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**Valves for Hygienic Fluid Handling Equipment,
May 2024**

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Pumps

Centrifugal pumps


LKH


LKH UltraPure


LKH Evap


LKHPF


LKH Multistage

Valves

Double seat valves


Aseptic Mixproof


Unique Mixproof


Unique Mixproof 3-body


Unique Mixproof CP-3


Unique Mixproof UltraPure


Unique Mixproof Large Particle


Unique Mixproof PMO Curd

Diaphragm valves


Unique DV-ST UltraPure


DV-ST Multiport

Ball valves


SBV Sanitary

Shutter valves


Koltek Valves

Regulating valves

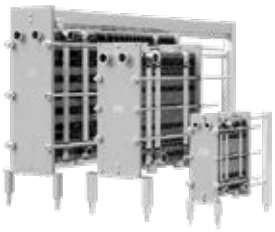

Unique RV-ST


Unique RV-P


CPM-2

Heat transfer

Gasketed plate heat exchangers


Hygienic line


FrontLine


BaseLine


Industrial line

Tank equipment

Tank cleaning machines


SaniJet 25 UltraPure


SaniJet 20 UltraPure


TJ 40G


TJ 20G


TZ 74


TZ 89


GJ PF FT


GJ A6


GJ A2


GJ 9


Multijet 25

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ALS and ALS-SD


ALB


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ALTB

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Tubes and tube support

UltraPure tubes and fittings


UltraPure tubes and fittings

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LKH Prime UltraPure

SolidC

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LKC UltraPure

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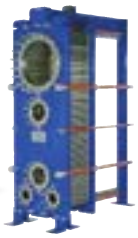
LKUV-2 Air-Relief

Safety valves

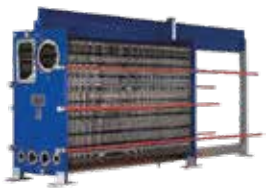
Safety Valve

SB Anti Vacuum House

TS-series



AlfaCond



AlfaVap

Fusion-bonded plate heat exchangers

AlfaNova

Brazed plate heat exchangers

Brazed PHE

GJ 8

GJ BB

MultiJet 45

GJ 4

SaniMicro

SaniMidget

SaniMagnum

SaniMidget SB

SaniMagnum SB

SaniMega SB

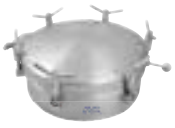
Static spray balls

LKRK Static Spray Ball

Tank covers

LeviMag®

LeviMag® UltraPure



LKDC-LP

Type R

LKD

Type CG

Type C

Membranes and filters

Spiral membranes

Flat sheet membranes

Plate and frame module

LabStak™ modules

Pilot plants

Membrane filtration systems

Auxiliary membrane equipment

Housing

Circumferential piston pumps


SX


SX UltraPure


DuraCirc


DuraCirc Aseptic

Twin screw pumps


Twin Screw

Gear pumps


M Gear

Butterfly valves


Unique SSV Aseptic


SSV Tangential


Unique SSV Tank Outlet


Unique SSV Manual


Unique SSSV Small Single Seat


LKB


LKB-F


LKB UltraPure

Sampling valves


SB Anti Vacuum Valve


SB Pressure Relief Valve


Unique Sampling Valve


SB Membrane Sample Valve


SB Micro Sample Port


SB Micro Sample Port Type M

Welded spiral heat exchangers


Spiral Heat Exchangers

Welded plate and block heat exchangers


Combabloc Free Flow

Scraped surface heat exchangers


Contherm

Tubular heat exchangers


Pharma-line S and P


Pharma-line Point of Use

Wall mounted cleaning nozzles


PlusClean®/PlusClean® UltraPure

Automation Sensing and control


ThinkTop® V70


ThinkTop® V50


ThinkTop® V20


ThinkTop® Basic Intrinsically Safe


IndiTop


Unique Control LKB

Tank accessories


Sight glasses


Tank feet

Condition monitoring


CM Connect


CM

Cleaning validation


Rotacheck

Service and spare parts


Service kits

Service tools


Service tools valves


Service tools mixing and blending


Service tools tank cleaning


Service tools pumps

Alfa Laval Stainless Steel and Rubber Materials

Technical Information

Stainless Steel

Our stainless steel material have the following demands to the contents of the most essential alloys:

Descriptions	Standard	Chrome Cr%	Nickel Ni%	Molybdenum Mo%	Carbon C%
AISI 304	ASTM A270	18.0-20.0	8.0-10.5	0.0	≤ 0.08
AISI 304L	ASTM A270	18.0-20.0	8.0-12.0	0.0	≤ 0.03
AISI 316L	ASTM A270	16.0-18.0	10.0-14.0	2.0-3.0	≤ 0.03
1.4301 (304)	EN 10088-1 (X 5CrNi18-10)	17.0-19.5	8.0-10.5	0.0	≤ 0.07
1.4307 (304L)	EN 10088-1 (X 2CrNi18-9)	17.5-19.5	8.0-10.0	0.0	≤ 0.03
1.4401 (316)	EN 10088-1 (X 5CrNiMo17-12-2)	16.5-18.5	10.0-13.0	2.0-2.5	≤ 0.07
1.4404 (316L)	EN 10088-1 (X 2CrNiMo17-12-2)	16.5-18.5	10.0-13.0	2.0-2.5	≤ 0.03
1.4435 (316L)	EN 10088-1 (X 2CrNiMo18-14-3)	17.0-19.0	12.5-15.0	2.5-3.0	≤ 0.03
1.4571 (316Ti)	EN 10088-1 (X6CrNiMoTi17-12-2)	16.5-18.5	10.5-13.5	2.0-2.5	≤ 0.08

Rubber Materials

In order to obtain the longest possible lifetime for rubber seals it is essential to choose the right quality for the actual duty. Consequently when choosing rubber quality, the characteristics of the different rubber types should be considered. All product wetted rubber material are in conformity of FDA.

EPDM Rubber (Ethylene Propylene)

EPDM rubber is widely used within the food industry as it is resistant to most products used in this sector. Another advantage is that it may be used to a recommend max. temperatures of 140°C (244°F). However, there is one essential limitation, EPDM is not resistant to organic and non-organic oils and fats.

Actylonitrile Butadiene Rubber, NBR

NBR is the rubber type most frequently used for technical purposes. It is quite resistant to most hydrocarbons, e.g oil, grease and fat. It is sufficiently resistant to diluted lye and nitric acid and may be used to a recommended max. 95°C (203°F). As NBR is attacked by ozone it may not be exposed to ultraviolet rays and should thus consequently be stored so that this is avoided.

Silicone rubber, Q

The most significant quality of silicone rubber is that it can be applied from temperatures below -50°C (-58°F) to approx. + 180°C (356°F) and still keep its elasticity. The chemical resistance is satisfactory to most products. However, undiluted lye and acids as well as hot water and steam may destroy silicone rubber. The resistance to ozone is good.

Fluorine rubber, FPM

FPM is often used when other rubber types are unsuited, especially at high temperatures up to approx. 180°C (356°F). The chemical resistance is good to most products, however hot water, steam, lye, acid and alcohol should be avoided. The resistance to ozone is good.

Hydrogenated actylonitrileButadiene Rubber, HNBR

Mechanically strong and normally resistant to ozone and strong oxidizers, animal and vegetable fats, nonpolar solvents, oils and lubricants, water and aqueous solutions. The recommend max. temperature is 130°C (266°F).

Perfluoroalkoxy polymer, PFA

PFA is very similar to PTFE, but opposite to those PFA is thermo plastic and has minimal porosity. PFA has a very high mechanical strength which makes it a perfect choice when dealing with abbrasive products. The PFA seal offers longer service intervals. The recommended max. temperature for the PFA seal is 90°C (194°F).

Product and chemical resistance of flexible rubber materials

The information below is intended as an aid in selecting the best rubber quality for an actual application. It is not possible to state any general lifetime of rubber seals as many factors influence it: chemical attack, temperature, mechanical wear etc. Extreme temperatures, even within the generally accepted limits, may worsen other kinds of attack and thus reduce the lifetime.

Ratings

1 = Unsuitable.

2 = Limited suitability.

3 = Normal suitability.

4 = High suitability.

- = Not recommended for other reasons.

The table contains data which have been compiled from the results of our own tests and the recommendations of our raw material suppliers. The data should be considered as recommendations only and will be brought up-to-date from time to time. They are based on constant contact with the specified product.

In case of doubt or lack of information it would be advisable to consult us directly, which will enable us to investigate specific applications.

Product or process	NBR [1]	HNBR [2]	EPDM [3]	Q [4]	FPM [5]	PTFE [6]
Dairy products (milk, cream)	3	3-4	3-4	3-4	-	3-4
Dairy products (sour milk products)	3	3-4	3-4	3-4	-	3-4
Brewery products (beer, hops etc.)	3	3-4	3-4	1-2	2-3	3-4
Wine and yeast	3	3-4	4	4	2-3	3-4
Animal and vegetable fats: 100°C	3	4	1–2	3	4	3-4
Water and water solutions < 70°C	3	4	4	3	2-4	3-4
Hot water and steam < 130°C	1	4	4	2	-	3-4
Concentrated fruit juices and etheral oils < 100°C	1	-	1	1	3	3-4
Non-oxydising acids < 80°C	1-2	2	3	1–2	2	3-4
Oxydising acids < 80°C	-	2	3	1	2	3-4
Weak concentrate of lye < 100°C	2	3-4	4	2	2	3-4
Strong concentrate of lye < 100°C	1	2-3	3	1	1	3-4
Mineral oils < 110°C	3	4	-	-	4	3-4
Aliphatic carburetted hydrogen (hexane)	3	3	1	1	4	3-4
Aromatic carburetted hydrogen (benzole)	1	2	1	1	3	3-4
Alcohols	1–3	2-3	2-3	3-4	3-4	3-4
Ester and ketones	1-2	1-2	1-2	1-2	3-4	3-4
Ether	1	2	1	1-3	3-4	3-4
Methylene chloride	1	2	1	2-3	3-4	3-4
Ozone and atmospheric conditions	1-2	3	4	4	3-4	3-4

International designation of flexible rubber materials according to ISO R 1629.

ISO = International standard.

Notes

	Designation of flexible rubber materials	Abbreviation symbol
[1]	Nitrile rubber	N
[2]	Hydrogenated actylonitrile rubber	H
[3]	Ethylene propylene rubber	E
[4]	Silicone rubber	Q
[5]	Fluorinated rubber	F
[6]	Polytetraflour ethylene	

Compliance and certification

We can provide documented and certified compliance with a broad spectrum of relevant international and local hygiene standards, worldwide. This helps you significantly reduce the engineering costs of setting up and operating standard-compliant processing plants around the world.

Please find below some examples of regulations, standards, and guidelines applicable to our products used in hygienic applications.

More information can be found in Instruction Manuals on alfalaval.com page.

For special requests please contact your local Alfa Laval organization.

Authorized to carry the 3A symbol

The mission of 3-A SSI is to enhance product safety for consumers of food, beverages, and pharmaceutical products through the development and use of 3-A Sanitary Standards and 3-A Accepted Practices. The 3-A symbol is a registered mark used to identify equipment that meets 3-A Sanitary Standards for design and fabrication.

ATEX-directive is the popular name for the European Directive 2014/34/EU setting the rules for equipment and protective systems intended for use in potentially explosive atmospheres.

Compliance to the Regulation (EC) No. 1935/2004.

The framework regulation (EC) No. 1935/2004 regulates food contact materials and articles within EU. It includes several requirements for materials and articles intended to come into contact with food to ensure material safety.The glass and fork symbol may be used to indicate that the relevant requirements stated in (EC) No. 1935/2004 are met.

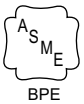
CE marking is a mandatory conformity mark for products placed on the market in the European Economic Area (EEA). With the CE marking on a product the manufacturer ensures that the product conforms with the essential requirements of the applicable EC directives. The letters "CE" stand for "Conformité Européenne" ("European Conformity").

UKCA marking is a mandatory conformity mark for products placed on the market in Great Britain (England, Scotland, and Wales). With the UKCA marking the manufacturer ensures that the product conforms with the relevant requirements of the applicable legislations.

Within United States, requirements for food contact materials and articles are specified by the Food and Drug Administration (FDA) and are regulated under the Code of Federal Regulations, Title 21 “Food and drugs”, Parts 170-199 “Food for human consumption”.

USP Class VI / ISO 10993

The United States Pharmacopeia (USP) standards, chapter 87 and 88, and International Organization for Standardization (ISO) standard 10993, sections 5, 6,10 and 11, specifies requirements to ensure biocompatibility of product contact parts intended to be used in pharma applications.



The American Society of Mechanical Engineers Bioprocessing Equipment (ASME BPE) is the Bioprocess Equipment group of the ASME that provides engineers and quality control professionals a measurable way to specify and purchase equipment for the Biotechnology, Pharmaceutical and Personal Care Products industries.

Alfa Laval hygienic product animations

Valves animations

Get a look inside our products and see how they work. Mouse over the image and click to see animations. See more at: Alfa Laval - hygienic product animations

Alfa Laval Unique Mixproof Valve

Alfa Laval Unique Single Seat Valve

Intuitive, intelligent hygienic valve control with Alfa Laval ThinkTop®

Alfa Laval Unique Mixproof Horizontal Tank Valve (inlet)

Alfa Laval Unique Mixproof Horizontal Tank Valve (outlet)

Alfa Laval Unique Mixproof Large Particle Valve

Alfa Laval Aseptic Mixproof Valve

Alfa Laval Valve matrix

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Valves

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Ball valves

Alfa Laval SBV Sanitary Ball Valve

Ball valves

Introduction

The Alfa Laval Sanitary Ball Valve (SBV) is a hygienic ball valve designed with a bore diameter the same size as the pipeline diameter. The full-bore design with zero flow restriction and minimum pressure drop makes the SBV the optimum choice to handle high-viscosity or particulate liquids. It is also ideal for use in pigging systems to prevent product waste and optimize plant performance.

Application

The Alfa Laval SBV is ideal for use across the dairy, food, beverage, brewery, chemical and many other industries.

All ball valves feature a cavity behind the ball. General considerations must be considered when selecting ball valve configuration vs. product and application.

Benefits

- Reliable full-flow performance, especially for pigging systems
- Compact, straightforward hygienic design
- Versatile operation with automated or manual control
- Durable and water hammer-safe

Standard design

The Alfa Laval sanitary ball valve consists of a valve body and two body flanges, a ball fitting into sealing seats, and a stem connecting to either a pneumatic actuator or a manual handle. The actuator is maintenance-free and prepared for position indication with inductive proximity switches. Actuated valves are delivered normally closed (NC) and can easily be rebuilt to normally open (NO).

The valve can also be fitted with the Alfa Laval sensing and control unit. Two inspection holes in the bonnet connecting the valve body and actuator enable easy inspection of the stem seal for tightness.

Standard design enables product recovery using pigging systems.

To optimise valve cleaning; a cavity cleaning option is available improving cleaning of the cavity of the valve.

The optional cavity fillers can further minimize product volumes in the cavity of the valve. Considerations are to be made on cleaning, as this option is not available in combination with cavity clean option.

Using ball valve technology; please consider valve and valve configuration (cavity filler or cavity cleaner) vs. product and cleaning parameters e.g. products with high viscosity, high sugar or high protein content vs. chemical, heat and time of cleaning. Alfa Laval recommend that products are not left to dry in the valve, as cleaning could be more demanding in e.g. time, heat and consumption of cleaning medias.

Working principle

The Alfa Laval SBV sanitary ball valve has a precision-made ball with full bore positioned inside the valve body between two flanges and two PTFE valve seats. A 90° rotation of the valve stem enables opening or closing the valve. A specially selected PTFE-grade material secures long lifetime. The use of spring-loaded, self-adjusting seal rings ensures the reliability of the

valve stem sealing. Either a pneumatic actuator or a manually-operated handle with lockable positions enables valve operation.

Valve screws enable assembly and disassembly for easy inspection and maintenance.

TECHNICAL DATA

Temperature range:	
Ambient (air):	+39 °F to +113 °F
Operating (medium dependent):	+32 °F to +203 °F
Steralization (SIP 30 min):	EPDM +284 °F PTFE +266 °F NBR +212 °F FPM +284 °F Q +194 °F
Pressure	
Max. product pressure:	232 PSI (16 bar)
Min. product pressure:	Full vacuum
Pressure range	
Working pressure:	232 PSI (16 bar)
Cleaning pressure:	44 PSI (3 bar)
ATEX	
Classification:	II 2 G D[1]
Leak rate:	A (DIN EN 12266-1)
Actuator	
Operating pressure:	87-145 PSI (6 - 10 bar)
Temperature range:	39 °F to +140 °F
Max recommended pressure during actration	86 PSI (6 bar)
Air consumption ø4.09":	0.5 Nl
Air consumption ø5.08":	0.75 Nl
Max recommended pressure during actration	86 PSI (6 bar)

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4307 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 32 µin
Product wetted seals:	EPDM
Other seals:	NBR

Note! If welding both flanges, ensure that the flanges can be moved axially 1.18-1.57 in depending on size to allow for valve maintenance (see manual for further details).
Actuated valves are delivered NC (normally closed) and are easily rebuilt to NO (normally open). See manual for further details.

Options

- Male parts or clamp liners in accordance with required standard.
- Actuator for mounting of Alfa Laval Sensing and control units.
- Cavity cleaning (connections ISO 228 - G½")
- Cavity filler (encapsulating valve seats).
- Handle and bracket for inductive proximity switches (manual valves).
- Product wetted elastomer seals of NBR, Q or FPM.

Dimensions (inch)

Cavity cleaning connections (optional)

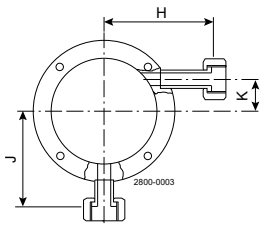


Figure 1. DN/OD 25 - 63.5 /DN 25-65

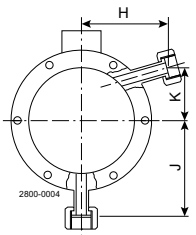


Figure 2. DN/OD 76.1 - 101.6 /DN 80–100

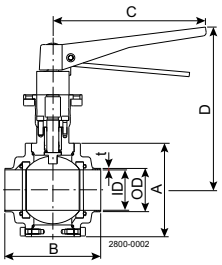


Figure 3. SBV manual

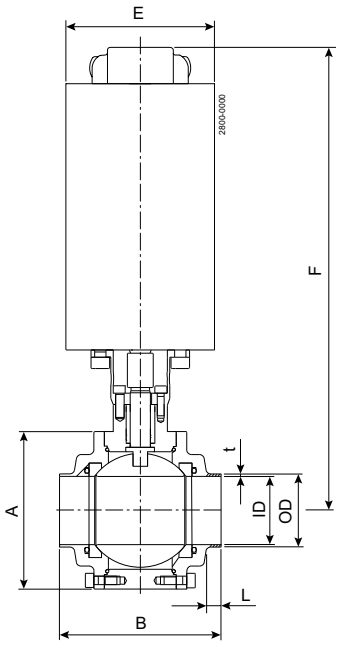


Figure 4. SBV with actuator

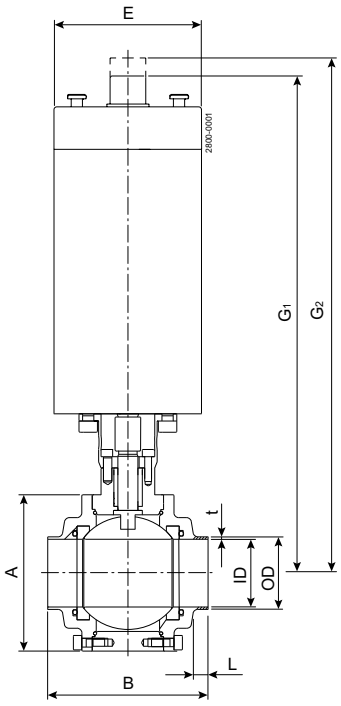


Figure 5. SBV with actuator for ThinkTop

Size	DN/OD		DN/OD		DN/OD		DN/OD		DN/OD		DN/OD	
	25 mm	1"	38 mm	1.5"	51 mm	2"	63.5 mm	2.5"	76.1 mm	3"	101.6 mm	4"
A	74	2.91	95	3.74	110	4.33	130	5.12	159	6.26	195	7.68
OD	25	0.98	38	1.5	51	2.01	63.5	2.5	76.1	3	101.6	4
ID	21.8	0.86	34.8	1.37	47.8	1.88	60.3	2.37	72.9	2.87	97.6	3.84
t	1.6	0.06	1.6	0.06	1.6	0.06	1.6	0.06	1.6	0.06	2	0.08
B	93	3.66	103	4.06	113	4.45	125	4.92	163	6.42	220	8.66
C	180	7.09	180	7.09	180	7.09	180	7.09	180	7.09	291	11.46
D	117	4.61	125	4.92	135	5.31	145	5.71	156	6.14	206	8.11
E	104	4.09	104	4.09	104	4.09	104	4.09	104	4.09	130	5.12
F	307	12.09	315	12.4	324	12.76	335	13.19	346	13.62	395	15.55
G1	334	13.15	342	13.46	350	13.78	362	14.25	372	14.65	422	16.61
G2	344	13.54	352	13.86	360	14.17	372	14.65	382	15.04	432	17.01
L	7.48	0.29	7.48	0.29	7.48	0.29	7.48	0.29	9.89	0.39	15.80	0.62

Size	DN/OD		DN/OD		DN/OD		DN/OD		DN/OD		DN/OD	
	25 mm	1"	38 mm	1.5"	51 mm	2"	63.5 mm	2.5"	76.1 mm	3"	101.6 mm	4"
Weight manual (kg)/(lb)	2.3	5.07	3.4	7.50	4.8	10.60	7	15.43	13.5	29.76	27	59.52
Weight actuated (kg)/(lb)	6.7	14.77	7.8	17.20	9.2	20.28	11.4	25.13	17.9	39.46	35.8	78.93
Weight with ThinkTop® adapter (kg)/(lb)	8.6	18.96	9.7	21.38	11.1	24.47	13.3	29.32	19.8	43.65	37.7	83.11

Alfa Laval 5308/5309 Series Ball Valves

Ball valves

Introduction

Alfa Laval 5308/5309 Series Ball Valves are simple and effective full-bore ball valves that minimize turbulence and pressure drop in process lines. They are with manually operated handles, and an optional encapsulated seat to minimize or eliminate product entrapment in critical applications.

Application

The 5308/5309 Series Ball Valves are designed for use as product valves in high-pressure, high-temperature applications as well as applications that require the use of pigging systems. They are ideal for use across the dairy, food, beverage, brewery and many other industries.

