



FIRE PROTECTION

Leading the innovation

CLA-VAL Europe
AUTOMATIC CONTROL VALVES





CLA-VAL Europe
AUTOMATIC CONTROL VALVES





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

Know-How



Onsite Foundries

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.



Certificate



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
 Richtstrasse 15, CH-8304 Wallisellen

A company of the SVTI Group, member of TÜV Association.





FIRE **PROTECTION**

Product Line

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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

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
F.M. Approved

Sizes 3" thru 8"
Sizes 3" thru 8"

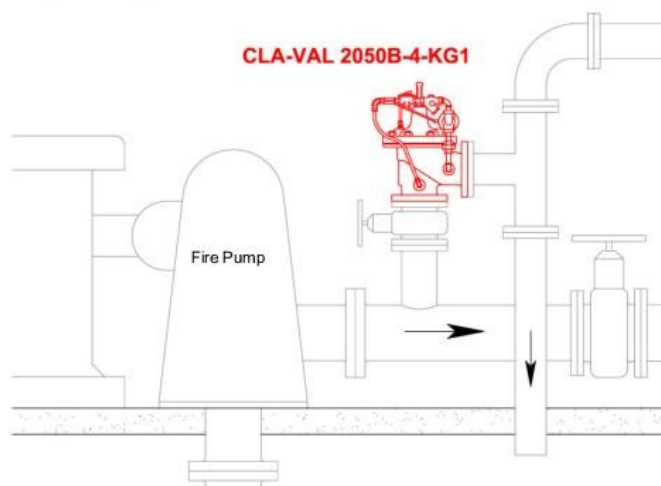


50B-4KG1 (Globe)



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



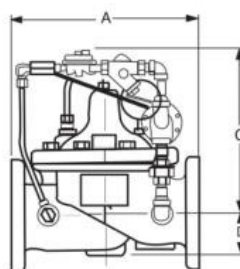
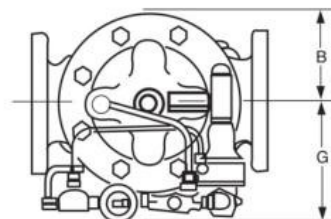
CLA-VAL 50B-4KG1 / 2050B-4KG1

Fire Protection Pressure Relief Valve

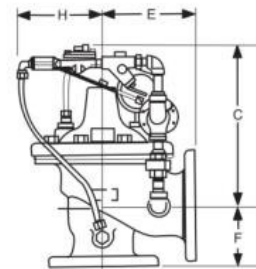
► Dimensions

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 HNFEX 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)



Sizes 3" thru 8"



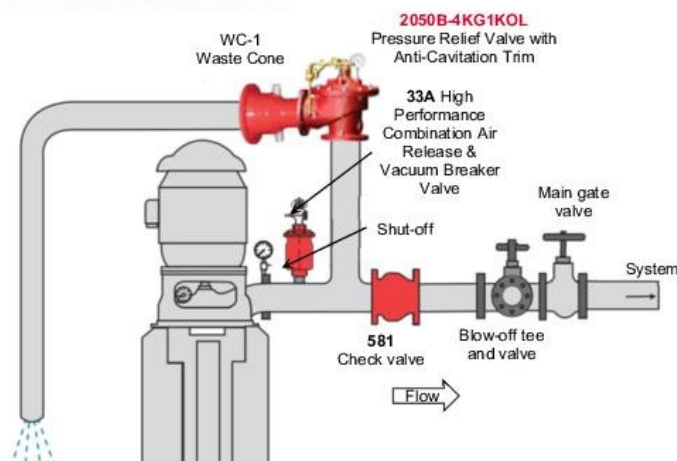
Type Approved



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 <u>Pump Rating</u> [gpm]	500	1000	2500	4000	11000

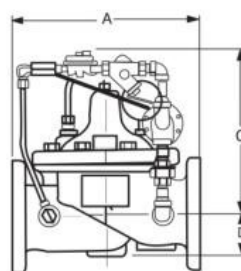
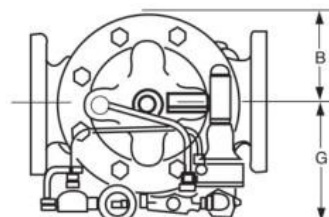


CLA-VAL 50B-4KG1KOL/2050B-4KG1KOL

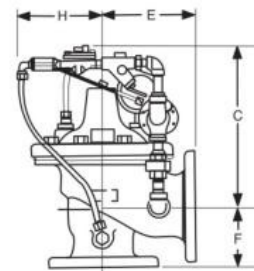
Pressure Relief Valve with Anti-Cavitation Trim

► 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



Model 50B-4KG1KOL Globe



Model 2050B-4KG1KOL Angle

Model 2050B-4KG1 Angle

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

► 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 HNFEX 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.

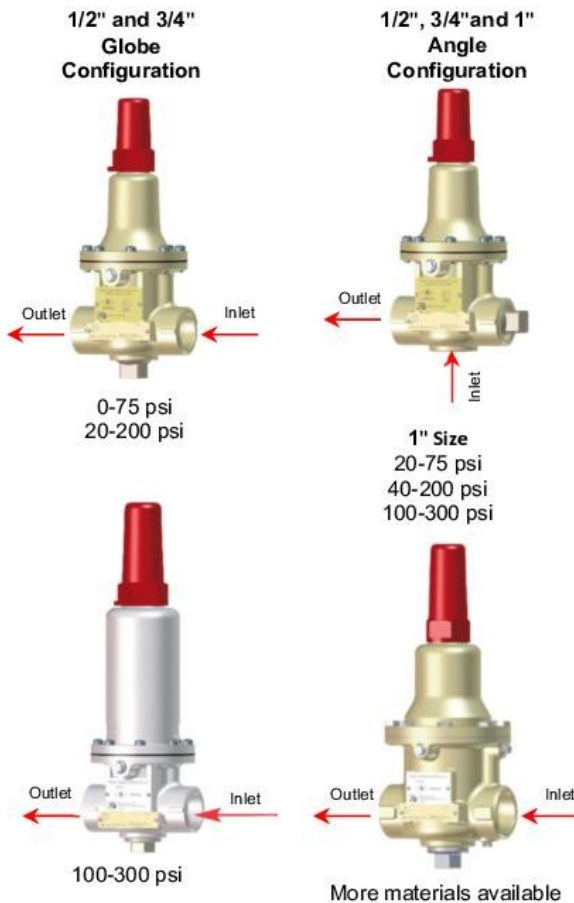
Special Note: The Model 50B-4KG1KOL/2050B-4KG1KOL Pressure Relief Valve is available with 300# ANSI inlet flange and 150# ANSI outlet flange for high pressure systems where 300# flange connections are required, to allow for adapting of a discharge cone (generally supplied with 150# flange) to accommodate "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



- 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.

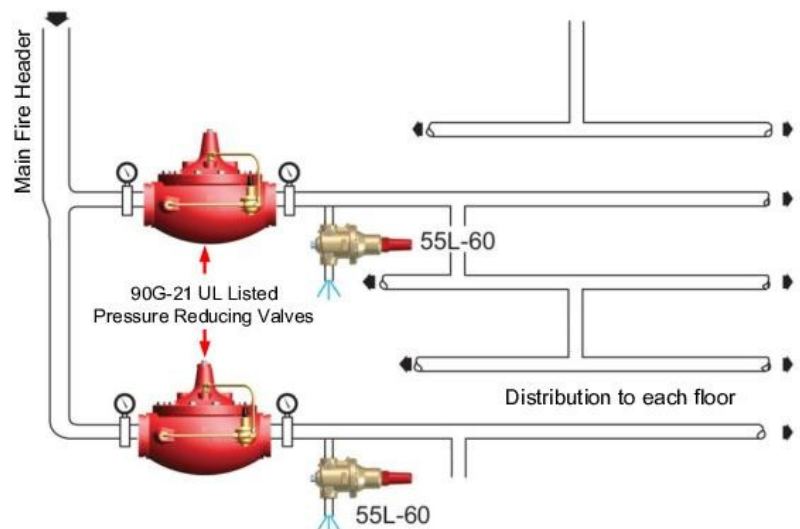
► Typical Applications for Fresh Water or Seawater Service

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.



► 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]

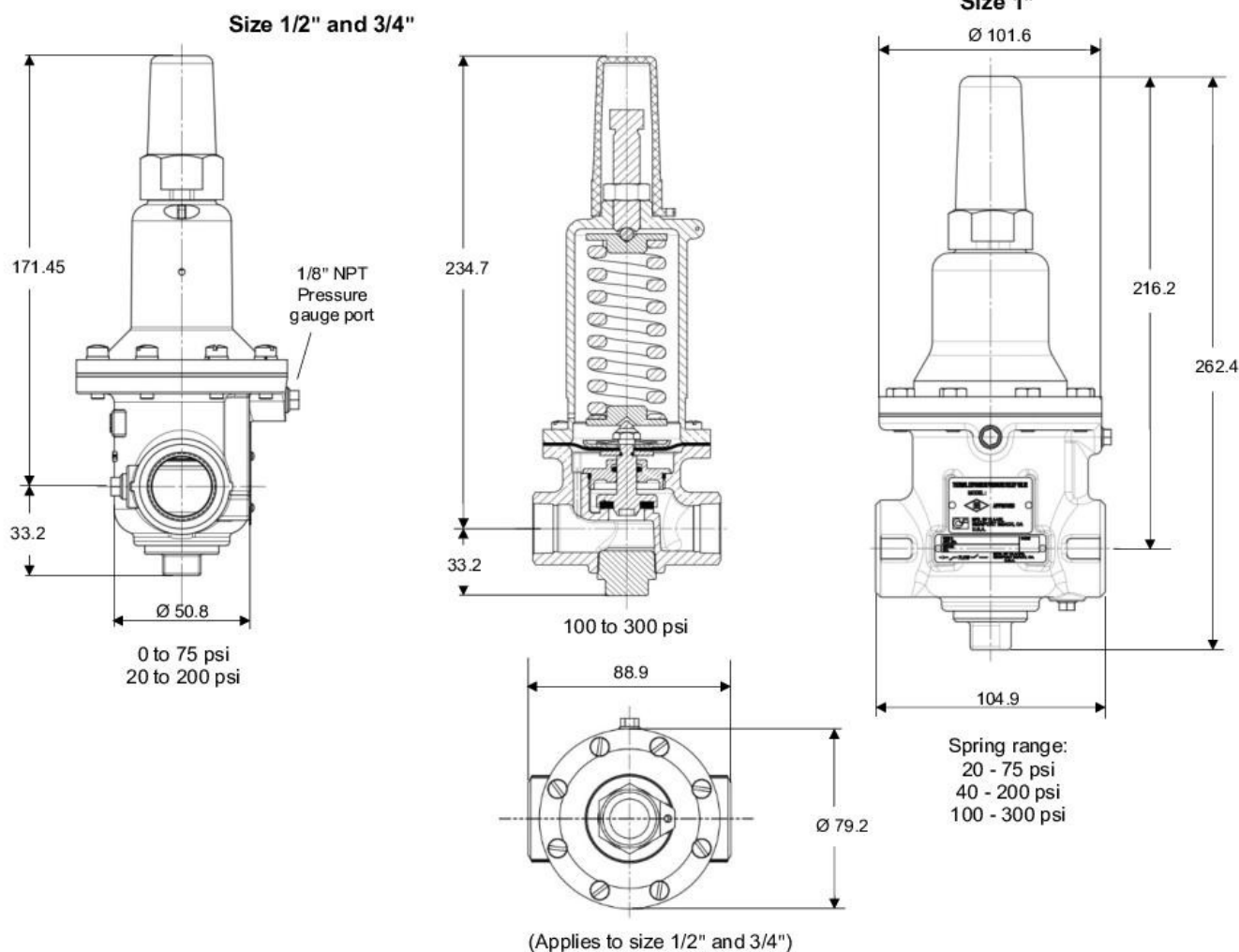
(Full open valve)

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

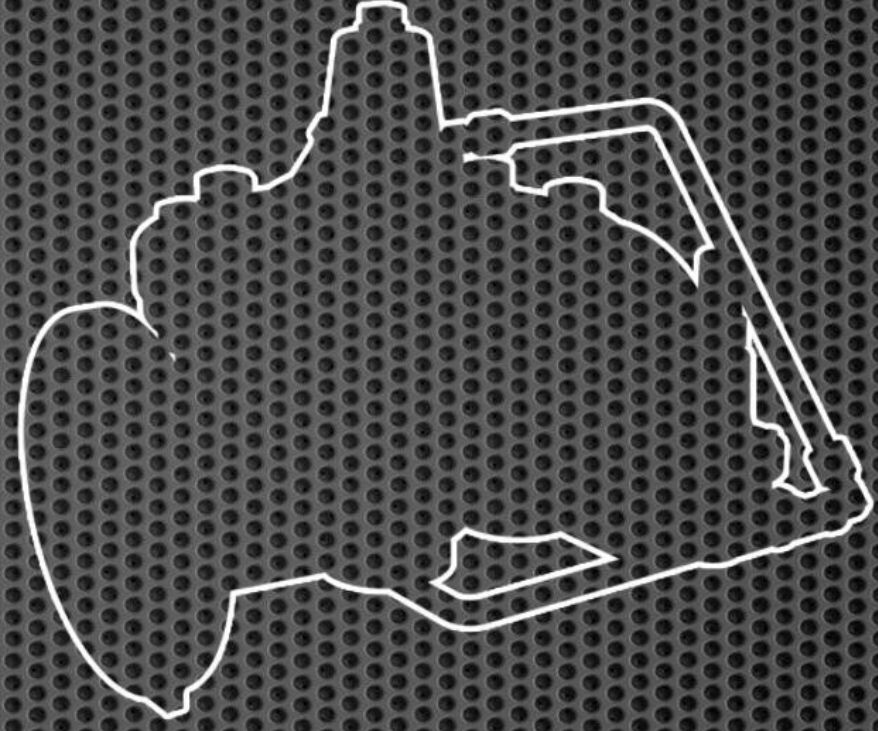
► When Ordering, Please Specify

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

► Basic Valve Dimensions [in mm]



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.



