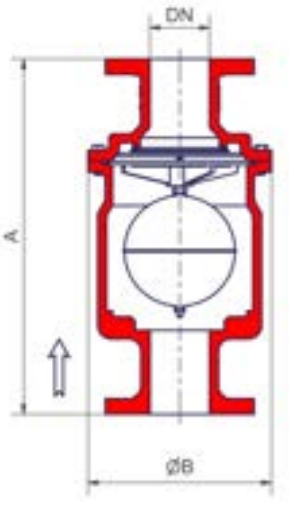
* For BSP: ☎ CLA-VAL



Flanged

| | 33A Pressure Class 150 Lb Double Flanged | | | |
|---|---|---|---|---|
| **Valve size** [inches] | **1"** | **2"** | **3"** | **4"** |
| **H** [mm] | 266 | 392 | 457 | 465 |
| **B** [mm] | 159 | 191 | 235 | 235 |
| **Inlet** [ANSI] | 1" | 2" | 3" | 4" |
| **Outlet** [ANSI] | 1" | 2" | 3" | 4" |
| **Number of Holes** | 4 | 4 | 4 | 8 |
| **Diameter of Bolts** | 12.5 | 16 | 16 | 16 |
| Approximate calculated shipping weight [kg] | 12 | 18 | 22 | 30 |

| | 33A Pressure Class 300 Lb Double Flanged | | | |
|---|---|---|---|---|
| **Valve size** [inches] | **1"** | **2"** | **3"** | **4"** |
| **H** [mm] | 273 | 405.5 | 469.5 | 482 |
| **B** [mm] | 159 | 191 | 235 | 235 |
| **Inlet** [ANSI] | 1" | 2" | 3" | 4" |
| **Outlet** [ANSI] | 1" | 2" | 3" | 4" |
| **Number of Holes** | 4 | 8 | 8 | 8 |
| **Diameter of Bolts** | 16 | 16 | 19 | 19 |
| Approximate calculated shipping weight [kg] | 13 | 19 | 23.5 | 33 |



Double Flanged

# CLA-VAL 33A

## High Performance Combination Air Release & Vacuum Breaker Valve (Threaded & Flanged) Sizes 1"-2"-3"-4"-6"

### Pressure Ratings

| Valve Size [inch] | Orifice Ø [inch] | Standard Max. Pressure | Materials of construction |
|---|---|---|---|
| 1" | .076" | 300 psi | • Epoxy coated Ductile iron ASTM A536 65-45-12<br>• Epoxy coated cast steel ASTM A 216WCB<br>• ASTM B61 Naval bronze<br>• ASTM B 148 NI Aluminum Bronze<br>• 316 Stainless steel<br>• Duplex stainless steel<br>• Super duplex stainless steel<br>• Bronze |
| 2" | .076" | 300 psi | |
| 3" & 4" | .076" | 300 psi | |
| 6" | .076" | 300 psi | |
| 3" & 4" | Optional upon request .125" | 300 psi | |

**Note:** Higher pressure available upon request for sizes 2", 3", & 4"

### Specifications

**Standard Internals:**

Float: Stainless Steel 304SS standard, T316 or Monel optional (extra cost)
Balance internals parts: Stainless Steel and Delrin
Seals: Nitrile Rubber or Viton™ (extra cost)

**Temperature Range:**

Water to 4 - 80°C

**Optional:**

Fusion epoxy lined and coated
For well service throttling device on the outlet specify model TDe
Hood / Screen assembly

### When Ordering, Please Specify

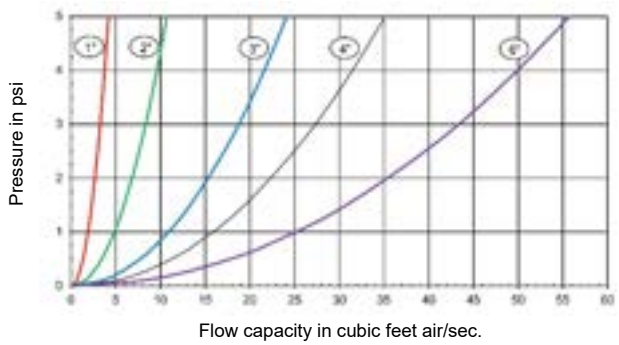
1. Catalog No.
2. Valve size
3. Pressure rating
4. Materials

### Valve Sizing Selection

**Large Orifice Air-Vacuum Capacity**

Determine anticipated water flow and allowable pressure differential for the pipeline application. Select valve from chart to exhaust or admit air at the same rate as water filling or draining (in CFS). For larger flows, two or more Model 33A's may be installed in parallel.

**MODEL 33A VACUUM AIR FLOW CAPACITY**

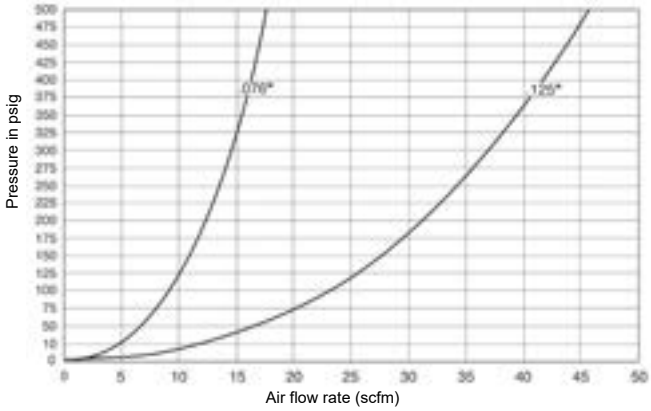



**Note:** For sizing made easy request: CLA-VAL selector slide rule

**Small Orifice Capacity**

During pressurized pipeline operation, small pockets of entrapped air will be released through the float actuated 0.076 or .125 inch orifice. Use chart to determine discharge capacity.

Orifice Air Release Capacity for CLA-VAL Model 33A Air Release & Vacuum Breaker Valve



# CLA-VAL 33ATD

## Air Release & Vacuum Breaker Valve (Threaded & Flanged) with Throttling Air Control Device Sizes 1" - 2" - 3" - 4" - 6"

## Simple, Reliable and Accurate

Illustration: Flanged Inlet
Threaded Inlet also available

- **Standard Maximum Operating Pressure 300 psi**
- **Standard Epoxy coated Ductile Iron Body**
- **Automatically Eliminates Air Pockets**
- **Easily Serviced without Removal from Pipeline**
- **Engineered for Lasting Service**

Designed to protect pipelines from air lock and vacuum collapse, the CLA-VAL Model 33ATD Air Release and Vacuum Breaker Valve eliminates air and prevents vacuum formations in pipelines. A large venting orifice and large float clearances freely exhaust or admits air during pipeline filling or draining.

During normal pipeline operation, air accumulation and buoyancy cause the floats to lower or lift. As the water level lowers inside the valve, small amounts of accumulated air are released through the small orifice. Once air is released, the float poppet system closes drip tight.

Valve servicing is simple because the entire float poppet system, can be replaced without removal of the valve body from the pipeline.

### Installation

Series 33ATD is often installed upstream of check valves in vertical pump discharges to throttle air out during start-up and to allow full air reentry when the pump stops.

### Operation

**Air Release Mode - Valve is normally open:**

When line is filled or pump started, air is throttled through the air control device TD. As liquid fills the valve, float ball rises to form a drip-tight closure and remaining air is exhausted through small orifice. Air throttling can be adjusted by mean of adjusting the screw.

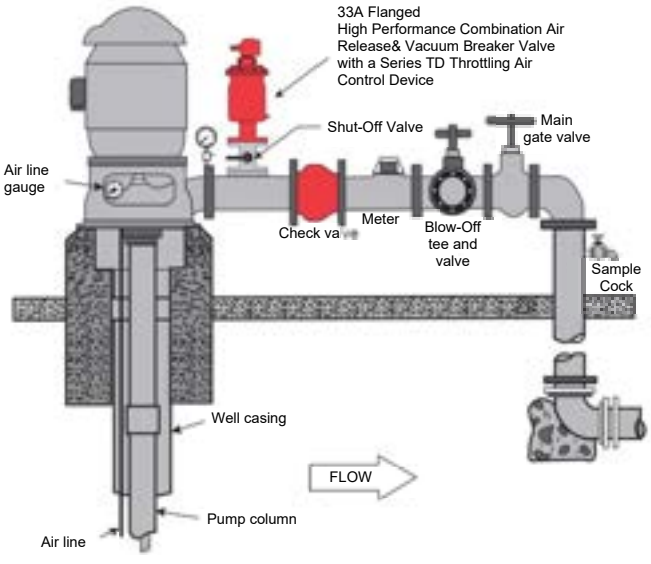
**Vacuum Prevent Mode:**

When line pressure drops below positive pressure and the liquid level lowers, the float drops, unseating the valve and allowing air into the line, thus preventing a vacuum. The spring loaded disc in the TD throttling air control device is moved to the air intake position due to the negative pressure.

**Note:** Available for Sea Water Service (see material specifications).

### Typical Application

- **Standard Max. D.W.P. 300 psi for UL Listed Assemblies (For Higher Operating Pressure Consult Factory)**
- **Transmission Pipeline High Points**
- **Water Treatment Plant Piping High Points**
- **Offshore Platforms**
- **Vertical Turbine Pump Discharge**

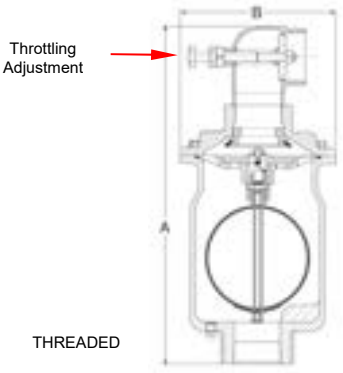


# CLA-VAL **33ATD**

## Air Release & Vacuum Breaker Valve (Threaded & Flanged) with Throttling Air Control Device Sizes 1" - 2" - 3" - 4" - 6"

## Dimensions

| | 33A Pressure Class 300 Lb Threaded | | | |
|---|---|---|---|---|
| **Valve size** [inches] | **(**)1"** | **2"** | **3"** | **4"** |
| **A** [mm] | 300 | 419 | 470 | 500 |
| **B** [mm] | 105 | 191 | 235 | 235 |
| **Inlet** [ANSI]* | 1" NPT | 2" NPT | 3" NPT | 4" NPT |
| **Outlet** [NPT]* | 1" NPT | 2" NPT | 3" NPT | 4" NPT |
| **Number of Holes** | - | - | - | - |
| **Diameter of Bolts** | - | - | - | - |
| Approximate calculated shipping weight [kg] | 12 | 15 | 18 | 24 |




| | 33A Pressure Class 150 Lb Flanged (INLET) | | | | |
|---|---|---|---|---|---|
| **Valve size** [inches] | **1"** | **2"** | **3"** | **4"** | **6"** |
| **A** [mm] | 330 | 451 | 552 | 597 | ☎ CLA-VAL |
| **B** [mm] | 159 | 191 | 235 | 235 | ☎ CLA-VAL |
| **Inlet** [ANSI]* | 1" | 2" | 3" | 4" | 6" |
| **Outlet** [NPT]* | 1" NPT | 2" NPT | 3" NPT | 4" NPT | 6" NPT |
| **Number of Holes** | 4 | 4 | 4 | 8 | 8 |
| **Diameter of Bolts** | 16 | 16 | 16 | 16 | 19 |
| Approximate calculated shipping weight [kg] | 15 | 18 | 22 | 23 | ☎ CLA-VAL |

| | 33A Pressure Class 300 Lb Flanged (INLET) | | | |
|---|---|---|---|---|
| **Valve size** [inches] | **1"** | **2"** | **3"** | **4"** |
| **A** [mm] | 335 | 457 | 559 | 603 |
| **B** [mm] | 159 | 191 | 235 | 235 |
| **Inlet** [ANSI]* | 1" | 2" | 3" | 4" |
| **Outlet** [NPT]* | 1" NPT | 2" NPT | 3" NPT | 4" NPT |
| **Number of Holes** | 4 | 8 | 8 | 8 |
| **Diameter of Bolts** | 19 | 19 | 19 | 19 |
| Approximate calculated shipping weight [kg] | 16 | 19 | 25 | 27 |


## Pressure Ratings

| **Valve Size** [inch] | **Orifice Ø** [inch] | **Standard Max. Pressure** | **Materials of construction** |
|---|---|---|---|
| 1" | .076" | 300 psi | • Nickel Aluminum Bronze (NAB) - ASTM B148 Alloy C95800<br>• Monel - QQ-N-288 Comp B - ASTM A494 Grade M30H<br>• Cast Steel - ASTM A216 Grade WCB<br>• 316 Stainless steel - ASTM A743 Grades CF3M and CFM8<br>• Super Austenitic Stainless Steel - ASTM A351 Grade CK3MCuN (SMO 254)<br>• Super duplex stainless steel - ASTM A890 Grade 5A (CE3MN) |
| 2" | .076" | 300 psi | |
| 3" & 4" | .076" | 300 psi | |
| 6" | .076" | 300 psi | |
| 3" & 4" | Optional upon request<br>.125" | 300 psi | |

**Note:** Maximum pressure rating for UL listed 33ATD = 300 psi

# CLA-VAL 33ATD

## Air Release & Vacuum Breaker Valve (Threaded & Flanged) with Throttling Air Control Device Sizes 1" - 2" - 3" - 4" - 6"

## Specifications

**Standard Internals:**

Float: Stainless Steel 304SS standard, T316 or Monel optional (extra cost)
Balance internals parts Stainless Steel and Delrin
Seals Nitrile Rubber or Viton™ (extra cost)

**Note:** Fluorocarbon is not a UL Listed Seal Material

**Temperature Range:**

Water to 4 - 80°C

**Optional:**

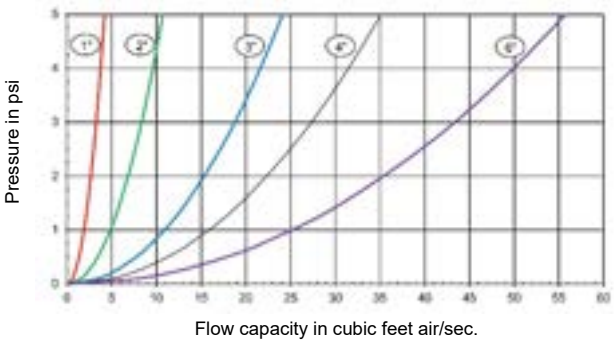
Fusion epoxy lined and coated
For well service throttling device on the outlet specify model TD
Hood / Screen assembly

## Valve Sizing Selection

### Large Orifice Air-Vacuum Capacity

Determine anticipated water flow and allowable pressure differential for the pipeline application. Select valve from chart to exhaust or admit air at the same rate as water filling or draining (in CFS). For larger flows, two or more Model 33ATD's may be installed in parallel.

**MODEL 33A VACUUM AIR FLOW CAPACITY**

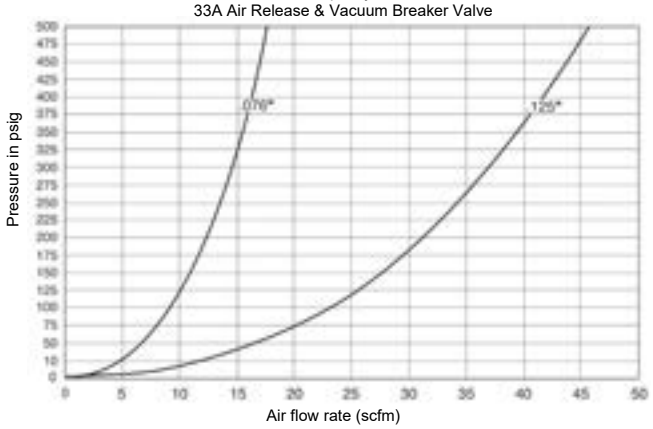



**Note:** For sizing made easy request: CLA-VAL selector slide rule

### Small Orifice Capacity

During pressurized pipeline operation, small pockets of entrapped air will be released through the float actuated 0.076 or .125 inch orifice. Use chart to determine discharge capacity.