Benefits

- Reliable and effective full-flow performance
- Compact, straightforward design
- Ideal for high-pressure, high-temperature applications or applications that require the use of pigging systems
- Minimizes line turbulence and pressure drop
- Easy to inspect and maintain due to welded-end flange screws that enable quick assembly and disassembly

Standard design

The Alfa Laval 5308/5309 Series Ball Valves consist of a stainless steel valve body, two flanges, two PTFE valve seats, ball, and a stem unit. The valve body houses a rotating ball, which is sealed in the body with a PTFE seat that either partially or fully encapsulates the ball. The valve is activated by a stainless steel handle that opens and closes the valve through a quarter turn. The stem and seal design eliminate the risk of dislodging or blowing out the stem.

TECHNICAL DATA

Temperature	
Temperature range:	-4 °F to 302 °F

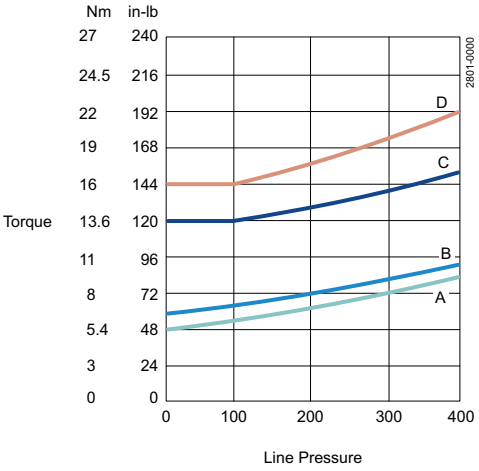
Pressure	
Max. product pressure:	580 PSI (40 bar)
Min. product pressure:	Full vacuum

PHYSICAL DATA

Materials	
Valve body:	CF3M9 (316L)
Ball & Stem:	1.4401 (316L)
Handle:	1.4301 (304)
Surface finish:	Ra 20 µin
Product wetted seals:	PTFE

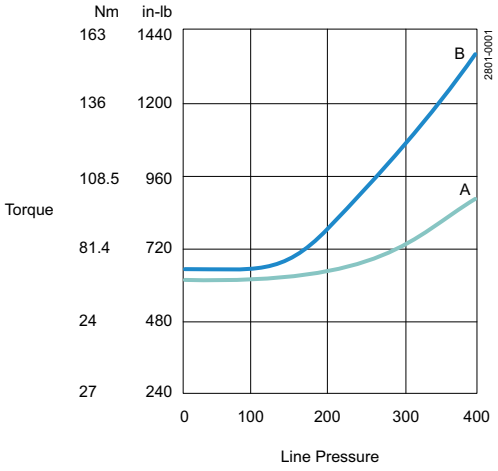
Torque vs. Pressure

Standard Seats



A = ¹/₂″ (12.7 mm) & ³/₄″ (19.0 mm)
B = 1″ (25.4 mm)
C = 1¹/₂″ (38.1 mm)
D = 2″ (50.8 mm)

Figure 1. 1/2" (0.50 inch) - 2" (2.00 inch) Tube OD

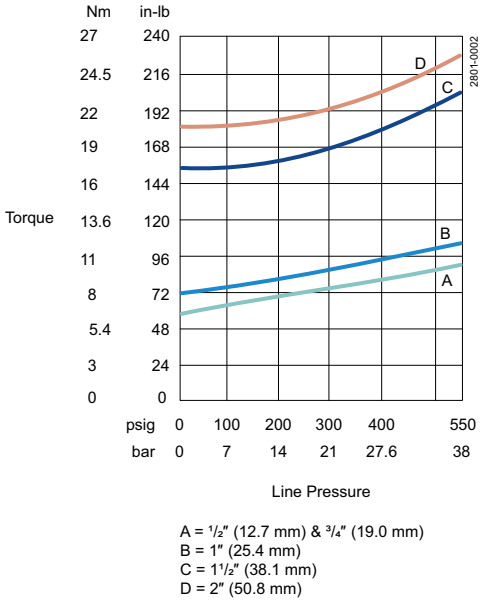


A = 3″ (76.2 mm)
B = 4″ (101.6 mm)

Figure 2. 3" (3.00 inch) - 4" (4.00 inch) Tube OD

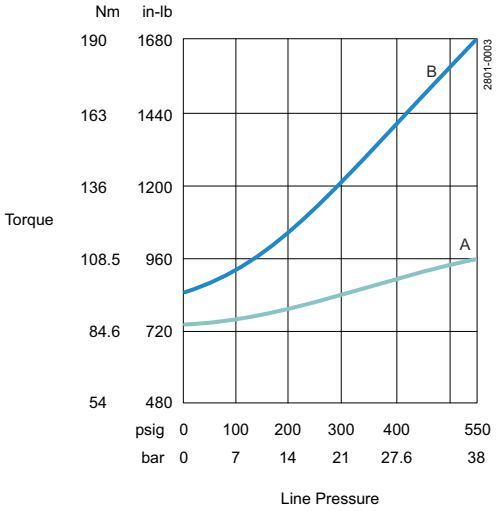
Use the charts above to determine the amount of torque required to cycle the ball valve.

Encapsulated Seats



A = 1/2″ (12.7 mm) & 3/4″ (19.0 mm)
B = 1″ (25.4 mm)
C = 1 1/2″ (38.1 mm)
D = 2″ (50.8 mm)

Figure 3. 1/2" (0.50 inch) - 2" (2.00 inch) Tube OD

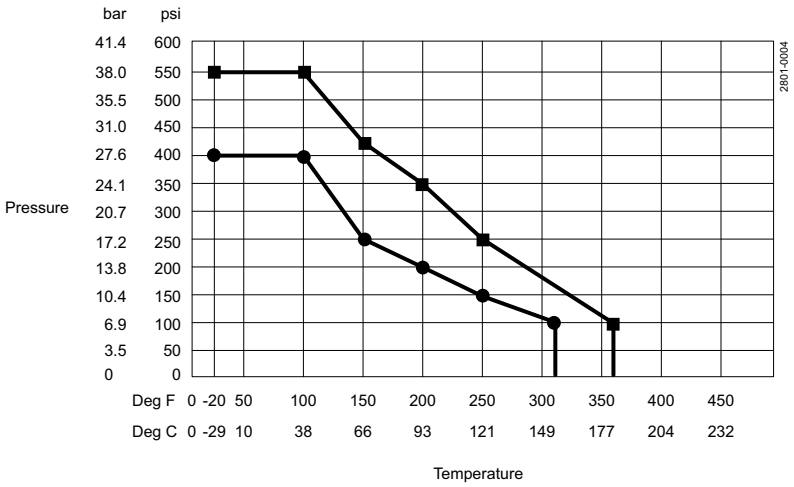


A = 3″ (76.2 mm)
B = 4″ (101.6 mm)

Figure 4. 3" (3.00 inch) - 4" (4.00 inch) Tube OD

Use the charts above to determine the amount of torque required to cycle the ball valve.

Standard and Encapsulated Seats: Ratings - Pressure vs. Temperature



■ Reinforced (glass-filled) PTFE

● PTFE

Dimensions (inch)

Manual Valve

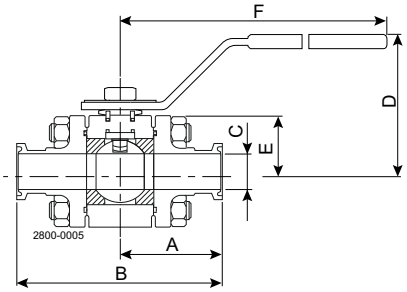


Figure 5. Tri-Clamp® Ends
Model 5308
Sizes ½” - 2”

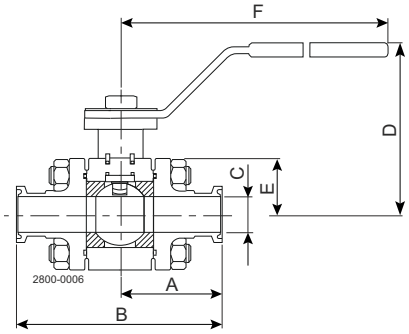


Figure 6. Tri-Clamp® Ends
Model 5308
Sizes 3” and 4”

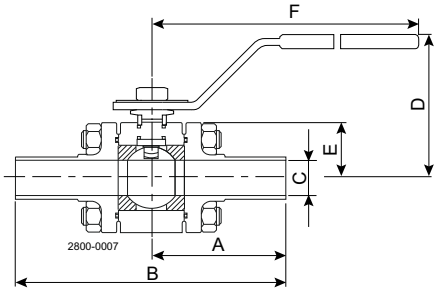
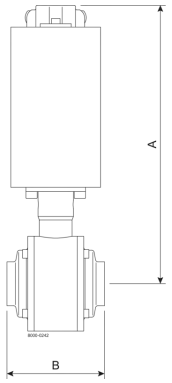
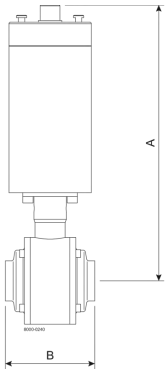
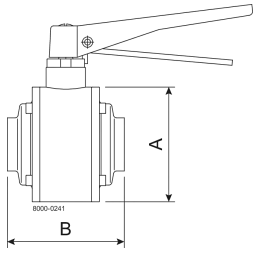


Figure 7. Butt-Weld Ends
Model 5309

Model	Size		A		B		C		D		E		F		Weight (valve + handle)	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lb	kg
5308 Tri-Clamp® (both ends)	1/2	12.7	1 3/4	44.5	3 1/2	88.9	3/8	9.5	2 5/16	58.7	1 9/64	29.0	5 1/4	134	2	0.9
	3/4	19.0	1 3/4	44.5	3 1/2	88.9	5/8	15.9	2 7/16	61.9	1 9/64	29.0	5 1/4	134	2	0.9
	1 1/2	25.4	1 3/4	44.5	3 1/2	88.9	27/32	21.4	2 5/16	58.7	1 19/64	33.0	5 1/4	134	3	1.4
	1 1/2	38.1	2 1/4	57.2	4 1/2	114.3	1 23/64	34.5	2 3/4	95.3	1 37/64	40.0	6 11/16	170	6	2.7
	2	50.8	2 1/2	63.5	5	127.0	1 56/64	47.2	4 1/8	104.8	2 3/16	55.5	8 9/64	207	10	4.5
	3	76.2	3 7/8	98.4	7 3/4	196.9	2 55/64	72.6	7	177.8	4 9/16	115.5	11 3/4	298.4	30	13.6
	4	101.6	4 3/4	120.7	9 1/2	241.3	3 13/16	81.0	7 1/2	190.5	5 1/4	113.5	13 1/4	336.5	47	21.3
5309 Butt-Weld (both ends)	1/2	12.7	2 11/16	68.3	5 3/8	136.5	3/8	9.5	2 5/16	58.7	1 9/64	29.0	5 1/4	134.0	2	0.9
	3/4	19.0	2 13/16	71.4	5 5/8	142.9	5/8	15.9	2 7/16	61.9	1 9/64	29.0	5 1/4	134.0	2	0.9
	1	25.4	3 7/32	81.8	6 7/16	163.5	27/32	21.4	2 5/16	58.7	1 19/64	33.0	5 1/4	134.0	3	1.4
	1 1/2	38.1	3 5/8	92.1	7 1/4	184.2	1 23/64	34.5	3 3/4	95.3	1 37/64	40.0	6 11/16	170.0	6	2.7
	2	50.8	3 13/16	81.0	7 5/8	193.7	1 55/64	47.2	4 1/8	104.8	23/16	55.5	8 9/64	207.0	10	4.5

Valve Type Specification: Hygienic ball valve
ALSIS Code: 5272

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM

Item no.	Item no.	Size, inch	Size	Dimension (inch)		
		DN/OD, mm	DN	A	B	
Inch tube	**DIN tube**					**Air-operated - normally closed**
9612644013	9612646049	1.0"	DN25	12.01	3.66	
9612644014	9612646050	1.5"	DN40	12.40	4.06	
9612644015	9612646051	2.0"	DN50	12.76	4.45	
9612644016	9612646052	2.5"	DN65	13.19	4.92	
9612644017	9612646053	3.0"	DN80	13.62	6.42	
9612644018	9612646054	4.0"	DN100	16.26	8.66	
Inch tube	**DIN tube**					**Air-operated - normally closed, prepared for ThinkTop®**
9612644019	9612646055	1.0"	DN25	13.54	3.66	
9612644020	9612646056	1.5"	DN40	13.86	4.06	
9612644021	9612646057	2.0"	DN50	4.17	4.45	
9612644022	9612646058	2.5"	DN65	14.65	4.92	
9612644023	9612646059	3.0"	DN80	15.04	6.42	
9612644024	9612646060	4.0"	DN100	17.01	8.66	
Inch tube	**DIN tube**					**Manually operated**
9612644001	9612646037	1.0"	DN25	2.91	3.66	
9612644002	9612646038	1.5"	DN40	3.74	4.06	
9612644003	9612646039	2.0"	DN50	4.33	4.45	
9612644004	9612646040	2.5"	DN65	5.12	4.92	
9612644005	9612646041	3.0"	DN80	6.26	6.42	
9612644006	9612646042	4.0"	DN100	7.68	8.66	

Butterfly valves

Alfa Laval LKB and LKB-F

Butterfly valves

Introduction

The Alfa Laval LKB Butterfly Valve is a reliable, hygienic in-line valve for routing low and medium-viscosity liquids in stainless steel pipe systems due to its substantial opening area and low flow resistance. The LKB is available with a standard handle with spring-locking action for straightforward manual operation or with a pneumatic actuator for pneumatic operation.

Application

This hygienic valve is designed for on-off duties with low to medium-viscosity liquids in hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Versatile, highly modular, hygienic design
- Reliable, cost-effective performance
- Easy to configure in either a manual version or a pneumatic version

Standard design

The LKB Butterfly Valve consists of two valve body halves, valve disc, and bushings for the disc stem and a seal ring. These components are assembled by means of screws and nuts. The valve comes with standard weld ends but can also be supplied with fittings. The valve can also be fitted with the Alfa Laval ThinkTop® V50 and V70 for sensing and control of the valve.

The valve is available in these dimension standards: the LKB for ISO and the LKB-2 for DIN tubes. The LKB is also available in a flange version, the LKB-F, with two flanges and two flange seal rings for easy removal of the valve body without dismantling further piping setups.

The actuator is available in two versions, the LKLA and the LKLA-T (T for mounting of an indication or control unit on the actuator) and in two sizes, ø 3.35" and ø 5.24", to cover all valve requirements. The actuator is fitted onto the valve using a bracket and screws. A handle for manual operation is fitted onto the valve by means of a cap/block system and a screw.

Working principle

The Alfa Laval LKB Butterfly Valve can be operated either by means of a pneumatic actuator from a remote location or

manually operated by means of a handle. The actuator comes in three standard versions: normally closed (NC); normally open (NO); and, air/air activated (A/A).

For pneumatic operation, an actuator converts axial piston motion into a 90° rotation of the shaft. The actuator torque increases as the valve disc comes into contact with the seal ring of the butterfly valve to secure proper closing of the valve seat.

For manual operation, a handle mechanically locks the valve in open or closed position. Two-position, four-position, regulating 90°-position, and multi-position handles are available. Manual valves can also be mounted with indication units for feedback on the valve position (open/closed).

TECHNICAL DATA

Valve	
Max. product pressure:	145 PSI
Min. product pressure:	Full vacuum
Temperature range:	14 °F to 284 °F (EPDM) However max. 203°F when operating the valve (All seals)

Actuator	
Max. air pressure:	87 PSI
Min. air pressure, NC and NO:	60 PSI
Temperature range:	15 °F to 195 °F
Air consumption (litres free air) - ø3.35 in:	0.24 x p (bar)
Air consumption (litres free air) - ø5.24 in:	0.95 x p (bar)
Weight:	- ø3.35 in: 6.6 lbs - ø5.24 in: 26.4 lbs

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Valve bodies	
Product wetted steel parts:	1.4307 (304L) or 1.4404 (316L)
Disc:	1.4301 (304) or 1.4404 (316L)
Other steel parts:	1.4301 (304)
Rubber grades:	Q, EPDM, FPM, HNBR[1] or PFA[1]
Bushes for valve disc:	PVDF
Finish:	Semi-bright
Inside surface finish:	≤ Ra 32µin

[1] LKB-F (DIN) with HNBR and LKB-F (DIN & ISO) with PFA are supplied with EPDM flange seal.

Actuator	
Actuator body:	1.4307 (304L)
Piston:	Light alloy (for ø3.35 in: Bronze) Air/air version
Seals:	NBR

Options

- Tri-Clamp® or butt weld ends standard - other connections available upon request
- ThinkTop® for control and indication[1]
- Green Top - position indication MS or PS
- Indication unit with micro switches[1]
- Indication unit with inductive proximity switches[1]
- Handle with two or four positions (standard on 6")
- Handle for electrical position indication
- Handle with infinite intermediate positions (not for 6")
- Multi-positioning handle with lever handle or pull knob
- Service tool for actuator
- Service tool for fitting 1"-1.5" valve discs

Note! For further details, see also ESE02446.

[1] For further information see Product Catalogue chapter "Control & Indication"

LKB Handle Options

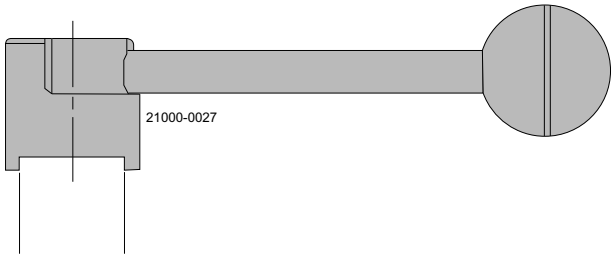


Figure 1. LKB two position handle (black handle)

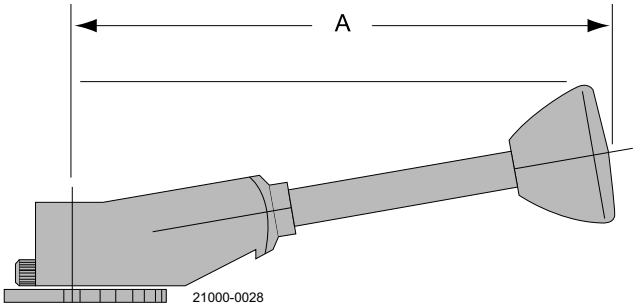


Figure 2. LKB multi-position handle (green handle)

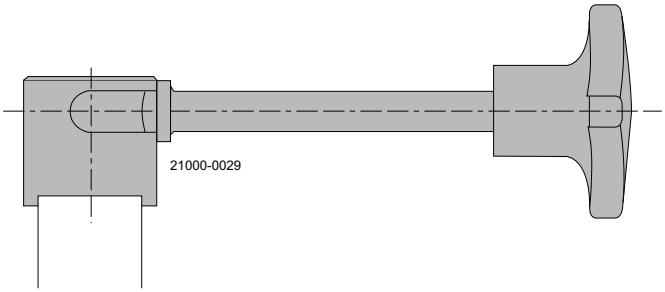


Figure 3. LKB butterfly valve regulating handle

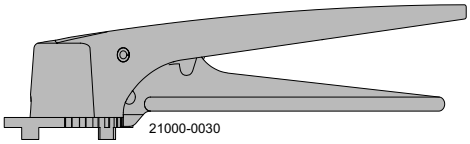
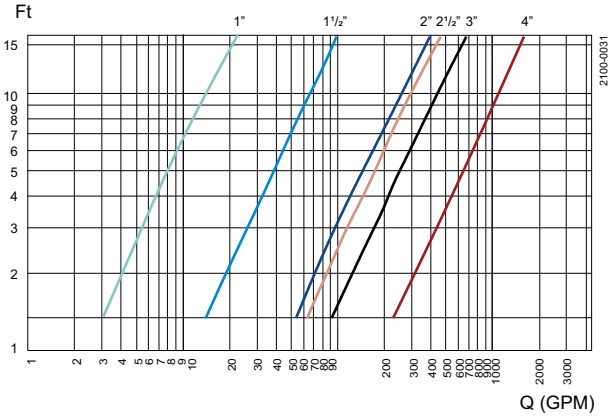


Figure 4. LKB lockable multi-position handle

Capacity/Pressure drop diagrams

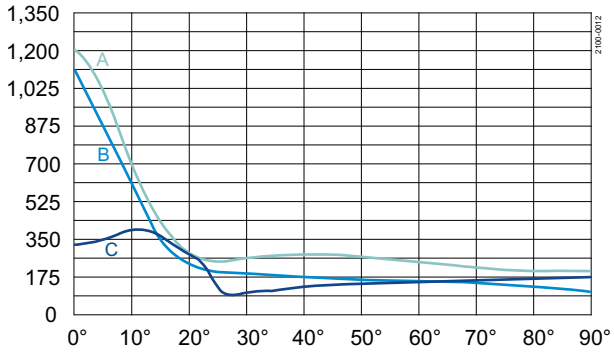


Note! For the diagrams the following applies:
Medium: Water (68°F).
Measurement: In accordance with VDI 2173.