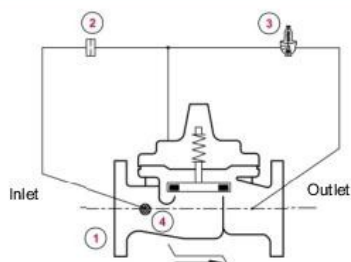
90-21 UL Listed
Flanged End



90-21 UL Listed
Grooved End

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

► Function



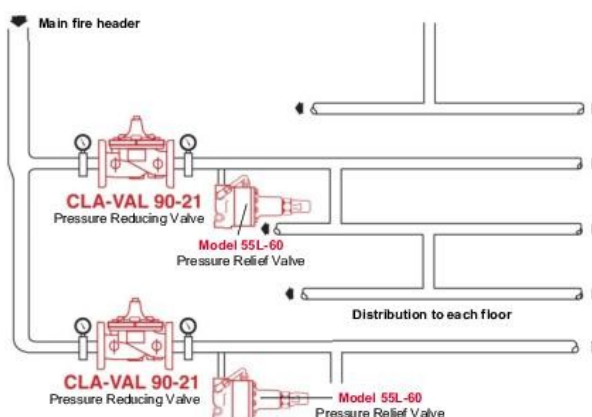
ITEM	DESCRIPTION
1	Model HYTROL AE/GE 100-01/KX
2	X58C Restriction Tube Fitting
3	CRD Pressure Reducing Control
4	X46A Flow Clean Strainer

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 may be installed in either vertical or horizontal positions.

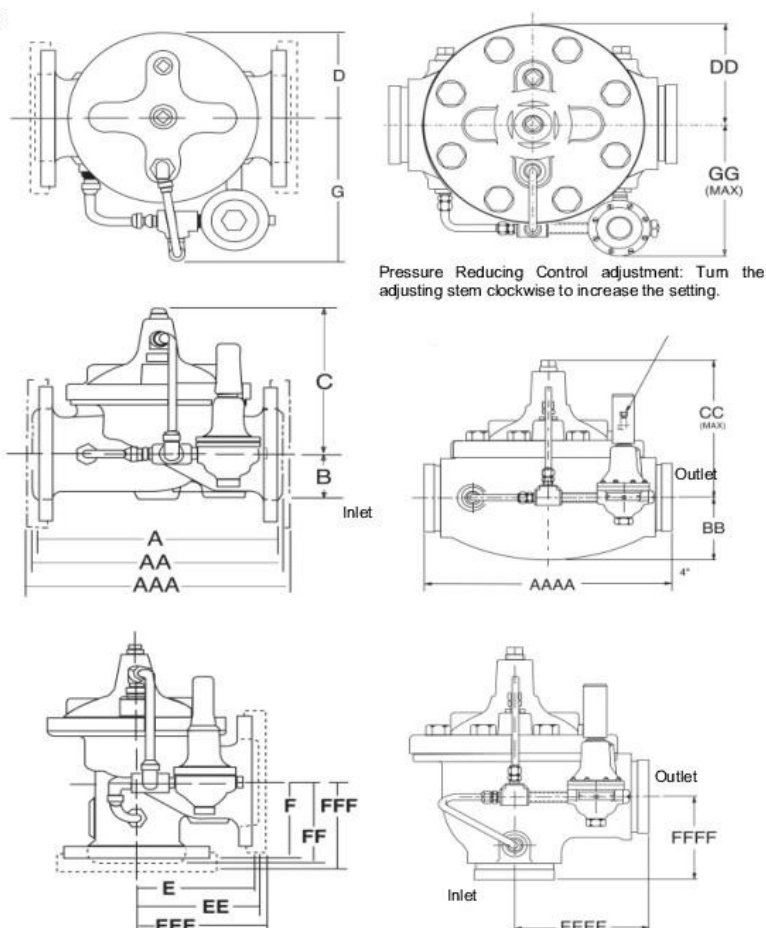


UL Listings		F - Flanged // G - Grooved // T - Threaded						
Size	Globe Class 150 F by F	Globe Class 300 F by F	Globe Class 150 and 300 G by G	Globe Class 300 T by T	Angle Class 150 F by F	Angle Class 300 F by F	Angle Class 150 and 300 G by G	Angle Class 300 T by T
1 1/2"	UL	UL	UL	UL	UL	UL	UL	UL
2"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

► 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:





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

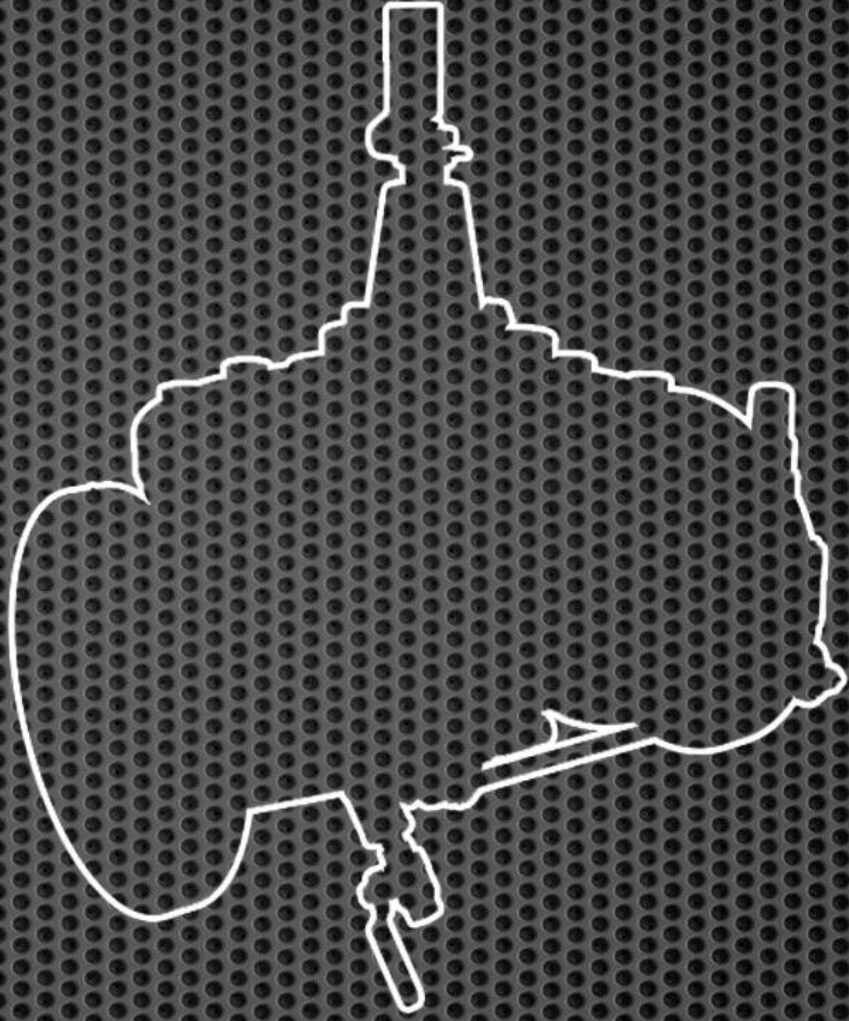
FLOW CAPACITY TABLE		
Valve size	Maximum flow rate	
[inch]	[gpm]	[m³/h]
1 1/2	160	36
2	262	59
2 1/2	373	85
3	576	131
4	992	225
6	2251	511
8	3900	886
10	6000	1361
12	8900	2019

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 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.

Pump Suction Control Valve

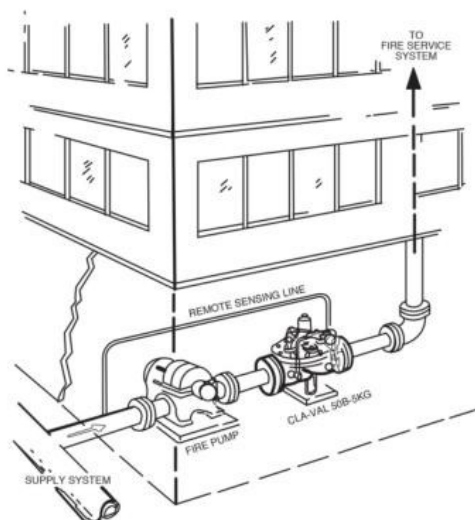


Illustration: 50B-5KG (Globe)

► 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

► Dimensions [Inches]

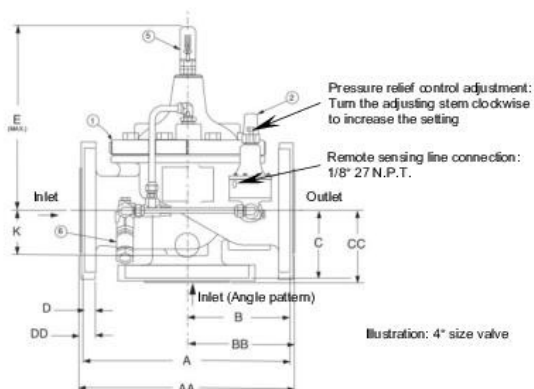
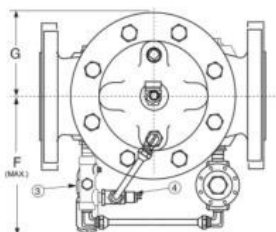
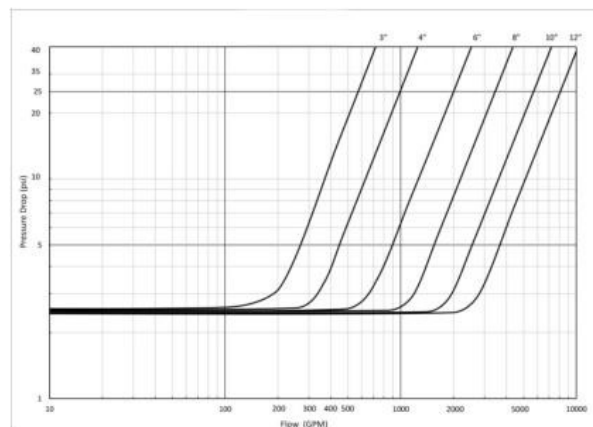


Illustration: 4\" valve



► 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.

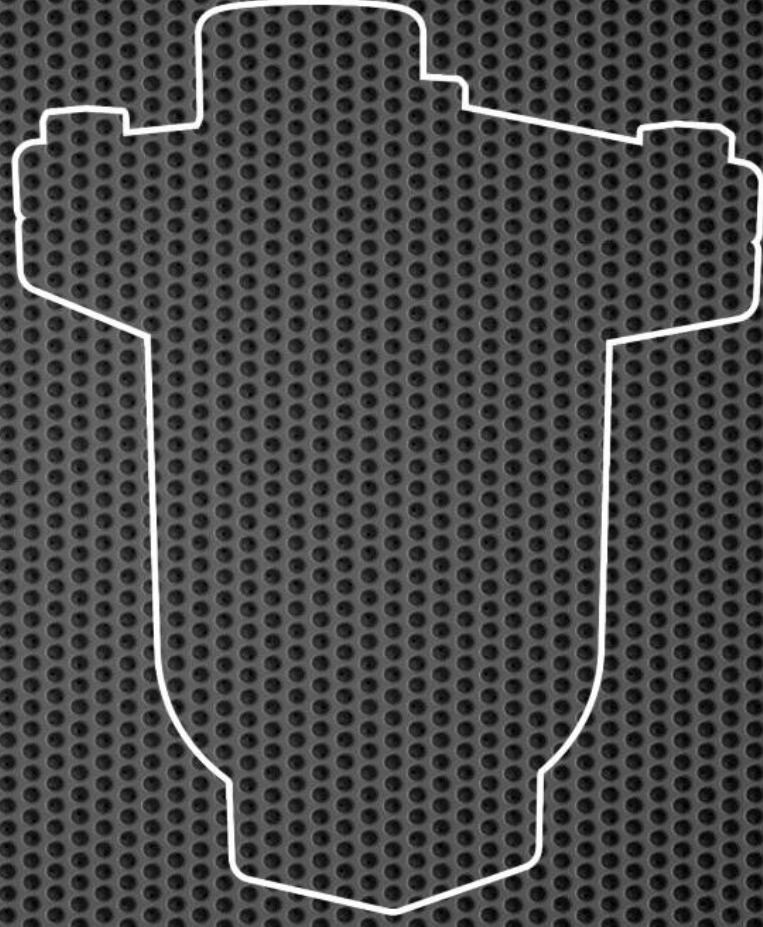
The main valve shall be of the hydraulically-operated, pilot-controlled, diaphragm-type, globe or angle valve. It shall have a single removable seat, a delrin-sleeved guided stem and a renewable resilient synthetic rubber disc with a rectangular cross section, contained on three and one-half sides by 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.