Orifice Air Release Capacity for CLA-VAL Model 33A Air Release & Vacuum Breaker Valve

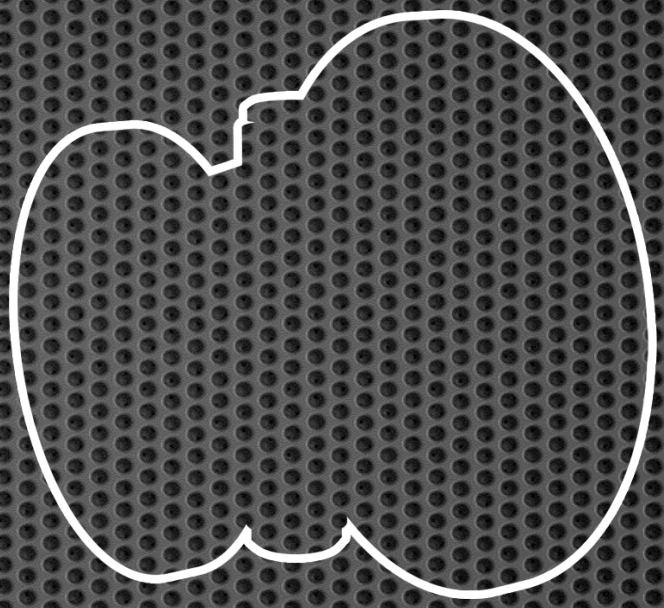



## When Ordering, Please Specify

1. Catalog No.
2. Valve size
3. Pressure rating
4. Materials

CLA-VAL®

# WASTE CONE



# CLA-VAL **AQUA 40-520**

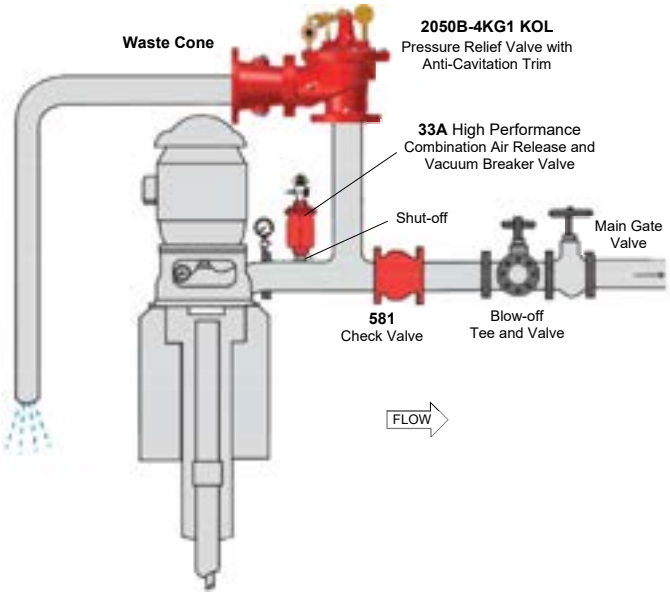
## Waste Cone

- **Available for Onshore and Offshore Applications**
- **Manufactured in accordance with NFPA 20 requirements**
- **Designed for use with UL/FM approved fire pump pressure relief valves**
- **Single body casting (No welding)**

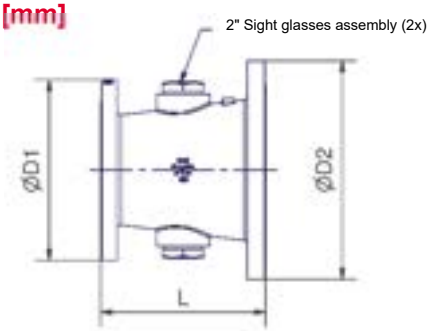
**Standard:**
Ductile iron - ASTM A536 / EN-GJS-400
2" 316 SS Sight glasses (2x)

**Optional material:** (for seawater and severe service application)
Nickel Aluminium Bronze (NAB) ASTM B148 Alloy C95800
316 Stainless steel ASTM A743

### Typical Application for Fire Pump Relief




### Dimensions [mm]



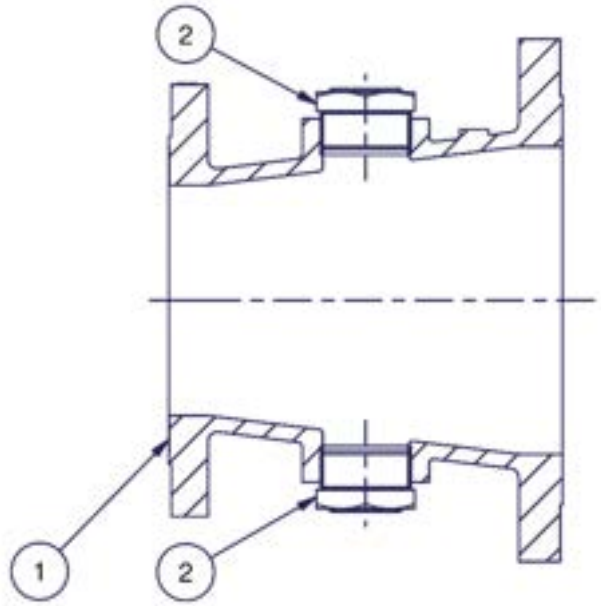

| PRESSURE CLASS 150 | | | |
|---|---|---|---|
| **DN x DN** | **L** | **D1** | **D2** |
| 80 x 125 [3" x 5"] | 209.5 | 190.5 | 254.0 |
| 100 x 150 [4" x 6"] | 228.6 | 228.6 | 279.5 |
| 100 x 200 [4" x 8"] | 260.4 | 228.6 | 342.9 |
| 150 x 200 [6" x 8"] | 260.4 | 279.5 | 342.9 |
| 150 x 250 [6" x 10"] | 292.1 | 279.5 | 406.5 |
| 200 x 300 [8" x 12"] | 330.2 | 342.9 | 482.5 |
| 200 x 350 [8" x 14"] | 355.5 | 342.9 | 533.5 |

| PRESSURE CLASS 300 | | | |
|---|---|---|---|
| **DN x DN** | **L** | **D1** | **D2** |
| 80 x 125 [3" x 5"] | 234.7 | 209.5 | 279.5 |
| 100 x 150 [4" x 6"] | 247.7 | 254.0 | 317.5 |
| 100 x 200 [4" x 8"] | 281.0 | 254.0 | 381.0 |
| 150 x 200 [6" x 8"] | 284.2 | 317.5 | 381.0 |
| 150 x 250 [6" x 10"] | 320.8 | 317.5 | 444.5 |
| 200 x 300 [8" x 12"] | 362.0 | 381.0 | 520.7 |
| 200 x 350 [8" x 14"] | 387.4 | 381.0 | 584.2 |

# CLA-VAL **AQUA 40-520**

## Waste Cone

### Informations




| POS | DESCRIPTION |
|---|---|
| 1 | Body |
| 2 | Sight glass assembly |

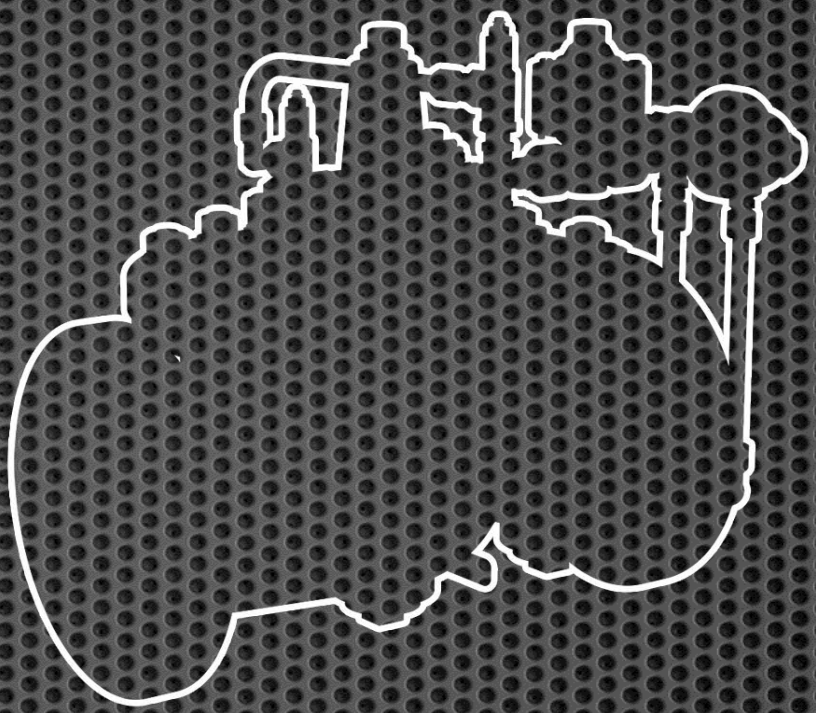
| PART NUMBER: DUCTIL IRON | | | | |
|---|---|---|---|---|
| **DN x DN** | **Flange Class** | **(1) Body** | **(2) Sight Glass assembly** | **Weight [kg]** |
| 80 x 125 [3" x 5"] | 150RF | 210100-02C | 300478-01 | 16 |
| 100 x 150 [4" x 6"] | 150RF | 210102-02A | 300478-01 | 21 |
| 100 x 200 [4" x 8"] | 150RF | 210104-02J | 300478-01 | 30 |
| 150 x 200 [6" x 8"] | 150RF | 210106-02G | 300478-01 | 35 |
| 150 x 250 [6" x 10"] | 150RF | 210108-02E | 300478-01 | 48 |
| 200 x 300 [8" x 12"] | 150RF | 210110-02A | 300478-01 | 68 |
| 200 x 350 [8" x 14"] | 150RF | 210112-02J | 300478-01 | 83 |

| PART NUMBER: SS 316 STAINLESS STEEL | | | | |
|---|---|---|---|---|
| **DN x DN** | **Flange Class** | **(1) Body** | **(2) Sight Glass assembly** | **Weight [kg]** |
| 80 x 125 [3" x 5"] | - | - | - | - |
| 100 x 150 [4" x 6"] | - | - | - | - |
| 100 x 200 [4" x 8"] | - | - | - | - |
| 150 x 200 [6" x 8"] | - | - | - | - |
| 150 x 250 [6" x 10"] | - | - | - | - |
| 200 x 300 [8" x 12"] | 150RF | 300483-44 | 300478-01 | 69 |
| 200 x 350 [8" x 14"] | - | - | - | - |

| PART NUMBER: NICKEL ALUMINIUM BRONZE | | | | |
|---|---|---|---|---|
| **DN x DN** | **Flange Class** | **(1) Body** | **(2) Sight Glass assembly** | **Weight [kg]** |
| 80 x 125 [3" x 5"] | - | - | - | - |
| 100 x 150 [4" x 6"] | - | - | - | - |
| 100 x 200 [4" x 8"] | - | - | - | - |
| 150 x 200 [6" x 8"] | 150FF | 300476-10 | 300478-02 | 35 |
| 150 x 250 [6" x 10"] | 150FF | 300475-10 | 300478-02 | 48 |
| 200 x 300 [8" x 12"] | 150FF | 300483-10 | 300478-02 | 70 |
| 200 x 350 [8" x 14"] | 150FF | 300477-10 | 300478-02 | 86 |

CLA-VAL®

# DELUGE VALVE



# CLA-VAL 134E/D-05

## Solenoid Control Valve (for Fire Deluge Service)

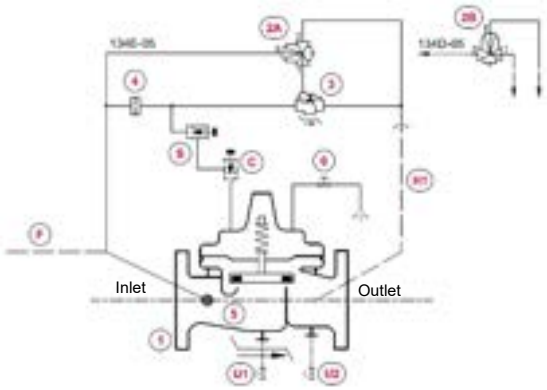
## Simple, Reliable and Accurate

- **U.L. Listed**
- **Fast Acting Solenoid Control**
- **Reliable Drip Tight Shut-off**
- **Simple Design, Proven Reliable**
- **Easy Installation & Maintenance**


The CLA-VAL Model 134E/D-05 Solenoid Control Valve is an on-off control valve which either opens or closes upon receiving an electrical signal to the solenoid pilot control. This valve consists of a 100G/2100G U.L. listed HYTROL main valve, a three-way solenoid valve and an auxiliary pilot valve. This pilot control system alternately applies pressure to/or relieves pressure from the diaphragm chamber of the main valve. It is furnished either normally open (de-energize solenoid to open) or normally closed (energize solenoid to open).

**Note:** For seawater applications use 100GS/2100GS main valve.

## Function




| Schematic Diagram | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| 1 | Main valve model HYTROL 100G/2100G UL listed |
| 2A & 2B | 3-Way Solenoid valve |
| 3 | 100-01 Auxiliary valve HYTROL |
| 4 | X58C Restriction assembly |
| 5 | X46A Flow clean strainer |
| 6 | RB-117 Isolation ball valve |

| Optional Features | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| C | CV One-way flow control (Closing speed) |
| F | Remote sensing |
| H1 | Drain to main valve outlet |
| S | CV One-way flow control (Opening speed) |
| U | RB-117 Isolation ball valve (Drain valve) |

## Specifications

**Size:**
Globe or Angle: 3" - 12" flanged
Other sizes upon request

**End Details:**
Ductile iron ANSI B16.42
Cast steel ANSI B16.5
Bronze ANSI B16.24
Stainless steel ANSI B16.5

**Pressure Ratings:**
150 class 250 psi max.
300 class 400 psi max.

**Temperature Range:**
Water max. 180°F / 82°C

**Pressure Adjustment Range:**
150 lb. Class: 20-200 psi
300 lb. Class: 100-300 psi

**Solenoid Control*:**
Standard safe zone execution
Explosion proof ATEX available

**Voltages:**
220 -50Hz AC
24 and 48 DC
Others available at extra cost
Max. differential operating pressure: 200 psi
Manual operator available at extra cost.
UL Listed: DN 80 (3") - DN 300 (12")

## Materials

**Main valve body & cover:**
Ductile iron* - ASTM A536 / EN-GJS-400
Cast steel ASTM A216-WCB*
Naval bronze ASTM B61
Nickel aluminum bronze ASTM B148
Super Duplex stainless steel
Stainless steel ASTM A743-CF-8M

**Main Valve Internal Trim:**
Bronze / Stainless steel

**Pilot Control System:**
Cast bronze ASTM B61.
UL Listed: DN 80 (3") - DN 300 (12")

**Rubber Parts:**
Buna-N® synthetic rubber

*Optional material available for Seawater Service

# CLA-VAL **134E/D-05**

## Solenoid Control Valve (for Fire Deluge Service)

**Cover capacity**

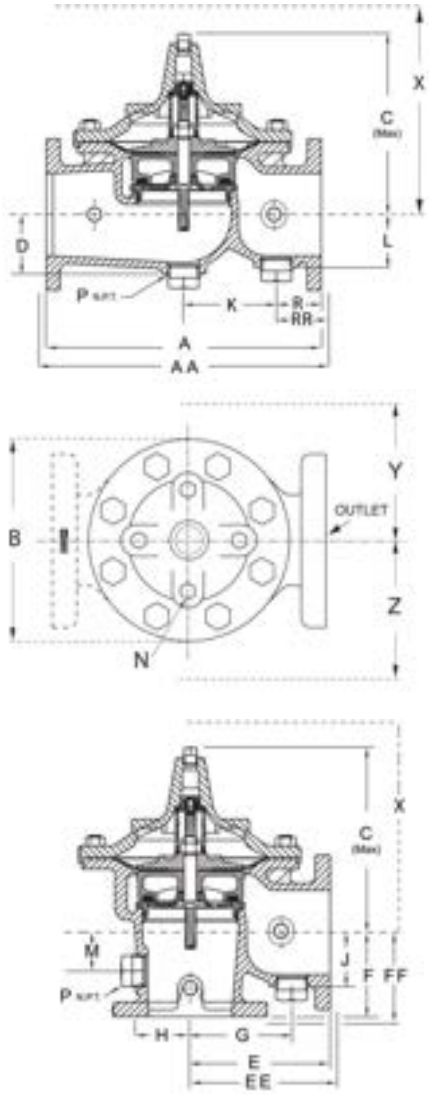
| Valve size [inch] | Displacement |
|---|---|
| 3" | 0.080 gal |
| 4" | 0.169 gal |
| 6" | 0.531 gal |
| 8" | 1.26 gal |
| 10" | 2.51 gal |

**Functional data**

| Valve size | | [Inches] | 3 | 4 | 6 | 8 | 10 |
|---|---|---|---|---|---|---|---|
| | | **[mm]** | **80** | **100** | **150** | **200** | **250** |
| Cv factor | Globe pattern | [gpm] | 115 | 200 | 440 | 770 | 1245 |
| | | **[l/s]** | **27.6** | **48** | **105.6** | **184.8** | **299** |
| | Angle pattern | [gpm] | 139 | 240 | 541 | 990 | 1575 |
| | | **[l/s]** | **33.4** | **58** | **130** | **238** | **378** |