Torque diagrams - Actuator

LKLA ø3.35 in:

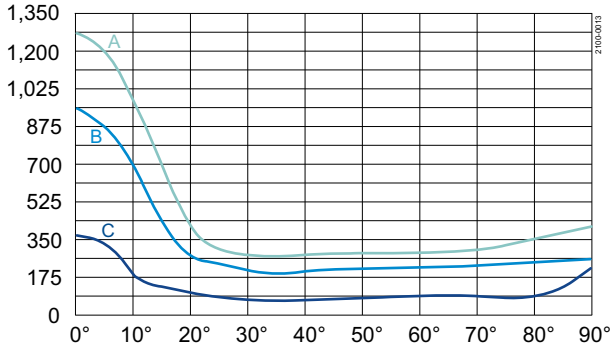
[Inch lbs]



Closing - Spring activated ← → Opening - Air activated

A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

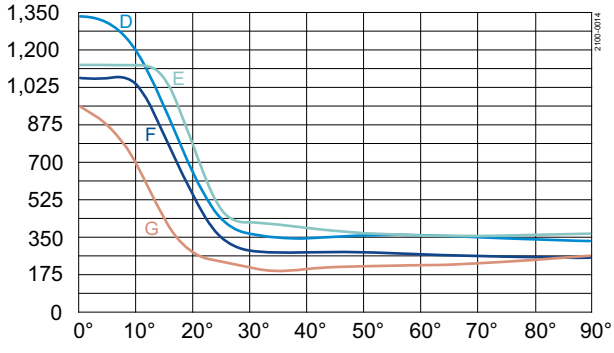
[Inch lbs]



Closing - Air activated ← → Opening - Spring activated

A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

[Inch lbs]

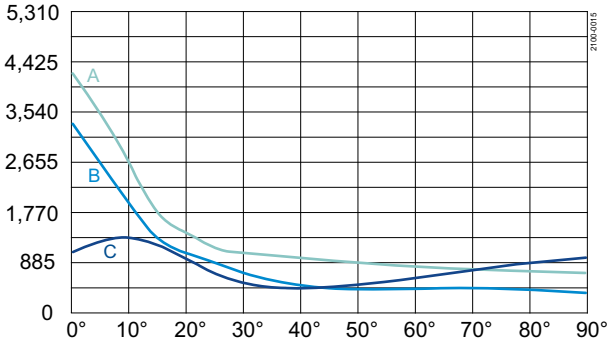


Closing ← → Opening

D = 6 bar air pressure connection on top
E = 6 bar air pressure connection on bottom
F = 5 bar air pressure connection on top
G = 5 bar air pressure connection on bottom

LKLA ø5.25 :

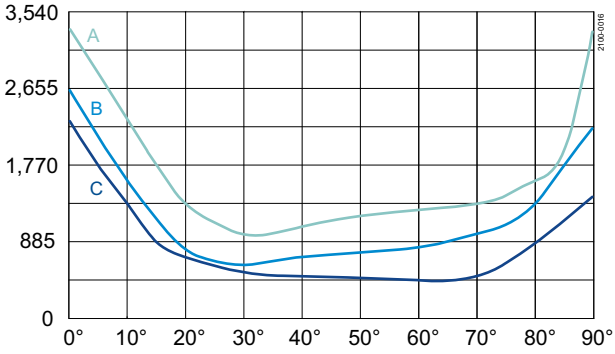
[Inch lbs]



Closing - Spring activated ← → Opening - Air activated

A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

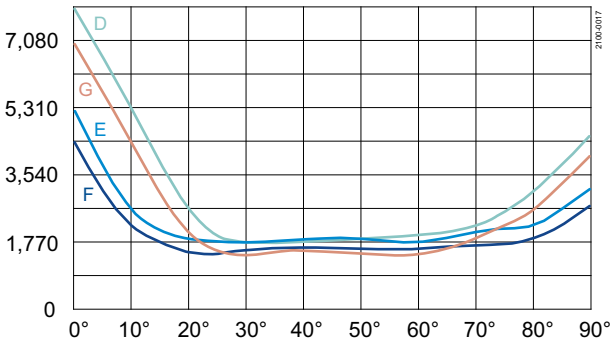
[Inch lbs]



Closing - Air activated ← → Opening - Spring activated

A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

[Inch lbs]



Closing ← → Opening

D = 6 bar air pressure connection on top
E = 6 bar air pressure connection on bottom
F = 5 bar air pressure connection on top
G = 5 bar air pressure connection on bottom

Torque values (for rotating the valve disc in a dry seal ring)

Valve Size	Max Torque (ft-lbs)
1-inch	11
1.5-inch	11
2-inch	11
2.5-inch	15
3-inch	18
4-inch	22
6-inch	26

Valve Dimensions (inch)

Dimensions - valve

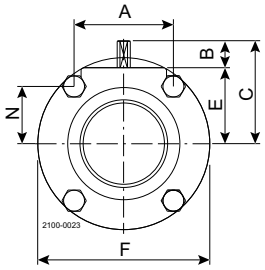


Figure 5. LKB-F

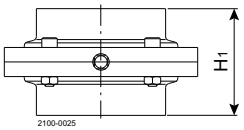


Figure 6. LKB with welding ends

Note! LKB sizes DN 125 and 150 are with six screws.

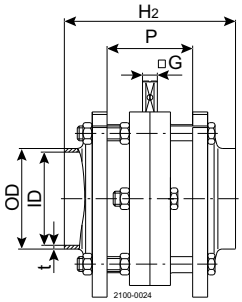


Figure 7. LKB with male part/nut and liner

Dimensions - actuator

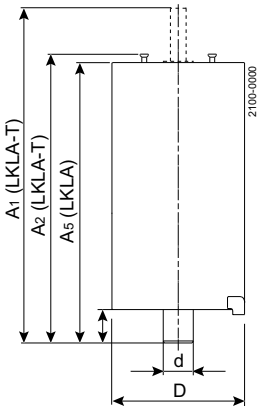


Figure 8. Without coupling

a1 = d

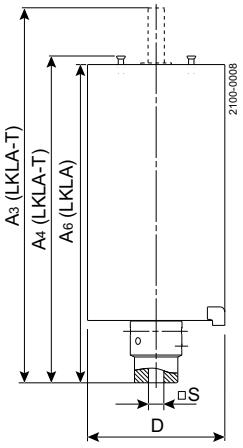


Figure 9. With coupling

b1 =□S

Dimensions - actuator

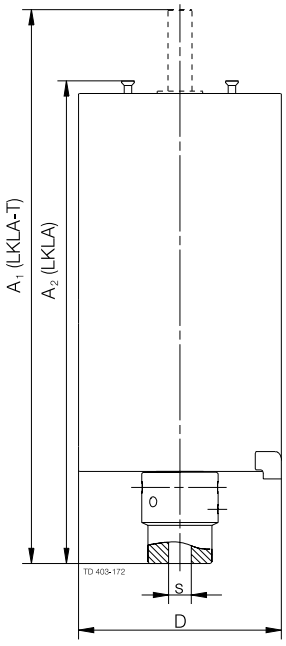


Figure 10. With coupling

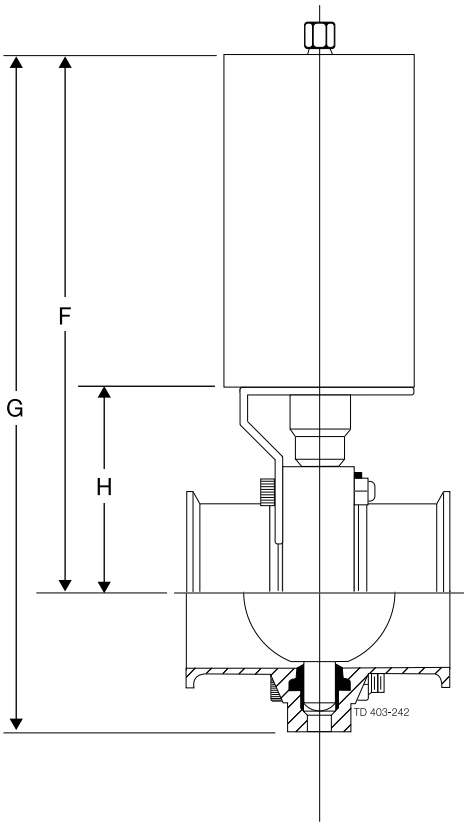


Figure 11. Mounted on a valve

Dimensions - valve

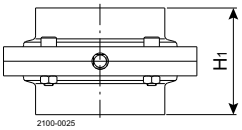


Figure 12. LKB with welding ends

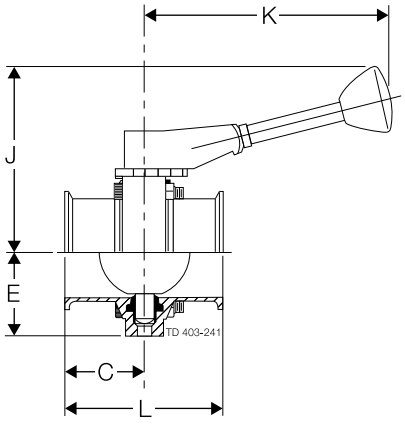


Figure 13. LKB multi-position green handle

Dimensions (inch) - Valve

Size	1"	1½"	2"	2½"	3"	4"	6"
C	1.75	1.75	1.85	1.88	2.03	2.38	3.06
L	3.50	3.50	3.70	3.76	4.06	4.76	6.12
E	1.28	1.28	1.65	2.05	2.24	3.03	4.09
F	3.07	3.07	3.90	4.61	5.20	6.65	8.50
H[1]	1.85	1.85	2.05	2.13	2.44	3.15	3.15
J (black handle)	4.72	4.72	4.72	4.72	6.38	6.38	14.17
J (green handle)	4.11	4.11	4.49	4.88	5.08	5.86	Not available

Size	1"	1½"	2"	2½"	3"	4"	6"
K (black handle)	4.72	4.72	4.72	4.72	6.38	6.38	14.17
K (green handle)	7.12	7.12	7.12	7.12	7.12	7.12	Not available
Weight LKB (lbs.)	2.64	2.20	3.31	4.63	10.36	19.84	-

Dimensions (inch) - Actuator

LKLA and LKLA-T:

Valve size	1"-2"	2.5" - 3"	4"	4"	6"	6"
A_1	8.55	8.55	8.55	13.27	8.55	13.27
A_2	6.83	6.83	6.83	11.42	6.83	11.42
A_3	9.3	9.22	9.22	14.31	9.33	14.31
A_4	7.58	7.5	7.5	12.46	7.62	12.46
A_5	6.52	6.52	6.52	11.1	6.52	11.1
A_6	7.26	7.19	7.19	12.15	7.3	12.15
D	3.35	3.35	3.35	5.24	3.35	5.24
d	0.67	0.67	0.67	1.18	0.79	1.18
I	0.65	0.65	0.65	1.34	0.65	1.34
S	0.31	0.39	0.47	0.47	0.59	0.59
Function	NC,NO,A/A	NC,NO,A/A	NC,NO,A/A	NC,NO,A/A	A/A	NC,NO,A/A

Connections

Compressed air

R1/8" (BSP), internal thread. (Quick connect fittings for ¼" tubing provided as standard)

Alfa Laval LKB UltraPure

Butterfly valves

Introduction

The Alfa Laval LKB UltraPure Butterfly Valve is a hygienic in-line valve for routing low and medium-viscosity liquids in stainless steel pipe systems. The LKB UltraPure is available with a standard handle with spring-locking action for straightforward manual operation or with a pneumatic actuator for pneumatic operation.

Application

This in-line butterfly valve is designed for on-off duties in high-purity applications across the personal care, biotechnology and pharmaceutical industries.

Benefits

- Versatile, highly modular design
- Competitively priced alternative to diaphragm valves in certain applications
- Full transparency and traceability of the entire supply chain due to the Alfa Laval Q-doc documentation package
- Easy to configure in either a manual version or a pneumatic version

Standard design

The LKB UltraPure Butterfly Valve consists of two valve body halves, valve disc, and bushings for the disc stem and seal ring, assembled by means of screws and nuts. The valve can also be fitted with the Alfa Laval ThinkTop® V50 and V70 for sensing and control of the valve.

Working principle

The Alfa Laval LKB UltraPure Butterfly Valve is either controlled remotely by means of an pneumatic actuator or manually by means of a handle.

For pneumatic operation, an actuator converts axial piston motion into a 90° rotation of the shaft. The actuator torque increases as the valve disc comes into contact with the seal ring of the butterfly valve to secure proper closing of the valve seat. The actuator comes in three standard versions: normally closed (NC); normally open (NO); and, air/air activated (A/A). Two actuator sizes, ø 3.35" and ø 5.24", cover all valve sizes and are available in two versions, LKLA and LKLA-T (T for mounting of indication or control unit on the actuator).

For manual operation, the handle mechanically locks the valve in open or closed position. Handles are available in two positions, four positions, regulating 90° position, and multi-position. The valve can be supplied either with welding connections or clamp connections and can be mounted with indication units for feedback on the valve position (open or closed).

TECHNICAL DATA

Valve	
Max. product pressure:	145 psi (10 bar)
Min. product pressure:	Full vacuum
Temperature range:	14 °F to +284 °F (EPDM) However max. 203 °F when operating the valve (All seals)

Actuator	
Max. air pressure:	87 PSI (6 bar)
Min. air pressure, NC and NO:	58 PSI (4 bar)
Temperature range:	-13 °F to +194 °F
Air consumption (litres free air):	
- ø3.35 in:	0.24 x p (bar)
- ø5.24 in:	0.95 x p (bar)
Weight:	
- ø3.35 in:	6.6 lb.
- ø5.24 in:	26.5 lb

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel part:	1.4404 (316L) acc. to EN 10088
Other steel parts:	1.4301 (304) acc. to EN 10088
Bushings for valve disc:	PVDF

Elastomers	
Product wetted seals:	EPDM acc. to FDA and USP Class VI

Connections	
Weld ends:[1]	Matching tubes and fittings: ASME BPE Acc. to ASME BPE
Clamp ends:	Matching tubes and fittings: ASME BPE Acc. to ASME BPE

[1] Weld ends on ASME BPE valves are according to ASME BPE 2009 316L Table DT-3 with low sulfur and suitable for orbital welding

Actuator	
Actuator body:	1.4307 (304L)
Piston:	Light alloy Air/air version (for ø85 mm: Bronze)
Seals:	NBR
Housing for switches:	PPO

Surface specification (Product wetted steel parts)

ASME BPE: [1]	
Internal:	20 µin
ASME BPE designation:	SF1
External:	Semi-bright
ASME BPE: [1]	
Internal:	15 µin electro polish
ASME BPE designation:	SF4
External:	Semi-bright

[1] According to ASME BPE 2009 table SF-3

Options

- Product wetted seals: FPM (Acc. to USP Class VI), HNBR, Q and PFA.
- Tri-Clamp® or butt weld ends standard
- ThinkTop® for control and indication.[1]
- Green Top - position indication MS or PS

- Indication unit with micro switches.[1]
- Indication unit with inductive proximity switches.[1]
- Handle with two or four positions.
- Handle for electrical position indication.
- Handle with infinite intermediate positions.
- Multi-positioning handle with lever handle or pull knob
- Service tool for actuator.
- Service tool for fitting 1"-1.5" valve discs

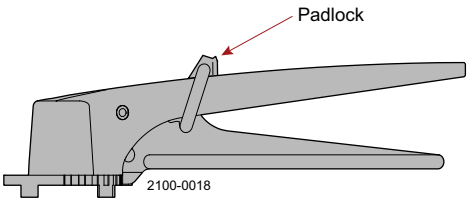


Figure 1. Lockable Multiposition Handle with padlock

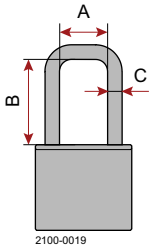


Figure 2. Fig. 2. Dimensions - padlock

A. Min. 0.79 inch

B. Min. 1.38 inch

C. ø 0.23 inch

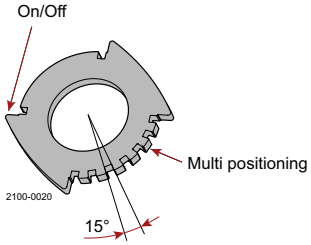


Figure 3. Positioning cap

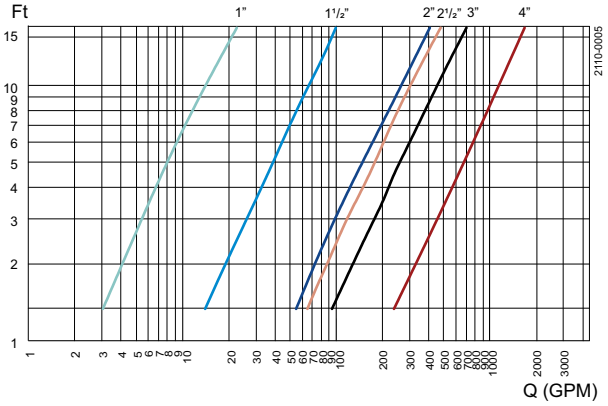
Note! For Ultra Pure ASME BPE clamp valve (size 1" - 2½")
Installation and removal of some clamp rings is easiest by removal of the lockable multi position handle first.

Documentation

All valves are delivered with Alfa Laval Q-doc.

Note! For further details, see also ESE01699.

Capacity/Pressure drop diagrams



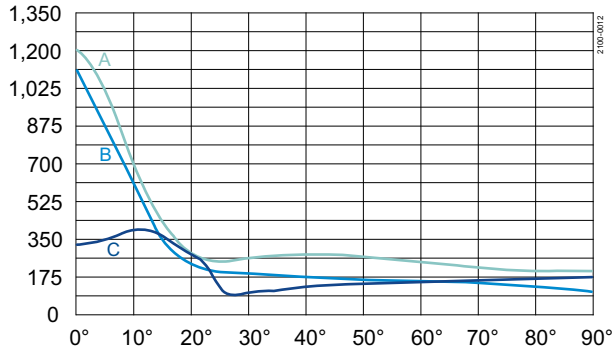
[1] For further information see Product Catalogue chapter "Control & Indication".

Note! For the diagrams the following applies:
Medium: Water (68 °F).
Measurement: In accordance with VDI 2173.

Torque diagrams - Actuator

LKLA ø3.35 in:

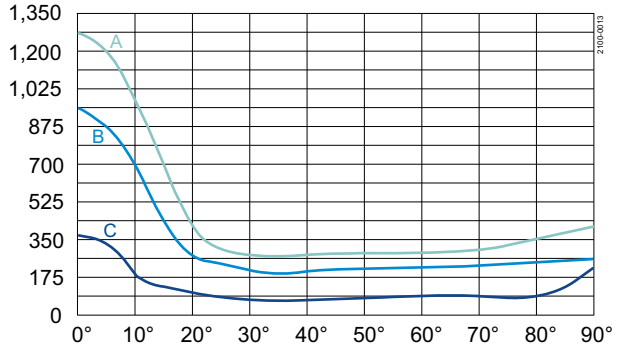
[Inch lbs]



Closing - Spring activated ⟷ Opening - Air activated

A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

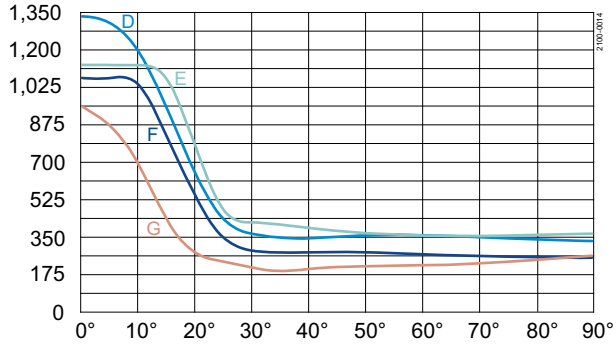
[Inch lbs]



Closing - Air activated ⟷ Opening - Spring activated

A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

[Inch lbs]

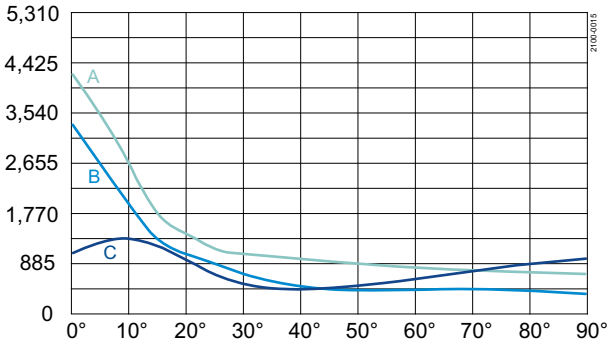


Closing ⟷ Opening

D = 6 bar air pressure connection on top
E = 6 bar air pressure connection on bottom
F = 5 bar air pressure connection on top
G = 5 bar air pressure connection on bottom

LKLA ø5.25 :

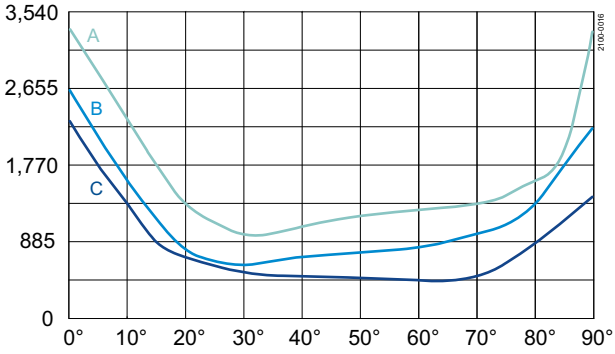
[Inch lbs]



Closing - Spring activated ⟷ Opening - Air activated

A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

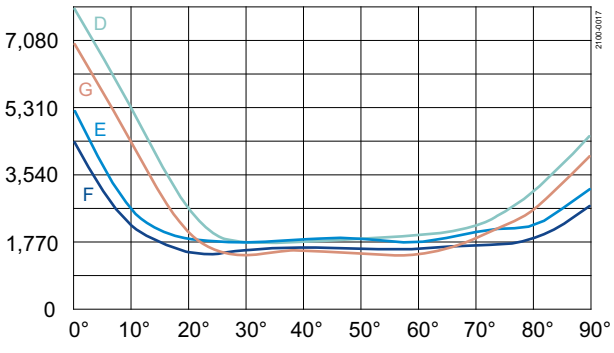
[Inch lbs]



Closing - Air activated ⟷ Opening - Spring activated

A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

[Inch lbs]



Closing ⟷ Opening

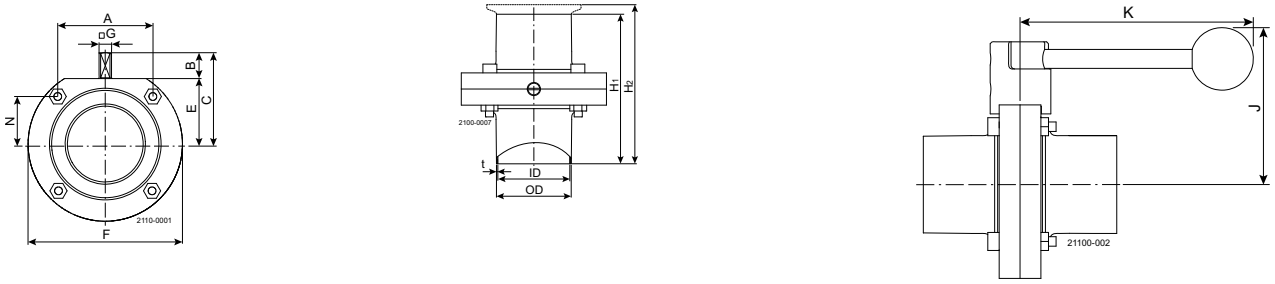
D = 6 bar air pressure connection on top
E = 6 bar air pressure connection on bottom
F = 5 bar air pressure connection on top
G = 5 bar air pressure connection on bottom

Torque values (for rotating the valve disc in a dry seal ring)

Valve Size	Max Torque (ft-lbs)
1-inch	11
1.5-inch	11
2-inch	11
2.5-inch	15
3-inch	18
4-inch	22
6-inch	26

Dimensions (inch)

Dimensions - valve



Dimensions - actuator

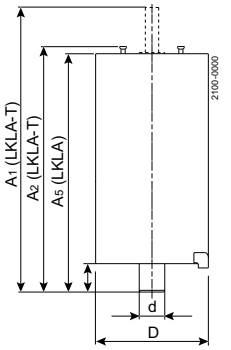


Figure 4. a. Without coupling

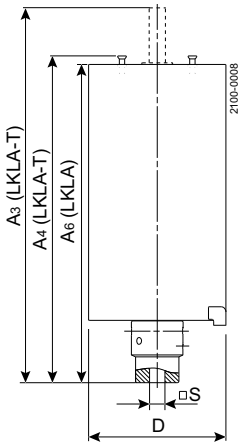


Figure 5. b. With coupling

Dimensions (inch)

LKB UltraPure

Size	1"	1½"	2"	2½"	3"	4"
A	1.654	1.654	2.402	2.402	3.130	4.173
B	0.610	0.657	0.654	0.689	0.654	0.630
C	1.929	1.929	2.303	2.736	2.894	3.661
OD	1.0	1.5	2.0	2.5	3.0	4.0
ID	0.870	1.370	1.870	2.370	2.870	3.834
t	0.065	0.065	0.065	0.065	0.065	0.083
E	1.280	1.280	1.654	2.047	2.244	3.031
F	3.071	3.071	3.898	4.606	5.197	6.654
□S	0.315	0.315	0.315	0.315	0.394	0.472
H_1	5.000	5.000	5.197	5.276	6.378	7.087
H_2	2.850	2.850	3.047	3.126	3.441	4.402
J	3.228	3.228	3.622	4.016	4.213	5.000
K	4.724	4.724	4.724	4.724	6.378	6.378
N	1.043	1.043	1.201	1.594	1.713	2.087
Weight (lb)	2.65	2.20	3.31	4.63	6.61	10.36

Note! Weights are for valves with welding ends and handles

Dimensions (inch) - Actuator

LKLA and LKLA-T

Valve				
Size	**1"-2.5"**	**3"**	**4"**	**4"**
A_1	9.61	9.53	9.53	14.29
A_2	7.60	7.52	7.52	12.44
A_3	9.61	9.61	9.61	13.27
A_4	6.81	6.81	6.81	11.42
D	3.35	3.35	3.35	5.24
d	0.67	0.67	0.67	1.18
l	0.65	0.65	0.65	1.34
□ s	0.31	0.39	0.47	0.47
Function	NC,NO,A/A	NC,NO,A/A	NC,NO,A/A	NC,NO,A/A

Note! Suitability depends on process conditions

Connections

Compressed air

R1/8" (BSP), internal thread.(Quick connect fittings for ¼" tubing provided as standard)

Alfa Laval Unique Control

Butterfly valves

Introduction

The Alfa Laval Unique Control is a maintenance-free actuator with integrated control unit for most of Alfa Laval LKB Butterfly Valves. Reliable and straightforward, this automation solution complements the range of Alfa Laval actuators and control units, making it easy to upgrade existing installations. Highly durable, this actuator has been tested to perform above one million strokes and is compatible with all major programming logic controller (PLC) systems.