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 and drainage 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™ 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)



CLA-VAL Series 34

Fire Protection System Air Release Valve

► 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	1/2", 3/4", 1"	1/2"	3/32"	200 -2200	175	5-7/8"	3-3/4"	6
	3450-AR332								
	3475-AR332								
	3410-AR332								
	UL Listed - FM Approved	1/2", 3/4", 1"	1/2"	1/16"	200 -2200	300	5-7/8"	3-3/4"	6
	3450-AR116.3								
	3475-AR116.3								
	3410-AR116.3								

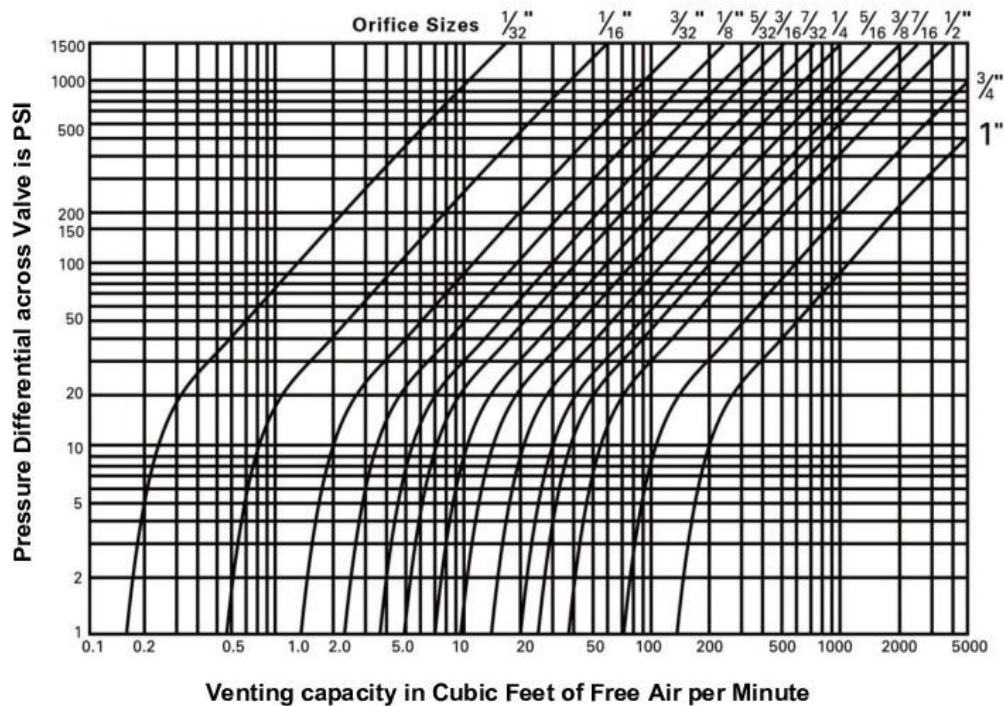


Figure A



This product complies with the California No-Leak Requirement

► Venting Capacity Graph for Air Release Valves



► Valve Selection Based on Venting Capacity

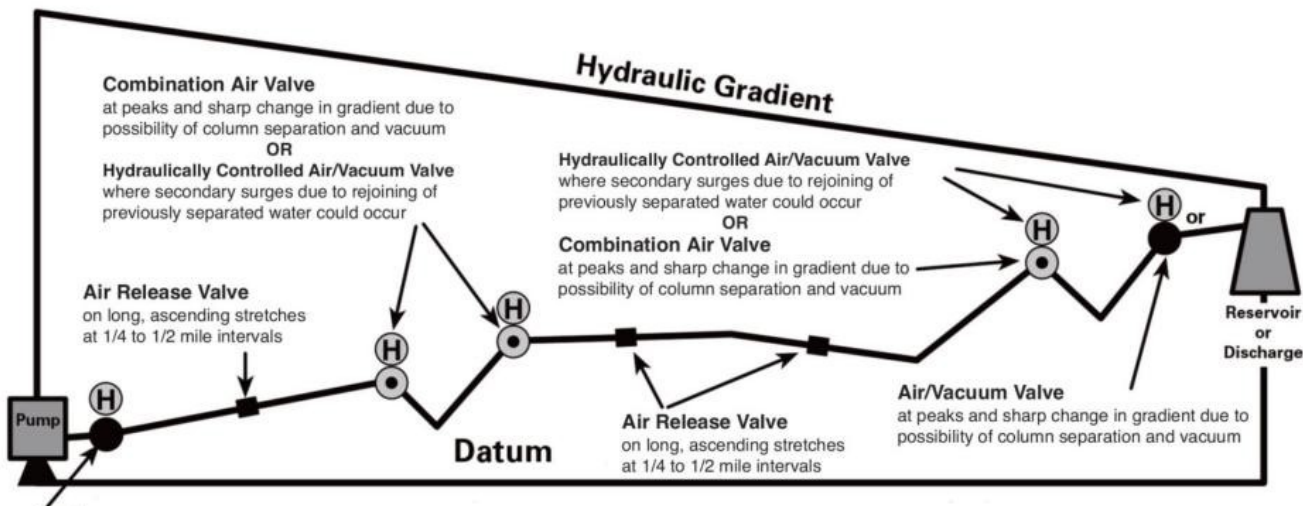
Follow these steps to select and size an air release valves when a specific venting capacity is required:

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



Figure A

► 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

- 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.
- There are four variables that can cause an air pocket to form slightly downstream of the true high point in a piping system:
 - Severity of the slope adjacent to the high point or change of gradient
 - Velocity of the liquid
 - Texture of the inside surface of the pipe being used
 - 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.

- 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:

- Centrifugal pumps
- Hydropneumatic tanks
- Enclosed systems
- Sewage lines

► When Ordering, please specify:

- Model number
- Inlet size (NPT)
- Inlet pressure rating
- 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.

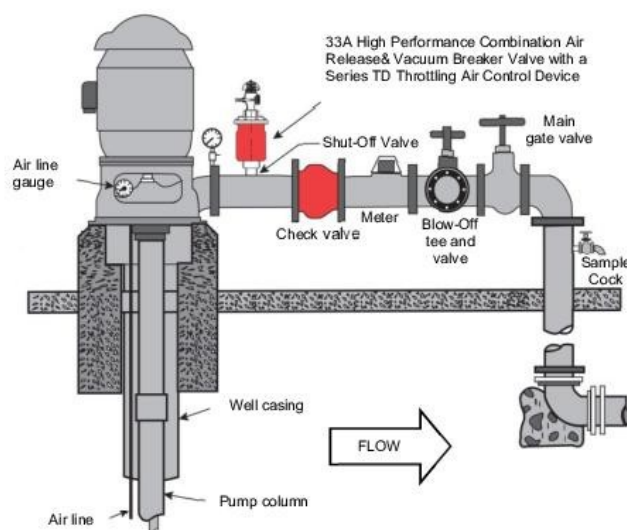
Vacuum Prevent Mode:

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

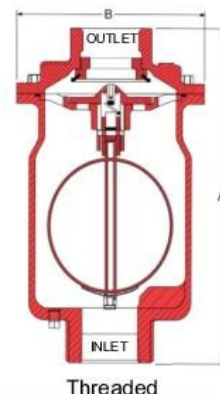


High Performance Combination Air Release & Vacuum Breaker Valve (Threaded & Flanged) Sizes 1"-2"-3"-4"-6"

► Dimensions

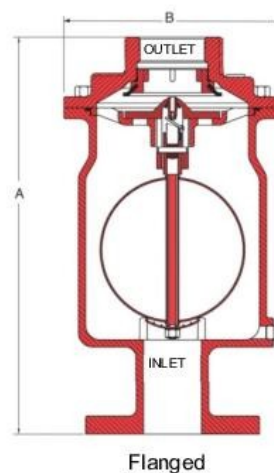
	33A Pressure Class 300 Lb Threaded			
Valve size [inches]	1"	2"	3"	4"
A [mm]	231	316	324	324
B [mm]	159	191	229	229
Inlet [ANSI]*	1" NPT	2" NPT	3" NPT	4" NPT
Outlet [NPT]*	1" NPT	2" NPT	3" NPT	4" NPT
Number of Holes	-	-	-	-
Diameter of Bolts	-	-	-	-
Approximate calculated shipping weight [kg]	11	13	17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

* For BSP: ☒ CLA-VAL



	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

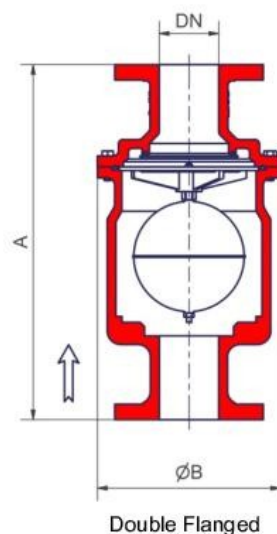


	33A Pressure Class 300 Lb Flanged (INLET)			
Valve size [inches]	1"	2"	3"	4"
A [mm]	260	359	400	409
B [mm]	159	191	235	235
Inlet [ANSI]*	1"	2"	3"	4"
Outlet [NPT]*	1"	2"	4"	4"
Number of Holes	4	8	8	8
Diameter of Bolts	16	16	19	19
Approximate calculated shipping weight [kg]	12	19	23.5	33

* For BSP: ☒ CLA-VAL

	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





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	<ul style="list-style-type: none"> Epoxy coated Ductile iron ASTM A536 65-45-12 Epoxy coated cast steel ASTM A 216WCB ASTM B61 Naval bronze ASTM B 148 NI Aluminum Bronze 316 Stainless steel Duplex stainless steel Super duplex stainless steel 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



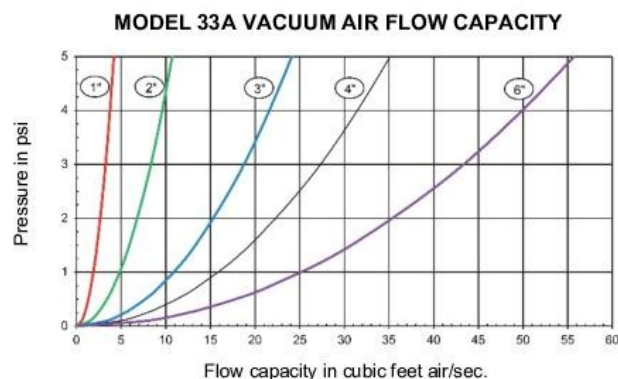
► When Ordering, Please Specify

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

► Valve Sizing Selection

Large Orifice Air-Vacuum Capacity

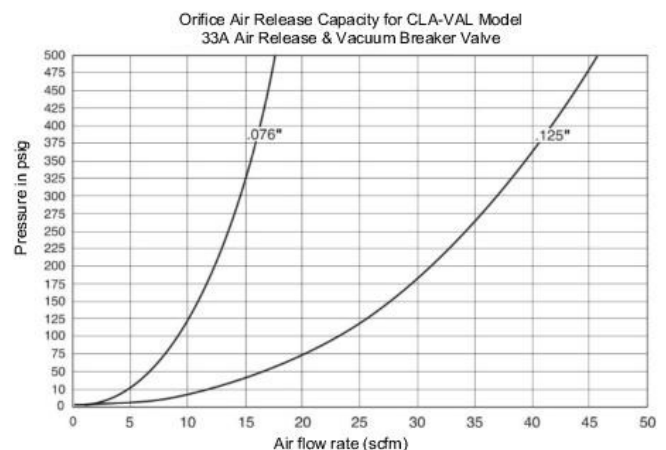
Determine anticipated water flow and allowable pressure differential for the pipeline application. Select valve from chart to exhaust or admit air at the same rate as water filling or draining (in CFS). For larger flows, two or more Model 33A's may be installed in parallel.



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.





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.