## Dimensions

| **Valve size** [mm] | **80** | **100** | **150** | **200** | **250** |
|---|---|---|---|---|---|
| **A** 150 ANSI | 305 | 381 | 508 | 645 | 756 |
| **AA** 300 ANSI | 337 | 397 | 533 | 670 | 791 |
| **B** Dia. | 232 | 292 | 400 | 508 | 600 |
| **C** (max.) | 208 | 270 | 340 | 406 | 435 |
| **D** | 65 | 81 | 110 | 131 | 216 |
| **E** 150 ANSI | 178 | 216 | 254 | 322 | 378 |
| **EE** 300 ANSI | - | 224 | 267 | 350 | - |
| **F** 150 ANSI | 102 | 126 | 152 | 203 | 219 |
| **FF** 300 ANSI | - | 134 | 165 | 216 | - |
| **G** | 121 | 151 | 184 | 216 | 267 |
| **H** | 68 | 71 | 99 | 135 | 167 |
| **J** | 65 | 71 | 97 | 122 | 148 |
| **K** | 178 | 102 | 171 | 432 | 394 |
| **L** | 65 | 71 | 97 | 122 | 216 |
| **M** | 45 | 61 | 70 | 102 | 108 |
| **N** NPT | 1/2"-14 | 3/4"-14 | 3/4"-14 | 1"-11 1/2 | 1"-11 1/2 |
| **P** NPT | 1/4"-11 1/2 | 2"-11 1/2" | | | |
| **R** 150 ANSI | 64 | 88 | 83 | 106 | 181 |
| **RR** 300 ANSI | 79 | 96 | 95 | 119 | 198 |
| **X** Pilot System | 381 | 432 | 737 | 787 | 838 |
| **Y** Pilot System | 279 | 305 | 508 | 559 | 610 |
| **Z** Pilot System | 279 | 305 | 508 | 559 | 610 |
| Approx. ship Wt. [Kg] | 32 | 64 | 129 | 227 | 354 |




## When Ordering, Please Specify

1. Catalog Number 134E/D-05
2. Valve size
3. Globe or Angle pattern
4. Pressure Class
5. Threaded, Flanged or Grooved
6. Material Desired
7. Energized or De-energized to open main valve
8. Solenoid Enclosure, Voltage & Hertz
9. When vertically installed

# CLA-VAL 134E/D-83

Deluge Solenoid Control Valve, Equipped with Manual Bypass Valve and Pressure Reducing Feature

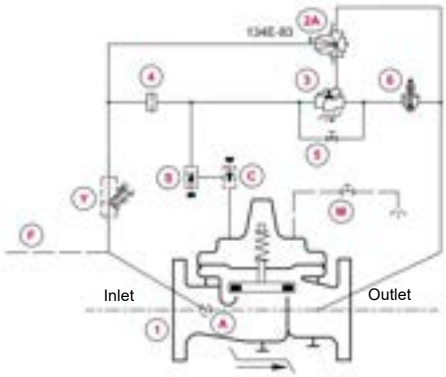
## Simple, Reliable and Accurate

- **U.L. Listed**
- **Fast Acting Solenoid Control**
- **Reliable Drip Tight Shut-off**
- **Simple Design, Proven Reliable**
- **Easy Installation & Maintenance**

The CLA-VAL Model 134E/D-83 Solenoid Control Valve is an on-off electric/hydraulic control valve which either opens or closes upon receiving an electrical signal to the solenoid pilot control. This valve consists of a 100G/2100G U.L. listed HYTROL main valve, a three-way solenoid valve, an auxiliary pilot valve and a pressure reducing control valve. This pilot control system alternately applies or relieves pressure from the diaphragm chamber of the main valve. It is furnished either normally open (de-energize solenoid to open) or normally closed (energize solenoid to open). Pressure reducing control is a normally open control that senses main valve outlet pressure changes.

**Note:** For seawater applications use 100GS/2100GS main valve.

## Function




| Schematic Diagram | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| 1 | Main valve model HYTROL 100G/2100G UL listed |
| 2 | 3-Way Solenoid valve |
| 3 | 100-KHR Auxiliary valve |
| 4 | X58C-CSA Restriction assembly |
| 5 | RB-117 Isolation ball valve |
| 6 | CRD Pressure reducing control |

| Optional Features | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| A | X46A Flow clean strainer |
| C | CV One-way flow control (Closing speed) |
| F | Remote sensing |
| M | Manual operator (drain to atmosphere) |
| S | CV One-way flow control (Opening speed) |
| Y | X43 Strainer |

## Specifications

**Size:**
Globe or Angle: 3" - 12" flanged
Other sizes upon request

**End Details:**
Ductile iron ANSI B16.42
Cast steel ANSI B16.5
Bronze ANSI B16.24
Stainless steel ANSI B16.5

**Pressure Ratings:**
150 class 250 psi max.
300 class 400 psi max.

**Temperature Range:**
Water max. 180°F / 82°C

**Pressure Adjustment Range:**
150 lb. Class: 20-200 psi
300 lb. Class: 100-300 psi

**Solenoid Control*:**
Standard safe zone execution
Explosion proof ATEX available

**Voltages:**
220/50Hz VAC
24 and 48 VDC
Others available at extra cost
Max. differential operating pressure: 200 psi
Manual operator available at extra cost
UL Listed: DN 80 (3") - DN 300 (12")

## Materials

**Main valve body & cover:**
Ductile iron* - ASTM A536 / EN-GJS-400
Cast steel ASTM A216 Gr.WCB*
Naval bronze ASTM B61
Nickel aluminum bronze ASTM B148
Super Duplex stainless steel
Stainless steel ASTM A743-CF-8M

**Main Valve Internal Trim:**
Bronze / Stainless steel

**Pilot Control System:**
Cast bronze ASTM B61
UL Listed: DN 80 (3") - DN 300 (12")

**Rubber Parts:**
Buna-N® synthetic rubber

*Optional material available for Seawater Service

# CLA-VAL 134E/D-83

## Deluge Solenoid Control Valve, Equipped with Manual Bypass Valve and Pressure Reducing Feature

### Cover capacity

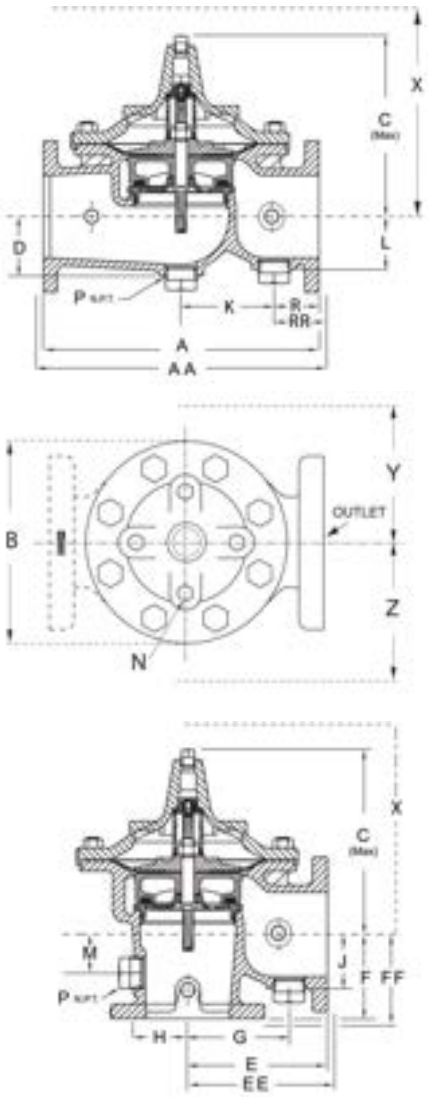
| Valve size [inch] | Displacement |
|---|---|
| 3" | 0.080 gal |
| 4" | 0.169 gal |
| 6" | 0.531 gal |
| 8" | 1.26 gal |
| 10" | 2.51 gal |
| 12" | 4.00 gal |

### Functional data

| Valve size | | [Inches] | 3 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|
| | | **[mm]** | **80** | **100** | **150** | **200** | **250** | **300** |
| Cv factor | Globe pattern | [gpm] | 115 | 200 | 440 | 770 | 1725 | 1725 |
| | | **[l/s]** | **27.6** | **48** | **105.6** | **184.8** | **414** | **414** |
| | Angle pattern | [gpm] | 139 | 240 | 541 | 990 | 2500 | 2500 |
| | | **[l/s]** | **33.4** | **58** | **130** | **238** | **600** | **600** |

## Dimensions

| **Valve size** [mm] | **80** | **100** | **150** | **200** | **250** | **300** |
|---|---|---|---|---|---|---|
| **A** 150 ANSI | 305 | 381 | 508 | 645 | 756 | 864 |
| **AA** 300 ANSI | 337 | 397 | 533 | 670 | 791 | 902 |
| **B** Dia. | 232 | 292 | 400 | 508 | 600 | 711 |
| **C** (max.) | 208 | 270 | 340 | 406 | 435 | 533 |
| **D** | 65 | 81 | 110 | 131 | 216 | 239 |
| **E** 150 ANSI | 178 | 216 | 254 | 322 | 378 | 432 |
| **EE** 300 ANSI | - | 224 | 267 | 350 | - | 451 |
| **F** 150 ANSI | 102 | 126 | 152 | 203 | 219 | 349 |
| **FF** 300 ANSI | - | 134 | 165 | 216 | - | 368 |
| **G** | 121 | 151 | 184 | 216 | 267 | 432 |
| **H** | 68 | 71 | 99 | 135 | 167 | 178 |
| **J** | 65 | 71 | 97 | 122 | 148 | 178 |
| **K** | 178 | 102 | 171 | 432 | 394 | 533 |
| **L** | 65 | 71 | 97 | 122 | 216 | 239 |
| **M** | 45 | 61 | 70 | 102 | 108 | 222 |
| **N** NPT | 1/2"-14 | 3/4"-14 | 3/4"-14 | 1"-11 1/2 | 1"-11 1/2 | 1"-11 1/2 |
| **P** NPT | 1/4"-11 1/2 | 2"-11 1/2" | | | | |
| **R** 150 ANSI | 64 | 88 | 83 | 106 | 181 | 165 |
| **RR** 300 ANSI | 79 | 96 | 95 | 119 | 198 | 184 |
| **X** Pilot System | 381 | 432 | 737 | 787 | 838 | 889 |
| **Y** Pilot System | 279 | 305 | 508 | 559 | 610 | 660 |
| **Z** Pilot System | 279 | 305 | 508 | 559 | 610 | 660 |




## When Ordering, Please Specify

1. Catalog Number 134E/D-83
2. Valve size
3. Globe or Angle pattern
4. Pressure Class
5. Threaded, Flanged or Grooved
6. Material Desired
7. Energized or De-energized to open main valve
8. Solenoid Enclosure, Voltage & Hertz
9. When vertically installed

# CLA-VAL 134E/D-97e

Deluge Solenoid Control Valve, Equipped with Manual Bypass Valve and Pressure Reducing Feature (for Fire Deluge Service)

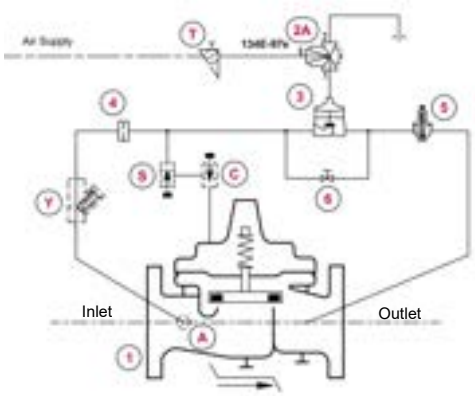
## Simple, Reliable and Accurate

- **U.L. Listed**
- **Fast Acting Solenoid Control**
- **Reliable Drip Tight Shut-off**
- **Simple Design, Proven Reliable**
- **Easy Installation & Maintenance**

The CLA-VAL Model 134E/D-97e Solenoid Control Valve is an on-off pneumatic/hydraulic control valve which either opens or closes upon receiving an electrical signal to the solenoid pilot control. This valve consists of a 100G/2100G U.L. listed HYTROL main valve, a three-way solenoid valve, an auxiliary pilot valve and a pressure reducing control valve. This pilot control system applies or relieves pressure from the diaphragm chamber of the main valve. It is furnished either normally open (de-energize solenoid to open) or normally closed (energize solenoid to open). Pressure reducing control is a normally open control that senses main valve outlet pressure changes. Isolation ball valve by-pass solenoid and auxiliary valve.

**Note:** For seawater applications use 100GS/2100GS main valve.

## Function




| Schematic Diagram | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| 1 | Main valve model HYTROL 100GS/2100GS UL listed |
| 2 | 3-Way Solenoid valve |
| 3 | 102F/X103 Auxiliary valve |
| 4 | X58C-CSA Restriction assembly |
| 5 | CRD Pressure reducing control |
| 6 | RB-117 Isolation ball valve |

| Optional Features | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| A | X46A Flow clean strainer |
| C | CV One-way flow control (Closing speed) |
| S | CV One-way flow control (Opening speed) |
| T | Regulator |
| Y | X43 Strainer |

## Specifications

**Size:**
Globe or Angle: DN 80 (3") - DN 300 (12") flanged
Other sizes upon request

**End Details:**
Ductile iron ANSI B16.42
Cast steel ANSI B16.5
Bronze ANSI B16.24
Stainless steel ANSI B16.5

**Pressure Ratings:**
150 class 250 psi max.
300 class 400 psi max.

**Temperature Range:**
Water max. 180°F / 82°C

**Pressure Adjustment Range:**
150 lb. Class: 20-200 psi
300 lb. Class: 100-300 psi

**Solenoid Control*:**
Standard safe zone execution
Explosion proof ATEX available

**Voltages:**
220/50Hz VAC
24 and 48 VDC
Others available at extra cost
Max. differential operating pressure: 200 psi
Manual operator available at extra cost
UL Listed: DN 80 (3") - DN 300 (12")

## Materials

**Main valve body & cover:**
Ductile iron* - ASTM A536 / EN-GJS-400
Cast steel ASTM A216 Gr.WCB*
Naval bronze ASTM B61
Nickel aluminum bronze ASTM B148
Super Duplex stainless steel
Stainless steel ASTM A743-CF-8M

**Main Valve Internal Trim:**
Bronze / Stainless steel

**Pilot Control System:**
Cast bronze ASTM B61
UL listed DN 80 (3") - DN 300 (12")

**Rubber Parts:**
Buna-N® synthetic rubber

* Optional material available for Seawater

# CLA-VAL 134E/D-97e

## Deluge Solenoid Control Valve, Equipped with Manual Bypass Valve and Pressure Reducing Feature (for Fire Deluge Service)

### Cover capacity

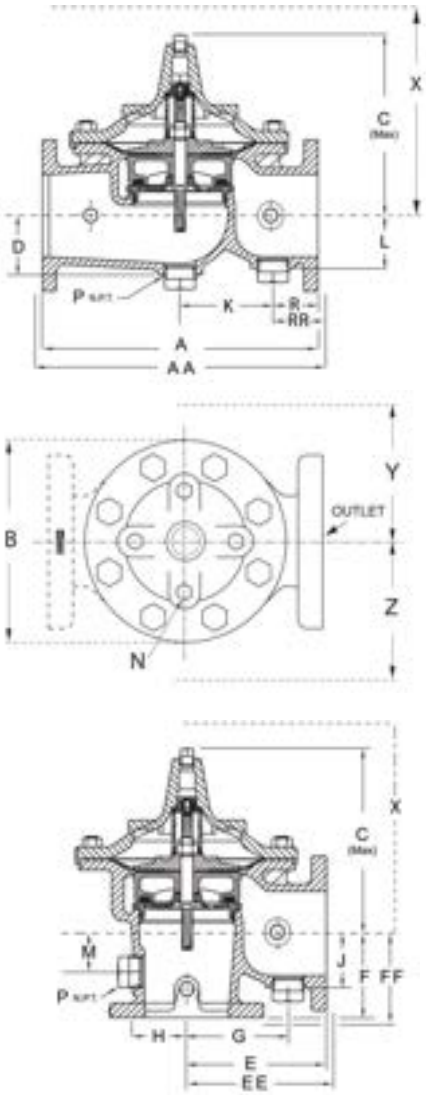
| Valve size [inch] | Displacement |
|---|---|
| 3" | 0.080 gal |
| 4" | 0.169 gal |
| 6" | 0.531 gal |
| 8" | 1.26 gal |
| 10" | 2.51 gal |
| 12" | 4.00 gal |

### Functional data

| Valve size | | [Inches] | 3 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|
| | | **[mm]** | **80** | **100** | **150** | **200** | **250** | **300** |
| Cv factor | Globe pattern | [gpm] | 115 | 200 | 440 | 770 | 1725 | 1725 |
| | | **[l/s]** | **27.6** | **48** | **105.6** | **184.8** | **414** | **414** |
| | Angle pattern | [gpm] | 139 | 240 | 541 | 990 | 2500 | 2500 |
| | | **[l/s]** | **33.4** | **58** | **130** | **238** | **600** | **600** |