Application

This intelligent, hygienic actuator is designed for superior flow control in dairy, food, beverage, brewery, biotech, pharmaceutical and many other industries.

Benefits

- A single, integrated automation solution for Alfa Laval LKB Butterfly Valves
- Highly durable, reliable, all-in-one actuator
- Simplified auto setup for butterfly valve control
- Clearly visible 360° LED indication of valve operation
- Easy upgrade for manual and automated butterfly valves

Standard design

The Alfa Laval Unique Control actuator for butterfly valves is an intelligent sensing and control unit engineered as a single, integrated unit. It is available with a digital or AS-Interface. The actuator comes with a matching bracket kit for mounting on butterfly valves in sizes 1” - 4” or DN25 - DN100.

Working principle

The Alfa Laval Unique Control LKB actuator uses an air spring, enabling operation at a significantly lower air pressure than using a conventional mechanical spring. A single push of a button enables the actuator to perform easy, onsite self-configuration and calibration tasks according to the operating air pressure provided. The actuator also monitors the operating air pressure and will send alerts about issues that require attention in order to prevent any malfunctions, ensuring more uptime.

TECHNICAL DATA

Actuator	
Max. air pressure:	116 PSI (8 bar)
Min. air pressure:	43.5 PSI (3 bar)
Working temperature:	See pd sheet for LKB/LKB-F
Ambient temperature:	23°F to 140°F
Protection class:	IP66 and IP67
Air consumption (liters free air):	0.8 x p (bar)

Communication	
Option 1:	
Interface:	Digital
Supply voltage:	24 VDC ± 10%
Option 2:	
Interface:	AS-Interface v2.1, 31 node
Supply voltage:	29.5V - 31.6 VDC
Slave profile:	7.F.F.F
Default slave address:	0
Option 3:	
Interface:	AS-Interface v3.0, 62 node
Supply voltage:	29.5V - 31.6 VDC
Slave profile:	7.A.7.7
Default slave address:	0

Sensor board	
Power supply:	24 VDC, 1 W
Feedback signal #1:	De-energizied valve
Feedback signal #2:	Energizied valve
Feedback signal #3:	Pressure alert
Valve tolerance band:	Auto setup

PHYSICAL DATA

Materials	
Actuator body:	Black Nylon PA 12 (composit)
Steel parts:	1.4301 (304) and 1.4404 (316)
Seals:	NBR

Compatible valves	
LKB ISO:	25, 38, 51, 63.5, 76.1 and 101.6
LKB-2:	DN 25, 32, 40, 50, 65, 80 and 100

Cable connection	
Main cable gland:	PG9 (ø0.16 - ø0.31 in.)
Max. wire diameter:	0.0016 inch^2 (AWG 18)

Solenoid valve	
Supply voltage:	24 VDC ± 10%, 1 W
Air supply:	43.5-116 psi (3-8 bar)
Type of solenoid:	4/2-ways
Number of solenoids:	1
Manual hold override:	Yes
Push-in fittings:	0.24 inch or 1/4"
Air quality	Class 3,3,3 acc. DIN ISO 8573-1

Availability

The Unique Control is available with a digital or AS-Interface 31 and 62 node. Depending on the valve size, the matching bracket kit ordered together with the Unique Control allows it to be mounted on any butterfly valve size 1” through 4” .

Options

Bracket kit 1" to 4" (One kit for each valve size).

Note! For further information: See also instruction manual ESE02126. Only to be mounted on LKB/LKB-F with welding ends

Electrical connection

Digital interface
Sensor board
Terminal strip

Internal connection	Solenoid	1
	Solenoid common	2
Power supply	Supply 24 VDC	3
	Supply 0 VDC	4
PL input signals	De-Energized valve	5
	Energized valve	6
	Pressure Alarm	7
PL output signals	Solenoid valve	8

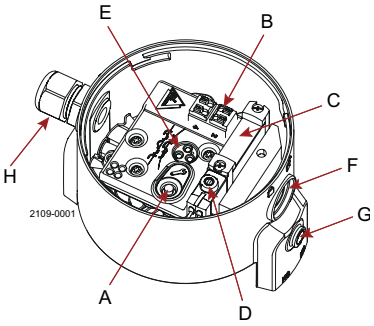
S-interface 31/62 node
Sensor board
Terminal strip

Internal connection	Solenoid	1
	Solenoid common	2
Bus cable	ASI +	3
	ASI -	4

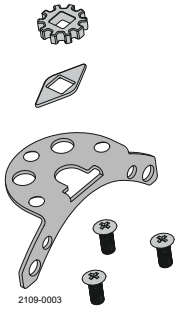
AS-Interface bits assignment

DI0	Feedback #1 De-Energized valve
DI1	Feedback #2 Energized valve
DI2	Feedback #3 NC
DI3	Feedback #4 pressure alarm
DO0	Out #1 NC
DO1	Out #2 Solenoid valve
DO2	Out #3 NC
DO3	Out #4 NC

Basic Design



A. Push and play
B. Terminal strip
C. Solenoid valve
D. Manuel hold overrode
E. LED indications
F. Gore venting membrane
G. Push-in fittings
H. Cable gland entry



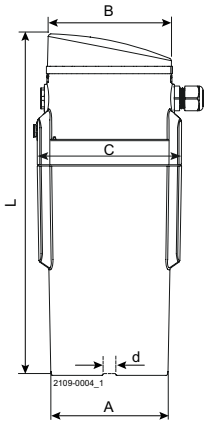
Bracket kit
changeable coupling
supporting 1” to 4” LKB valves

Actuator performance

PSI	Torque lbf-ft
43.5	32.5
58.0	44.3

PSI	Torque lbf-ft
72.5	56.1
87.0	66.4
101.5	76.7
116.0	87.0

Dimensions (inch)



Size	1-2½”	3”	4”
øA	3.54	3.54	3.54
øB	3.82	3.82	3.82
C	4.37	4.37	4.37
L	10.35	10.35	10.35
d	0.31	0.39	0.47
Weight (lb)	3.53	3.53	3.53

900615

Alfa Laval LKB Butterfly Valve

Product description

LKB Series Manual

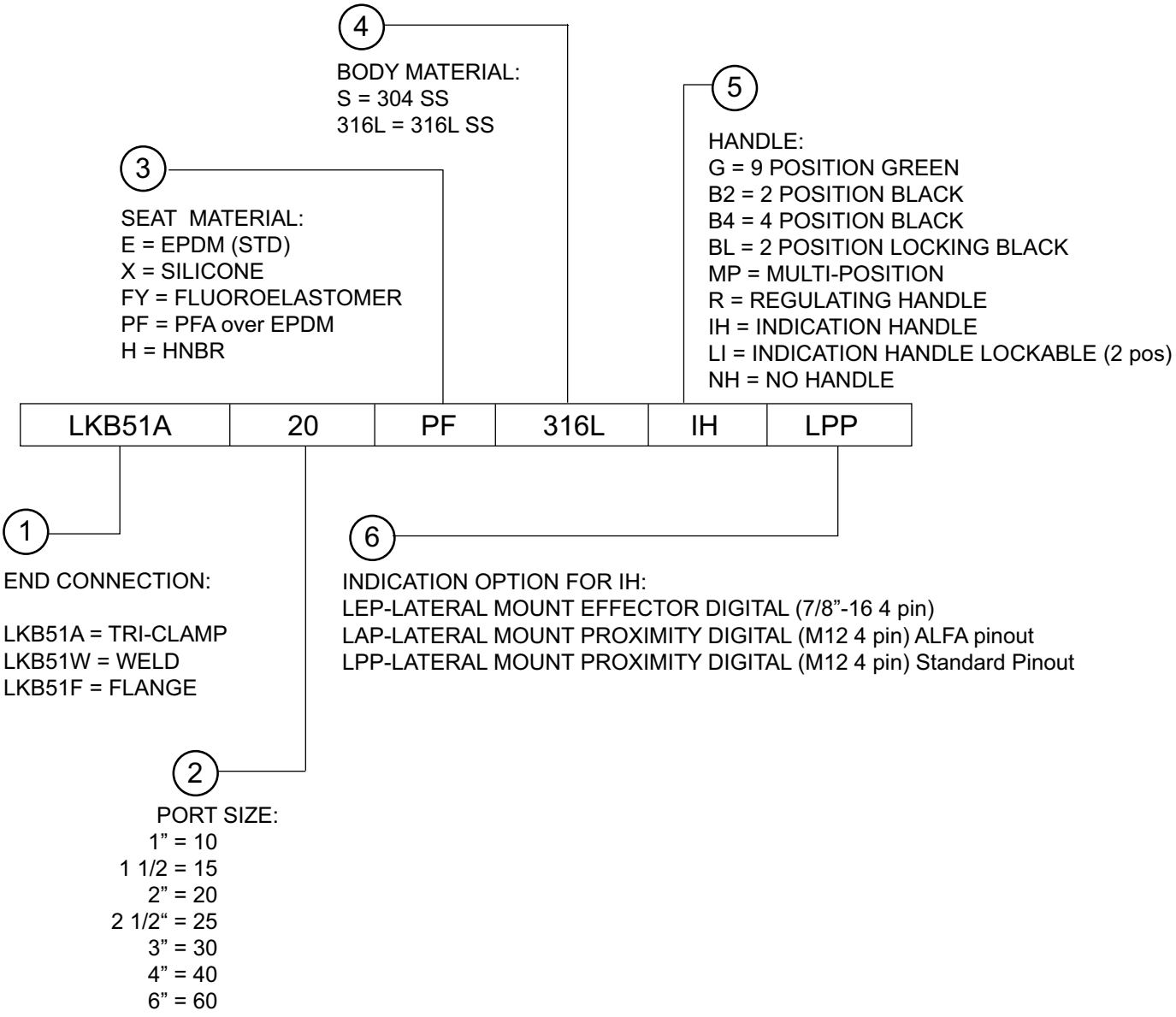


CHART #8	SET-UP
GREEN TOP	
NO SOLENOID	1
NORMALL OPEN VALVE CLOSES	
NORMALLY CLOSED VALVE OPENS	
WHEN SOLENOID IS DE-ENERGISED	2
WHEN SOLENOID IS ENERGISED	5
AIR to AIR	7
INDY TOP	
5M CORD PNP/NPN	N
10M CORD PNP/NPN	1
0.5M CABLE & COUNTER PART - NPN	2
0.5M CABLE & COUNTER PART - PNP	3

3

PORT SIZE:
1” = 10
1 1/2 = 15
2” = 20
2 1/2“ = 25
3” = 30
4” = 40
6” = 60

5

BODY MATERIAL:
S = 304 SS
316L = 316L SS

7

SET-UP NUMBER:
w/GREEN TOP / INDY TOP
DEFINE THE SET-UP CONFIGURATION.
*SEE CHART 8 ABOVE

LKB53A	6000T	20	FY	316L	04	I

1

END CONNECTION:
LKB53A = TRI-CLAMP
LKB53W = WELD
LKB53F = FLANGE

4

SEAT MATERIAL:
E = EPDM (STD)
X = SILICONE
FY = FLUOROELASTOMER
PF = PFA over EPDM
H = HNBR

6

CONTROL TOP:
5A*-V50 DIGITAL 24VDC PNP 0 SOL
5B*-V50 DIGITAL 24VDC PNP 1 SOL
5E*-V50 ASI 31 NODE (ver 2.1) 30VDC, 0 SOL
5F*-V50 ASI 31 NODE (ver 2.1) 30VDC, 1 SOL
5Q*-V50 ASI 62 NODE (ver 3.0) 30VDC, 0 SOL
5R*-V50 ASI 62 NODE (ver 3.0) 30VDC, 1 SOL
5MP-V50 I/O Link 0 SOL M12 4 PIN
5NP-V50 I/O Link 1 SOL M12 4 PIN
7C*-V70 DIGITAL 24VDC PNP 2 SOL
7U*-V70 DIGITAL 24VDC PNP (1) 5/2 SOL
7G*-V70 ASI 31 NODE (ver 2.1) 30VDC, 2 SOL
7S*-V70 ASI 62 NODE (ver 3.0) 30VDC, 2 SOL
7V*-V70 ASI 62 NODE (ver 3.0) 30VDC, (1) 5/2 SOL
7MP-V70 I/O Link 0 SOL M12 4 PIN
7NP-V70 I/O Link 1 SOL M12 4 PIN
7OP-V70 I/O Link 2 SOL M12 4 PIN
7XP-V70 I/O Link (1) 5/2 SOL M12 4 PIN
BEI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 0 SOL
BFI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 1 SOL
BGI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 2 SOL
IT* - INDITOP DIGITAL 0 SOLENOID
DBN-D30- DIGITAL 0 SOLENIOD
P2P-8692 POSITIONER Multi-pole Analog Feedback
P3P-8694 POSITIONER I/O Link M12-5 Pin
P4P-8694 POSITIONER Multi-pole Analog Feedback M12-5 Pin
04-GREEN TOP 2 MECH SWITCHES 0 SOLENOID
12-GREEN TOP 2 PROX SWITCHES 0 SOLENOID
18-GREEN TOP 24 VDC 2 MECH SWITCHES 1 SOLENOID
20-GREEN TOP 110 VAC 2 MECH SWITCHES 1 SOLENOID
34-GREEN TOP 24 VDC 2 MECH SWITCHES 1 SOLENOID
36-GREEN TOP 110 VAC 2 MECH SWITCHES 1 SOLENOID
37-GREEN TOP 24 VDC NO SWITCHES 1 SOLENOID
LEP-LATERAL MOUNT EFFECTOR (7/8”-16 4 pin)
LAP-LATERAL MOUNT PROXIMITY (M12 4 pin) ALFA Pinout
LPP-LATERAL MOUNT PROXIMITY (M12 4 pin) Standard Pinout
NNN-NO TOP

* LAST DIGIT OF T-TOP CODE SELECT BELOW
N = CABLEGLAND
P = PIGTAIL or M12 ADDED TO THINKTOP for CONNECTIVITY

2

ACTUATOR TYPE:
SERIES LKB53A w/o CONTROL TOP
AIR-to-SPRING

1” - 2 1/2”	6200	(NO)	6000	(NC)	85mm
3”	6300	(NO)	6100	(NC)	85mm
4”	6800	(NO)	6700	(NC)	85mm
4”	7400	(NO)	7300	(NC)	133mm
6”	6600	(NO)	7500	(NC)	85mm
6”	7000	(NO)	7200	(NC)	133mm

AIR-to-AIR

1” - 2 1/2”	6400	(85mm)
3”	6500	(85mm)
4”	6900	(85mm)
4”	7700	(133mm)
6”	7800	(85mm)
6”	7100	(133mm)

SERIES LKB53A w/GREEN CONTROL TOP(T) w/THINK TOP (TKT)
AIR-to-SPRING

1” - 2 1/2”	6200	(T) (TKT)	(NO)	6000	(T) (TKT)	(NC)	85mm
3”	6300	(T) (TKT)	(NO)	6100	(T) (TKT)	(NC)	85mm
4”	6800	(T) (TKT)	(NO)	6700	(T) (TKT)	(NC)	85mm
4”	7400	(T) (TKT)	(NO)	7300	(T) (TKT)	(NC)	133mm
6”	7600	(T) (TKT)	(NO)	7500	(T) (TKT)	(NC)	85mm
6”	7000	(T) (TKT)	(NO)	7200	(T) (TKT)	(NC)	133mm

AIR-to-AIR

1” - 2 1/2”	6400	(T) (TKT)	(NC)	85mm
3”	6500	(T) (TKT)	(NC)	85mm
4”	6900	(T) (TKT)	(NC)	85mm
4”	7700	(T) (TKT)	(NC)	133mm
6”	7800	(T) (TKT)	(NC)	85mm
6”	7100	(T) (TKT)	(NC)	133mm

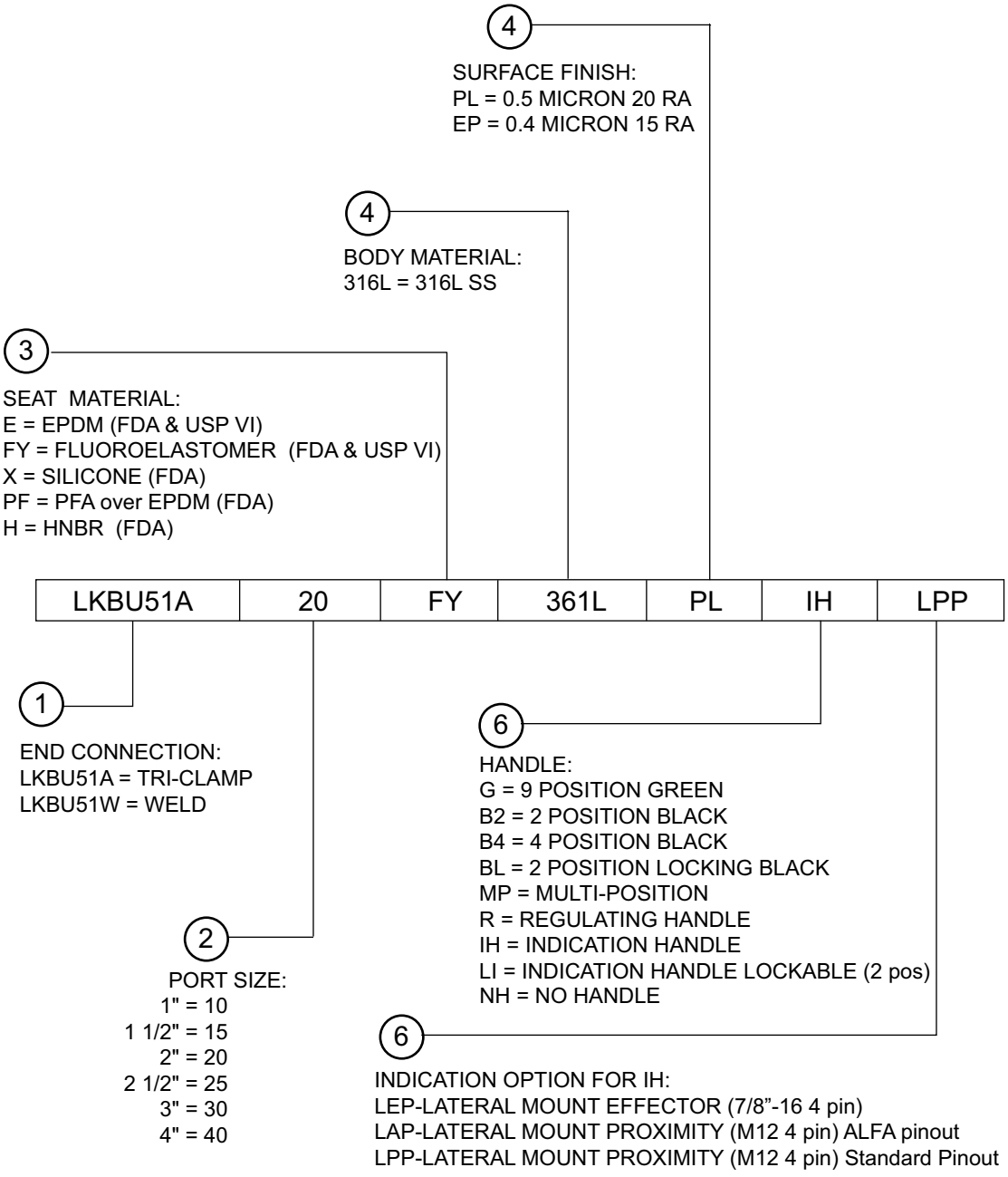
SEE CONTROL TOP NOTE *

NOTES:
A/A * 1 SOL TOPS REQUIRE 5/2 SOL
POSITIONERS ARE TO BE USED ON 85mm ACTUATOR ONLY

Alfa Laval LKB UltraPure

Product description

LKB UltraPure Series Manual



LKB UltraPure Series Pneumatic

CHART #8	SET-UP
GREEN TOP	
NO SOLENOID	1
NORMALL OPEN VALVE CLOSES	
NORMALLY CLOSED VALVE OPENS	
WHEN SOLENOID IS DE-ENERGISED	2
WHEN SOLENOID IS ENERGISED	5
AIR to AIR	7
INDY TOP	
5M CORD PNP/NPN	N
10M CORD PNP/NPN	1
0.5M CABLE & COUNTER PART - NPN	2
0.5M CABLE & COUNTER PART - PNP	3

LKBU53A	6000T	20	FY	316L	PL	04	I

(1) END CONNECTION:
LKBU53A = TRI-CLAMP
LKBU53W = WELD

(2) ACTUATOR TYPE:
SERIES LKB53A w/o CONTROL TOP
AIR-to-SPRING

1" - 2 1/2"	6200	(NO)	6000	(NC)
3"	6300	(NO)	6100	(NC)
4"	6800	(NO)	6700	(NC)

AIR-to-AIR

1" - 2 1/2"	6400
3"	6500
4"	6900

SERIES LKB53A w/GREEN CONTROL TOP(T) w/THINK TOP (TKT)
AIR-to-SPRING

1" - 2 1/2"	6200	(T) (TKT)	(NO)	6000	(T) (TKT)	(NC)
3"	6300	(T) (TKT)	(NO)	6100	(T) (TKT)	(NC)
4"	6800	(T) (TKT)	(NO)	6700	(T) (TKT)	(NC)