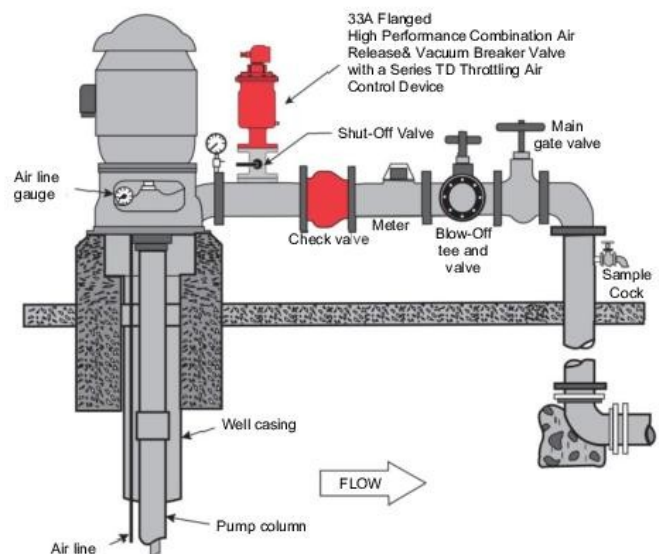
Vacuum Prevent Mode:

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

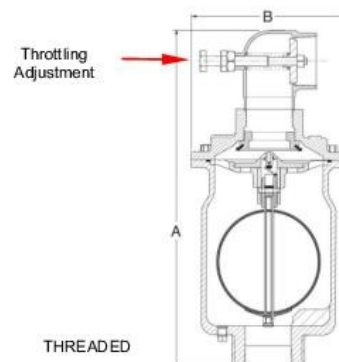
- Standard Max. D.W.P. 300 psi for UL Listed Assemblies (For Higher Operating Pressure Consult Factory)
- Transmission Pipeline High Points
- Water Treatment Plant Piping High Points
- Offshore Platforms
- Vertical Turbine Pump Discharge



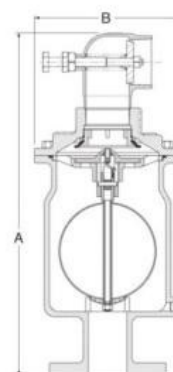
Air Release & Vacuum Breaker Valve (Threaded & Flanged) with Throttling Air Control Device Sizes 1" - 2" - 3" - 4" - 6"

► 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	<ul style="list-style-type: none"> Nickel Aluminum Bronze (NAB) - ASTM B148 Alloy C95800 Monel - QQ-N-288 Comp B - ASTM A494 Grade M30H Cast Steel - ASTM A216 Grade WCB 316 Stainless steel - ASTM A743 Grades CF3M and CFM8 Super Austenitic Stainless Steel - ASTM A351 Grade CK3MCuN (SMO 254) Super duplex stainless steel - ASTM A890 Grade 5A (CE3MN)
2"	.076"	300 psi	
3" & 4"	.076"	300 psi	
6"	.076"	300 psi	
3" & 4"	Optional upon request .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

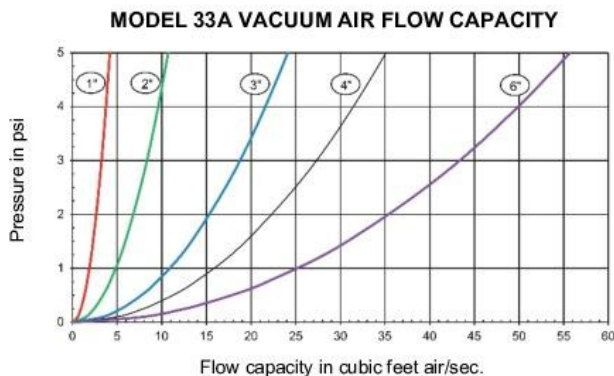
Hood / Screen assembly



► Valve Sizing Selection

Large Orifice Air-Vacuum Capacity

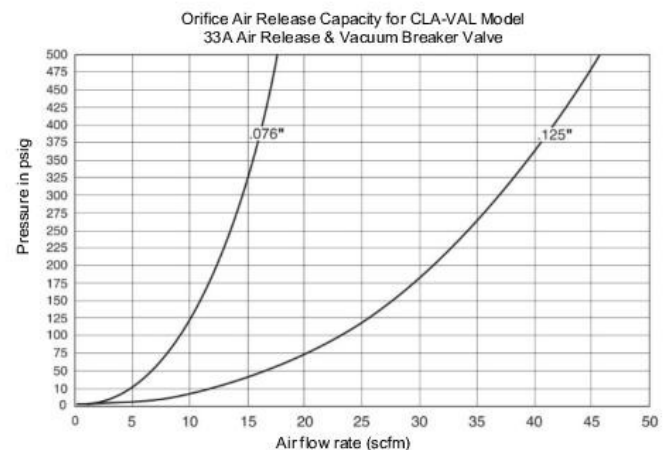
Determine anticipated water flow and allowable pressure differential for the pipeline application. Select valve from chart to exhaust or admit air at the same rate as water filling or draining (in CFS). For larger flows, two or more Model 33ATD's may be installed in parallel.



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

Small Orifice Capacity

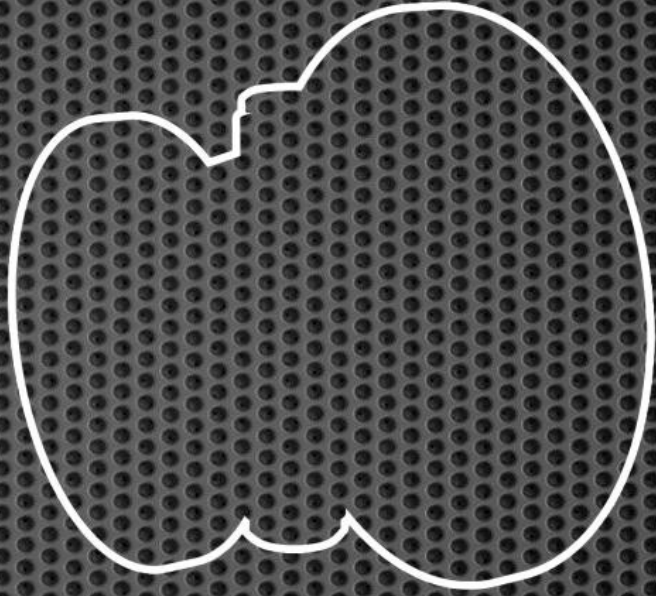
During pressurized pipeline operation, small pockets of entrapped air will be released through the float actuated 0.076 or .125 inch orifice. Use chart to determine discharge capacity.



► When Ordering, Please Specify

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

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)

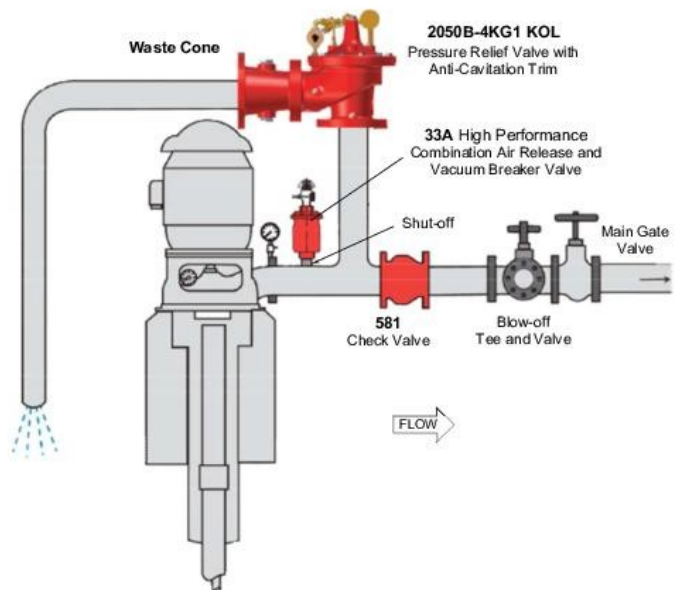
Standard:

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

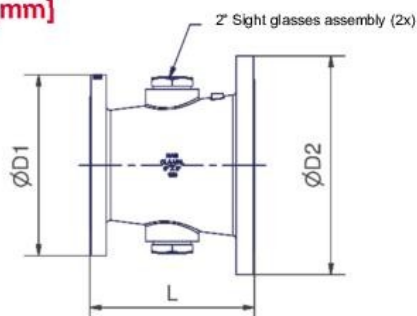
Optional material: (for seawater and severe service application)

Nickel Aluminium Bronze (NAB) ASTM B148 Alloy C95800
316 Stainless steel ASTM A743

► Typical Application for Fire Pump Relief



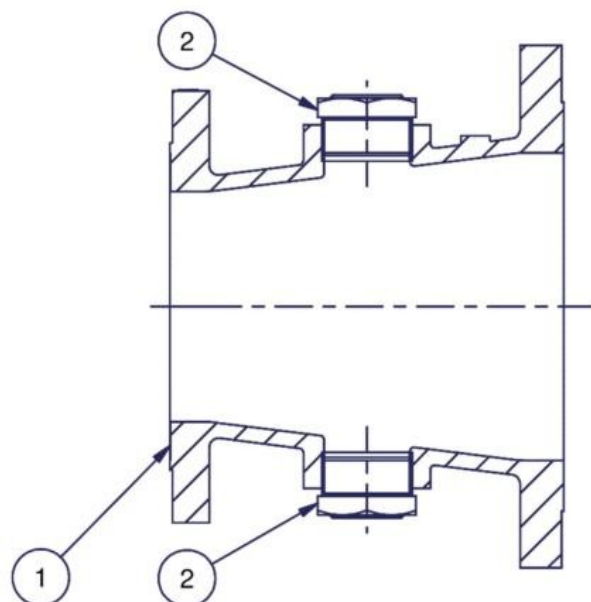
► Dimensions [mm]



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

► Informations



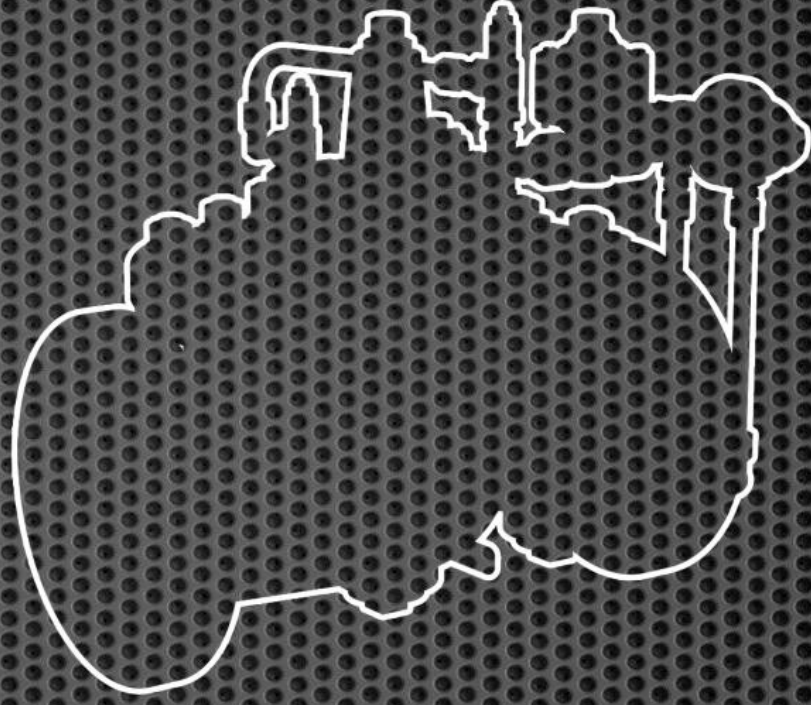
POS	DESCRIPTION
1	Body
2	Sight glass assembly

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

DELUGE VALVE



► Simple, Reliable and Accurate

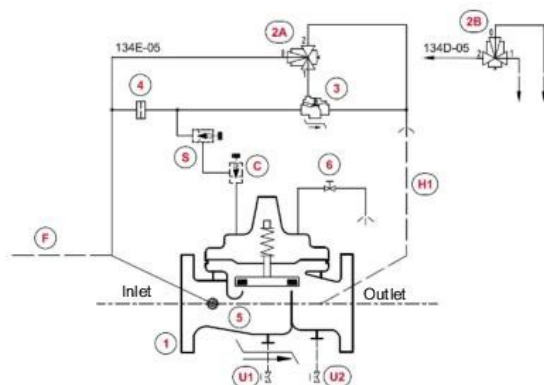
- U.L. Listed
- Fast Acting Solenoid Control
- Reliable Drip Tight Shut-off
- Simple Design, Proven Reliable
- Easy Installation & Maintenance

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

Cover capacity

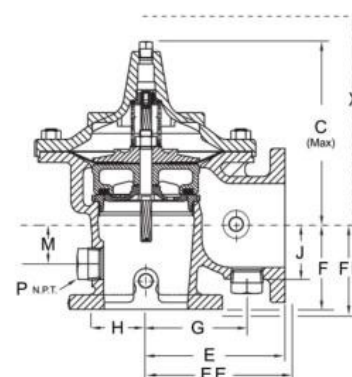
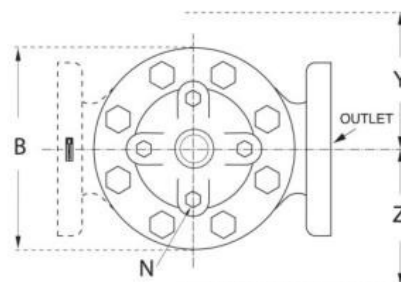
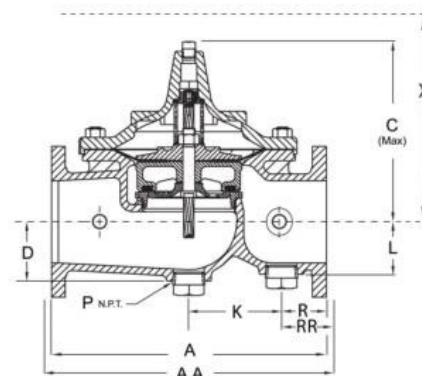
Valve size [inch]	Displacement
3"	0.080 gal
4"	0.169 gal
6"	0.531 gal
8"	1.26 gal
10"	2.51 gal

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

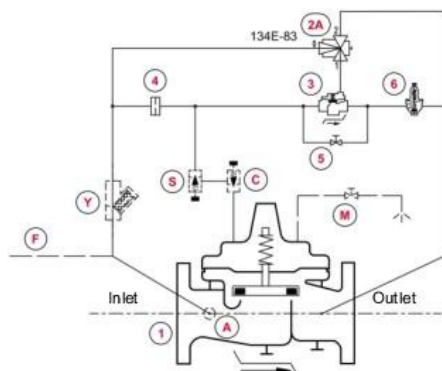
- U.L. Listed
- Fast Acting Solenoid Control
- Reliable Drip Tight Shut-off
- Simple Design, Proven Reliable
- Easy Installation & Maintenance