## Dimensions

| **Valve size** [mm] | **80** | **100** | **150** | **200** | **250** | **300** |
|---|---|---|---|---|---|---|
| **A** 150 ANSI | 305 | 381 | 508 | 645 | 756 | 864 |
| **AA** 300 ANSI | 337 | 397 | 533 | 670 | 791 | 902 |
| **B** Dia. | 232 | 292 | 400 | 508 | 600 | 711 |
| **C** (max.) | 208 | 270 | 340 | 406 | 435 | 533 |
| **D** | 65 | 81 | 110 | 131 | 216 | 239 |
| **E** 150 ANSI | 178 | 216 | 254 | 322 | 378 | 432 |
| **EE** 300 ANSI | - | 224 | 267 | 350 | - | 451 |
| **F** 150 ANSI | 102 | 126 | 152 | 203 | 219 | 349 |
| **FF** 300 ANSI | - | 134 | 165 | 216 | - | 368 |
| **G** | 121 | 151 | 184 | 216 | 267 | 432 |
| **H** | 68 | 71 | 99 | 135 | 167 | 178 |
| **J** | 65 | 71 | 97 | 122 | 148 | 178 |
| **K** | 178 | 102 | 171 | 432 | 394 | 533 |
| **L** | 65 | 71 | 97 | 122 | 216 | 239 |
| **M** | 45 | 61 | 70 | 102 | 108 | 222 |
| **N** NPT | 1/2"-14 | 3/4"-14 | 3/4"-14 | 1"-11 1/2 | 1"-11 1/2 | 1"-11 1/2 |
| **P** NPT | 1/4"-11 1/2 | 2"-11 1/2" | | | | |
| **R** 150 ANSI | 64 | 88 | 83 | 106 | 181 | 165 |
| **RR** 300 ANSI | 79 | 96 | 95 | 119 | 198 | 184 |
| **X** Pilot System | 381 | 432 | 737 | 787 | 838 | 889 |
| **Y** Pilot System | 279 | 305 | 508 | 559 | 610 | 660 |
| **Z** Pilot System | 279 | 305 | 508 | 559 | 610 | 660 |




## When Ordering, Please Specify

1. Catalog Number 134E/D-97e
2. Valve size
3. Globe or Angle pattern
4. Pressure Class
5. Threaded, Flanged or Grooved
6. Material Desired
7. Energized or De-energized to open main valve
8. Solenoid Enclosure, Voltage & Hertz
9. When vertically installed

# CLA-VAL **403-11e**

## Pneumatically Operated Remote Control Valve for Freshwater and Seawater Service

## Simple, Reliable and Accurate

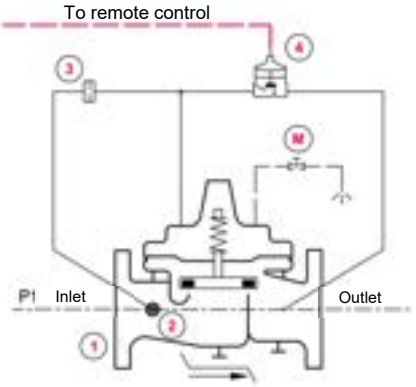
- **Single seat with resilient disc insures tight seal**
- **Simply designed with few working parts**
- **Quick response to remote control**
- **Fully supported frictionless diaphragm**
- **Leak-proof service assured - no packing glands**
- **Single tube line required for control**
- **Opens wide for minimum flow resistance**

Illustration: Globe 403-11e

The CLA-VAL 403-11e Remote Control Valve is used where "on-off" control is required. Pressure signals from a remote control "open or close" a small auxiliary valve installed on the main valve cover, which in turn opens or closes the main valve. Only the small amount of fluid in the auxiliary valve cover must pass through the remote control pilot in order to fully open or close the larger main valve.

The Model 403-11e consists of a 100G/2100G Hytrol-Deluge main valve and a small Hytrol auxiliary valve. Both the main valve and the auxiliary valve are single-seated, diaphragm operated globe type valves. Line pressure applied to the auxiliary valve cover closes the main valve drip tight.

## Function




| Schematic Diagram | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| 1 | Model HYTROL-Deluge AE/GE/NGE 100G / 2100G |
| 2 | X46A Flow clean strainer |
| 3 | X58C-CSA Restriction assembly |
| 4 | 102F/X103 Auxiliary valve |

| Optional Features | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| M | RB-117 Manual operator |

## Standard Specifications

**Sizes:**
Globe or Angle: DN 80 (3") - DN 300 (12") flanged

**Pressure Ratings:**
150 class - 250 psi max.
300 class - 400 psi max.

**Temperature Range:**
Water max. 180°F / 82°C

## Materials

**Main Valve Body & Cover:**
Ductile iron ASTM A-536*
Cast steel ASTM A216-WCB*
Naval bronze ASTM B-61
Ni-Al bronze ASTM B148
Super duplex SST
Stainless steel ASTM A743-CF-8M

**Main Valve Trim:**
Bronze ASTM B61
Monel
Stainless Steel 316

*Internally and externally epoxy coated

**Standard Pilot System:**

**Pilot Control:**
Cast bronze ASTM B61

**Trim:**
Monel

**Rubber:**
Buna-N® synthetic rubber

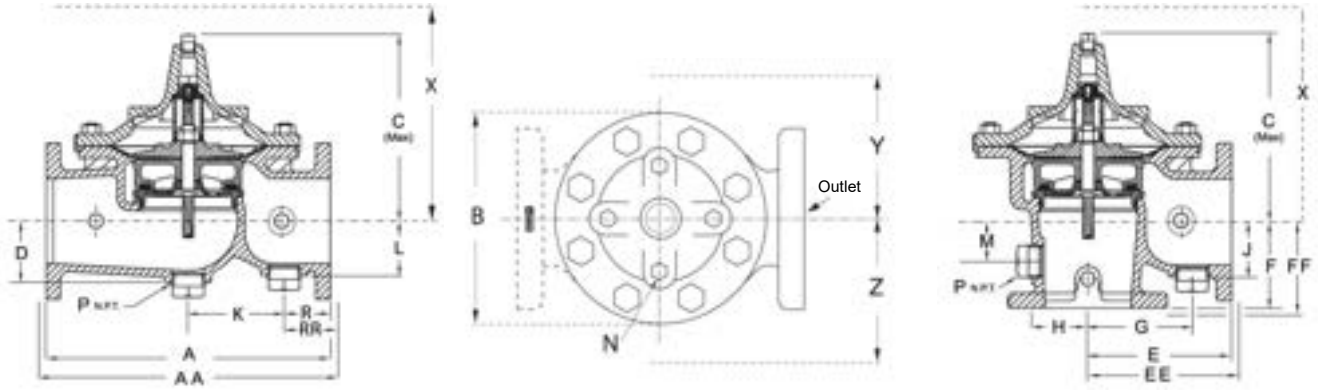
**Tubing & Fittings:**
Stainless steel

**Optional Pilot System:**
Pilot Systems are available with Stainless Steel or Monel materials.

# CLA-VAL **403-11e**

## Pneumatically Operated Remote Control Valve for Freshwater and Seawater Service

### Dimensions




| Valve size [inches] | 3 | 4 | 6 | 8 | 10 |
|---|---|---|---|---|---|
| **A** 150 ANSI | 12.00 | 15.00 | 20.00 | 25.38 | 29.75 |
| **AA** 300 ANSI | 13.25 | 15.62 | 21.00 | 26.38 | 31.12 |
| **B** Dia. | 9.12 | 11.50 | 15.75 | 20.00 | 23.62 |
| **C** Max. | 8.19 | 10.62 | 13.38 | 16.00 | 17.12 |
| **D** | 2.56 | 3.19 | 4.31 | 5.16 | 8.50 |
| **E** 150 ANSI | 7.00 | 8.50 | 10.00 | 12.69 | 14.88 |
| **EE** 300 ANSI | - | 8.81 | 10.50 | 13.19 | - |
| **F** 150 ANSI | 4.00 | 4.97 | 6.00 | 8.00 | 8.62 |
| **FF** 300 ANSI | - | 5.28 | 6.50 | 8.50 | - |
| **G** | 4.75 | 5.94 | 7.25 | 8.50 | 10.50 |
| **H** | 2.69 | 2.81 | 3.88 | 5.31 | 6.56 |
| **J** | 2.56 | 2.81 | 3.81 | 4.81 | 5.81 |
| **K** | 7.00 | 4.03 | 6.75 | 17.00 | 15.50 |
| **L** | 2.56 | 2.81 | 3.81 | 4.81 | 8.50 |
| **M** | 1.75 | 2.41 | 2.755 | 4.00 | 4.24 |
| **N** NPT | 1/2" | 3/4" | 3/4" | 1" | 1" |
| **P** NPT | 1-1/4" | 2" | | | |
| **R** 150 ANSI | 2.50 | 3.47 | 3.25 | 4.19 | 7.12 |
| **RR** 300 ANSI | 3.12 | 3.78 | 3.75 | 4.69 | 7.81 |
| **X** Pilot System | 15.00 | 17.00 | 29.00 | 31.00 | 33.00 |
| **Y** Pilot System | 11.00 | 12.00 | 20.00 | 22.00 | 24.00 |
| **Z** Pilot System | 11.00 | 12.00 | 20.00 | 22.00 | 24.00 |

| Valve size [mm] | 80 | 100 | 150 | 200 | 250 |
|---|---|---|---|---|---|
| **A** 150 ANSI | 305 | 381 | 508 | 645 | 756 |
| **AA** 300 ANSI | 337 | 397 | 533 | 670 | 791 |
| **B** Dia. | 232 | 292 | 400 | 508 | 600 |
| **C** Max. | 208 | 270 | 340 | 406 | 435 |
| **D** | 65 | 81 | 110 | 131 | 216 |
| **E** 150 ANSI | 178 | 216 | 254 | 322 | 378 |
| **EE** 300 ANSI | - | 224 | 267 | 350 | - |
| **F** 150 ANSI | 102 | 126 | 152 | 203 | 219 |
| **FF** 300 ANSI | - | 134 | 165 | 216 | - |
| **G** | 121 | 151 | 184 | 216 | 267 |
| **H** | 68 | 71 | 99 | 135 | 167 |
| **J** | 65 | 71 | 97 | 122 | 148 |
| **K** | 178 | 102 | 171 | 432 | 394 |
| **L** | 65 | 71 | 97 | 122 | 216 |
| **M** | 45 | 61 | 70 | 102 | 108 |
| **N** NPT | 1/2" | 3/4" | 3/4" | 1" | 1" |
| **P** NPT | 1-1/4" | 2" | | | |
| **R** 150 ANSI | 64 | 88 | 83 | 106 | 181 |
| **RR** 300 ANSI | 79 | 96 | 95 | 119 | 198 |
| **X** Pilot System | 381 | 432 | 737 | 787 | 838 |
| **Y** Pilot System | 279 | 305 | 508 | 559 | 610 |
| **Z** Pilot System | 279 | 305 | 508 | 559 | 610 |

### Valve Capacity

| **Valve size** [mm] | **80** | **100** | **150** | **200** | **250** | **300** |
|---|---|---|---|---|---|---|
| **Max. continuous** [l/s] | 29 | 50.5 | 113.6 | 196 | 309 | 442 |
| **Max. surge** [l/s] | 63 | 114 | 252 | 441.6 | 694 | 1009 |

### Functional Data

| **Valve size** | | [Inches] | 3 | 4 | 6 | 8 | 10 |
|---|---|---|---|---|---|---|---|
| | | **[mm]** | **80** | **100** | **150** | **200** | **250** |
| **CV Factor** | Globe Pattern | [gpm] | 115 | 200 | 440 | 770 | 1245 |
| | | **[l/s]** | **27.6** | **48** | **105.6** | **184.8** | **299** |
| | Angle Pattern | [gpm] | 139 | 240 | 541 | 990 | 1575 |
| | | **[l/s]** | **33.4** | **58** | **130** | **238** | **378** |

### When Ordering, Please Specify

1. Model No. 403-11e
2. Valve Size
3. Pattern Globe or Angle
4. Pressure class
5. Threaded, flanged or grooved
6. Trim material
7. Adjustment range
8. Desired options
9. When vertically installed

# CLA-VAL **403-35e**

## Remote Control Valve with Manual Override and Pressure Reducing Feature (for Fire Deluge Service)

## Simple, Reliable and Accurate

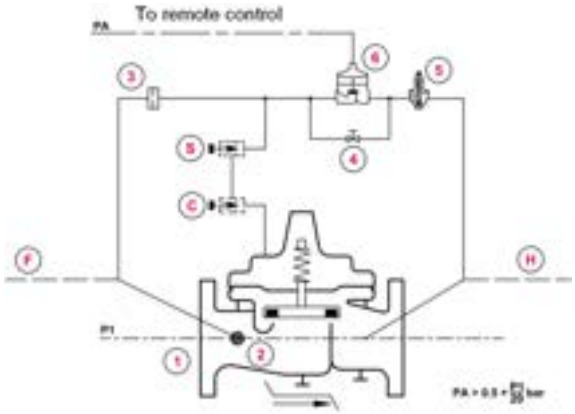
- **Single seat with resilient disc insures tight seal**
- **Simply designed with few working parts**
- **Quick response to remote control**
- **Fully supported frictionless diaphragm**
- **Leak-proof service assured - no packing glands**
- **Single tube line required for control**
- **Opens wide for minimum flow resistance**

The CLA-VAL 403-35e Remote Control Valve is used where "on-off" control is required. Pneumatic pressure signals from a remote control "opens or closes" a small auxiliary valve installed on the main valve cover, which in turn opens or closes the main valve. Only the small amount of fluid in the auxiliary valve cover must pass through the remote control pilot in order to fully open or close the larger main valve. Pressure reducing control is a normally open control that senses main valve outlet pressure changes. Isolation ball valve by-pass auxiliary valve.

Illustration: Globe 403-35e

The Model 403-35e consists of a 100G/2100G HYTROL-Deluge main valve and a small HYTROL auxiliary valve. Both the main valve and the auxiliary valve are single-seated, diaphragm operated globe type valves. Line pressure applied to the auxiliary valve cover closes the main valve drip tight.

### Function




| Schematic Diagram | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| 1 | Model HYTROL-Deluge AE/GE/NGE 100G/2100G |
| 2 | X46A Flow clean strainer |
| 3 | X58C-CSA Restriction assembly |
| 4 | RB-117 Isolation ball valve |
| 5 | CRD Pressure reducing control |
| 6 | 102F/X103 Auxiliary valve |

| Optional Features | |
|---|---|
| **ITEM** | **DESCRIPTION** |
| C | CV One-way flow control (Closing speed) |
| F | Remote sensing |
| H | Drain to atmosphere |
| S | CV One-way flow control (Opening speed) |

### Standard Specifications

**Sizes:**

Globe or Angle: DN 80 (3") - DN 300 (12") flanged

(Other sizes upon request)

**Pressure Ratings:**

150 class - 250 psi max.

300 class - 400 psi max.

**Temperature Range:**

Water max. 180°F / 82°C

### Materials

**Main Valve Body & Cover:**

Ductile iron ASTM A-536*

Cast steel ASTM A216 Gr.WCB*

Naval bronze ASTM B-61

Ni-Al bronze ASTM B148

Super duplex SST

Stainless steel ASTM A743-CF-8M

**Main Valve Trim:**

Bronze ASTM B61

Monel

Stainless Steel 316

*Internally and externally epoxy coated

**Standard Pilot System:**

**Pilot Control:**

Cast bronze ASTM B61

**Trim:**

Monel

**Rubber:**

Buna-N® synthetic rubber

**Tubing & Fittings:**

Stainless steel

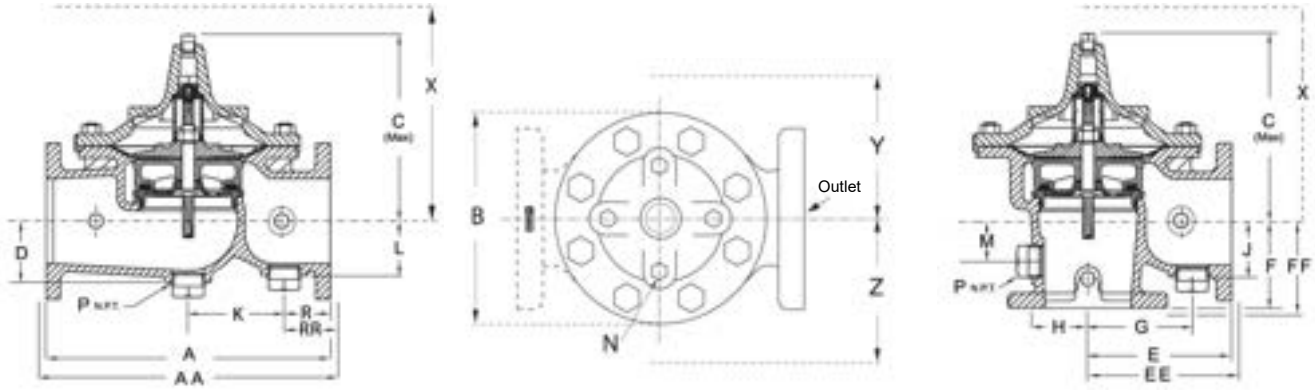
**Optional Pilot System:**

Pilot Systems are available with Stainless Steel or Monel materials.