AIR-to-AIR

1" - 2 1/2"	6400	(T) (TKT)
3"	6500	(T) (TKT)
4"	6900	(T) (TKT)

— SEE CONTROL TOP NOTE *

(3) PORT SIZE:
1" = 10
1 1/2" = 15
2" = 20
2 1/2" = 25
3" = 30
4" = 40

(4) SEAT MATERIAL:
E = EPDM (FDA & USP VI)
FY = FLUOROELASTOMER (FDA & USP VI)
X = SILICONE (FDA)
PF = PFA over EPDM (FDA)
H = HNBR (FDA)

(5) BODY MATERIAL:
316L = 316L SS

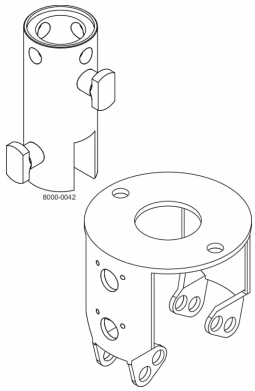
(6) SURFACE FINISH:
PL = 0.5 MICRON 20 RA
EP = 0.4 MICRON 15 RA

(7) SWITCHES
CONTROL TOP:
5A*-V50 DIGITAL 24VDC PNP 0 SOL
5B*-V50 DIGITAL 24VDC PNP 1 SOL
5E*-V50 ASI 31 NODE (ver 2.1) 30VDC, 0 SOL
5F*-V50 ASI 31 NODE (ver 2.1) 30VDC, 1 SOL
5Q*-V50 ASI 62 NODE (ver 3.0) 30VDC, 0 SOL
5R*-V50 ASI 62 NODE (ver 3.0) 30VDC, 1 SOL
5MP-V50 I/O Link 0 SOL M12 4 PIN
5NP-V50 I/O Link 1 SOL M12 4 PIN
7C*-V70 DIGITAL 24VDC PNP 2 SOL
7U*-V70 DIGITAL 24VDC PNP (1) 5/2 SOL
7G*-V70 ASI 31 NODE (ver 2.1) 30VDC, 2 SOL
7S*-V70 ASI 62 NODE (ver 3.0) 30VDC, 2 SOL
7V*-V70 ASI 62 NODE (ver 3.0) 30VDC, (1) 5/2 SOL
7MP-V70 I/O Link 0 SOL M12 4 PIN
7NP-V70 I/O Link 1 SOL M12 4 PIN
7OP-V70 I/O Link 2 SOL M12 4 PIN
7XP-V70 I/O Link (1) 5/2 SOL M12 4 PIN
BEI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 0 SOL
BFI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 1 SOL
BGI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 2 SOL
IT* - INDITOP DIGITAL 0 SOLENOID
DBN-D30- DIGITAL 0 SOLENIOD
P2P-8692 POSITIONER Multi-pole Analog Feedback
P3P-8694 POSITIONER I/O Link M12-5 Pin
P4P-8694 POSITIONER Multi-pole Analog Feedback M12-5 Pin
04-GREEN TOP 2 MECH SWITCHES 0 SOLENOID
12-GREEN TOP 2 PROX SWITCHES 0 SOLENOID
18-GREEN TOP 24 VDC 2 MECH SWITCHES 1 SOLENOID
20-GREEN TOP 110 VAC 2 MECH SWITCHES 1 SOLENOID
34-GREEN TOP 24 VDC 2 MECH SWITCHES1 SOLENOID
36-GREEN TOP 110 VAC 2 MECH SWITCHES 1 SOLENOID
37-GREEN TOP 24 VDC NO SWITVHES 1 SOLENOID
LEP-LATERAL MOUNT EFFECTOR (7/8"-16 4 pin)
LAP-LATERAL MOUNT PROXIMITY (M12 4 pin) ALFA Pinout
LPP-LATERAL MOUNT PROXIMITY (M12 4 pin) Standard Pinout
NNN-NO TOP

* LAST DIGIT OF T-TOP CODE SELECT BELOW
N = CABLEGLAND
P = PIGTAIL or M12 ADDED TO THINKTOP for CONNECTIVITY

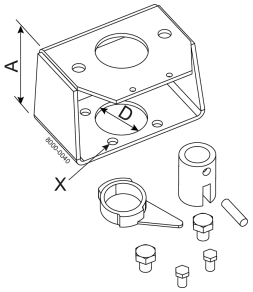
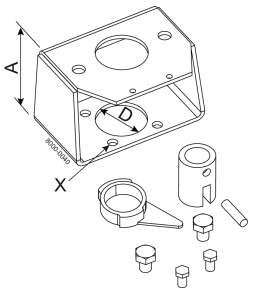
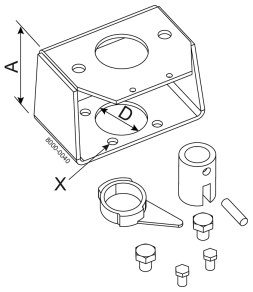
(8) SET-UP NUMBER:
w/GREEN TOP / INDY TOP
DEFINE THE SET-UP CONFIGURATION.
*SEE CHART 8 ABOVE

ALSIS Code: 5222 Material: 1.4301 (304)

Item no.	Size	Dimension (inch)			
		A	B	C	
					Coupling Type JJ
9613497203 9613497202 9613497204 9613497201 8010014489 8010014490 8010014491	25.0 - 63.5 76.1 152.0 152.0				

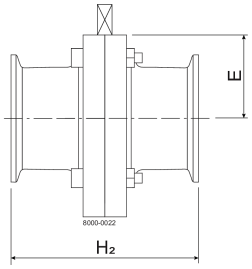
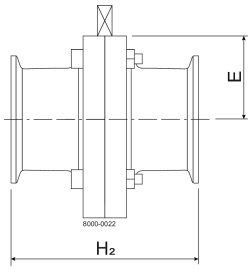
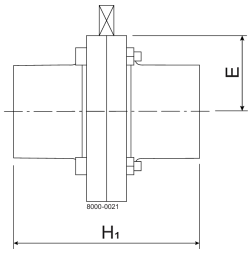
ALSIS Code: 5222

Material: 1.4301 (304)

Item no.	Actuator size	DN reduced	Dimension (inch)		Hole for bolt	No. of holes	
			A	D	X, inch	X	
							For Ego ball valves, type 223 Starline
9612497101	Ø85	18.0 - 20.0	1.57	1.00	Ø0.24	4	
9612497102	Ø85	25.0	1.65	1.20	Ø0.24	4	
9612497103	Ø85	32.0	1.90	1.20	Ø0.24	4	
9612497104	Ø85	40.0 - 65.0	1.97	1.40	Ø0.28	6	
9612497105	Ø133	65.0	2.68	1.40	Ø0.28	4	
9612497106	Ø133	80.0	3.03	2.19	Ø0.35	4	
9612497107	Ø133	100.0	3.03	2.19	Ø0.35	4	
							For Meca Inox ball valves
9612491817	Ø85	10.0 - 15.0	1.57	1.00	Ø0.24	4	
9612491818	Ø85	20.0 - 25.0	1.65	1.20	Ø0.24	4	
9612491819	Ø85	32.0 - 40.0	1.85	1.40	Ø0.28	4	
9612491820	Ø85	50.0	1.85	2.19	Ø0.35	4	
							For Worcester ball valves type A44-45 and 459
9612491801		8.0 - 15.0	1.57	1.40	Ø0.28	6	
9612491802		20.0	1.57	1.40	Ø0.28	2	
9612491803		25.0	1.57	1.40	Ø0.35	2	
9612491804		32.0	1.97	1.20	Ø0.24	4	
9612491805		40.0	1.97	1.40	Ø0.28	6	
9612491806		50.0	1.97	1.40	Ø0.28	6	
9612491807		65.0	2.44	1.40	Ø0.35	4	
9612491808		65.0	3.15	1.38	Ø0.35	4	
9612491813		65.0	3.15	2.19	Ø0.35	4	
9612491814		65.0	2.44	2.19	Ø0.35	4	
9612491815		80.0	3.35	2.19	Ø0.35	4	
9612491809		80.0- 100.0	3.35	1.77	Ø0.43	4	
9612491810		80.0- 100.0	3.35	1.77	Ø0.43	4	
9612491816		100.0	3.35	2.78	Ø0.43	4	

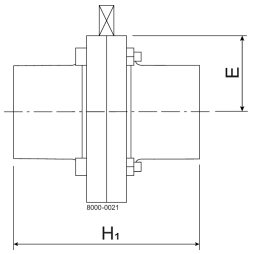
ALSIS Code: 5219

Material: 1.4404 (316L)
Connection Type: Welding ends
Inside surface finish: Ra ≤ 0.5 µm

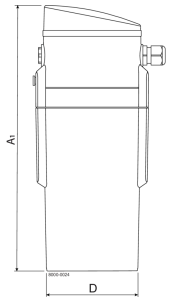
Item no.	Elastomer	Size DN/OD			Dimension (inch)			
		mm	DIN	Inch	E	H1	H2	
Clamp ends - Ra 0.4 µm Electro-polished - ASME BPE								
9613858307	EPDM			1"	1.28		2.85	
9613858308	EPDM			1 1/2"	1.28		2.85	
9613858309	EPDM			2"	1.65		3.05	
9613858310	EPDM			2 1/2"	2.05		3.13	
9613858311	EPDM			3"	2.24		3.44	
9613858312	EPDM			4"	3.03		4.40	
9614051919	FPM (Viton)			1"	1.28		2.85	
9614051920	FPM (Viton)			1 1/2"	1.28		3.05	
9614051921	FPM (Viton)			2"	1.65		3.05	
9614051922	FPM (Viton)			2 1/2"	2.05		3.13	
9614051923	FPM (Viton)			3"	2.24		3.44	
9614051924	FPM (Viton)			4"	3.03		4.40	
Clamp ends - Ra 0.5 µm - ASME BPE								
9613858301	EPDM			1"	1.28		2.85	
9613858302	EPDM			1 1/2"	1.28		2.85	
9613858303	EPDM			2"	1.65		3.05	
9613858304	EPDM			2 1/2"	2.05		3.13	
9613858305	EPDM			3"	2.24		3.44	
9613858306	EPDM			4"	3.03		4.40	
9614051914	FPM (Viton)			1 1/2"	1.28		2.85	
9614051913	FPM (Viton)			1"	1.28		2.85	
9614051915	FPM (Viton)			2"	1.65		3.05	
9614051916	FPM (Viton)			2 1/2"	2.05		3.13	
9614051917	FPM (Viton)			3"	2.24		3.44	
9614051918	FPM (Viton)			4"	3.03		4.40	
Orbital Welding ends - Ra 0.5 µm - ASME BPE								
9613858201	EPDM			1"	1.28	5.00		
9613858202	EPDM			1 1/2"	1.28	5.00		
9613858207	EPDM			1"	1.28	5.00		
9613858208	EPDM			1 1/2"	1.28	5.00		
9613858203	EPDM			2"	1.65	5.20		
9613858209	EPDM			2"	1.65	5.20		
9613858204	EPDM			2 1/2"	2.05	5.28		
9613858210	EPDM			2 1/2"	2.05	5.28		
9613858205	EPDM			3"	2.24	6.38		
9613858211	EPDM			3"	2.24	6.38		
9613858206	EPDM			4"	3.03	7.09		
9613858212	EPDM			4"	3.03	7.09		
9614051902	FPM (Viton)			1 1/2"	1.28	5.00		
9614051901	FPM (Viton)			1"	1.28	5.00		
9614051907	FPM (Viton)			1"	1.28	5.00		
9614051908	FPM (Viton)			1 1/2"	1.28	5.00		
9614051909	FPM (Viton)			2"	1.65	5.20		
9614051904	FPM (Viton)			2 1/2"	2.05	5.28		
9614051910	FPM (Viton)			2 1/2"	2.05	5.28		
9614051911	FPM (Viton)			3"	2.24	6.38		
9614051906	FPM (Viton)			4"	3.03	7.09		

ALSIS Code: 5219

Material: 1.4404 (316L)
Connection Type: Welding ends
Inside surface finish: Ra ≤ 0.5 µm

Item no.	Elastomer	Size DN/OD			Dimension (inch)			
		mm	DIN	Inch	E	H1	H2	
								Orbital Welding ends - Ra 0.5 µm - ASME BPE
9614051912	FPM (Viton)			4"	3.03	7.09		

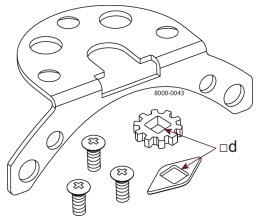
ALSIS Code: 5229
Actuator with control for LKB/i-BFV

Item no.	Supply sensor system	Function	Dimension (inch)		
			A1	D	
					Actuator for LKB/i-BFV
9614067201	AS-Interface v2.1, 31 node	NC	10.35	3.54	
9614067202	AS-Interface v2.1, 31 node	NO	10.35	3.54	
9614067221	AS-Interface v3.0, 62 node	NC	10.35	3.54	
9614067222	AS-Interface v3.0, 62 node	NO	10.35	3.54	
9614067209	Digital 24V DC	NC	10.35	3.54	
9614067210	Digital 24V DC	NO	10.35	3.54	

Note: Only to be mounted on LKB/LKB-F with welding ends

ALSIS Code: 5222

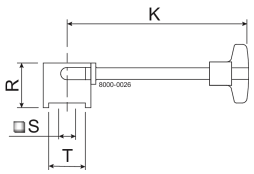
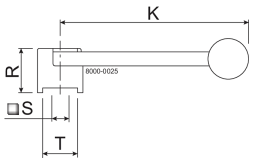
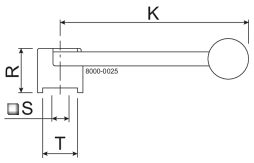
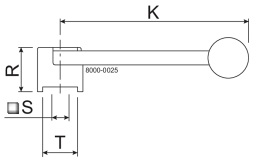
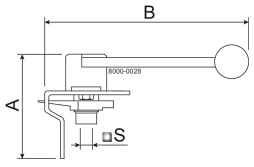
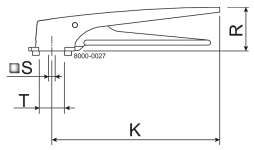
Material: 1.4301 (304)

Item no.	Valve types	Size	Dimension (inch)	Size	
		mm	DIN	d	
					For Unique Control
9614090101	LKB/LKB-F	25.0 - 63.5	25.0 - 50.0	8.0	
9614090102	LKB/LKB-F		DN65	10.0	
9614090103	LKB/LKB-F	76.1	DN80	10.0	
9614090104	LKB/LKB-F	101.6	DN100	12.0	
9614090105	i-BFV	25.0 - 63.5	25.0 - 50.0	8.0	
9614090106	i-BFV	76.1	DN80	10.0	
9614090107	i-BFV	101.6	DN100	12.0	

Mounting bracket LKLA ø85 DN125-150 A/A actuator only

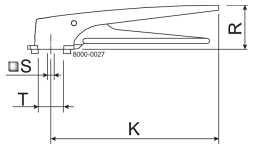
Operating parts for LKB, LKB-2, LKB-F and LKB-LP valves
ALSIS Code: 5226

Material: 1.4301 (304)

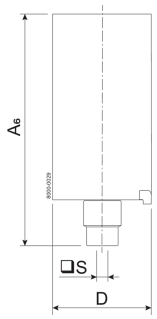
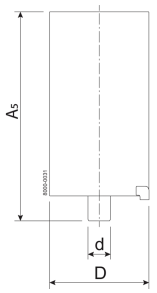
Item no.	Size	Dimension (inch)					
	inch	DN	S	K	R	T	
							1.1 regulating
9612047401	1.0" - 2.5"	25.0 - 50.0	0.31	4.76	1.34	0.87	
9612047402	3.0"	65.0 - 80.0	0.39	6.35	1.34	1.19	
9612047403	4.0"	DN100	0.47	6.35	1.34	1.19	
							1.1 with 2 positions
9612045001	1.0" - 2.5"	25.0 - 50.0	0.31	4.83	1.50	0.87	
9612523701	1.0" - 2.5"	25.0 - 50.0	0.31	4.65	1.50	0.87	
9612045101	3.0"	65.0 - 80.0	0.39	6.70	1.50	1.19	
9612523703	3.0"	65.0 - 80.0	0.39	6.70	1.50	1.19	
9612045901	4.0"	DN100	0.47	6.70	1.50	1.19	
9612523705	4.0"	DN100	0.47	6.70	1.50	1.19	
							1.1 with 4 positions
9612045002	1.0" - 2.5"	25.0 - 50.0	0.31	4.83	1.50	0.87	
9612045102	3.0"	65.0 - 80.0	0.39	6.70	1.50	1.19	
9612045902	4.0"	DN100	0.47	6.70	1.50	1.19	
9612079101		DN150	0.59	14.37	2.00	1.89	
							1.1 with 4 positions - Pos. B
9612523702	1.0" - 2.5"	25.0 - 50.0	0.31	4.65	1.50	0.87	
9612523704	3.0"	65.0 - 80.0	0.39	6.70	1.50	1.19	
9612523706	4.0"	DN100	0.47	6.70	1.50	1.19	
8010023732		DN125					
							Bracket w. handle 1.1 for indication
9612047501	1.0" - 2.5"	25.0 - 50.0	0.31				
9612047502	3.0"	DN80	0.39				
9612047503	4.0"	DN100	0.47				
8010013929	5.28"		0.55				
8010013928	6.0"		0.59				
							Lockable multi position long
9612592801	1.0" - 2.5"	25.0 - 50.0	0.31	7.87	1.70	0.87	
9612592802	3.0"	65.0 - 80.0	0.39	7.87	1.70	1.18	
9612592803	4.0"	DN100	0.47	7.87	1.70	1.18	

Operating parts for LKB, LKB-2, LKB-F and LKB-LP valves
ALSIS Code: 5226

Material: 1.4301 (304)

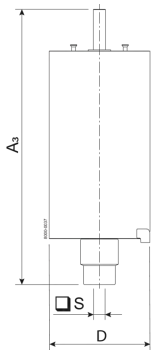
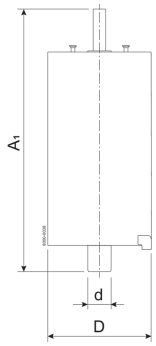
Item no.	Size	Dimension (inch)					
	inch	DN	S	K	R	T	
							Lockable multi position short
9612592804	4.0"	25.0 - 50.0	0.31	5.91	1.72	0.87	
9612592805	3.0"	65.0 - 80.0	0.39	5.91	1.72	1.18	
9612592806	4.0"	DN100	0.47	5.91	1.72	1.18	

Actuators Ø85 and Ø133 for LKB, LKB-2 and LKB-F valves
ALSIS Code: 5228

Item no.	Size		Function	Dimension (inch)				
	Inch	DIN		A6	D	d	S	
With coupling								
9611417491	1.0" - 2.5"	25.0 - 50.0	A/A	7.36	3.35		0.31	
9611417492	3.0"	65.0 - 80.0	A/A	7.20	3.35		0.39	
9611417493	4.0"	100.0	A/A	7.20	3.35		0.47	
9612271308	4.0"	100.0	A/A	12.22	5.24		0.47	
9612271318	6.0"	150.0	A/A	12.22	5.24		0.59	
9611417500	6.0"	150.0	A/A	7.36	3.35		0.59	
9611416301	1.0" - 2.5"	25.0 - 50.0	NC	7.28	3.35		0.31	
9611416302	3.0"	65.0 - 80.0	NC	7.20	3.35		0.39	
9611416306	4.0"	100.0	NC	7.20	3.35		0.47	
9612271306	4.0"	100.0	NC	12.22	5.24		0.47	
9612271316	6.0"	150.0	NC	12.22	5.24		0.59	
9611416304	1.0" - 2.5"	25.0 - 50.0	NO	7.28	3.35		0.31	
9611416305	3.0"	65.0 - 80.0	NO	7.20	3.35		0.39	
9611416307	4.0"	100.0	NO	7.20	3.35		0.47	
9612271307	4.0"	100.0	NO	12.22	5.24		0.47	
9612271317	6.0"	150.0	NO	12.22	5.24		0.59	
Without coupling								
9612271303			A/A		5.24	1.18		
9611417490			A/A		3.35	0.67		
9611417501			A/A		3.35	0.79		
9611416300			NC		3.35	0.67		
9612271301			NC		5.24	0.67		
9611416303			NO		3.35	0.67		
9612271302			NO		5.24	1.18		

Alfa Laval recommends actuator size ø133 for ≥ 101.6/DN100

Actuators Ø85 and Ø133 for LKB, LKB-2 and LKB-F valves
ALSIS Code: 5228

Item no.	Size		Function	Dimension (inch)				
	Inch	DN		A3	D	d	S	
With coupling								
9612194102	1.0" - 2.5"	25.0 - 50.0	A/A	9.25	3.35		0.31	
9612194103	3.0"	65.0 - 80.0	A/A	9.17	3.35		0.39	
9612194104	4.0"	100.0	A/A	9.17	3.35		0.47	
9612374908	4.0"	100.0	A/A	14.29	5.24		0.47	
9612374918	6.0"	150.0	A/A	14.29	5.24		0.59	
9612194201	6.0"	150.0	A/A	9.33	3.35		0.59	
9612194002	1.0" - 2.5"	25.0 - 50.0	NC	9.25	3.35		0.31	
9612194003	3.0"	65.0 - 80.0	NC	9.17	3.35		0.39	
9612374906	4.0"	100.0	NC	14.29	5.24		0.47	
9612374916	6.0"	150.0	NC	14.29	5.24		0.59	
9612194007	4.0"	100.0	NC	9.17	3.35		0.47	
9612194005	1.0" - 2.5"	25.0 - 50.0	NO	9.25	3.35		0.31	
9612374907	4.0"	100.0	NO	14.29	5.24		0.47	
9612374917	6.0"	150.0	NO	14.29	5.24		0.59	
9612194006	3.0"	65.0 - 80.0	NO	9.17	3.35		0.39	
9612194008	4.0"	100.0	NO	9.17	3.35		0.47	
Without coupling								
9612374903			A/A		5.24	1.18		
9612194203			A/A		3.35	0.79		
9612194101			A/A		3.35	0.67		
9612194001			NC		3.35	0.67		
9612374901			NC		5.24	1.18		
9612194004			NO		3.35	0.67		
9612374902			NO		5.24	1.18		

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Control/Check valves

Alfa Laval LKC Non-return Valve

Control/Check valves

Introduction

The Alfa Laval LKC Non-return Valve is a hygienic one-way check valve for use in various processes across the hygienic industries to prevent reverse flow. It is easy to install, ensuring safety and high product quality. It is available in two versions: the LKC-2 for vertical flow and the LKC-H for horizontal flow.

Application

The LKC Non-return Valve is widely used for single directional product flow through hygienic process lines across the dairy, food, beverage, brewery and many other industries.