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

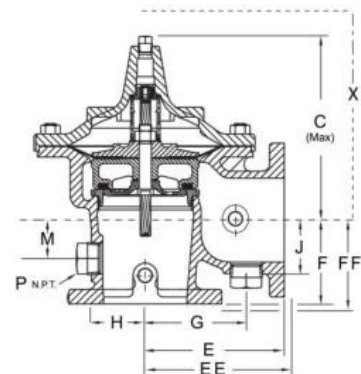
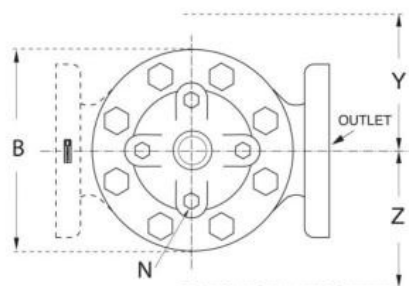
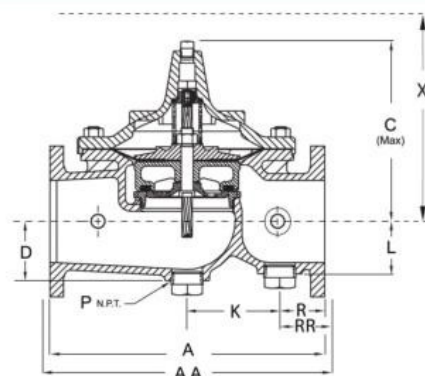
Valve size [inch]	Displacement
3"	0.080 gal
4"	0.169 gal
6"	0.531 gal
8"	1.26 gal
10"	2.51 gal
12"	4.00 gal

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

- Catalog Number 134E/D-83
- Valve size
- Globe or Angle pattern
- Pressure Class
- Threaded, Flanged or Grooved
- Material Desired
- Energized or De-energized to open main valve
- Solenoid Enclosure, Voltage & Hertz
- When vertically installed

► Simple, Reliable and Accurate

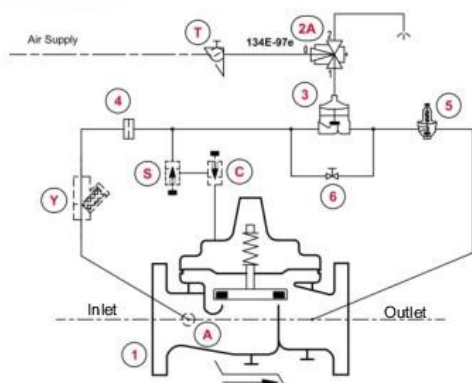
- U.L. Listed
- Fast Acting Solenoid Control
- Reliable Drip Tight Shut-off
- Simple Design, Proven Reliable
- Easy Installation & Maintenance

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

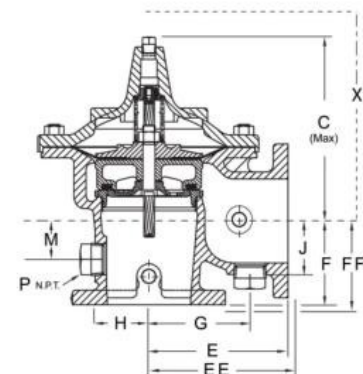
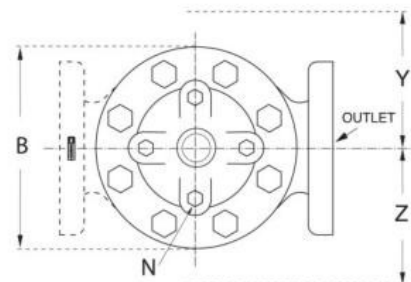
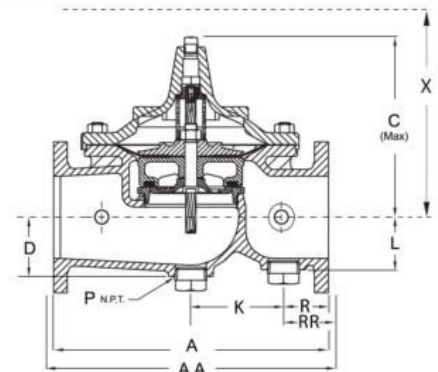
Valve size [inch]	Displacement
3"	0.080 gal
4"	0.169 gal
6"	0.531 gal
8"	1.26 gal
10"	2.51 gal
12"	4.00 gal

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

- Catalog Number 134E/D-97e
- Valve size
- Globe or Angle pattern
- Pressure Class
- Threaded, Flanged or Grooved
- Material Desired
- Energized or De-energized to open main valve
- Solenoid Enclosure, Voltage & Hertz
- When vertically installed

► 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

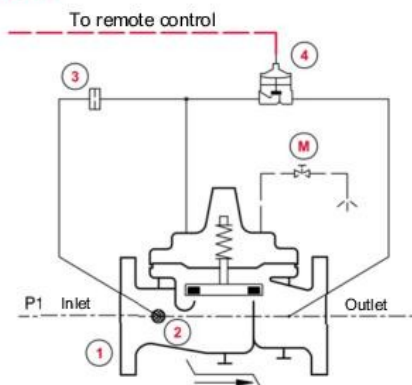


Illustration: Globe 403-11e

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:

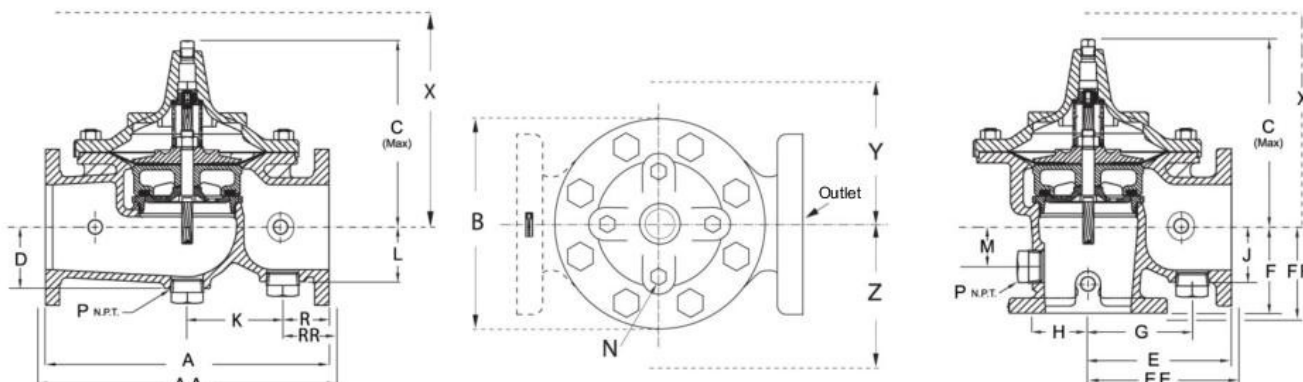
Stainless steel

Optional Pilot System:

Pilot Systems are available with Stainless Steel or Monel materials.

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	[gpm]	115	200	440	770	1245
	Pattern	[l/s]	27.6	48	105.6	184.8	299
	Angle	[gpm]	139	240	541	990	1575
	Pattern	[l/s]	33.4	58	130	238	378

► When Ordering, Please Specify

- Model No. 403-11e
- Valve Size
- Pattern Globe or Angle
- Pressure class
- Threaded, flanged or grooved
- Trim material
- Adjustment range
- Desired options
- When vertically installed

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

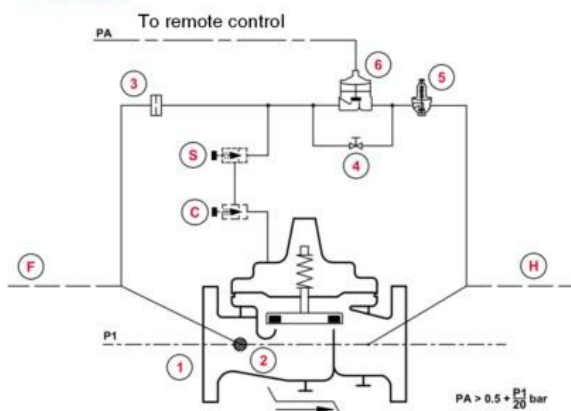
The CLA-VAL 403-35e Remote Control Valve is used where "on-off" control is required. Pneumatic pressure signals from a remote control "opens or closes" a small auxiliary valve installed on the main valve cover, which in turn opens or closes the main valve. Only the small amount of fluid in the auxiliary 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:

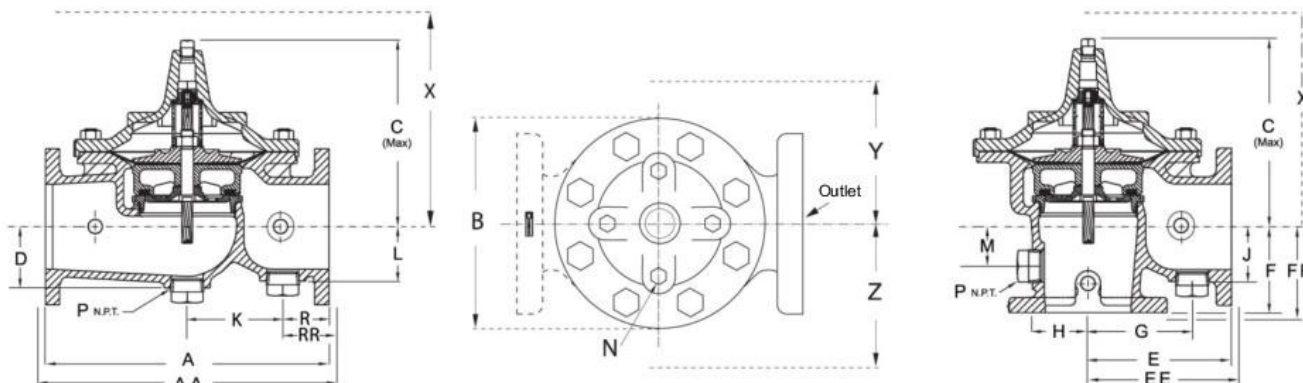
Stainless steel

Optional Pilot System:

Pilot Systems are available with
Stainless Steel or Monel materials.

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

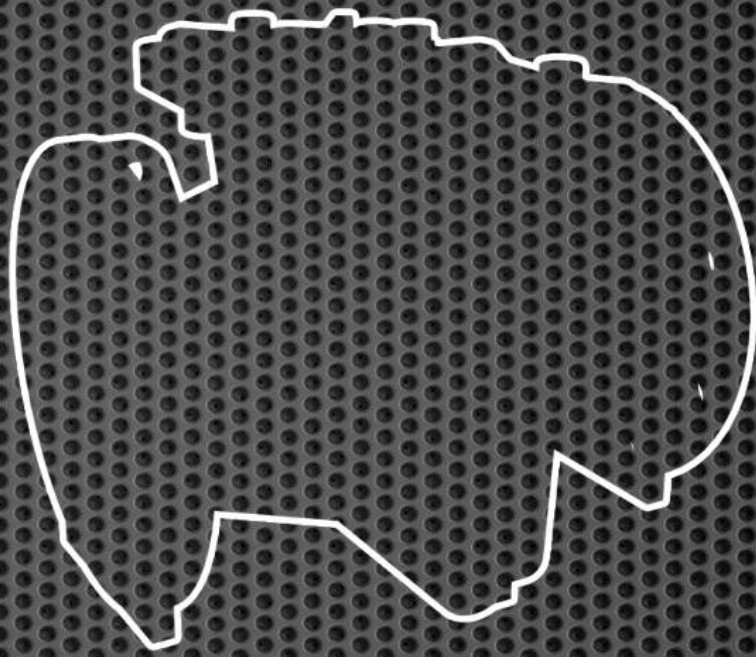
► Functional Data

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

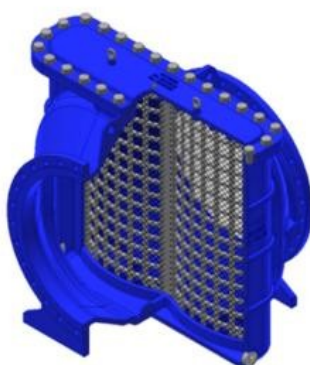
H-STARINER



► Simple, Reliable and Accurate



Model DN 40 to DN 800



Model DN 900 to DN 1400

► Specifications

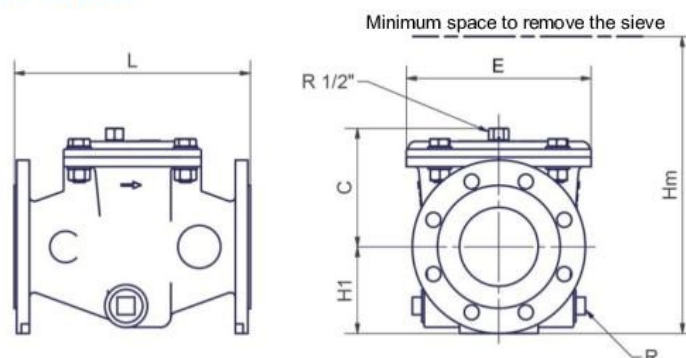
- **Sizes:** DN 40 to DN 1400
- **Flanges:**
PN 10 - 16 - 25 (sizes DN 40 to DN 1400)
PN 40 (sizes DN 40 to DN 200)
PN 40 (other sizes on request)
- **Temperature:** Maximum 80°C

► 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.

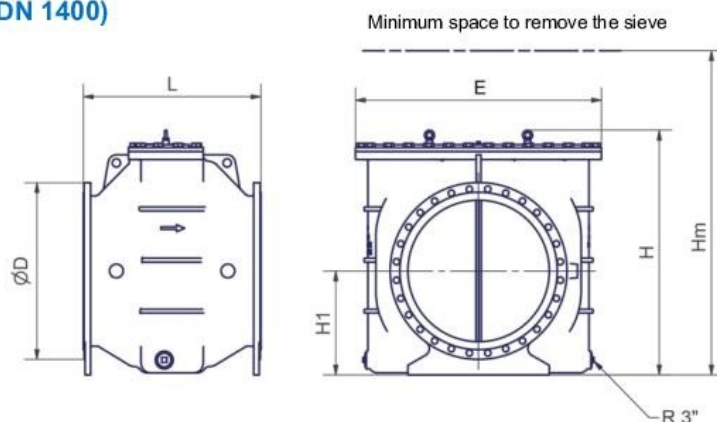
The strainer may be installed in any position, however installation with the cover on top side is recommended.