# CLA-VAL 403-35e

## Remote Control Valve with Manual Override and Pressure Reducing Feature (for Fire Deluge Service)

### Dimensions




| Valve size [inches] | 3 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|
| **A** 150 ANSI | 12.00 | 15.00 | 20.00 | 25.38 | 29.75 | 34.00 |
| **AA** 300 ANSI | 13.25 | 15.62 | 21.00 | 26.38 | 31.12 | 35.50 |
| **B** Dia. | 9.12 | 11.50 | 15.75 | 20.00 | 23.62 | 28.00 |
| **C** Max. | 8.19 | 10.62 | 13.38 | 16.00 | 17.12 | 21.00 |
| **D** | 2.56 | 3.19 | 4.31 | 5.16 | 8.50 | 9.39 |
| **E** 150 ANSI | 7.00 | 8.50 | 10.00 | 12.69 | 14.88 | 17.00 |
| **EE** 300 ANSI | - | 8.81 | 10.50 | 13.19 | - | 17.75 |
| **F** 150 ANSI | 4.00 | 4.97 | 6.00 | 8.00 | 8.62 | 13.75 |
| **FF** 300 ANSI | - | 5.28 | 6.50 | 8.50 | - | 14.50 |
| **G** | 4.75 | 5.94 | 7.25 | 8.50 | 10.50 | 17.00 |
| **H** | 2.69 | 2.81 | 3.88 | 5.31 | 6.56 | 7.00 |
| **J** | 2.56 | 2.81 | 3.81 | 4.81 | 5.81 | 7.00 |
| **K** | 7.00 | 4.03 | 6.75 | 17.00 | 15.50 | 21.00 |
| **L** | 2.56 | 2.81 | 3.81 | 4.81 | 8.50 | 9.39 |
| **M** | 1.75 | 2.41 | 2.755 | 4.00 | 4.24 | 8.75 |
| **N** NPT | 1/2" | 3/4" | 3/4" | 1" | 1" | 1" |
| **P** NPT | 1-1/4" | 2" | | | | |
| **R** 150 ANSI | 2.50 | 3.47 | 3.25 | 4.19 | 7.12 | 6.50 |
| **RR** 300 ANSI | 3.12 | 3.78 | 3.75 | 4.69 | 7.81 | 7.25 |
| **X** Pilot System | 15.00 | 17.00 | 29.00 | 31.00 | 33.00 | 35.00 |
| **Y** Pilot System | 11.00 | 12.00 | 20.00 | 22.00 | 24.00 | 26.00 |
| **Z** Pilot System | 11.00 | 12.00 | 20.00 | 22.00 | 24.00 | 26.00 |

| Valve size [mm] | 80 | 100 | 150 | 200 | 250 | 300 |
|---|---|---|---|---|---|---|
| **A** 150 ANSI | 305 | 381 | 508 | 645 | 756 | 864 |
| **AA** 300 ANSI | 337 | 397 | 533 | 670 | 791 | 902 |
| **B** Dia. | 232 | 292 | 400 | 508 | 600 | 711 |
| **C** Max. | 208 | 270 | 340 | 406 | 435 | 533 |
| **D** | 65 | 81 | 110 | 131 | 216 | 239 |
| **E** 150 ANSI | 178 | 216 | 254 | 322 | 378 | 432 |
| **EE** 300 ANSI | - | 224 | 267 | 350 | - | 451 |
| **F** 150 ANSI | 102 | 126 | 152 | 203 | 219 | 349 |
| **FF** 300 ANSI | - | 134 | 165 | 216 | - | 368 |
| **G** | 121 | 151 | 184 | 216 | 267 | 432 |
| **H** | 68 | 71 | 99 | 135 | 167 | 178 |
| **J** | 65 | 71 | 97 | 122 | 148 | 178 |
| **K** | 178 | 102 | 171 | 432 | 394 | 533 |
| **L** | 65 | 71 | 97 | 122 | 216 | 239 |
| **M** | 45 | 61 | 70 | 102 | 108 | 222 |
| **N** NPT | 1/2" | 3/4" | 3/4" | 1" | 1" | 1" |
| **P** NPT | 1-1/4" | 2" | | | | |
| **R** 150 ANSI | 64 | 88 | 83 | 106 | 181 | 165 |
| **RR** 300 ANSI | 79 | 96 | 95 | 119 | 198 | 184 |
| **X** Pilot System | 381 | 432 | 737 | 787 | 838 | 889 |
| **Y** Pilot System | 279 | 305 | 508 | 559 | 610 | 660 |
| **Z** Pilot System | 279 | 305 | 508 | 559 | 610 | 660 |

### Valve Capacity

| **Valve size** [mm] | **80** | **100** | **150** | **200** | **250** | **300** |
|---|---|---|---|---|---|---|
| **Max. continuous** [l/s] | 29 | 50.5 | 113.6 | 196 | 309 | 442 |
| **Max. surge** [l/s] | 63 | 114 | 252 | 441.6 | 694 | 1009 |

### Functional Data

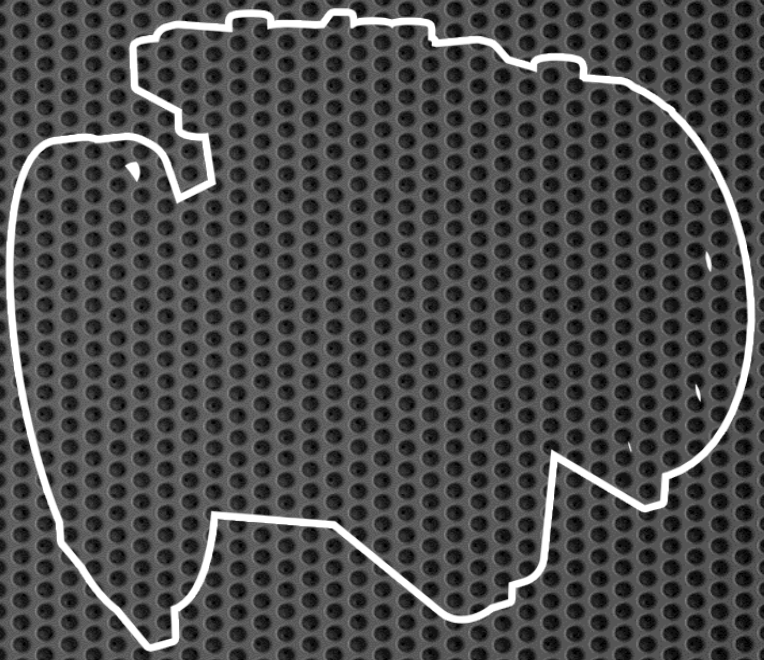
| **Valve size** | | [Inches] | 3 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|
| | | **[mm]** | **80** | **100** | **150** | **200** | **250** | **300** |
| **CV Factor** | Globe Pattern | [gpm] | 115 | 200 | 440 | 770 | 1725 | 1725 |
| | | **[l/s]** | **27.6** | **48** | **105.6** | **184.8** | **414** | **414** |
| | Angle Pattern | [gpm] | 139 | 240 | 541 | 990 | 2500 | 2500 |
| | | **[l/s]** | **33.4** | **58** | **130** | **238** | **600** | **600** |

### When Ordering, Please Specify

1. Model No. 403-35e
2. Valve Size
3. Pattern Globe or Angle
4. Pressure class
5. Threaded, flanged or grooved
6. Trim material
7. Adjustment range
8. Desired options
9. When vertically installed

CLA-VAL®

# H-STARINER

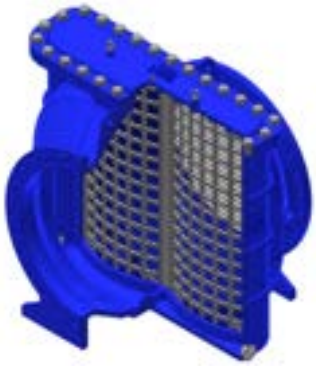


# CLA-VAL **AQUA 90-501**

H-Strainer
DN 40 to DN 1400

## Simple, Reliable and Accurate

Model DN 40 to DN 800



Model DN 900 to DN 1400

### Specifications

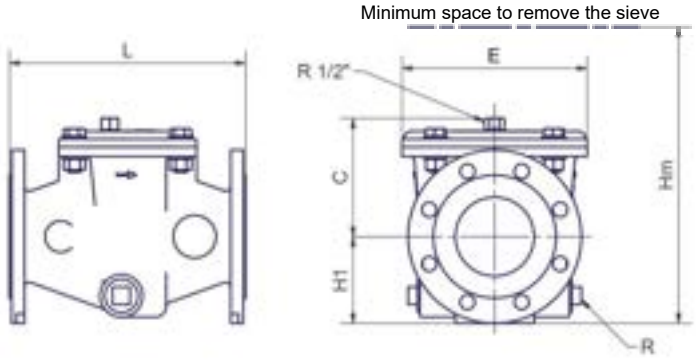
- **Sizes: DN 40 to DN 1400**
- **Flanges:**
  **PN 10 - 16 - 25 (sizes DN 40 to DN 1400)**
  **PN 40 (sizes DN 40 to DN 200)**
  **PN 40 (other sizes on request)**
- **Temperature: Maximum 80°C**

### Operation and Installation

The AQUA 90-501 strainer is used when effective filtration is required. Of compact design, maintenance is fast and easy and requires only top cover removal. The flat stainless steel strainer mesh perpendicular to flow optimizes pressure drop. The AQUA 90-501 model can be equipped with a flushing manual override.

The strainer may be installed in any position, however installation with the cover on top side is recommended.

### Dimensions (DN 40 to DN 800)




| Dimensions | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DN** | **40/50** | **60/65** | **80** | **100** | **125** | **150** | **200** | **250** | **300** | **350** | **400** | **450** | **500** | **600** | **700** | **800** |
| **L** [mm] | 230 | 230 | 300 | 300 | 400 | 400 | 500 | 580 | 610 | 650 | 800 | 800 | 950 | 1100 | 1150 | 1150 |
| **H1** [mm] **(PN10-16)** | 82.5 | 92.5 | 103 | 110 | 125 | 143 | 170 | 225 | 227.5 | 260 | 310 | 335 | 485 | 485 | 485 | 513 |
| **H1** [mm] **(PN25)** | 82.5 | 92.5 | 103 | 118 | 135 | 150 | 188 | 225 | 242.5 | 277.5 | 310 | 335 | 485 | 485 | 485 | 543 |
| **H1** [mm] **(PN40)** | 82.5 | 92.5 | 103 | 118 | 135 | 150 | 188 | 225 | 242.5 | 277.5 | 310 | 335 | 485 | 485 | 485 | 570 |
| **C** [mm] | 125 | 96 | 150 | 150 | 215 | 196 | 230 | 310 | 385 | 380 | 500 | 500 | 609 | 609 | 609 | 609 |
| **E** [mm] | 200 | 200 | 235 | 235 | 380 | 380 | 440 | 560 | 680 | 680 | 900 | 900 | 1190 | 1190 | 1190 | 1190 |
| **Hm** [mm] | 340 | 340 | 450 | 450 | 620 | 620 | 700 | 950 | 1150 | 1150 | 1430 | 1430 | 2070 | 2070 | 2070 | 2070 |
| **R** ["] | R 1 1/4" | | | | | | | | R 2" | | | | R 3" | | | |
| **Weight** [kg] | 13.8 | 14.6 | 22 | 23 | 46 | 48 | 76 | 165 | 230 | 250 | 410 | 430 | 770 | 850 | 950 | 998 |





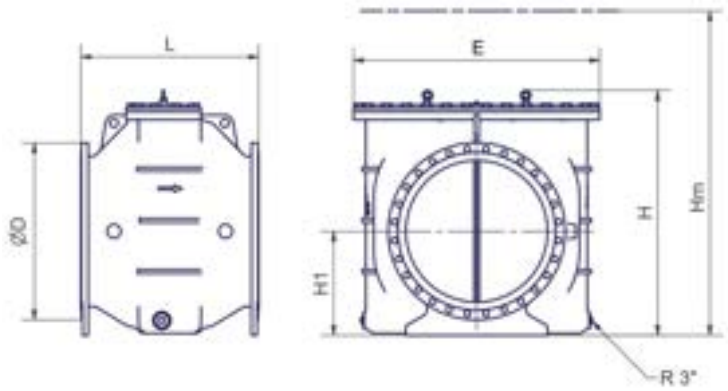
*Reduce your waste - Sort your rubbish*

# CLA-VAL **AQUA 90-501**

H-Strainer
DN 40 to DN 1400

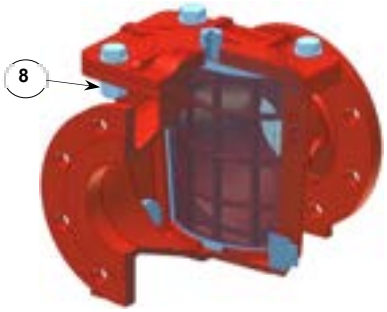
## Dimensions (DN 900 to DN 1400)

Minimum space to remove the sieve

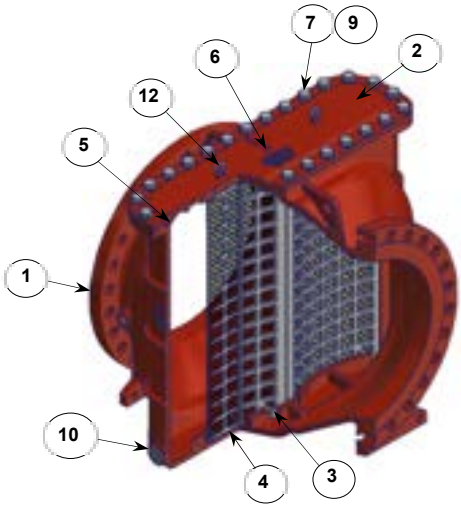



| Dimensions | | | | |
|---|---|---|---|---|
| **DN** | **900** | **1000** | **1200** | **1400** |
| **L** [mm] | 1170 | 1180 | 1180 | 1190 |
| **H1** [mm] **(PN10 - 40)** | 660.5 | 698.5 | 863.5 | 965 |
| **H** [mm] | 1580 | 1580 | 1730 | 1830 |
| **Hm** [mm] | 2820 | 2820 | 2980 | 3080 |
| **Ø D** [mm] | 1125 | 1255 | 1485 | 1685 |
| **E** [mm] | 1566 | 1566 | 1566 | 1566 |
| **Weight** [kg] | 1890 | 1970 | 2100 | 2220 |

## Materials




Model DN 40 to DN 450




Model DN 500 to DN 1400

| Item | Description | Materials (DN 40 to DN 800) | Materials (DN 900 to DN 1400) |
|---|---|---|---|
| 1 | Body | Ductile Iron (EN-GJS-400-18 with epoxy coating) | Ductile Iron (EN-GJS-600-3 with epoxy coating) |
| 2 | Cover | Ductile Iron (EN-GJS-400-18 with epoxy coating) | Ductile Iron (EN-GJS-600-3 with epoxy coating) |
| 3 | Support | Ductile Iron (EN-GJS-400-18 with epoxy coating) | Ductile Iron (EN-GJS-600-3 with epoxy coating) |
| 4 | Screen Mesh | Stainless Steel 316 | Stainless Steel 316 |
| 5 | O-ring | Buna-N (Synthetic Rubber) | Buna-N (Synthetic Rubber) |
| 6 | Air Venting Screw | Stainless Steel 303 | Stainless Steel 303 |
| 7 | Screws | Stainless Steel 303 | Stainless Steel 316 |
| 8 | Nut | Stainless Steel 303 (from DN 40 to 450) | - |
| 9 | Washers | Stainless Steel 303 | Stainless Steel 316 |
| 10 | Plug | Stainless Steel 316 | Stainless Steel 316 |
| 12 | Lifting eye | Nickel Plated Steel | Stainless Steel 303 |

# CLA-VAL **AQUA 90-501**

H-Strainer
DN 40 to DN 1400

## Strainer Performance

| Flow coefficient | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DN** | **40/50** | **60/65** | **80** | **100** | **125** | **150** | **200** | **250** | **300** | **350** | **400** | **450** | **500** | **600** | **700** | **800** |
| **Kv** [m3/h] | 83 | 187 | 306 | 565 | 806 | 1422 | 2527 | 3949 | 5687 | 7741 | 10111 | 12796 | 15798 | 22749 | 27695 | 33021 |
| **Cv** [l/s] | 23 | 52 | 85 | 157 | 224 | 395 | 702 | 1097 | 1580 | 2150 | 2809 | 3555 | 4388 | 6319 | 7693 | 9172 |
| **K** - | 0.6 | 0.6 | 0.7 | 0.5 | 0.6 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.6 |

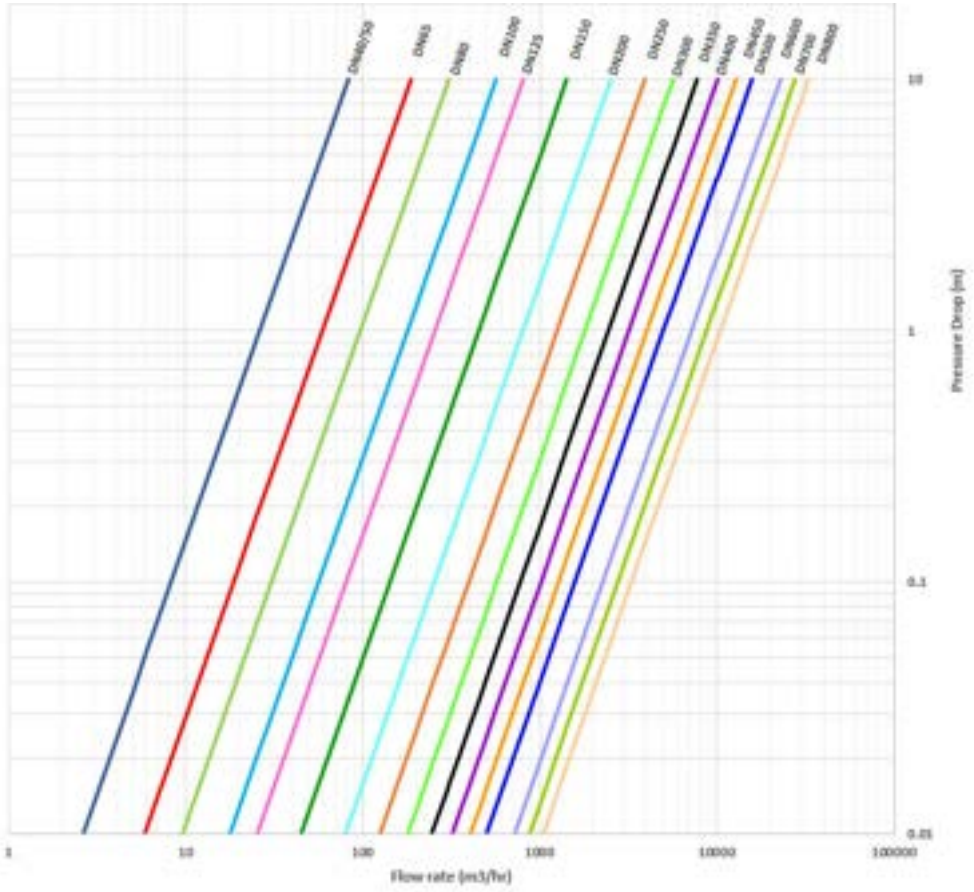
| Flow coefficient | | | | |
|---|---|---|---|---|
| **DN** | **900** | **1000** | **1200** | **1400** |
| **Kv** [m3/h] | 51'912 | 68'688 | 109'584 | 142'740 |
| **Cv** [l/s] | 14'420 | 19'080 | 30'440 | 39'650 |
| **K** - | 0.7 | 0.6 | 0.5 | 0.5 |

Kv or Cv = m3/h or l/s @ 100 kPa (1 bar) pressure drop for a water at 15°C.