Benefits

- Highly reliable, self-acting valve
- Easy to install
- Protects process equipment
- Prevents reverse flow

Standard design

The Alfa Laval LKC Non-return Valve consists of a valve body in two parts, valve plug and spring, assembled by means of a clamp ring and hygienically sealed with a special seal ring. A guide disc with four legs ensure alignment of the spring-loaded valve plug with an o-ring seal. The valve is available with weld and clamp ends for ISO and DIN tubing connections.

Working principle

The Alfa Laval LKC Non-return Valve opens and closes depending on the pressure. The spring acts on the valve plug and keeps the valve closed until the force from the pressure in the inlet exceeds the force of the spring. If a reverse flow should occur, the spring force and the pressure from the outlet will keep the valve closed. Required differential pressure for opening the valve when fitted in a vertical pipe is approximately 0.87 PSI (0.06 bar).

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Max. temperature:	284°F (EPDM)
Min. temperature:	14°F

Pressure	
Max. product pressure:	145 PSI (10 bar)

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

Mechanical

Required differential pressure for opening the valve when fitted in a vertical pipe, as shown in fig. 3, is approx. 0.87 PSI (0.06 bar).

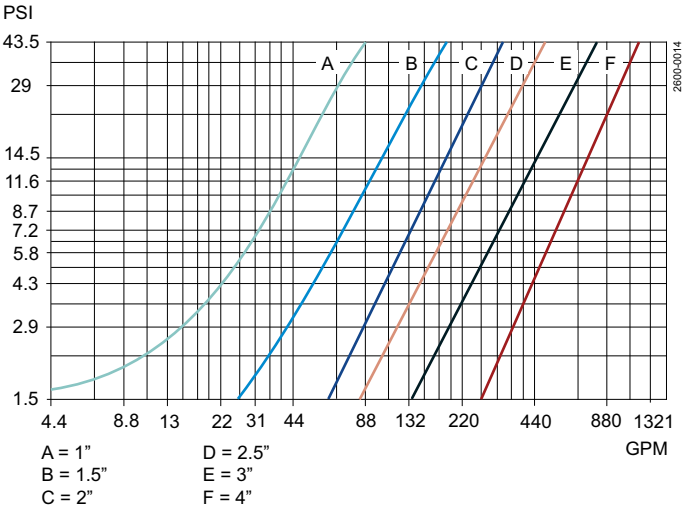
Options

Product wetted seal rings of Nitrile (NBR) or Fluorinated rubber (FPM).

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4301 (304) / 1.4404 (316L)
External surface finish:	Bright (Machined Ra < 63 µin)
Internal surface finish:	Ra < 63 µin
Product wetted seals:	EPDM rubber

Pressure drop/capacity diagram



Note! For the diagram the following applies:
Medium: Water (68°F).
Measurement: In accordance with VDI 2173.

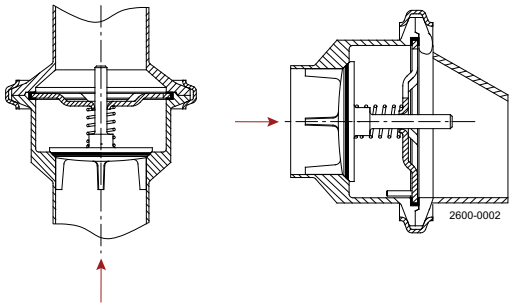


Figure 1. Flow direction.

Shows the optimal built-in situation. Other positions possible are e.g. horizontal. The four guide legs of the valve cone ensure good alignment.

90° rotation.

Dimensions (inch)

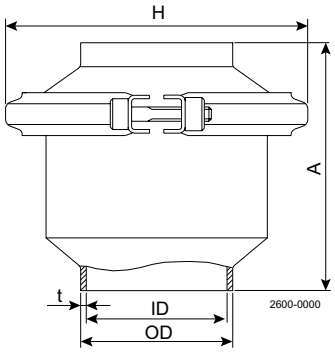


Figure 2. Vertical mounted

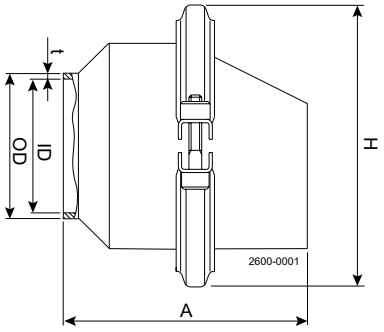


Figure 3. Horizontal mounted

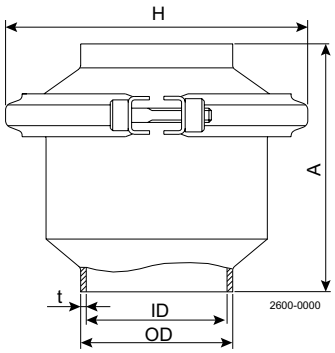


Figure 4. Vertical mounted

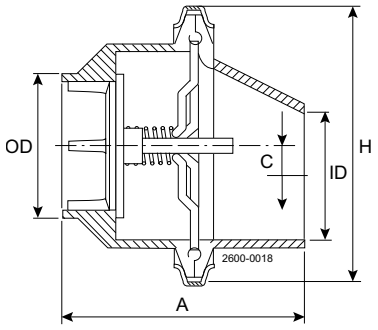


Figure 5. LKC-Drainable

Table 1. Dimensions.

Size	1"	1.5"	2"	2.5"	3"	4"
A	2.46	2.95	3.44	3.74	4.53	6.10
A Tri-Clamp®	4.12	4.61	5.10	5.40	6.19	7.76
OD	1.00	1.50	2.00	2.50	3.00	4.00
ID	0.89	1.40	1.91	2.38	2.83	3.84
t	0.06	0.06	0.06	0.07	0.09	0.09
H	3.23	3.75	4.29	5.39	5.83	6.46
Weight (lbs.)	1.1	1.5	2.2	3.8	5.3	9.5

Table 2. Dimensions.

Size	1"	1.5"	2"	2.5"	3"
A	3.76	3.41	4.17	4.81	5.69
Tri-Clamp®	5.38	5.13	5.80	6.30	7.31
C	0.34	0.40	0.41	0.53	0.65
OD	1.00	1.50	2.00	2.50	3.00

Size	1"	1.5"	2"	2.5"	3"
ID	0.89	1.40	1.91	2.38	2.83
t	0.06	0.06	0.06	0.07	0.09
H	3.23	3.75	4.29	5.39	5.83
Weight (lbs.)	1.1	1.5	2.2	3.8	5.3

Alfa Laval LKC UltraPure

Control/Check valves

Introduction

The Alfa Laval LKC UltraPure Non-return Valve is a hygienic one-way check valve for use in various processes throughout the high-purity industry to prevent reverse flow. It is easy to install, ensuring safety and high product quality.

Application

The LKC UltraPure Non-return Valve is designed for single directional product flow, meeting the demands of high-purity applications across the biotechnology, pharmaceutical and personal care industries.

Benefits

- Highly reliable, self-acting valve
- Easy to install
- Protects process equipment
- Prevents reverse flow
- Full transparency and traceability of the entire supply chain due to the Alfa Laval Q-doc documentation package

Standard design

The Alfa Laval LKC UltraPure Non-return Valve consists of a valve body in two parts, valve plug and spring, assembled by means of a clamp ring and hygienically sealed with a special seal ring. A guide disc with four legs ensure alignment of the spring-loaded valve plug with an o-ring seal. The valve is available with weld and clamp ends for ISO and DIN tubing connections.

Working principle

The Alfa Laval LKC UltraPure Non-return Valve opens and closes depending on the pressure. The spring acts on the valve plug and keeps the valve closed until the force from the pressure in the inlet exceeds the force of the spring. If a reverse flow should occur, the spring force and the pressure from the outlet will keep the valve closed. Required differential pressure for opening the valve when fitted in a vertical pipe is approximately 0.87 PSI (0.06 bar).

Certificates

Authorized to carry the 3A symbol

-doc

TECHNICAL DATA

Max. product pressure:	145 PSI (10 bar)

Required differential pressure for opening the valve when fitted in a vertical pipe, is approx. 0.87 PSI (0.06 bar).

Surface specification (Product wetted steel parts)	
Internal:	Ra < 32 µin
ASME BPE designation:	SF3
External:	Ra < 32 µin
Internal:	Ra < 20 µin
ASME BPE designation:	SF1
External:	Ra < 32 µin

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

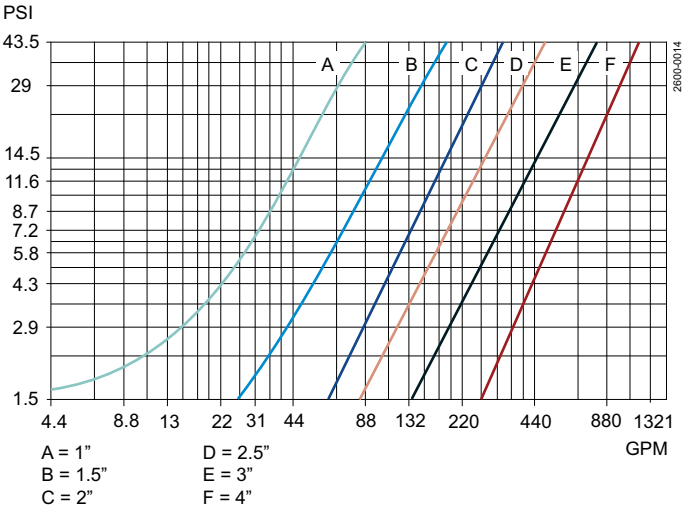
PHYSICAL DATA

Product wetted steel part:	1.4404 (316L) Acc. to EN 10088 or equal (AISI 316L)
Other steel parts:	1.4301 (304) Acc. to AISI 304
Spring:	Electropolished

Elastomers	
Product wetted elastomer:	EPDM Acc. to FDA and USP Class VI Temperature: 14°F - 284°F
Product wetted elastomer:	FPM Acc. to FDA Temperature: 14°F - 356°F

Connections	
Weld ends:	Matching tubes and fittings: ISO 2037 / Series A/DIN Acc. to ISO or DIN
Clamp ends:	Matching tubes and fittings: ISO 2037 / Series A/DIN Acc. to ISO or DIN

Pressure drop/capacity diagrams



Note! For the diagram the following applies:
Medium: Water (68°F).
Measurement: In accordance with VDI 2173.

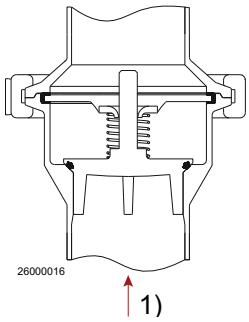
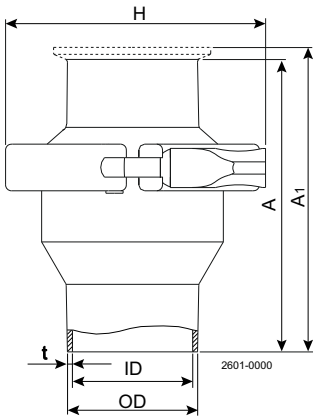


Figure 1. 1 = Flow direction.

Shows the optimal built-in situation to make sure the valve is drainable. The four guide legs of the valve cone ensure good alignment.90° rotation.

Dimensions (inch)



	ISO						DIN						
Size	**25**	**38**	**51**	**63.5**	**76.1**	**101.6**	**25**	**32**	**40**	**50**	**65**	**80**	**100**
A	2.46	2.95	3.44	3.74	4.53	6.10	2.46	2.95	2.95	3.44	3.74	4.53	6.10
A_1	4.15	4.65	5.14	5.43	6.22	7.80	4.15	4.65	4.65	5.14	5.94	6.73	8.31
OD	1.00	1.51	2.02	2.52	3.01	4.02	1.18	1.42	1.65	2.13	2.76	3.35	4.09
ID	0.89	1.40	1.91	2.38	2.83	3.84	1.02	1.26	1.50	1.97	2.60	3.19	3.94
t	1.45	1.45	1.45	1.7	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
H	3.05	3.56	4.08	5.11	5.67	6.46	3.05	3.56	3.56	4.08	5.22	5.67	6.46
Weight (lb):													
Welding ends	1.5	2.2	2.9	4.6	6.4	9.5	1.5	2.2	2.2	2.9	4.6	6.4	9.5
Clamp ends	2.0	2.4	3.1	5.5	7.5	10.4	2.0	2.4	2.4	3.1	5.5	7.5	10.4

TD 900-563

Alfa Laval LKUV-2 Air-relief Valve

Control/Check valves

Introduction

The Alfa Laval LKUV-2 is a reliable, self-acting air relief valve that releases excess air from process pipelines, or pumps to prevent cavitation and product loss, thereby preventing the negative effects of air entrainment.

Vertically installed, it is ideal for use where the removal of air is required to maintain design pressure conditions, such as at the top of a pipeline, or pump inlet pipe on the suction side to remove excess air before starting the pump.

Application

This self-acting relief valve is designed for air-venting duties in hygienic applications across the dairy, food, beverage and many other industries. It is typically used in Cleaning-in-Place return line (CIP-R) applications.

Benefits

- Improved processing efficiency and product integrity
- Enhanced energy efficiency
- Protects pumps against the risk of cavitation
- Low total cost of ownership

Standard design

The LKUV-2 Air-relief Valve consists of a stainless-steel valve body in two parts, seal ring and polypropylene ball. The lower valve body has a welding stub. The valve body is assembled by means of a clamp.

Working principle

The Alfa Laval LKUV-2 Air-relief Valve is an air-relief valve with a free moving polypropylene ball, which is lighter than water. The polypropylene ball alternates between two seats depending on pressure conditions on the inlet.

When the pressure on the inlet increases, the ball is forced off the lower valve seat and moves to the upper seat, thereby closing the valve against the atmosphere. If air enters the system, the pressure is reduced, thereby moving the ball away from upper seat and venting excess air to the atmosphere. If there is no pressure or vacuum in the system, the ball alternates to lower position thereby closing the valve.

TECHNICAL DATA

Pressure	
Max. product pressure:	1000 kPa/145 psi (10 bar)
Density of ball:	0.906 kg/dm^3

Temperature	
Max. temperature:	90°C/194°F (because of the plastic ball)

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Steel parts:	Stainless steel AISI 304
Ball: Material:	Polypropylene
Product wetted seals:	EPDM
Surface finish:	Bright

Options

Alternative elastomers:

- NBR (Buna N)
- FPM (SFY)

Note! Important for correct function:

- Product density higher than the ball density.
- Vertical installation.
- Pure products.

Dimensions (inch)

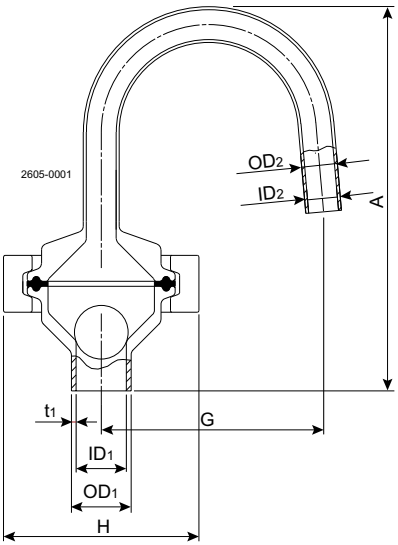


Figure 1. Dimensions

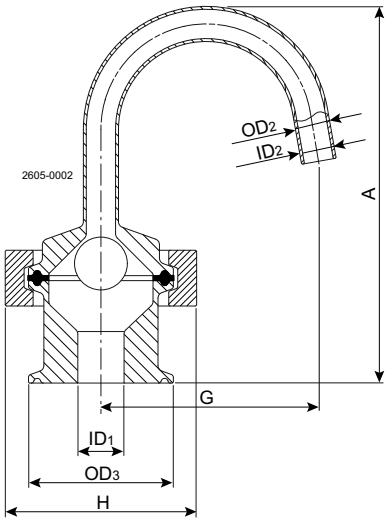
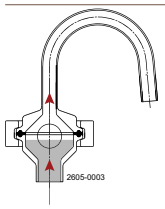


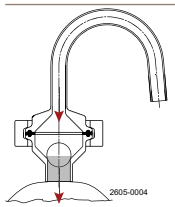
Figure 2. Dimensions

Dimensions

Dimension	(mm)	(inch)
A	128.7	5.07
G	74.5	2.93
H	58.5	2.57
ID1	15.8	0.66
ID2	10	0.39
OD1	20	0.79
OD2	12	0.47

Dimension	(mm)	(inch)
OD3	49.5	1.95
	64.0	2.52
t1	1.6	0.06
Weight	(kg)	(lb)
	0.6	1.32

Situation 1	Pressure conditions	Effect
	Pressure, air or product, or air/product.	The ball is lifted from the lower seat. The air can escape until the product lifts the ball against the upper seat, closing the valve.

Situation 2	Pressure conditions	Effect
	Vacuum, air or product, or air/ product.	The ball moves against the lower seat, closing the valve, whether it contains air or product, or air/product.

Alfa Laval 62-174/326 Air Blow Check Valve

Control/Check valves

Introduction

The Alfa Laval 62-174/326 Air Blow Check Valve is a spring-loaded, plug-style check valve used to evacuate pipelines of product or Cleaning-in-Place (CIP) media or to air-agitate product in pipelines, tanks and other vessels. It also can air dry the pipelines, which aids in the formation of a protective oxide film thereby promoting corrosion resistance throughout the pipeline system. The valve can help thoroughly mix and blend the product in tanks and other vessels through air agitation, improving product uniformity and product quality.

Application

The 62-174/326 Air Blow Check Valve is designed to evacuate lines of product or CIP media, or for air agitation of product in tanks and other vessels across the dairy, food, beverage, home-personal care and chemical industries.

Benefits

- Fail-safe operation – Prevents backflow of product or CIP media
- Quick assembly/disassembly with Tri-Clamp® connections for easy filter media replacement, cleaning or inspection
- Remote control possible by controlling the supply of air to the valve
- Rugged AISI 316 stainless steel construction with spherical EPDM-bonded plug assembly
- Conforms to 3-A Accepted Practices for applications that require final filtering of air prior to entering tank or pipelines

Standard design

The Alfa Laval 62-174/326 Air Blow Check Valve consists of a valve body, gasket, adapter, plug assembly, return spring, stem guide, filter disc, perforated disc and buna gasket, washer and clamp.

The valve easily installs in any horizontal or vertical position on tanks or other vessels for product agitation using a Tri-Clamp, a gasket, and a mounting ferrule. No other fittings are required.

To evacuate the lines of product or CIP media, clamp the check valve on the end of the “Y” branch of a ball check valve rather than installing the check valve directly in the line (see page 3 for typical installations).

Working principle

Filtered air enters adapter (A) and exerts pressure on the valve plug assembly (B) causing it to move forward and unseat. The filtered air passes through the valve and around the valve plug assembly (B) entering the pipeline or tank. When the air pressure entering the adapter (A) is shut-off, the valve plug assembly is returned to its normally closed position by means of a return spring, preventing any backflow product or CIP media.

TECHNICAL DATA

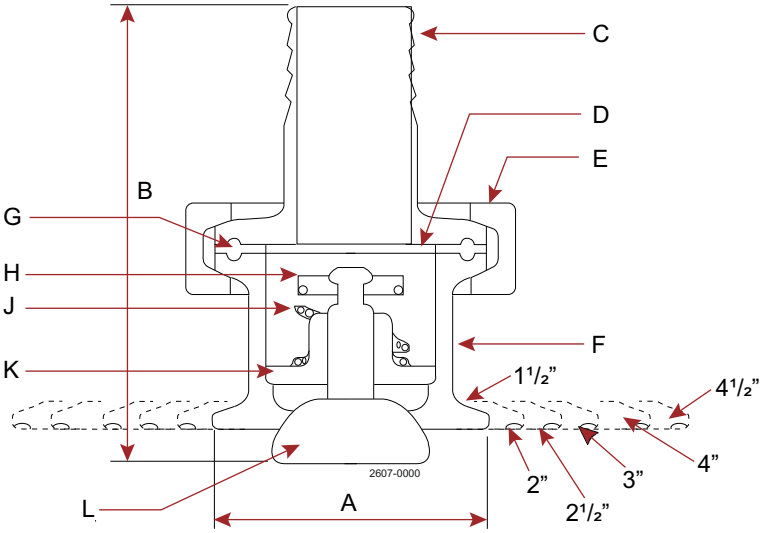
Temperature	
Temperature range:	20°F to 284°F

Pressure	
Pressure range:	Varies based on style of clamp used. Contact Alfa Laval
Air pressure:	8-10 PSI minimum

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316 stainless steel
Other steel parts:	AISI 304 stainless steel
Product wetted parts:	EPDM
Other seals:	Buna

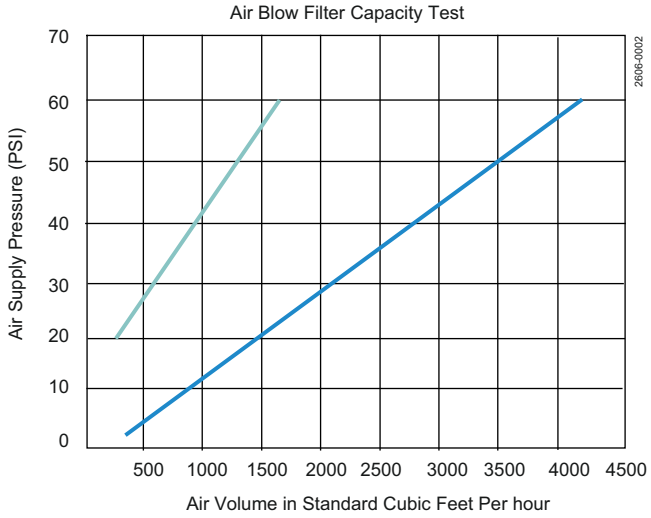
Dimensions (inch)



C = Adapter
D = Filter disc
E = Clamp
F = Valve body
G = Stainless steel perforated disc and buna gasket
H = Washer
J = Spring
K = Stem guide
L = Plug assembly

Connection Size	A-OD (inches)	B-Overall Length					
		Model 62-174R			Model 62-326-Adapter-Size		
		"A" Adapter	"B" Adapter	"C" or "C1" Adapter	"A" Adapter"	"B" Adapter	"C" Adapter
1½	$1^{15}/_{16}$	2½	3	2	n/a	n/a	n/a
2	2½	2½	3	2	$3^{11}/_{16}$	$3^{9}/_{16}$	$2^{11}/_{16}$
2½	$2^{1}/_{16}$	2½	3	2	$3^{11}/_{16}$	$3^{9}/_{16}$	$2^{11}/_{16}$
3	$3^{9}/_{16}$	2½	3	2	$3^{11}/_{16}$	$3^{9}/_{16}$	$2^{11}/_{16}$
4	$4^{11}/_{16}$	2½	3	2	$3^{11}/_{16}$	$3^{9}/_{16}$	$2^{11}/_{16}$
4½	$5^{1}/_{8}$	2½	3	2	$3^{11}/_{16}$	$3^{9}/_{16}$	$2^{11}/_{16}$

Note!
n/a = not available



Options

Equipment

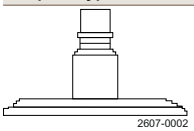
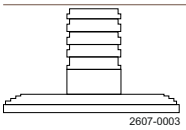
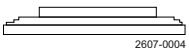
- SFY molded elastomers
- Air fittings - Air quick coupler
- Hose barb
- NPT tapped hole

Ordering

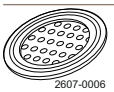
Please state the following when ordering:

- 62-174 (low volume)
- 62-326 (high volume)
- Tri-Clamp mounting connection size
- Type of air connection

Variety of Adapters Available

Adapter Type		For Model 62-174R	For Model 62-326
 2607-0002	"A" Adapter - For Air Line Quick Coupler	(A) #37-80	(A) #37-161
 2607-0003	"B" Adapter - For 1" ID Rubber Hose	(B) #14MPHR-1-S	(B) #14MPHR-2 x 1-S
 2607-0004	"C" Adapter - For NPT Female Connector "C1" Adapter	(C) #23BMP-1½ x 3/8-S 3/8 NPT Female Connection (C1) #23BMP-1½ x ½-S ½ NPT Female Connection	(C) #23BMP-2 x ¾-S ¾ NPT Female Connection

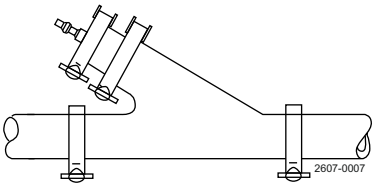
Replacement Media Ordering Information

Item		For Model 62-174R	For Model 62-326
 2607-0005	Filter Disc (fits all sizes)	Order #FA-1½-30C Sold 50/pkg. .3 MICRON	Order #FA-2-30C Sold 50/pkg. .3 MICRON
 2607-0006	SS Perforated Disc and Buna Gasket	Order #FAD-1½01 Sold in Single Units	Order #FAD-201 Sold in Single Units

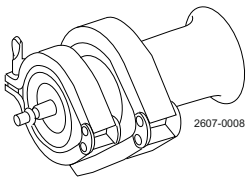
Note!
The Air Blow Check Valve must be used with a Filter Disc (Not furnished with unit). These filter discs are available in packages of 50.