► Dimensions (DN 40 to DN 800)



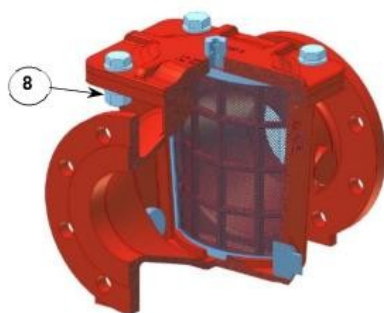
Dimensions																
DN	40/50	60/65	80	100	125	150	200	250	300	350	400	450	500	600	700	800
L [mm]	230	230	300	300	400	400	500	580	610	650	800	800	950	1100	1150	1150
H1 [mm] (PN10-16)	82.5	92.5	103	110	125	143	170	225	227.5	260	310	335	485	485	485	513
H1 [mm] (PN25)	82.5	92.5	103	118	135	150	188	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

► Dimensions (DN 900 to DN 1400)

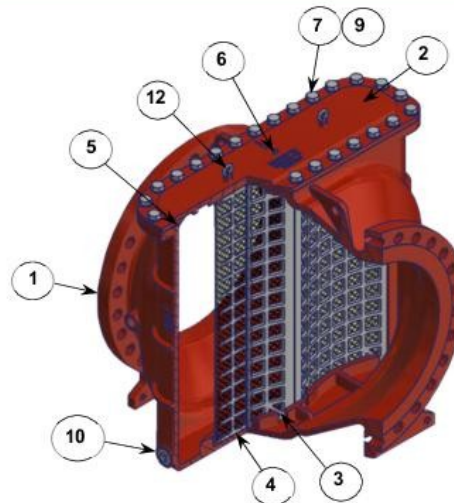


Dimensions				
DN	900	1000	1200	1400
L [mm]	1170	1180	1180	1190
H1 [mm] (PN10 - 40)	660.5	698.5	863.5	965
H [mm]	1580	1580	1730	1830
Hm [mm]	2820	2820	2980	3080
Ø D [mm]	1125	1255	1485	1685
E [mm]	1566	1566	1566	1566
Weight [kg]	1890	1970	2100	2220

► 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

► Strainer Performance

Flow coefficient																
DN	40/50	60/65	80	100	125	150	200	250	300	350	400	450	500	600	700	800
Kv [m ³ /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

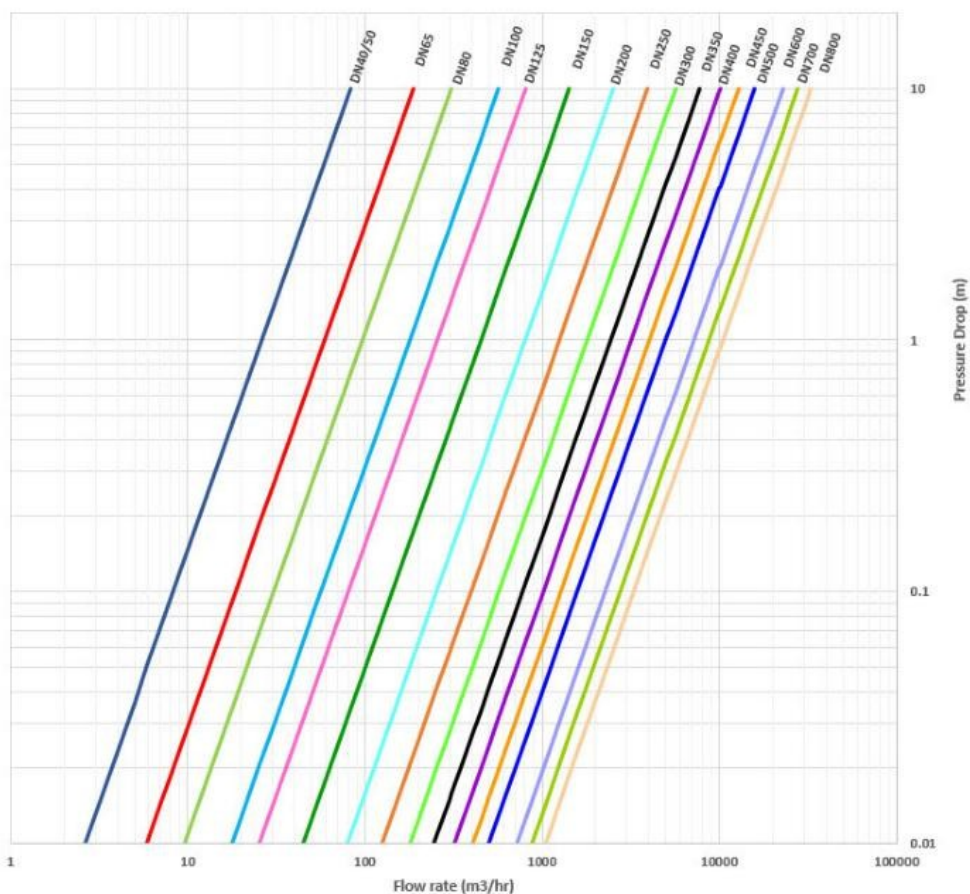
Flow coefficient				
DN	900	1000	1200	1400
Kv [m ³ /h]	51'912	68'688	109'584	142'740
Cv [l/s]	14'420	19'080	30'440	39'650
K -	0.7	0.6	0.5	0.5

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

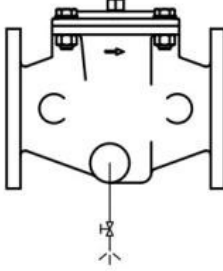
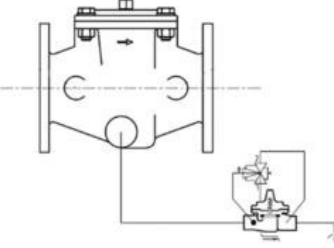
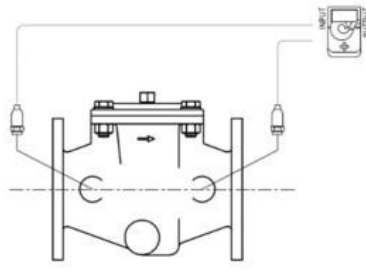
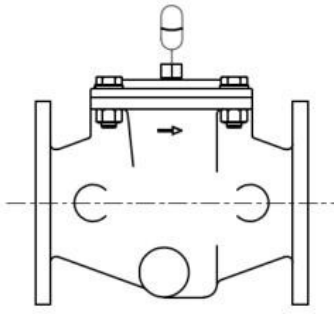
► Headloss

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

ΔH: Headloss through the strainer (m)
 K: Resistance Coefficient (-)
 V: Flow velocity (m/s)
 g: Gravity (m/s²)

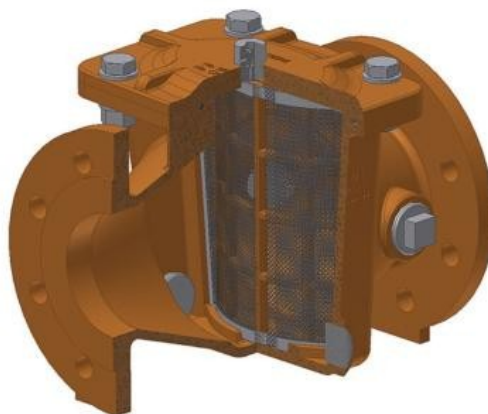


► Options

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.	

► Simple, Reliable and Accurate

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

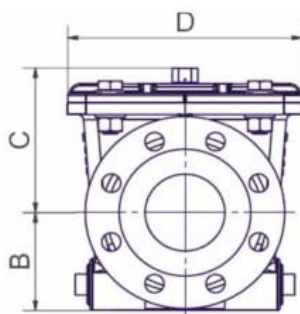
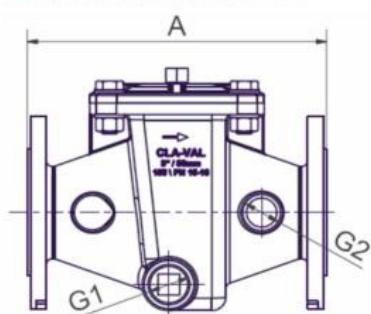


► AQUA 90-520 Operation and installation

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:

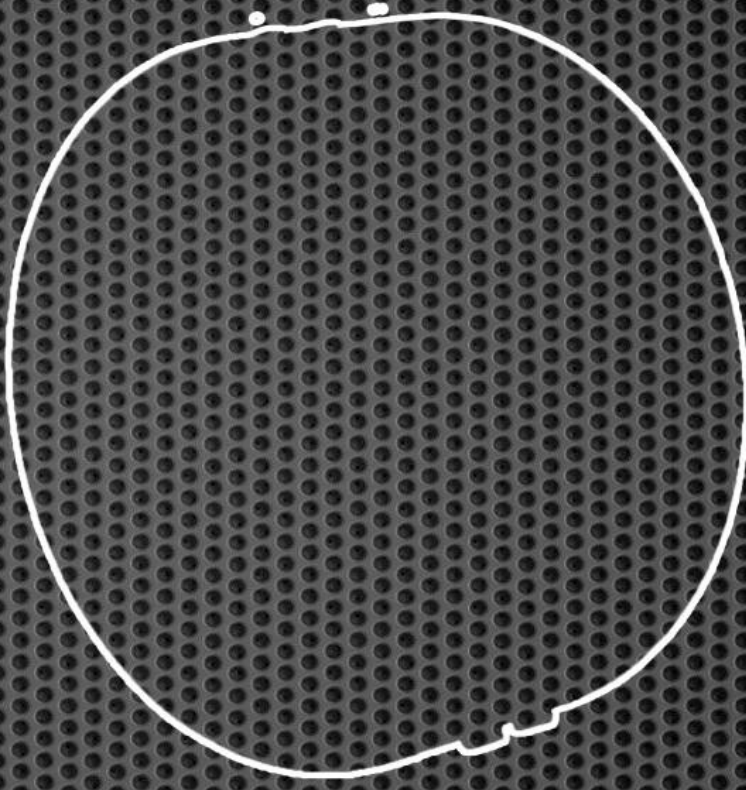
Titanium

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 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.

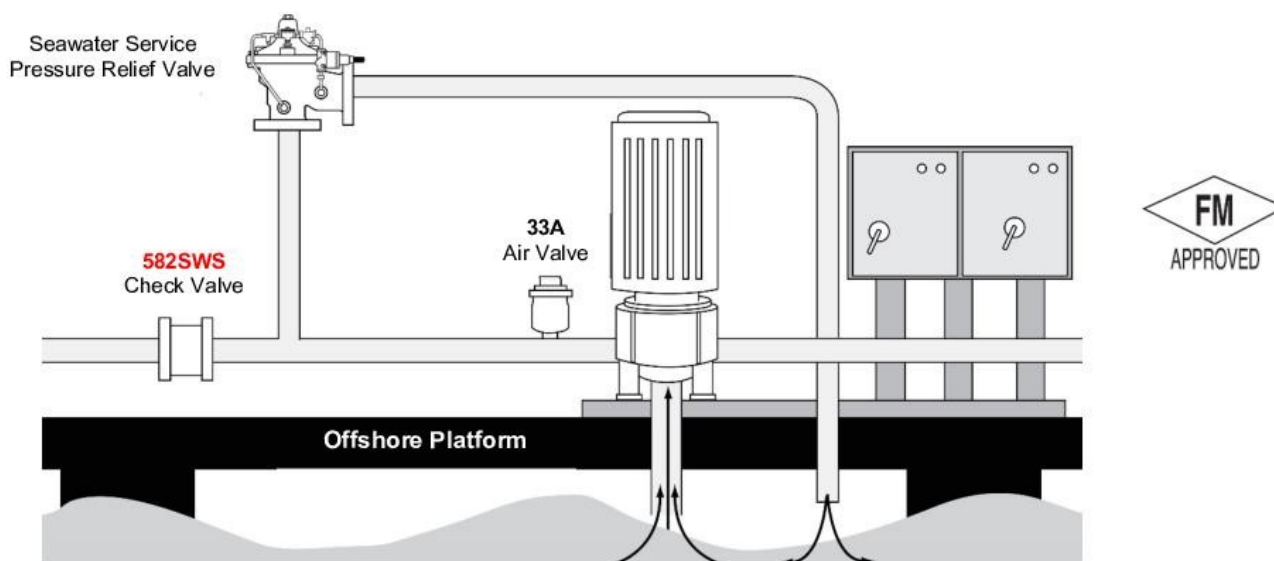
Although lighter in weight than globe style swing check valves, CLA-VAL Two-Door Wafer Check Valves are designed for heavy-duty applications. For ease of installation, valves 6" and larger are supplied with a tapped hole for installing a lifting eye bolt. All materials conform to ASTM specifications, 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

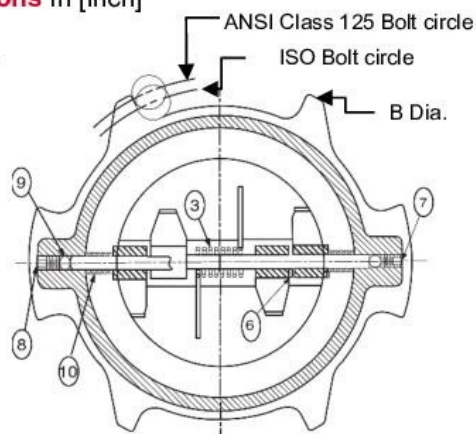
The two-door wafer check valve shall be compact wafer design, to fit between ANSI flanges. The check valve doors shall be spring-loaded closed, by means of one or more heavy-duty stainless steel torsion springs. Flow shall cause the doors to open and upon pump shut down, the torsion spring will shut 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.