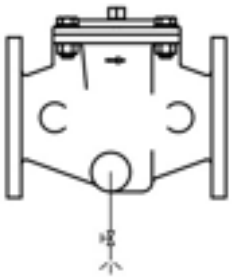
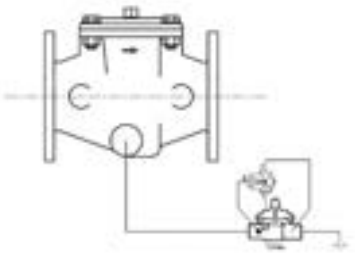
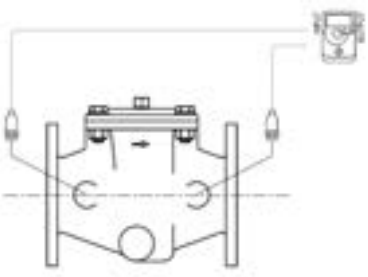
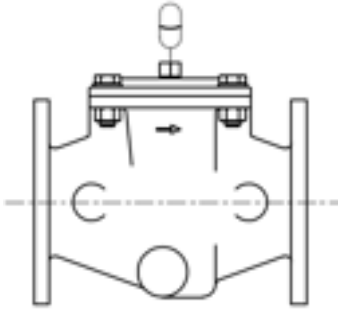
## Headloss

$$\Delta H = K \frac{V^2}{2g}$$

ΔH: Headloss through the strainer (m)
K: Resistance Coefficient (-)
V: Flow velocity (m/s)
g: Gravity (m/s$^2$)



## Options

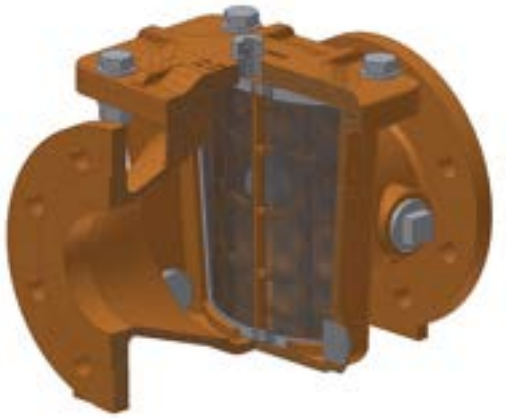
| | | |
|---|---|---|
| **Manual Flushing Ball Valve** | A manual ball valve can be installed on the side of the valve to flush the unwanted particles retained by the screen mesh. |  |
| **Automatic Flushing Ball Valve** | An automatic flushing ball valve can be installed on the side of the valve. |  |
| **Differential Pressure Control Sensor with an Electronic Controller** | To prevent the operator when the strainer needs to be cleaned with the help of a pressure differential sensor and an electronic controller. |  |
| **Automatic Air Release Valve** | Automatic air release valve can be installed on the top of the cover to remove the air inside the strainer automatically. |  |

# CLA-VAL **AQUA 90-520**

H-Strainer
with Rapid Purge Arrangement

## Simple, Reliable and Accurate

- **2", 3", 4", 6", 8", 10", 12" & 16"**
- **Flanged, ANSI Class 150**
- **Max. temperature 180°F (80° C)**

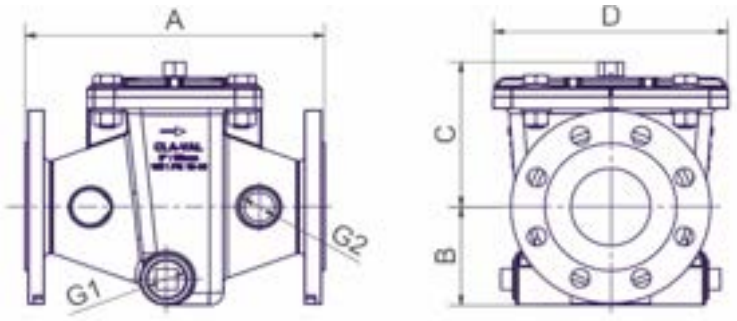


### **AQUA 90-520** Operation and installation

The AQUA 90-520 strainer is used when effective filtration is required. Of compact design, maintenance is fast and easy and requires only top cover removal. The flat stainless steel strainer mesh perpendicular to flow optimizes pressure drop.

The strainer may be installed in any position, however installation with the cover on top side is recommended.

### **AQUA 90-520** Dimensions




### **AQUA 90-520** Materials

**Body and cover:**
NiAlBrz (ASTM B148)
**Strainer mesh:**
Titanium on a NiAlBrz frame (mesh: standard 2.0 mm)
**Drilled flanges:**
ANSI 150 for 2" to 16"
**Bolts:**
Titanium

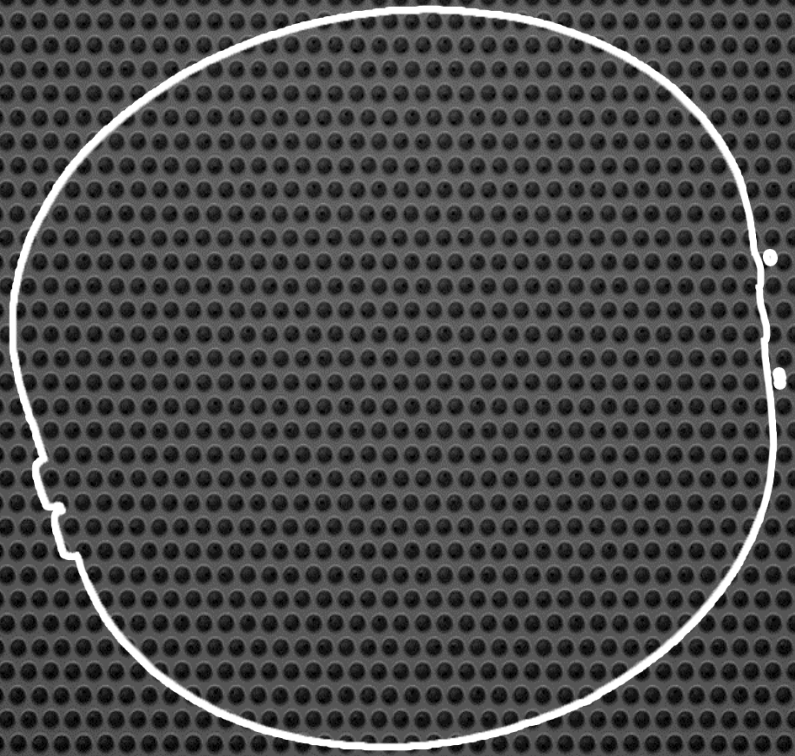
| Dimensions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **DN** | **50** | **80** | **100** | **150** | **200** | **250** | **300** | **400** |
| **A** [mm] | 230 | 300 | 300 | 400 | 500 | 580 | 610 | 800 |
| **B** [mm] | 82,5 | 103 | 110 | 142,5 | 170 | 225 | 227,5 | 310 |
| **C** [mm] | 96 | 150 | 150 | 191 | 224 | 307 | 385 | 500 |
| **D** [mm] | 200 | 235 | 235 | 400 | 460 | 560 | 680 | 900 |
| **G1** ["] | Rp 1 1/4" | | | | | | Rp 2" | |
| **G2** ["] | Option / ☎ CLA-VAL | | | | | | | |
| **Weight** [kg] | 18 | 29 | 30 | 63 | 100 | 220 | 300 | 530 |

| Flow coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Kv** [m3/h] | 83 | 306 | 565 | 1422 | 2527 | 3949 | 5687 | 10111 |
| **Cv** [l/s] | 23 | 85 | 157 | 395 | 702 | 1097 | 1580 | 2809 |

Kv or Cv = m3/h or l/s @ 100 kPa (1 bar) pressure drop for a water at 15°C (valve fully open).

# TWO-DOOR WAFER CHECK VALVE

CLA-VAL™



# CLA-VAL **Series 582SWS**

## Two-Door Wafer Check Valve for Seawater Service

## Simple, Reliable and Accurate

**582SWS Sizes 4" thru 24"**

- **Low Head Loss**
- **Resilient Seat**
- **Non-Slam Closure**
- **Stabilizer Spheres Prevent Vibration Wear**
- **Factory Mutual Approved - Various Sizes**
- **Corrosion Resistant Material of Construction for Seawater Applications**

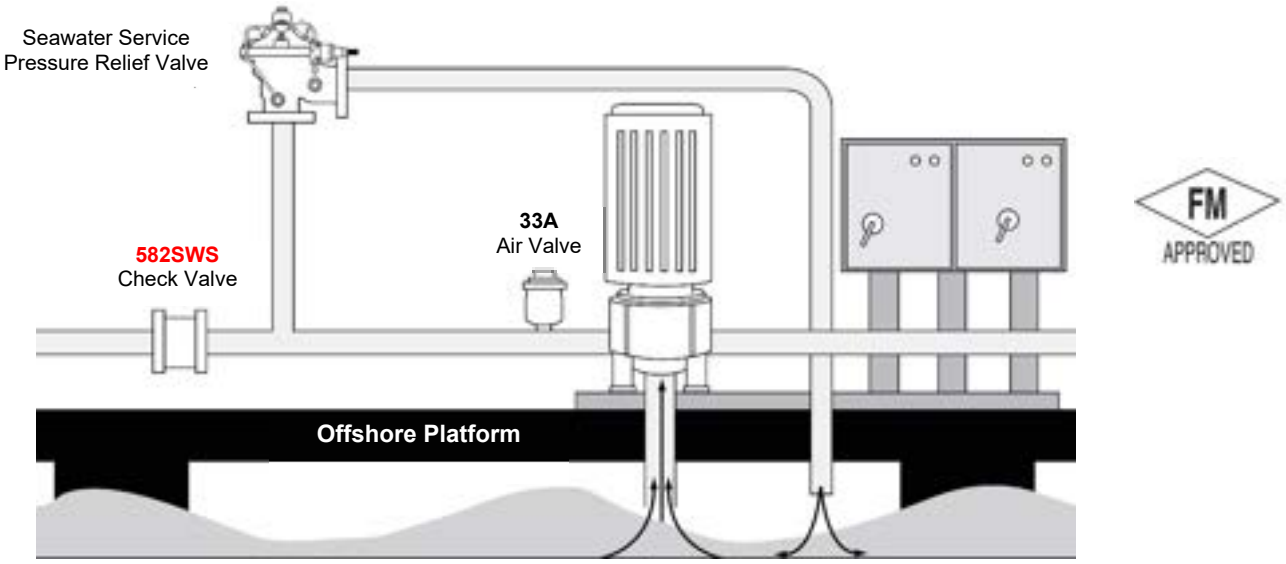
The CLA-VAL Series 582SWS Two-Door Wafer Check Valve has torsion springs that force the two doors to shut before flow reversal, reducing the water hammer potential that normally occurs with single-door swing check valves. To help reduce water hammer, the two-door design also reduces the travel distance from open to shutoff for a quicker response. Extremely short in lay length, the valve is both a compact and an economical solution. Two-Door Wafer Check Valves are available in sizes 4" to 24" with either a 125 lb. or 250 lb. pressure class rating.

Although lighter in weight than globe style swing check valves, CLA-VAL Two-Door Wafer Check Valves are designed for heavy-duty applications. For ease of installation, valves 6" and larger are supplied with a tapped hole for installing a lifting eye bolt. All materials conform to ASTM specifications, ensuring long lasting reliable performance. As a confirmation of CLA-VAL's commitment to quality, 4" to 12" 125 lb. class Series 582SWS valves are Factory Mutual approved.

### Specifications

The two-door wafer check valve shall be compact wafer design, to fit between ANSI flanges. The check valve doors shall be spring -loaded closed, by means of one or more heavy-duty stainless steel torsion springs. Flow shall cause the doors to open and upon pump shut down, the torsion spring will shut the doors, before reverse flow starts, for non-slam closure.
Seating shall be resilient and watertight. The sealing element shall be Nitrile rubber molded to the body. Valves 4" and larger shall be fitted with a tapped hole to mount an eye bolt for lifting. The valve shall be a CLA-VAL Series 582SWS Two-Door Wafer Check Valve.