Typical Installations of Air Blow Check Valve and Disposable Air Filter Media

(62-156A-SIZE) includes 45BY and air blow assembly



For Product Agitation in Tank or Vessels



For Air Blowing Pipelines - Used with ball check valve #(45BY-Type Connection-Size) for pipeline evacuations of product or C.I.P solution.

Alfa Laval 45BYMP

Control/Check Valve

Introduction

The Alfa Laval 45BYMP Check Valve is a Y-body ball check valve designed to enable the product to pass through the valve with no restrictions with a minimal pressure drop while preventing reverse product flow in hygienic stainless steel pipe installations. Capable of being installed in either a vertical or horizontal position, the valve features a seat and stem angled at approximately 45° to the pipe axis.

Durable and long-lasting, the valve operates at a wide range of pressures and flow rates. Because the sealing check ball moves completely out of the process flow when open, the valve offers low pressure drop and easily handles viscous products or liquids containing solid particles.

Application

The 45BYMP Check Valve controls flow, pressure control in gas distribution systems and pressure reduction while preventing reverse flow in connection with gas storage. It is widely used across the dairy, food, beverage, home-personal care and chemical industries.

Benefits

- Straightforward, robust, hygienic and reliable design
- Fast-acting
- Minimal pressure drop
- Leakproof
- Authorized to carry the 3-A symbol

Standard Design

The valve consists of a single-piece, stainless steel body with an elastomeric ball (see Options for materials available). The "Y" branch of the valve maintains a Tri-Clamp® connection along with an associated Tri-Clamp, end cap, and NBR seal. The valve is polished internally and externally and is authorized to carry the 3-A symbol.

Working principle

When liquid under normal pressure enters the inlet of the Alfa Laval 45BYMP Check Valve, an elastomeric ball is pushed upward into the "Y" branch (lower pressure area) of the valve. When the liquid flow stops, the pressure within the valve equalizes. The ball then returns from the "Y" branch of the valve and rests itself against the smaller diameter of the valve near its inlet. Should a reverse-flow situation occur, the opposing pressure of the fluid will seat the ball firmly against the inlet of the valve, preventing reverse flow.

Certificate

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	200 PSI
Min. product pressure:	1 PSI - to unseat check ball

Temperature	
Temperature range:	Based on elastomer choice

PHYSICAL DATA

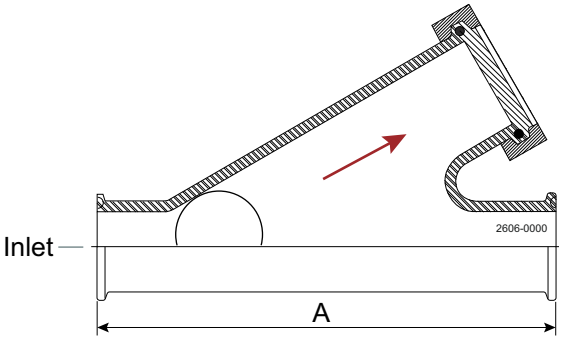
Materials	
Product wetted steel parts:	Stainless steel AISI 316L
Other steel parts:	Stainless steel AISI 304
Product wetted parts:	See option list below
Finish:	32 Ra standard

Size	
Available in sizes:	1½" to 3".

Connections	
Tri-Clamp:	

Dimensions

45BYMP-Size-Ball Mat'l*



Size (Tube OD)		A		Approx. Wt.	
inch	mm	inch	mm	lb	kg
1½	38.1	$8^{19}/_{32}$	218.3	3.00	1.36
2	50.8	$10^{3}/_{32}$	256.4	3.25	1.47
2½	63.5	11½	292.1	7.69	3.48
3	76.2	$12^{3}/_{8}$	314.3	10.14	4.59

Note!
*End Connection: Tri-Clamp®
Valve Material: 316L Stainless Steel
All dimensions are for identification purposes only.

45BY-Size02-Ball Mat'l*, Replacement Balls

Size (Tube OD)		Size (Ball)	
inch	mm	inch	mm
1½	38.1	$1^{5}/_{8}$	41.3
2	50.8	$2^{1}/_{8}$	54.0
2½	63.5	3½	88.9
3	76.2	$4^{1}/_{8}$	104.8

Note!
*Ball Material:
U = Buna Ball
N = Nylon Ball
SF = Viton Ball
E = EPDM

Options

Ball Material

- Buna
- EPDM
- SFY
- Nylon (max. 140°F)

Gasket Material

- NBR (standard)

Ordering

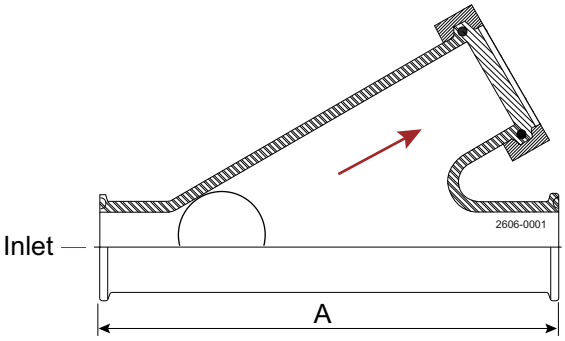
Please state the following when ordering:

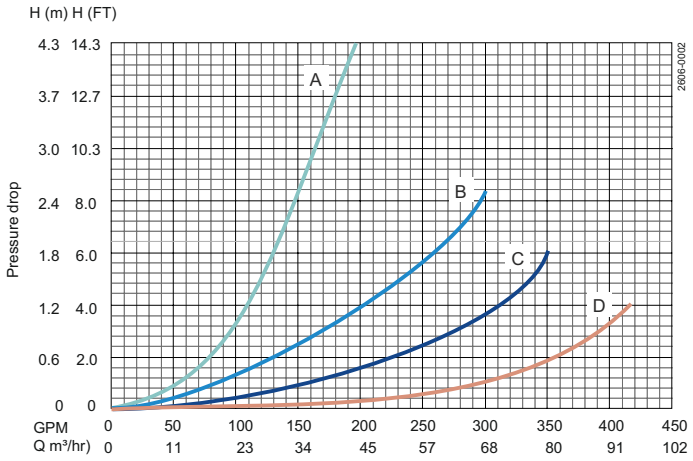
- Connection size
- Connection type
- Check ball material

Pressure Drop Curves

Model 45BYMP Ball Check Valve

All curves are tested pressure drop curves, not certified, and should be applied for guideline purposes only. Performance curves are based on tests using 68°F (20°C) water.





Alfa Laval Unique Vacuum Breaker Valve

Control/Check Valves

Introduction

The Alfa Laval Unique Vacuum Breaker Valve is a CIP-able pneumatic check valve that ensures positive pressure, thereby eliminating vacuum conditions on the downstream side of high-temperature, short-time (HTST) pasteurization piping and systems.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. Built on the well-proven Alfa Laval Unique SSSV small single seat valve, it features a fast-acting actuator and a single air connection to enable Cleaning-in-Place (CIP).

It can also be fitted with the Alfa Laval ThinkTop® V50 for sensing and control unit of the valve. Few moving parts ensure easy maintenance, high reliability, and low total cost of ownership.

Applications

The Unique Vacuum Breaker Valve is designed to prevent vacuum conditions in hygienic high-temperature, short-time pasteurization systems across the dairy, food, beverage industries.

Benefits

- Designed for convenient and effective CIP
- Compact, fast-acting and fully automated valve
- Exceptional valve hygiene and cleanability
- Authorized to carry the 3-A symbol

Standard design

The Unique Vacuum Breaker Valve consists of a stainless steel valve body, seals, actuator, a rotating internal ball that moves up and down inside the valve chamber, and clamp rings.

Certificates

Authorized to carry the 3A symbol

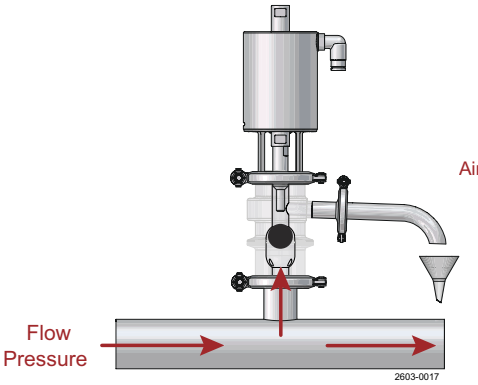
Working principle

The Alfa Laval Unique Vacuum Breaker Valve operates in a manner similar to a ball check valve. When pipelines are pressurized during a process or CIP, the internal ball is forced upward against its seat, closing the vent port (Fig. A).

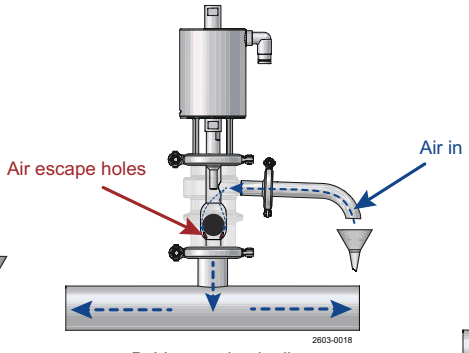
When pipeline pressure drops, the ball is drawn downward, allowing air to enter the vent, thereby preventing vacuum in the system (Fig. B).

During CIP, a pneumatic actuator is used (pulsed) to force the ball off the upper seat, enabling the seat and the interior of the vacuum breaker valve to be cleaned. CIP fluid is discharged during the actuator pulse and is drained through the vent port (Fig. C).

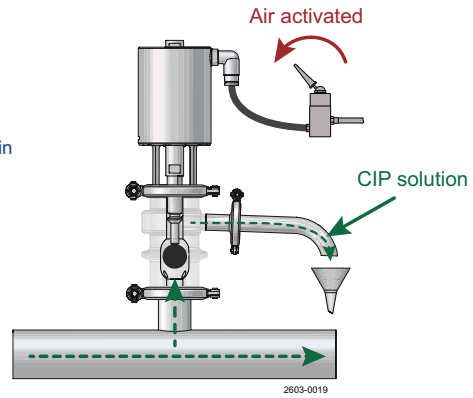
Working Principle



A. Pressure in pipelines



B. Vacuum in pipeline



C. CIP

TECHNICAL DATA

Pressure	
Valve	
Maximum product pressure:	145 PSI
Minimum product pressure:	Full vacuum
Actuator	
Maximum air pressure:	101.5 PSI
Minimum air pressure:	73 PSI

Temperature	
Temperature range:	14 °F to 194 °F

PHYSICAL DATA

Materials	
Valve/Actuator	
Product wetted steel parts:	AISI 316L
Product wetted seals:	EPDM
Ball:	Polypropylene HD
Internal surface finish:	Ra ≤32 µin
Actuator	
Seals.	NBR
External surface finish:	Blasted

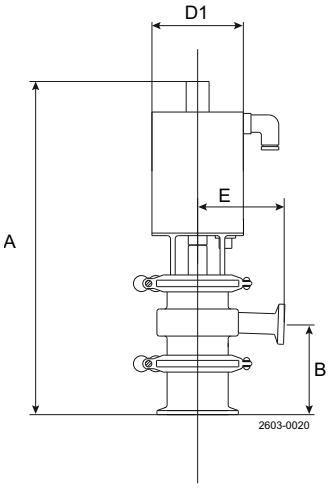
Connections	
Compressed air:	1/4"
Vent:	½" Tri-Clamp
Process/CIP:	1½" Tri-Clamp

Ordering

Please state the following when ordering:

- Unique SSV Vacuum Breaker
- Wetted elastomer preference
- Control Top

Dimensions (inches)



Size	1.5-inch
A	8.18
B	2.20
D[1]	2.24
E	2.12
Weight (lbs.)	4.08

Alfa Laval SB Self-cleaning CO2-valve

Control/Check valves

Introduction

The Alfa Laval SB Self-cleaning CO_2 Valve is a combination gas supply-gas vent valve to control the flow of carbon dioxide in tank top systems and other applications in order to vent and/or pressurize a vessel. Fully cleanable and self-draining, this hygienic valve provides safe, reliable and cost-effective gas management.

Application

This gas management valve is designed to vent and/or pressurize vessels used in hygienic applications, mainly used in brewery industries.

Benefits

- Cost-effective, hygienic design
- Safe, reliable operation
- Minimized risk of overpressure and underpressure
- Self-cleaning and self-draining
- Straightforward installation

Working principle

The Alfa Laval SB Self-cleaning CO_2 Valve uses a stainless steel spring to force open the internal polypropylene valve body, enabling the full flow of gas to pass through the valve in both directions. The introduction of CIP fluid through a special drilled opening in the valve body in a direction counter-current to the spring force pushes the internal valve body into closed position and ensures cleaning of all valve parts. The CIP flow is approximately 3.5-4.GPM, depending on the valve size.

Standard design

The SB Self-cleaning CO_2 Valve consists of a valve housing comprised of two parts held together by a threaded connection. Inside there is a valve body and a spring to keep the body in open position. A special drilled opening in the valve body ensures internal cleaning of the valve during Cleaning-in-Place (CIP).

Typically positioned as an integrated part of the gas/CIP pipe at the top plate, the valve can be mounted at an angle of 45° (maximum) to the ideal vertical position.

TECHNICAL DATA

Maximum gas flow (both directions) at max.1.45 PSI ΔP	
Size	**Flow (SCFM)**
1”/DN25	65
1½”/DN40	129
2”/DN50	389
2½”/DN65	647
3”/DN80	1165
4”/DN100	1554

PHYSICAL DATA

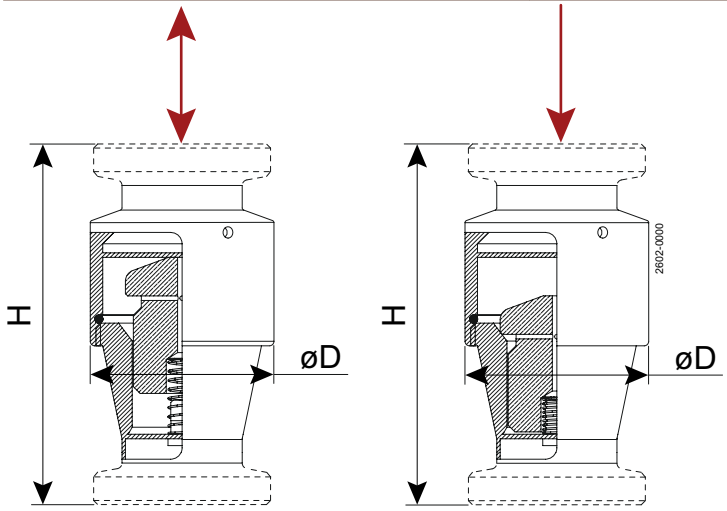
Materials	
Steel parts:	EN 1.4404 (AISI 316L) with 3.1 cert.
Product wetted seals:	EPDM
Product wetted polymers:	Polypropelen

Connections
Weld end acc. DIN 11850
Weld end acc. ISO 2037
Unions DIN 11851
Hygienic - Unions DIN 11853
Clamps ferrule ISO 2852

Dimensions (inch)

Open for gas in/out

Partly closed during CIP flow



	25/DN25	38/DN40	51/DN50	63.5/DN65	76.1/DN80	101.6/DN100
				H		
Welding End - DIN 11850	3.07	3.39	4.45	5.24	6.5	6.5
Welding End - ISO 2037	3.07	3.39	4.45	5.24	6.5	6.5
DIN Male Part - DIN 11851	4.8	5.12	6.26	7.2	8.46	8.86
Clamp Ferrule - ISO 2852	5.12	5.39	6.46	7.24	8.5	8.5
DIN Hygienic Male Part - DIN 11853	5.12	5.83	6.89	8.07	9.8	10.43
DIN Male/Weld End - DIN11851 / DIN11850	3.94	4.25	5.35	6.22	7.48	7.68
Clamp Ferrule/Weld End - ISO2852 / ISO2037	4.09	4.41	5.47	6.26	7.52	7.52
Hygienic/Weld End - DIN11853 / DIN11850	4.09	4.61	5.67	6.65	8.15	8.46
				øD		
	1.93	2.52	3.19	4.17	5.12	6.26

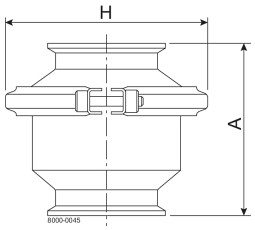
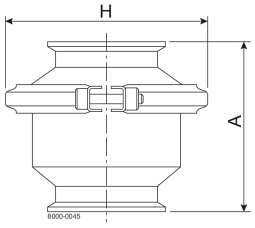
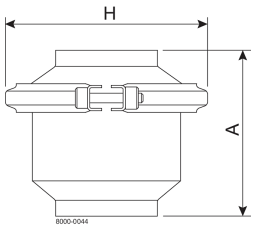
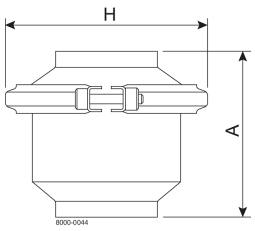
LKC-2 Check Valve, horizontal
Authorized to carry the 3A symbol

Elastomer: EPDM

ItemNumber	Size	Description
	inch	
		LKC Drainable-GC-POL
88234425	3.0"	
88234480	2.5"	Polished
		LKC Drainable-W-POL
88228654	2.0"	Horizontal
88234493	1.0"	
88234494	1.5"	Check valve
88234495	2.5"	Weld
88234496	3.0"	Polished

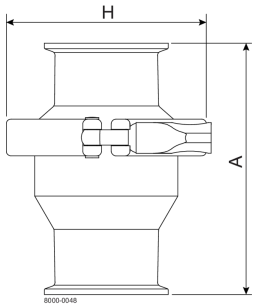
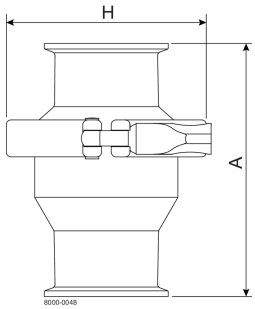
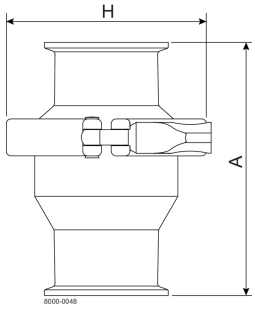
ALSIS Code: 5280
Valve Model Specification: LKC-2-GC-POL, vertical

Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm

Item no.	Size		Dimension (inch)		
	inch	DN	A	H	
					LKC-2 Check Valve, horizontal - 1.4404 (316L)
88231011	1.0"		2.46	3.23	
88231012	1.5"		2.95	3.75	
88231013	2.0"		3.44	4.29	
					LKC-2-GC-POL, vertical - 1.4307 (304L)
88126175	1.0"		2.46	3.23	
9612220013	1.0"		2.46	3.23	
88126088	1.5"		2.95	3.75	
88126176	2.0"		3.44	4.29	
88126177	2.5"		3.74	5.39	
88126178	3.0"		4.53	5.83	
88126179	4.0"		6.10	6.46	
					LKC-2-W-POL, vertical - 1.4307 (304L)
9612220014	1.5"		2.95	3.75	
9612220015	2.0"		3.44	4.29	
9612220016	2.5"		3.74	5.39	
9612220017	3.0"		4.53	5.83	
9612220018	4.0"		6.10	6.46	
					LKC-2-W-POL, vertical - 1.4404 (316L)
9612220019	1.0"		2.46	3.23	
9612220020	1.5"		2.95	3.75	
9612220021	2.0"		3.44	4.29	
9612220022	2.5"		3.74	5.39	
9612220023	3.0"		4.53	5.83	
9612220024	4.0"		6.10	6.46	

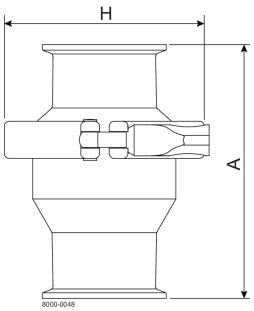
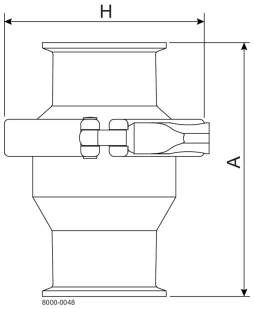
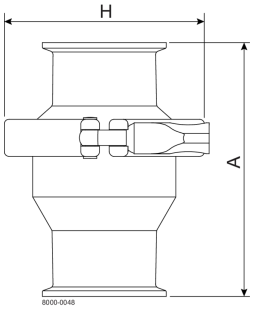
ALSIS Code: 5298

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.5 µm
Outside surface finish: Ra ≤ 0.8 µm