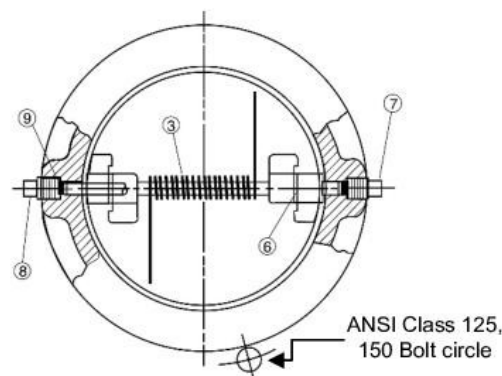
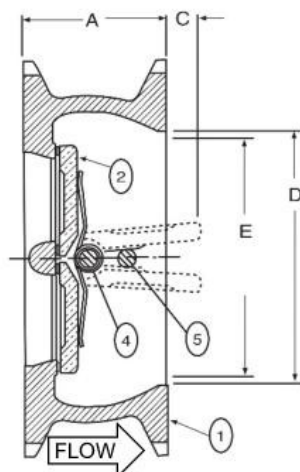
► Typical Application



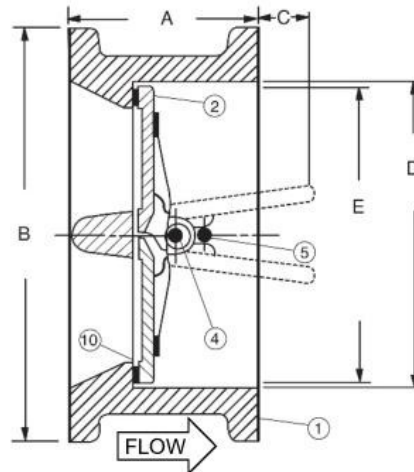
► Dimensions In [inch]



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						
Size [Inch]	Model	A	B	C	D	E
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

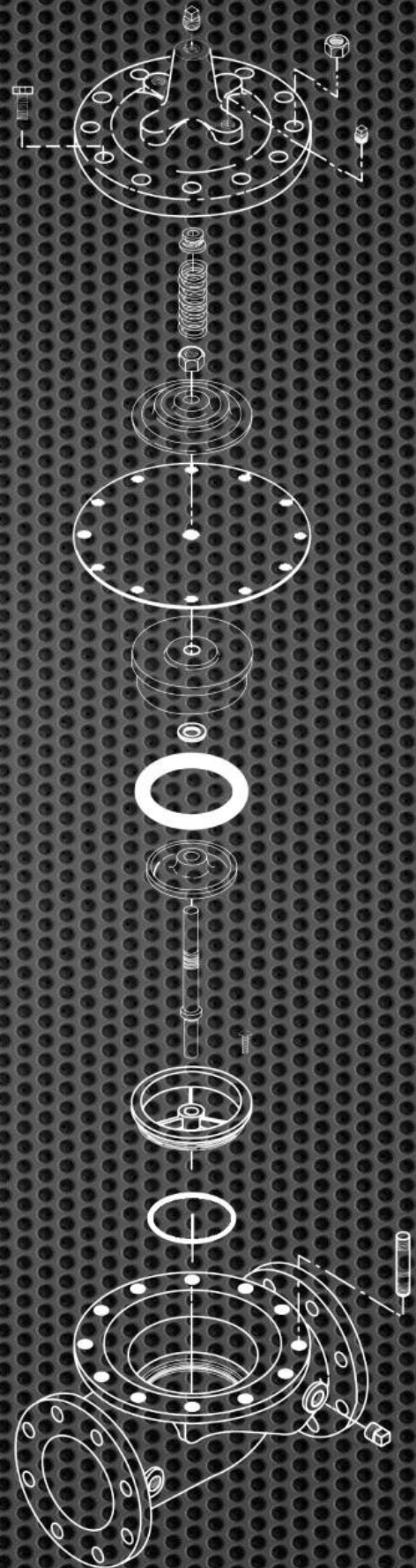
Part No.	Designation	Material
1	Body	Aluminum Bronze ASTM B148, Alloy 95200with Buna-N® resilient Seat Molded Body
2	Door	Aluminum Bronze ASTM B148, Alloy 95200
3	Torsion springs	Inconel X750, ASTM B637 Alloy N04400
4	Door hinge pin	Monel ASTM B164, Alloy N04400
5	Door stop pin	Monel ASTM B164, Alloy 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



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.



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

CLA-VAL Soft Repair Kits 100G - 2100G

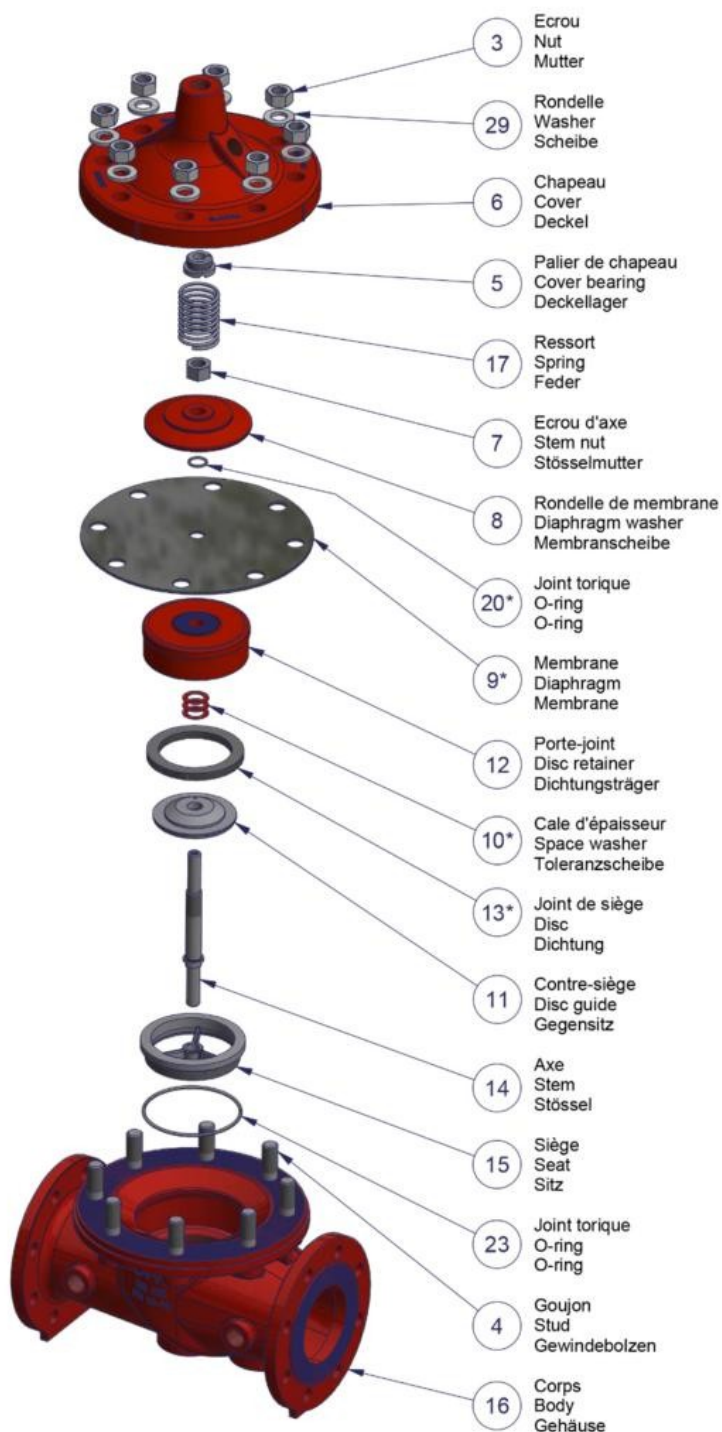
Size	Kit No.
DN 80	22217-15C
DN 100	22217-16A
DN 150	22217-17J
DN 200	22217-18G
DN 250	22217-19E
DN 300	22217-20C

Soft Repair Kit includes:

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



Illustration: 100G Flanged connection



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

CLA-VAL Soft Repair Kits 100GS - 2100GS

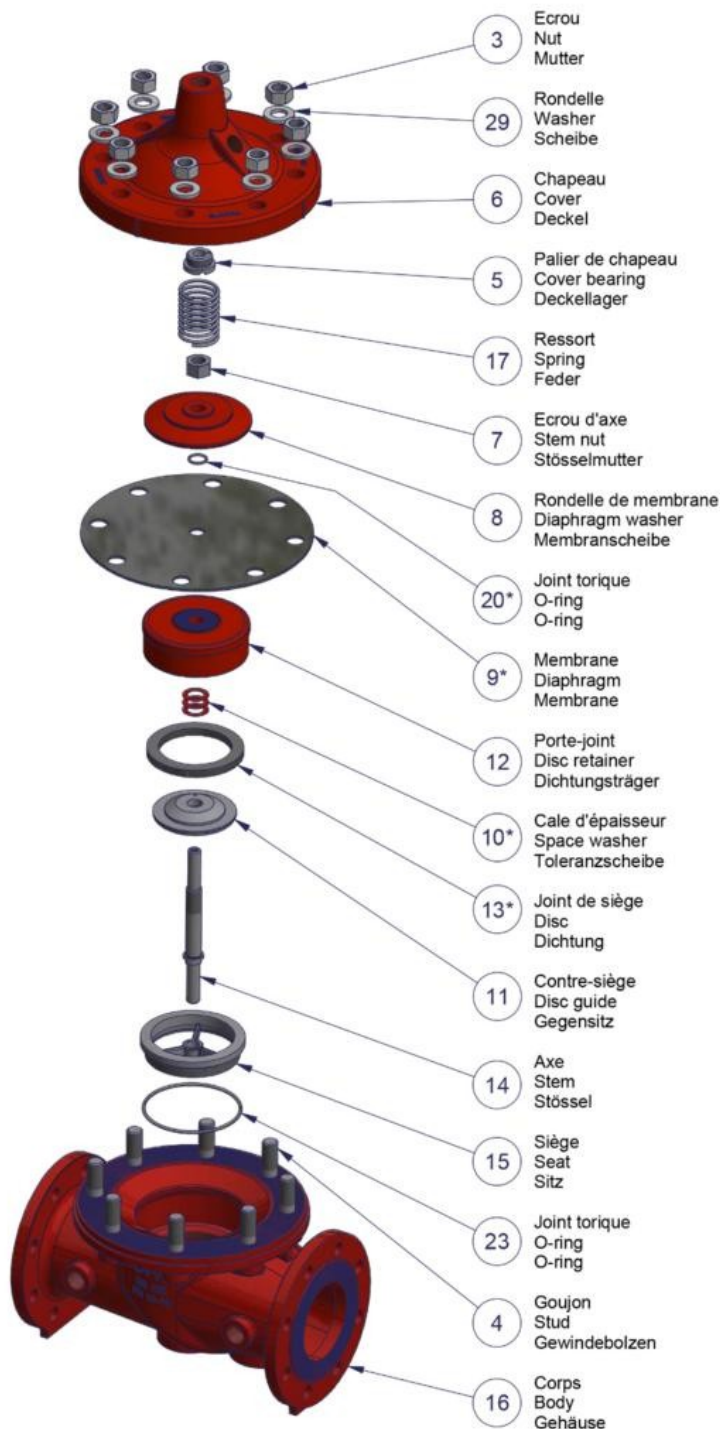
Size	Kit No.
DN 80	22217-15C
DN 100	22217-16A
DN 150	22217-17J
DN 200	22217-18G
DN 250	22217-19E
DN 300	22217-20C

Soft Repair Kit includes:

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



Illustration: 100GS Flanged connection



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

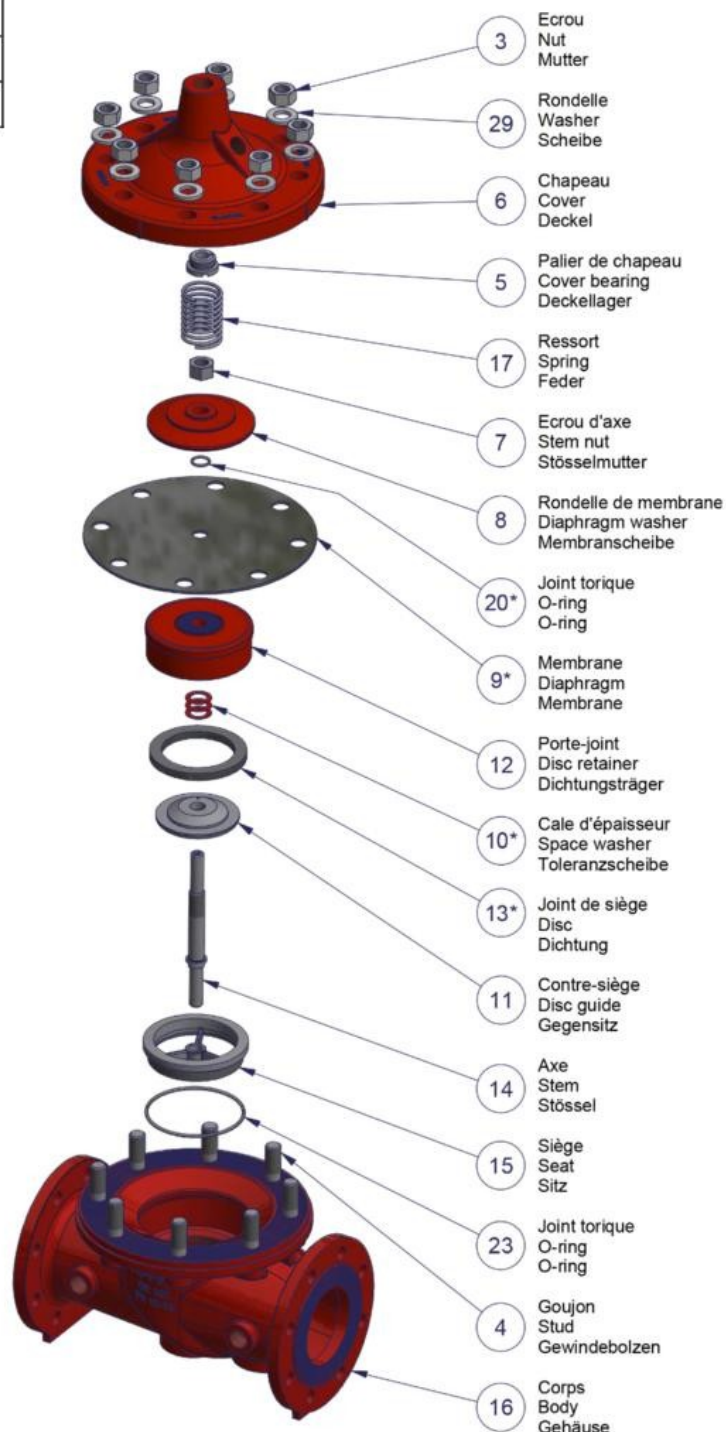
CLA-VAL Soft Repair kits 100-06	
Size	Kit No.
DN 40	22217-12K
DN 50	22217-13H
DN 65	22217-14F

Soft Repair Kit includes:

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



Illustration: 100-06 Globe Flanged connection



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

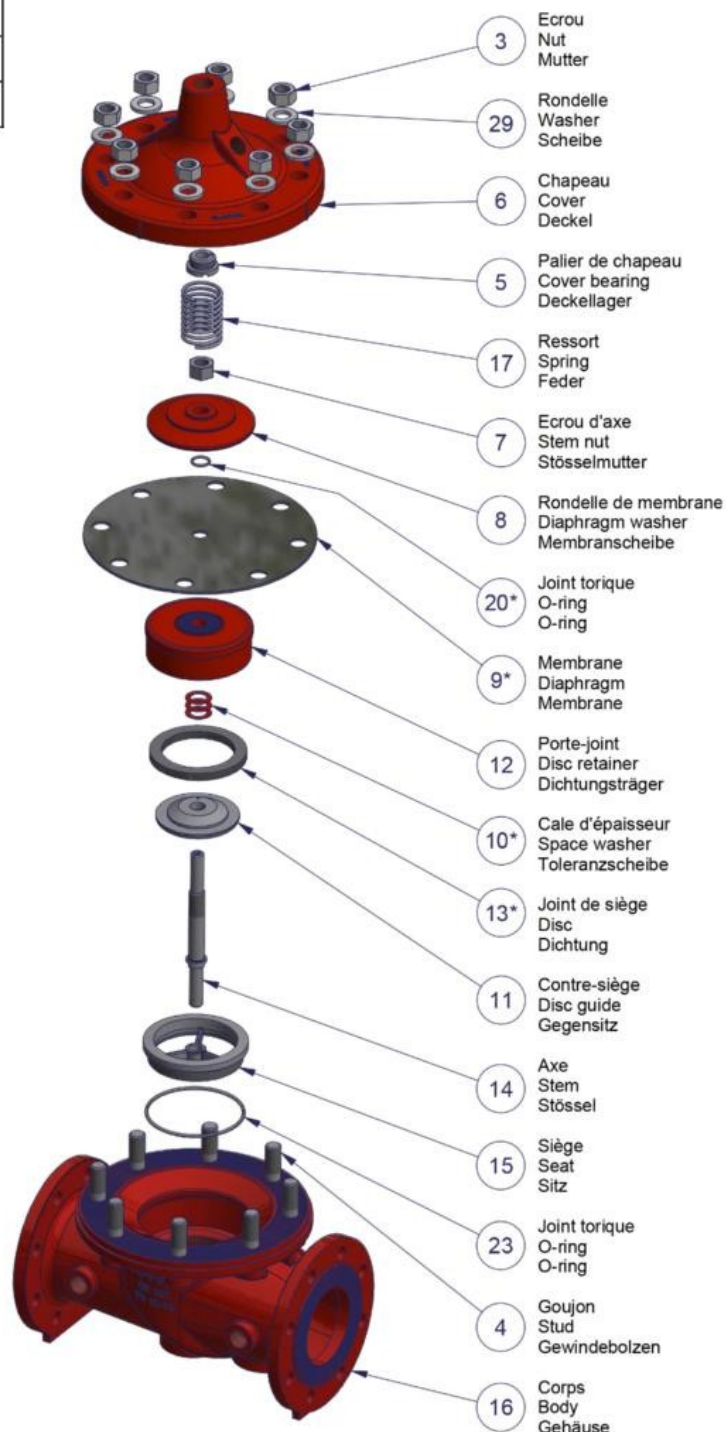
CLA-VAL Soft Repair kits 100-06S	
Size	Kit No.
DN 40	22217-12K
DN 50	22217-13H
DN 65	22217-14F

Soft Repair Kit includes:

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



Illustration: 100-06S Globe Flanged connection



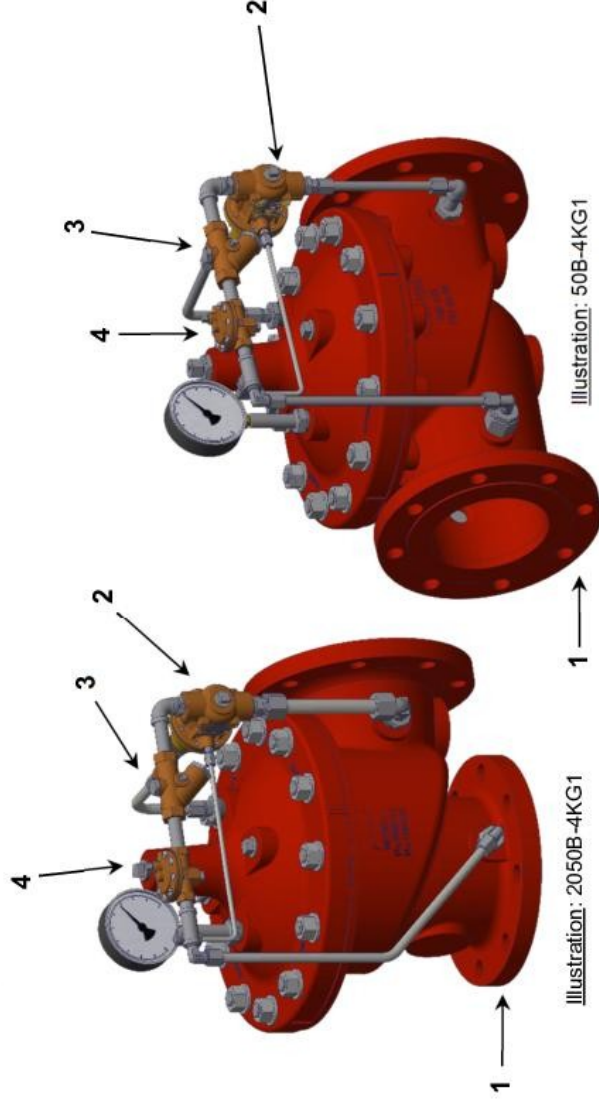


CLA-VAL 50B-4KG1 / 2050B-4KG1

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



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
- Belleville 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

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:

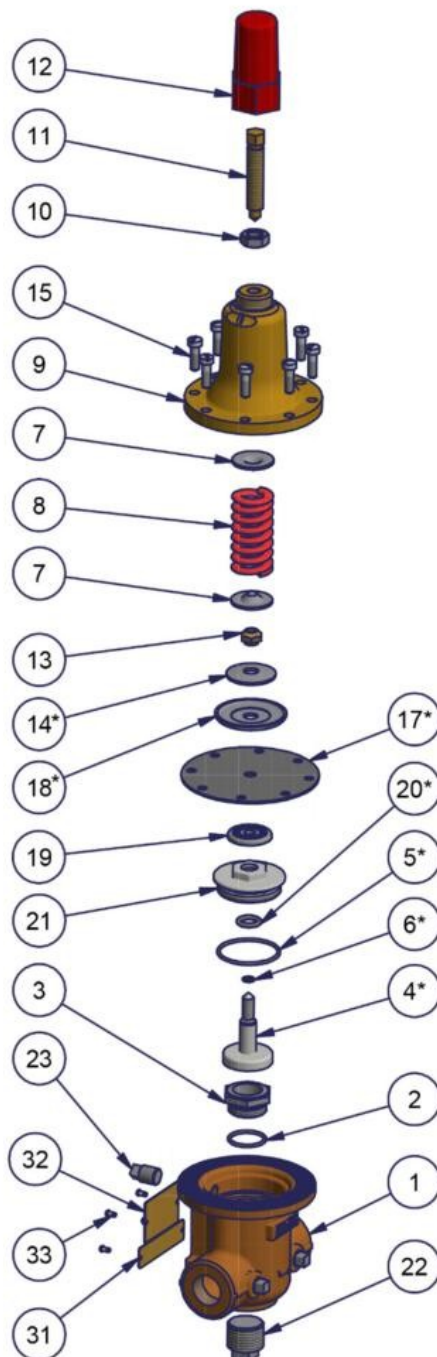
- O-rings (5, 6, 20)
- Stem assembly (4)
- Diaphragm (17)
- Belleville washer (14)
- Upper diaphragm washer (18)



Adjustment range: 1.4 - 14.0 bar



Adjustment range: 7.0 - 21.0 bar



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

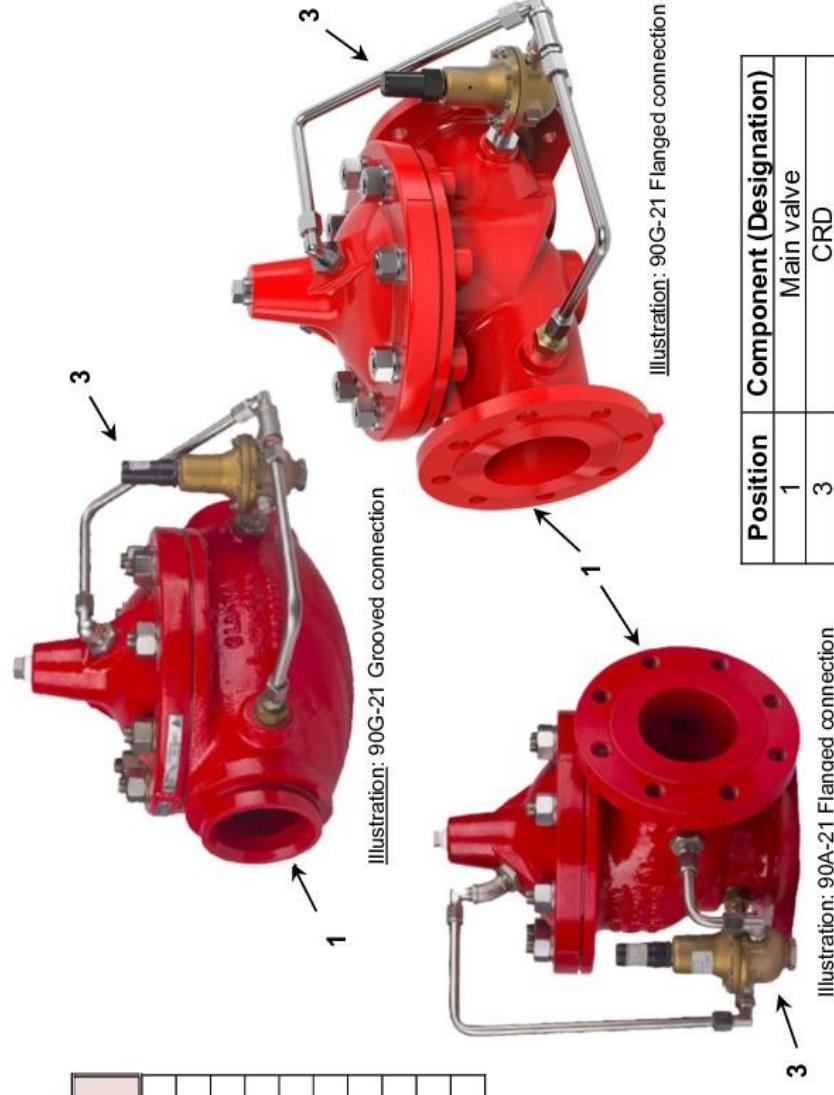
Each Soft Repair Kit includes:

For the Main Valve:

- Diaphragm
- Disc
- O-ring
- Space Washer

For the CRD:

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



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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