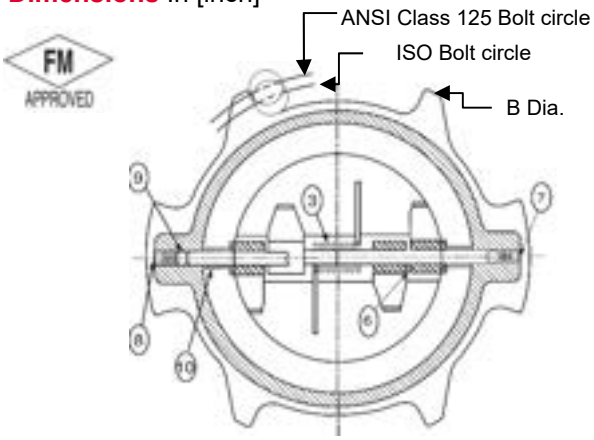
### Typical Application



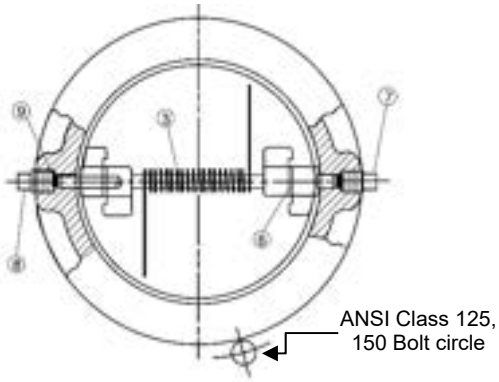
# CLA-VAL Series 582SWS

## Two-Door Wafer Check Valve for Seawater Service

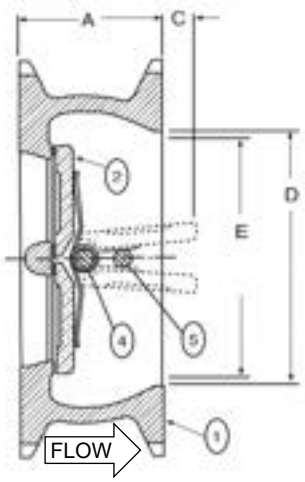
## Dimensions In [inch]

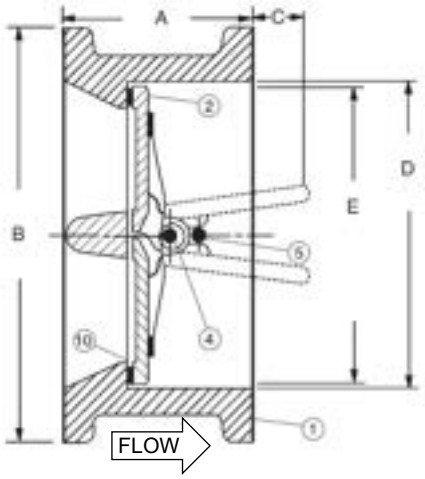



582SWS Wing Ends 4" thru 12"




582SWS Plain Ends 14" thru 24"




| Wing Ends Two-Door Wafer Check Valve - ANSI Class 150 | | | | | | |
|---|---|---|---|---|---|---|
| **Size [Inch]** | **Model** | **A** | **B** | **C** | **D** | **E** |
| **4*** | 582SWS.4 | 2 5/8 | 6 7/8 | 1 | 4 5/8 | 3 7/8 |
| **6*** | 582SWS.6 | 3 3/4 | 8 5/8 | 1 1/4 | 6 1/4 | 4 1/4 |
| **8*** | 582SWS.8 | 5 | 12 1/4 | 1 5/8 | 8 | 5 1/2 |
| **10*** | 582SWS.10 | 5 1/2 | 14 3/4 | 2 1/2 | 10 1/4 | 8 1/2 |
| **12*** | 582SWS.12 | 7 1/8 | 17 3/8 | 1 15/16 | 12 | 9 1/4 |

| Plain Ends Two-Door Wafer Check Valve for Seawater Service | | | | | | |
|---|---|---|---|---|---|---|
| **14** | 582SWS.14 | 7 1/4 | 17 3/4 | 3 1/8 | 14 3/8 | 12 1/2 |
| **16** | 582SWS.16 | 7 1/2 | 20 1/4 | 4 1/2 | 16 3/8 | 15 |
| **18** | 582SWS.18 | 8 | 21 5/8 | 5 3/8 | 18 3/8 | 17 |
| **20** | 582SWS.20 | 8 3/8 | 23 7/8 | 6 3/8 | 20 1/4 | 19 |
| **24** | 582SWS.24 | 8 3/4 | 28 1/4 | 8 1/2 | 24 1/4 | 23 |

*FM Approved

## Materials

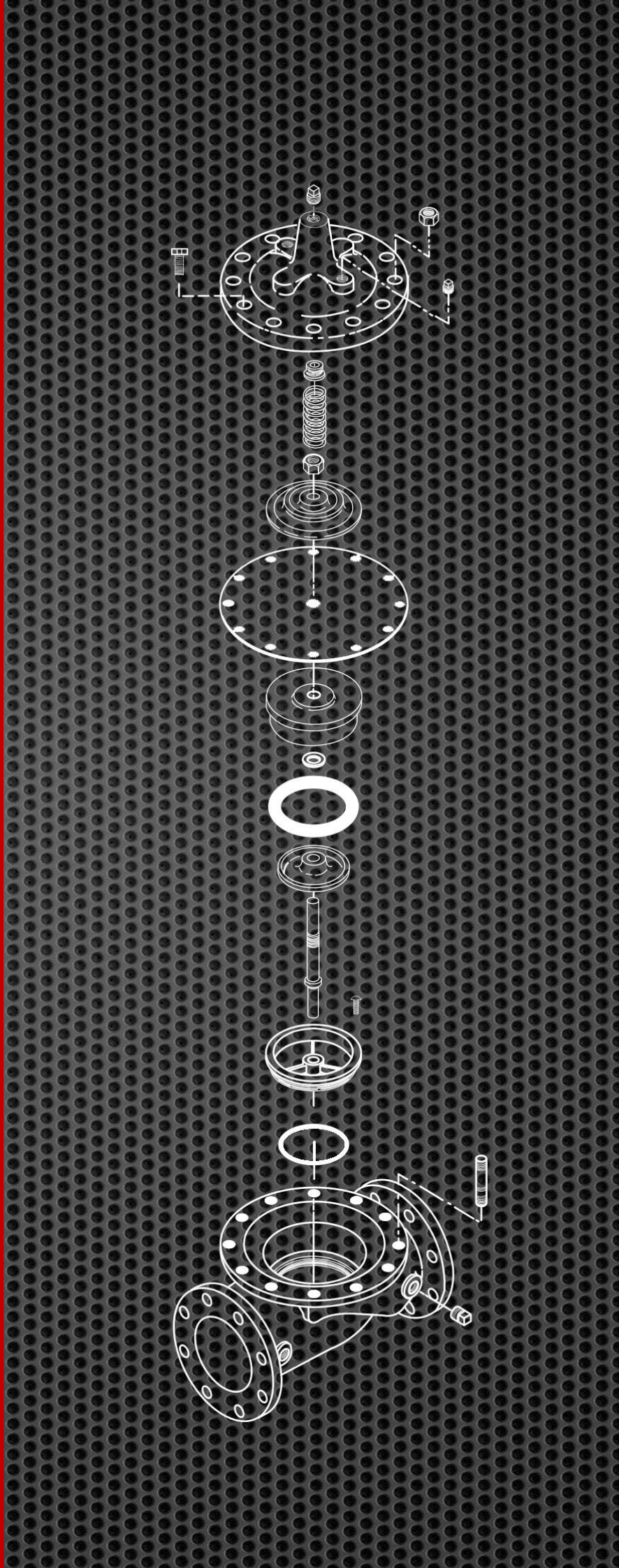
| Part No. | Designation | Material |
|---|---|---|
| 1 | Body | Aluminum Bronze ASTM B148, Alloy 95200with Buna-N® resilient Seat Molded Body |
| 2 | Door | Aluminum Bronze ASTM B148, Alloy 95200 |
| 3 | Torsion springs | Inconel X750, ASTM B637 Alloy N04400 |
| 4 | Door hinge pin | Monel ASTM B164, Alloy N04400 |
| 5 | Door stop pin | Monel ASTM B164, Alloy N04400 |
| 6 | Door thrust bearing | Monel ASTM B164, Alloy N04400 |
| 7 | Hinge pin retainer | Monel 400 |
| 8 | Stop pin retainer | Monel 400 |
| 9 | Stabilization sphere | Buna-N® |
| 10 | Spacer (2" - 12" sizes) | Monel ASTM B164, Alloy N04400 |

CLA-VAL™

# SPARE PARTS

For decades, CLA-VAL is using a powerful ERP system to record all our customers' valve parts. Recently we did enhance our web based technical data sheets including recommended maintenance and repair kits.

Through a preventive maintenance program our customers' extend Fire Protection valves life times and security which in return contributes to reduce the risk of an undesired production shut-down.

# CLA-VAL 100G / 2100G

## Recommended Commissioning Spare Parts and Two Years Spare Parts Operation, for Standard Material

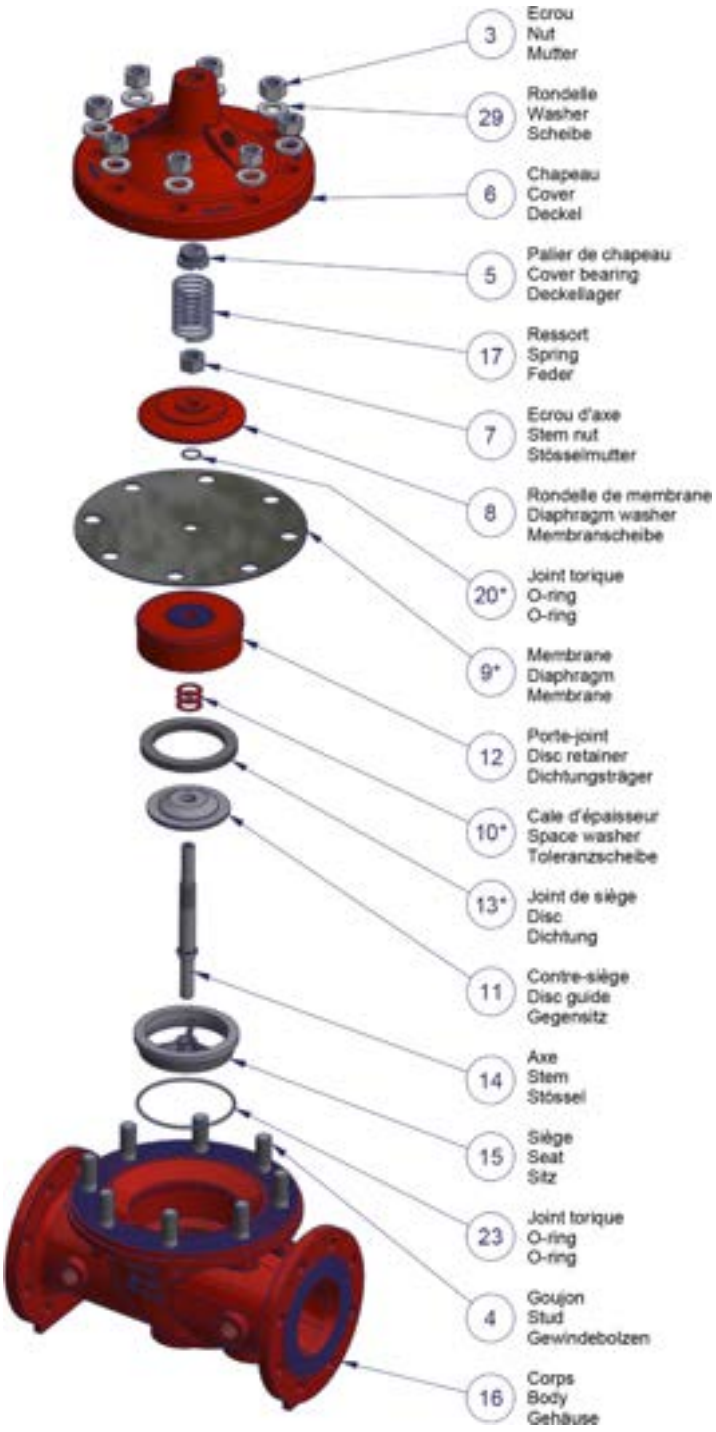
For standard material execution only / Pressure Class ANSI 150, 300 or PN 10 - 25

| CLA-VAL Soft Repair Kits 100G - 2100G | |
|---|---|
| **Size** | **Kit No.** |
| **DN 80** | 22217-15C |
| **DN 100** | 22217-16A |
| **DN 150** | 22217-17J |
| **DN 200** | 22217-18G |
| **DN 250** | 22217-19E |
| **DN 300** | 22217-20C |

**Soft Repair Kit includes**:

- Diaphragm (9)
- Disc (13)
- O-ring (20)
- Space Washer (10)

Illustration: 100G Flanged connection






Reduce your waste - Sort your rubbish

# CLA-VAL **100GS / 2100GS**

## Recommended Commissioning Spare Parts and Two Years Spare Parts Operation, for Standard Material

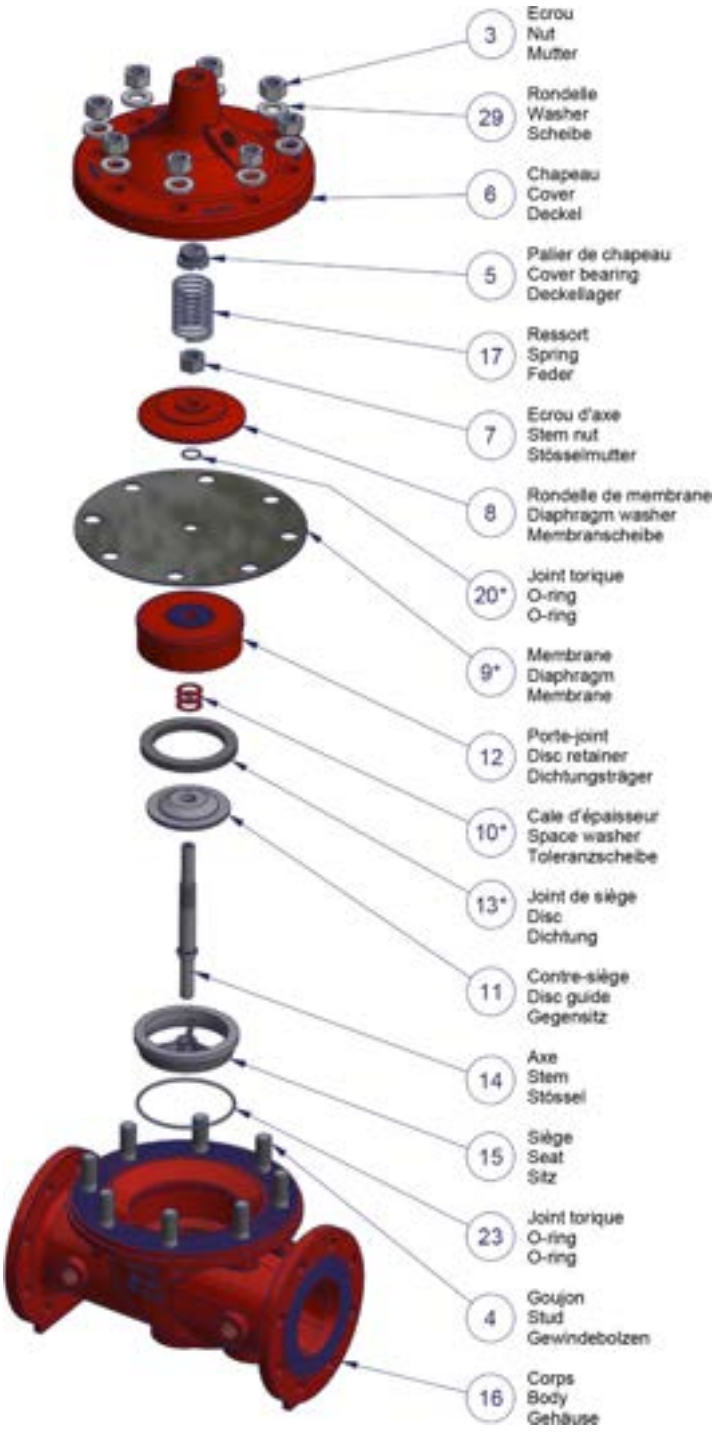
For standard material execution only / Pressure Class ANSI 150, 300 or PN 10 - 25

| CLA-VAL Soft Repair Kits 100GS - 2100GS | |
|---|---|
| **Size** | **Kit No.** |
| **DN 80** | 22217-15C |
| **DN 100** | 22217-16A |
| **DN 150** | 22217-17J |
| **DN 200** | 22217-18G |
| **DN 250** | 22217-19E |
| **DN 300** | 22217-20C |

**Soft Repair Kit includes**:

- Diaphragm (9)
- Disc (13)
- O-ring (20)
- Space Washer (10)

Illustration: 100GS Flanged connection



# CLA-VAL 100-06

## Recommended Commissioning Spare Parts and Two Years Spare Parts Operation, for Standard Material

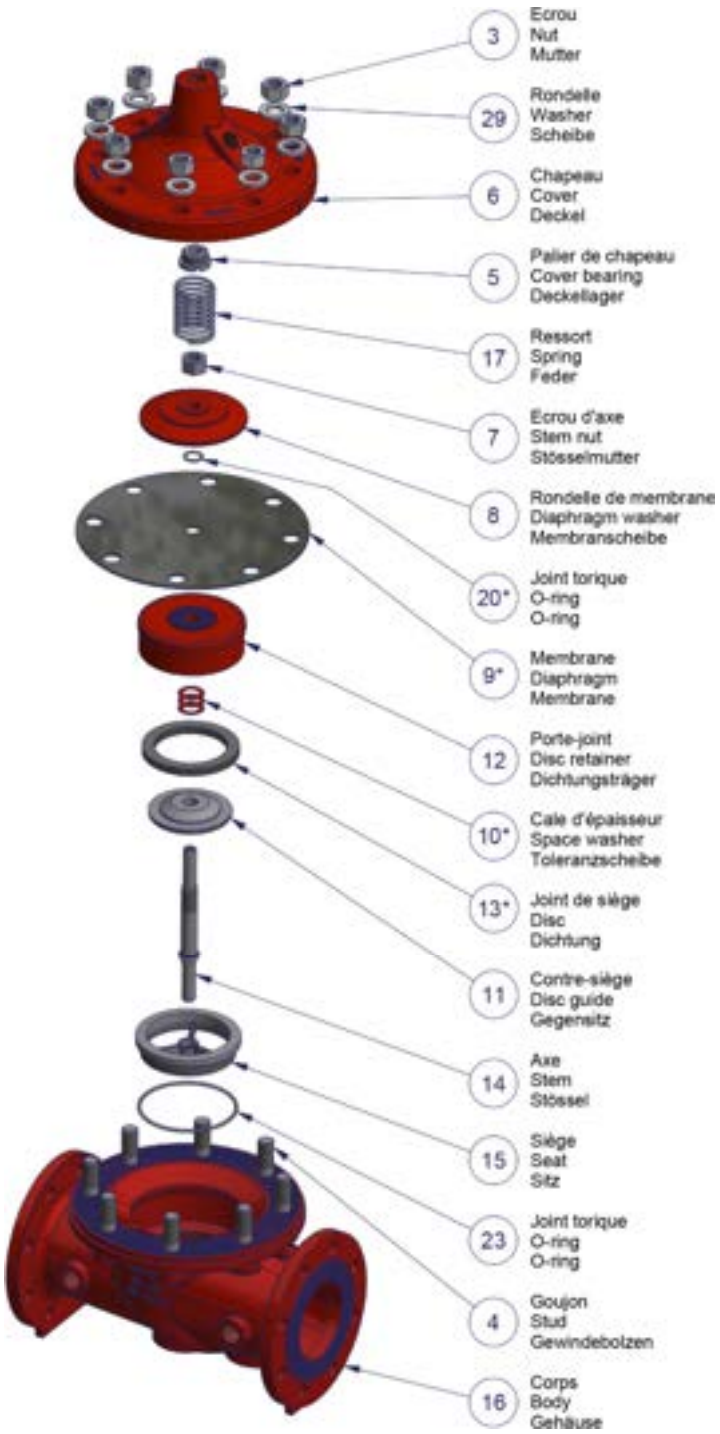
For standard material execution only / Pressure Class ANSI 150, 300 or PN 10 - 25

| CLA-VAL Soft Repair kits 100-06 | |
|---|---|
| **Size** | **Kit No.** |
| **DN 40** | 22217-12K |
| **DN 50** | 22217-13H |
| **DN 65** | 22217-14F |

**Soft Repair Kit includes**:

- Diaphragm (9)
- Disc (13)
- O-ring (20)
- Space Washer (10)

Illustration: 100-06 Globe Flanged connection



# CLA-VAL **100-06S**

## Recommended Commissioning Spare Parts and Two Years Spare Parts Operation, for Standard Material

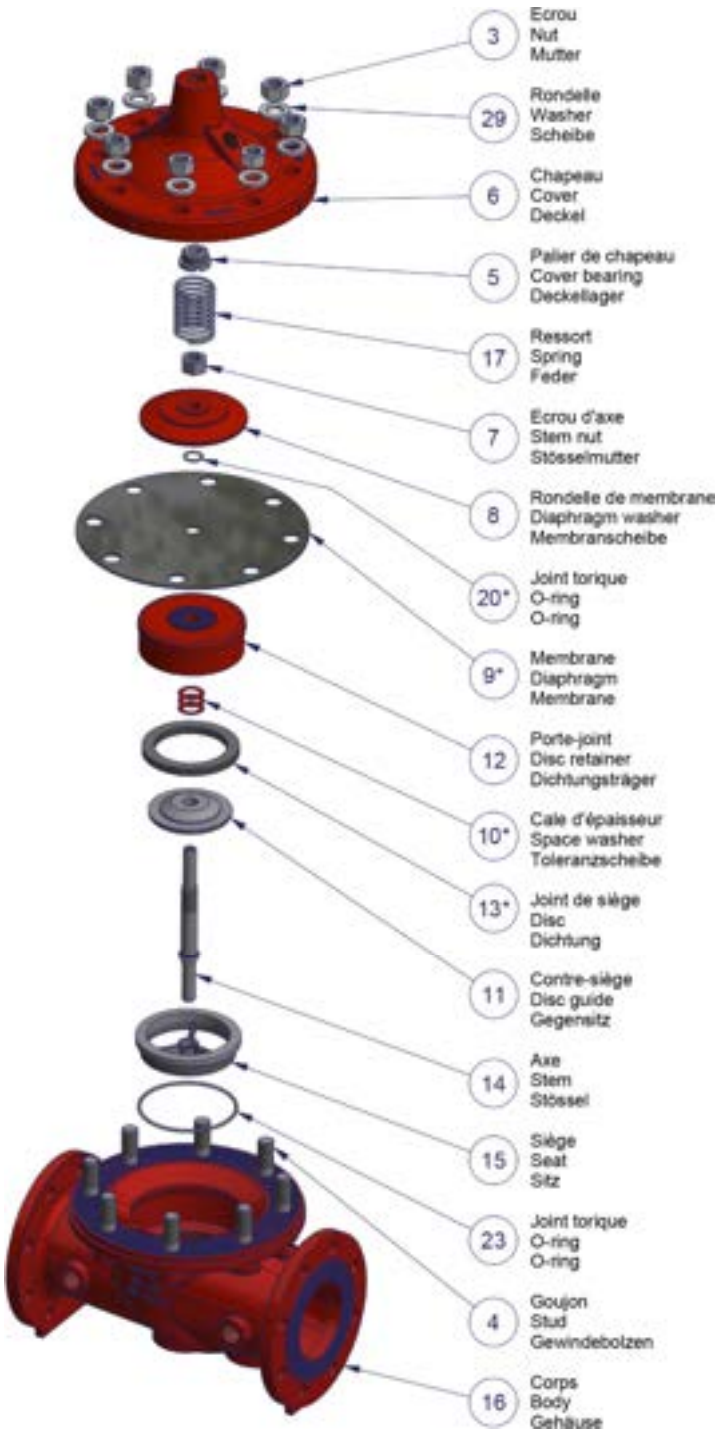
For standard material execution only / Pressure Class ANSI 150, 300 or PN 10 - 25

| CLA-VAL Soft Repair kits 100-06S | |
|---|---|
| **Size** | **Kit No.** |
| **DN 40** | 22217-12K |
| **DN 50** | 22217-13H |
| **DN 65** | 22217-14F |

**Soft Repair Kit includes:**

- Diaphragm (9)
- Disc (13)
- O-ring (20)
- Space Washer (10)

Illustration: 100-06S Globe Flanged connection






*Reduce your waste - Sort your rubbish*

# CLA-VAL **50B-4KG1 / 2050B-4KG1**

## Recommended Commissioning Spare Parts and Two Years Spare Parts Operation, for Standard Material

For standard material execution only / Pressure Class ANSI 150 or 300 / Pilot Pressure adjustment 20 - 200 psi or 100 - 300 psi

| CLA-VAL Soft Repair kits for 50B-4KG1/2050B-4KG1 for main valve (1), CRL-60 (2), X44 (3) and 81-01 (4) | |
|---|---|
| **Size** | **Kit No.** |
| **DN 40** | *CK050100-040-01-2 |
| **DN 50** | *CK050100-050-01-2 |
| **DN 65** | *CK050100-065-01-2 |
| **DN 80** | *CK050100-080-01-2 |
| **DN 100** | *CK050100-100-01-2 |
| **DN 150** | *CK050100-150-01-2 |
| **DN 200** | *CK050100-200-01-2 |
| **DN 250** | *CK050100-250-01-2 |
| **DN 300** | *CK050100-300-01-2 |

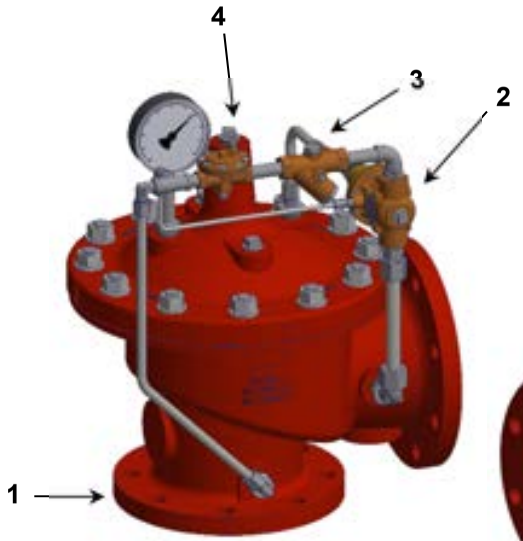


Illustration: 2050B-4KG1

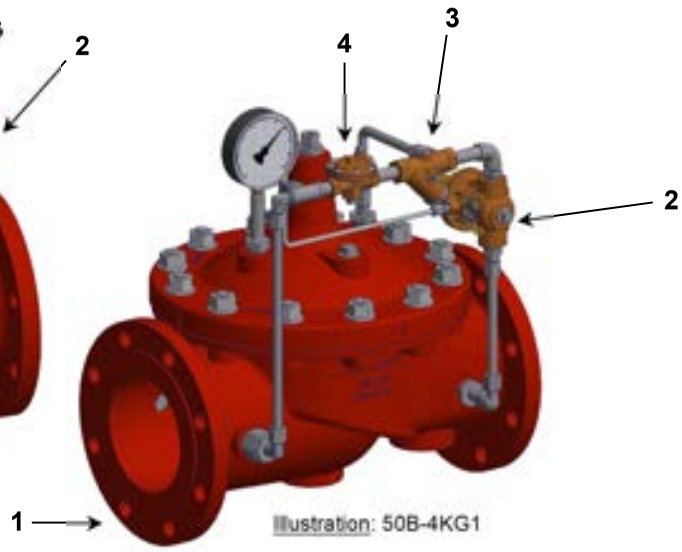


Illustration: 50B-4KG1

### Each Soft Repair Kit includes:

**For the Main Valve:**
- Diaphragm
- Disc
- O-ring
- Space washer

**For the CRL & CRL-60*:**
- O-rings
- Stem CRL & CRL-60
- Diaphragm washer
- Disc CRL
- Bellevile washer
- Diaphragm

**For the Strainer X44:**
- O-rings
- Screen strainer

**For the Check Valve 81-01:**
- Diaphragm 3/8”
- Disc 3/8”
- Spring 3/8”

| Position | Component (Designation) |
|---|---|
| 1 | Main valve |
| 2 | CRL-60 |
| 3 | X44 |
| 4 | 81-01 |

* *Since January 2020*

# CLA-VAL **55L-60**

## Recommended Commissioning Spare Parts and Two Years Spare Parts Operation, for Standard Material

For standard material execution only / Pilot Pressure adjustment 1.4-14 bar & 7-21 bar

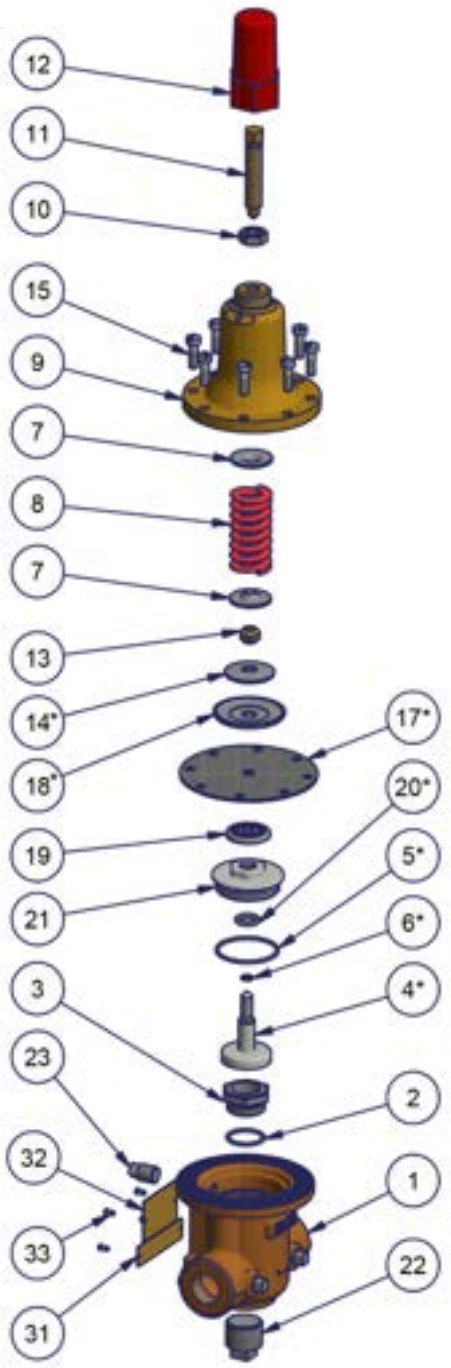
| CLA-VAL Soft Repair Kit 55L-60 | |
|---|---|
| **Unique Size** | **Kit No.** |
| **55L-60** | *CKCRL60-STD-01 |

**Soft Repair Kit includes**:

- O-rings (5, 6, 20)
- Stem assembly (4)
- Diaphragm (17)
- Belleville washer (14)
- Upper diaphragm washer (18)

Adjustment range: 1.4 - 14.0 bar

Adjustment range: 7.0 - 21.0 bar



# CLA-VAL **90A/G-21**

## Recommended Commissioning Spare Parts and Two Years Spare Parts Operation, for Standard Material

For standard material execution only / Pressure Class ANSI 150 or 300 / Pilot Pressure adjustment 30 - 165 psi or 30 - 175 psi

| CLA-VAL Soft Repair kits for 90A/G-21 for main valve (1), and CRD (3) | | |
|---|---|---|
| **Size** | **ANSI 150 Kit No.** | **ANSI 300 Kit No.** |
| **DN 40** | *CK090021-040-01 | *CK090021-040-02 |
| **DN 50** | *CK090021-050-01 | *CK090021-050-02 |
| **DN 65** | *CK090021-065-01 | *CK090021-065-02 |
| **DN 80** | *CK090021-080-01 | *CK090021-080-02 |
| **DN 100** | *CK090021-100-01 | *CK090021-100-02 |
| **DN 150** | *CK090021-150-01 | *CK090021-150-02 |
| **DN 200** | *CK090021-200-01 | *CK090021-200-02 |
| **DN 250** | *CK090021-250-01 | *CK090021-250-02 |
| **DN 300** | *CK090021-300-01 | *CK090021-300-02 |

### Each Soft Repair Kit includes:

**For the Main Valve:**

- Diaphragm
- Disc
- O-ring
- Space Washer

**For the CRD:**

- Diaphragm Washer
- Disc Retainer Assembly
- Belleville Washer
- Diaphragm


Illustration: 90G-21 Grooved connection

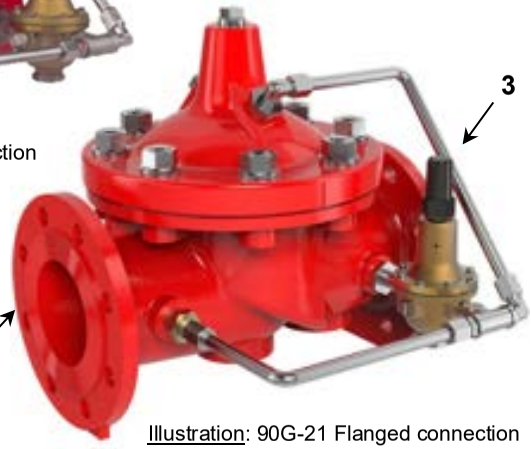



Illustration: 90G-21 Flanged connection

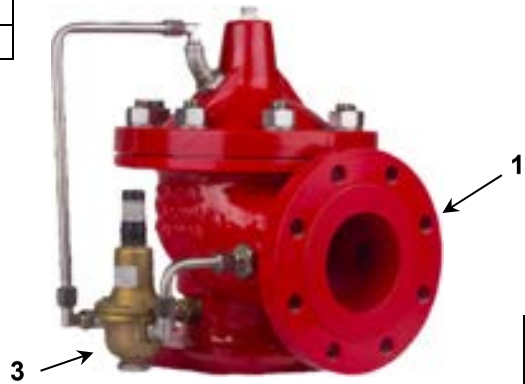



Illustration: 90A-21 Flanged connection

| Position | Component (Designation) |
|---|---|
| 1 | Main valve |
| 3 | CRD |

# CLA-VAL Europe WARRANTY

## 3 Year Warranty on CLA-VAL Europe Quality Products (This is a Limited Warranty)

Automatic valves, controls and related accessories as manufactured by CLA-VAL Europe are warranted for three years from date of shipment against manufacturing defects in material and workmanship which develop in the service for which they are designed, provided the products are installed and used in accordance with all applicable instructions and limitations issued by CLA-VAL Europe. Normal wear is not covered by this warranty. We will repair or replace defective material, free of charge, which is returned to our factory, transportation charges prepaid, provided that after inspection the material is found to have been defective at time of shipment. This warranty is expressly conditioned on the purchaser's giving CLA-VAL Europe immediate written notice upon discovery of the defect. Electronic components manufactured by CLA-VAL Europe are warranted for one year from the date of shipment. Components used by CLA-VAL Europe, but manufactured by others, are warranted only to the extent of that manufacturer's guarantee. This warranty shall not apply if the product has been altered, repaired, adjusted or modified by non CLA-VAL Europe employees or specially CLA-VAL Europe trained technicians, and CLA-VAL Europe shall make no allowance or credit for such repairs or alterations unless authorized in writing by CLA-VAL Europe.

## Disclaimer of Warranties & Limitation of Liability

The foregoing warranty is exclusive and in lieu of all other warranties and representations whether expressed, implied, oral or written, including but not limited to, any implied warranties or merchantability or fitness for a particular purpose. All such other warranties and representations are hereby cancelled. CLA-VAL Europe shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of the product. CLA-VAL Europe shall not be liable for any damages or charges for labor or expense in making repairs or adjustments to the product. CLA-VAL Europe shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data and services. No representative of CLA-VAL Europe may change any of the foregoing or assume any additional liability or responsibility in connection with the product. The liability of CLA-VAL Europe is limited to material replacements, Ex-Works CLA-VAL Europe.

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