Item no.	Elastomer	Size DN/OD		Dimension (inch)		
		inch	DN	A	H	
Clamp ends - 1.4404 (316L) - DIN Clamp - Inside surface finish Ra ≤ 0.5 µm						
9613481934	EPDM USP Class VI		32	4.65	3.56	
9613481935	EPDM USP Class VI		40	4.65	3.56	
9613481936	EPDM USP Class VI		50	5.14	4.08	
9613481937	EPDM USP Class VI		65	5.43	5.22	
9613481938	EPDM USP Class VI		80	6.22	5.67	
9613481939	EPDM USP Class VI		100	7.80	6.46	
9613481946	FPM (Viton)		25	4.15	3.05	
9613481947	FPM (Viton)		32	4.65	3.56	
9613481948	FPM (Viton)		40	4.65	3.56	
9613481949	FPM (Viton)		50	5.14	4.08	
9613481950	FPM (Viton)		65	5.43	5.22	
9613481952	FPM (Viton)		100	7.80	6.46	
Clamp ends - 1.4404 (316L) - DIN Clamp - Inside surface finish Ra ≤ 0.8 µm						
9613484333	EPDM USP Class VI		25	4.15	3.05	
9613484335	EPDM USP Class VI		40	4.65	3.56	
9613484336	EPDM USP Class VI		50	5.14	4.08	
9613484337	EPDM USP Class VI		65	5.43	5.22	
9613484338	EPDM USP Class VI		80	6.22	5.67	
9613484339	EPDM USP Class VI		100	7.80	6.46	
9613484346	FPM (Viton)		25	4.15	3.05	
9613484347	FPM (Viton)		32	4.65	3.56	
9613484348	FPM (Viton)		40	4.65	3.56	
9613484349	FPM (Viton)		50	5.14	4.08	
9613484350	FPM (Viton)		65	5.43	5.22	
9613484351	FPM (Viton)		80	6.22	5.67	
9613484352	FPM (Viton)		100	7.80	6.46	
Clamp ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.5 µm						
9613481933	EPDM USP Class VI		25	4.15	3.05	
9613481951	FPM (Viton)		80	6.22	5.67	

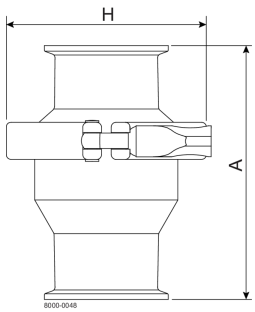
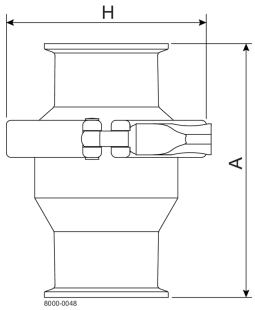
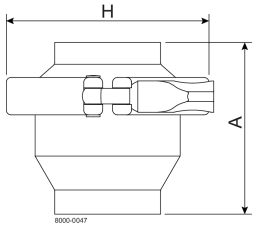
ALSIS Code: 5298

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.5 µm
Outside surface finish: Ra ≤ 0.8 µm

Item no.	Elastomer	Size DN/OD		Dimension (inch)		
		inch	DN	A	H	
Clamp ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.8 µm						
9613484334	EPDM USP Class VI		32	4.65	3.56	
Clamp ends - 1.4404 (316L) - ISO - Inside surface finish Ra ≤ 0.5 µm						
9613481927 9613481943	EPDM USP Class VI FPM (Viton)	1.0" 2.5"		4.15 5.43	3.05 5.22	
Clamp ends - 1.4404 (316L) - ISO - Inside surface finish Ra ≤ 0.8 µm						
9613484330 9613484332 9613484340	EPDM USP Class VI EPDM USP Class VI FPM (Viton)	2.5" 4.0" 1.0"		5.43 7.80 4.15	5.22 6.46 3.05	

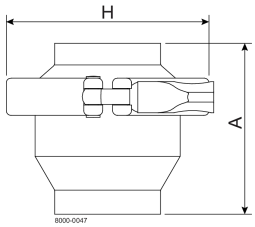
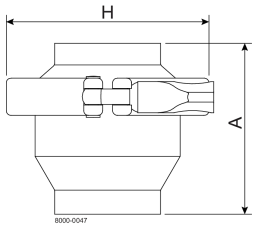
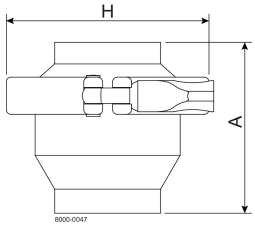
ALSIS Code: 5298

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.5 µm
Outside surface finish: Ra ≤ 0.8 µm

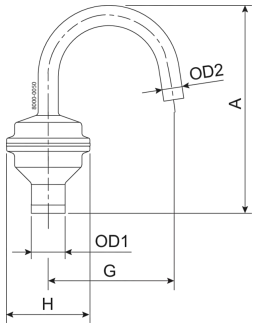
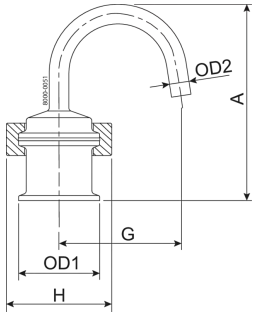
Item no.	Elastomer	Size DN/OD		Dimension (inch)		
		inch	DN	A	H	
Clamp ends - 1.4404 (316L) - ISO Clamp - ISO - Inside surface finish Ra ≤ 0.8 µm						
9613484327	EPDM USP Class VI	1.0"		4.15	3.05	
9613484328	EPDM USP Class VI	1.5"		4.65	3.56	
9613484329	EPDM USP Class VI	2.0"		5.14	4.08	
9613484331	EPDM USP Class VI	3.0"		6.22	5.67	
9613484341	FPM (Viton)	1.5"		4.65	3.56	
9613484342	FPM (Viton)	2.0"		5.14	4.08	
9613484343	FPM (Viton)	2.5"		5.43	5.22	
9613484344	FPM (Viton)	3.0"		6.22	5.67	
9613484345	FPM (Viton)	4.0"		7.80	6.46	
Clamp ends - 1.4404 (316L) - ISO Clamp - Inside surface finish Ra ≤ 0.5 µm						
9613481928	EPDM USP Class VI	1.5"		4.65	3.56	
9613481929	EPDM USP Class VI	2.0"		5.14	4.08	
9613481930	EPDM USP Class VI	2.5"		5.43	5.22	
9613481931	EPDM USP Class VI	3.0"		6.22	5.67	
9613481932	EPDM USP Class VI	4.0"		7.80	6.46	
9613481940	FPM (Viton)	1.0"		4.15	3.05	
9613481941	FPM (Viton)	1.5"		4.65	3.56	
9613481942	FPM (Viton)	2.0"		5.14	4.08	
9613481944	FPM (Viton)	3.0"		6.22	5.67	
9613481945	FPM (Viton)	4.0"		7.80	6.46	
Welding ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.5 µm						
9613481907	EPDM USP Class VI		25	2.46	3.05	
9613481908	EPDM USP Class VI		32	2.95	3.56	
9613481909	EPDM USP Class VI		40	2.95	3.56	
9613481910	EPDM USP Class VI		50	3.44	4.08	
9613481911	EPDM USP Class VI		65	3.74	5.22	
9613481912	EPDM USP Class VI		80	4.53	5.67	
9613481913	EPDM USP Class VI		100	6.10	6.46	
9613481920	FPM (Viton)		25	2.46	3.05	
9613481921	FPM (Viton)		32	2.95	3.56	
9613481922	FPM (Viton)		40	2.95	3.56	
9613481923	FPM (Viton)		50	3.44	4.08	
9613481924	FPM (Viton)		65	3.74	5.22	
9613481925	FPM (Viton)		80	4.53	5.67	
9613481926	FPM (Viton)		100	6.10	6.46	

ALSIS Code: 5298

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.5 µm
Outside surface finish: Ra ≤ 0.8 µm

Item no.	Elastomer	Size DN/OD		Dimension (inch)		
		inch	DN	A	H	
Welding ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.8 µm						
9613484307	EPDM USP Class VI		25	2.46	3.05	
9613484308	EPDM USP Class VI		32	2.95	3.56	
9613484309	EPDM USP Class VI		40	2.95	3.56	
9613484310	EPDM USP Class VI		50	3.44	4.08	
9613484311	EPDM USP Class VI		65	3.74	5.22	
9613484312	EPDM USP Class VI		80	4.53	5.67	
9613484313	EPDM USP Class VI		100	6.10	6.46	
9613484320	FPM (Viton)		25	2.46	3.05	
9613484321	FPM (Viton)		32	2.95	3.56	
9613484322	FPM (Viton)		40	2.95	3.56	
9613484323	FPM (Viton)		50	3.44	4.08	
9613484324	FPM (Viton)		65	3.74	5.22	
9613484325	FPM (Viton)		80	4.53	5.67	
9613484326	FPM (Viton)		100	6.10	6.46	
Welding ends - 1.4404 (316L) - ISO - Inside surface finish Ra ≤ 0.5 µm						
9613481901	EPDM USP Class VI	1.0"		2.46	3.05	
9613481902	EPDM USP Class VI	1.5"		2.95	3.56	
9613481903	EPDM USP Class VI	2.0"		3.44	4.08	
9613481904	EPDM USP Class VI	2.5"		3.74	5.22	
9613481905	EPDM USP Class VI	3.0"		4.53	5.67	
9613481906	EPDM USP Class VI	4.0"		6.10	6.46	
9613481914	FPM (Viton)	1.0"		2.46	3.05	
9613481915	FPM (Viton)	1.5"		2.95	3.56	
9613481916	FPM (Viton)	2.0"		3.44	4.08	
9613481917	FPM (Viton)	2.5"		3.74	5.22	
9613481918	FPM (Viton)	3.0"		4.53	5.67	
9613481919	FPM (Viton)	4.0"		6.10	6.46	
Welding ends - 1.4404 (316L) - ISO - Inside surface finish Ra ≤ 0.8 µm						
9613484301	EPDM USP Class VI	1.0"		2.46	3.05	
9613484302	EPDM USP Class VI	1.5"		2.95	3.56	
9613484303	EPDM USP Class VI	2.0"		3.44	4.08	
9613484304	EPDM USP Class VI	2.5"		3.74	5.22	
9613484305	EPDM USP Class VI	3.0"		4.53	5.67	
9613484306	EPDM USP Class VI	4.0"		6.10	6.46	
9613484314	FPM (Viton)	1.0"		2.46	3.05	
9613484315	FPM (Viton)	1.5"		2.95	3.56	
9613484316	FPM (Viton)	2.0"		3.44	4.08	
9613484317	FPM (Viton)	2.5"		3.74	5.22	
9613484318	FPM (Viton)	3.0"		4.53	5.67	
9613484319	FPM (Viton)	4.0"		6.10	6.46	

ALSIS Code: 5288 Material: 1.4307 (304L)

Item no.	Gasket material	Size	Dimension (inch)			OD1	OD2	
		Inch	A	G	H	inch	inch	
								Air Releif valve - LKUV-2
9613426901	EPDM		5.07	2.93	2.57	0.79	0.47	
9613426903	NBR		5.07	2.93	2.57	0.79	0.47	
9613426904	FPM		5.07	2.93	2.57	0.79	0.47	
								Air Releif valve-LKUV-2 Clamp
9613426905	EPDM	1.5"	5.07	2.93	2.57	1.95	0.47	
9613426907	FPM	1.5"	5.07	2.93	2.57	1.95	0.47	
9613426908	EPDM	2.0"	5.07	2.93	2.57	2.52	0.47	

Elastomer: Buna
Material: 316L Stainless Steel
Connection Type: Tri-Clamp

Item no.	Size	Tube OD
	inch	mm
		D60RTHMP-Size, T-Type Relief valve with Metal Seat
200006	1.0"	25.4
200059	2.0"	50.8
200082	1.5"	38.1
200110	2.5"	63.5
200111	3.0"	76.2

Material: 1.4404 (316L)

Item no.	Size	Connection size	Description
	inch	mm	
			Check Valve Capacity Rating 1600 Cubic Ft./Hour Air Volume
830051	1.5"	38.1	Part #62-174R-A-Size Quick Couple Adapter ("A" Adapter)
830196	1.5"	38.1	Part #62-174R-C-Size Female NPT Adapter ("C" Adapter)
830020	1.5"	38.1	Part #62-174R-B-Size Rubber Hose Adapter ("B" Adapter)
830076	2.0"	50.8	Part #62-174R-C-Size Female NPT Adapter ("C" Adapter)
830103	2.0"	50.8	Part #62-174R-A-Size Quick Couple Adapter ("A" Adapter)
830198	2.0"	50.8	Part #62-174R-B-Size Rubber Hose Adapter ("B" Adapter)
830012	2.5"	63.5	Part #62-174R-A-Size Quick Couple Adapter ("A" Adapter)
830172	2.5"	63.5	Part #62-174R-C-Size Female NPT Adapter ("C" Adapter)
830135	3.0"	76.2	Part #62-174R-A-Size Quick Couple Adapter ("A" Adapter)
830213	3.0"	76.2	Part #62-174R-C-Size Female NPT Adapter ("C" Adapter)
830006	3.0"	76.2	Part #62-174R-B-Size Rubber Hose Adapter ("B" Adapter)
830003	4.0"	101.6	Part #62-174R-C-Size Female NPT Adapter ("C" Adapter)
830013	4.0"	101.6	Part #62-174R-A-Size Quick Couple Adapter ("A" Adapter)
9634054669	4.5"	114.3	Part #62-174R-B-Size Rubber Hose Adapter ("B" Adapter)
830026	4.5"	114.3	Part #62-174R-A-Size Quick Couple Adapter ("A" Adapter)
830110	4.5"	114.3	Part #62-174R-C-Size Female NPT Adapter ("C" Adapter)

62-326 Air Blow Check Valve

Material: 1.4404 (316L)

Item no.	Connection size		Description
	inch	mm	
			Check Valve Capacity Rating 4000 Cubic Ft./Hour Air Volume
830073	2.0"	50.8	Part #62-326-C-Size Female NPT Adapter ("C" Adapter)
830129	2.0"	50.8	Part #62-326-A-Size Quick Couple Adapter ("A" Adapter)
830085	2.5"	63.5	Part #62-326-C-Size Female NPT Adapter ("C" Adapter)
830130	2.5"	63.5	Part #62-326-A-Size Quick Couple Adapter ("A" Adapter)
830185	2.5"	63.5	Part #62-326-B-Size Rubber Hose Adapter ("B" Adapter)
830131	3.0"	76.2	Part #62-326-A-Size Quick Couple Adapter ("A" Adapter)
830087	3.0"	76.2	Part #62-326-C-Size Female NPT Adapter ("C" Adapter)
830186	4.0"	101.6	Part #62-326-B-Size Rubber Hose Adapter ("B" Adapter)
830091	4.5"	114.3	Part #62-326-C-Size Female NPT Adapter ("C" Adapter)
830133	4.5"	114.3	Part #62-326-A-Size Quick Couple Adapter ("A" Adapter)
830214	4.5"	114.3	Part #62-326-B-Size Rubber Hose Adapter ("B" Adapter)

Material: 1.4404 (316L)
Connection Type: Check Valves ("Y" Type) - Tri-Clamp End Connection

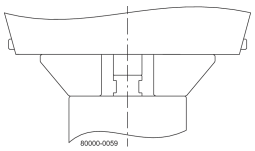
Item no.	Ball type	Size (Tube OD)	
		inch	mm
			45BYMP-Size-316L-Elastomer
200009	Buna ball	1.5"	38.1
200010	Buna ball	2.0"	50.8
200050	Buna ball	2.5"	63.5
200093	Buna ball	3.0"	76.2
200004	EPDM ball	3.0"	76.2
200125	EPDM ball	2.5"	63.5
200161	EPDM ball	1.5"	38.1
200200	Nylon ball	1.5"	38.1
200201	Nylon ball	2.0"	50.8
200203	Nylon ball	3.0"	76.2
200202	Nylon ball	2.5"	63.5
200139	SFY ball	2.0"	50.8
200159	SFY ball	1.5"	38.1
200164	SFY ball	3.0"	76.2
200176	SFY ball	2.5"	63.5

C45 Check Valve

Material: 316L Stainless Steel
Connection Type: Check Valves ("Y" Type) - Tri-Clamp End Connection

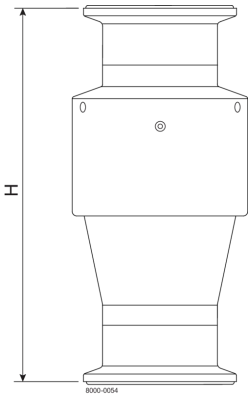
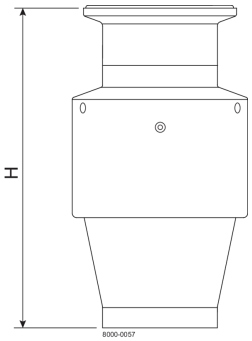
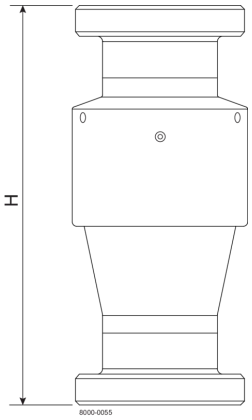
Item no.	Ball type	Size (Tube OD)	
		inch	mm
			C45MP-Size-Mat'l-316L
9634054251	EPDM ball	0.75"	19.05
			C45MPS-Size-Mat'l-316L
200038	Buna ball	0.5"	12.7
200112	EPDM ball	0.5"	12.7
9634048520	EPDM ball	0.75"	19.05
200066	SFY ball	0.5"	12.7
9635000133	Teflon ball	0.5"	12.7

ALSIS Code: 5288

Item no.	Size		
	inch	mm	
			A49-42 Vacuum Beaker
767236	2.0"	51.0	
			B44MP Vasuum Breaker
200133	1.5"	101.6	
200158	2.0"	51.0	
			Unique Vacuum Breaker
9634082901	1.5"	38.0	

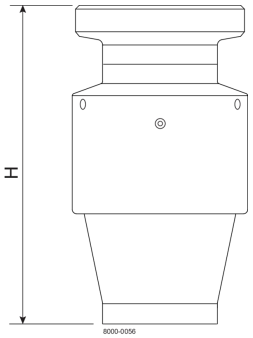
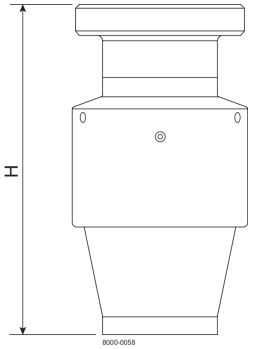
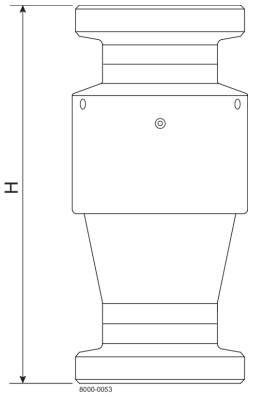
Valve Model Specification: Check valve
ALSIS Code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm

Item no.	Size		Dimension (inch)	
	DN	inch		
				Clamp Ferule Acc. ISO 2852
9615118001		1.0"	5.12	
9615118002		1.5"	5.39	
9615118003		2.0"	6.46	
9615118004		2.5"	7.24	
9615118005		3.0"	8.50	
9615118006		4.0"	8.50	
				Clamp Ferule/Weld End Acc. ISO2852/ISO2037
9615118007		1.0"	4.09	
9615118008		1.5"	4.41	
9615118009		2.0"	5.47	
9615118010		2.5"	6.26	
9615118011		3.0"	7.52	
9615118012		4.0"	7.52	
				DIN Hygienic Male par Acc.DIN 11853
9615117901	DN25		5.12	
9615117902	DN40		5.83	
9615117903	DN50		6.89	
9615117904	DN65		8.07	
9615117905	DN80		9.80	
9615117906	DN100		10.43	

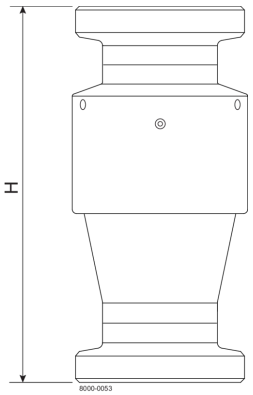
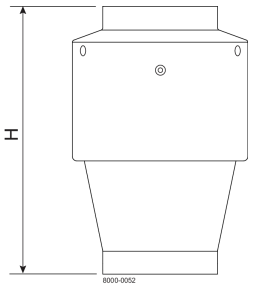
Valve Model Specification: Check valve
ALSIS Code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm

Item no.	Size		Dimension (inch)	
	DN	inch		
				DIN Male/weld End Acc. DIN11851/DIN11850
9615117807 9615117808 9615117809 9615117810 9615117811 9615117812	DN25 DN40 DN50 DN65 DN80 DN100		3.94 4.25 5.35 6.22 7.48 7.68	
				Hygienic/Weld End Acc. DIN 11853/DIN11850
9615117907 9615117908 9615117909 9615117910 9615117911 9615117912		1.0" 1.5" 2.0" 2.5" 3.0" 4.0"	4.09 4.61 5.67 6.65 8.15 8.46	
				Male part Acc. DIN 11851
9615117801 9615117802 9615117803 9615117804 9615117805 9615117806	DN25 DN40 DN50 DN65 DN80 DN100		4.80 5.12 6.26 7.20 8.46 8.86	

Valve Model Specification: Check valve
ALSIS Code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm

Item no.	Size		Dimension (inch)	
	DN	inch		
				Welding Ends Acc. DIN 11850
9615116001	DN25		3.07	
9615116002	DN40		3.39	
9615116003	DN50		4.45	
9615116004	DN65		5.24	
9615116005	DN80		6.50	
9615116006	DN100		6.50	
				Welding Ends Acc. ISO 2037
9615110601		1.0"	3.07	
9615110602		1.5"	3.39	
9615110603		2.0"	4.45	
9615110604		2.5"	5.24	
9615110605		3.0"	6.50	
9615110606		4.0"	6.50	

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Diaphragm valves

Alfa Laval Unique DV-ST UltraPure

Diaphragm valves

Introduction

The Alfa Laval Unique DV-ST UltraPure Diaphragm Valve is an aseptic diaphragm valve used to shut off, divert and/or regulate the flow of fluids through hygienic, high-purity and aseptic processing lines.

Application

This diaphragm valve is designed for use in dosing, filling, diverting and regulating duties in hygienic, high-purity and aseptic processes in the biotech and pharmaceutical industries as well as aseptic and hygienic processes in the dairy, food, beverage and brewery industries.

Benefits

- Versatile, modular and durable design
- Compact, reliable and straightforward
- Hygienic and aseptic design
- Easy installation, validation and qualification
- Standard with full Q-doc documentation meeting the demands from high-purity applications
- Meets current Good Manufacturing Practice (cGMP) regulations

Standard design

The Alfa Laval Unique DV-ST UltraPure diaphragm valve has a modular design that consists of a valve body, diaphragm, and either a handle for manual operation or an actuator for pneumatic operation. It can be designed to suit any application.

The actuator is standard in Stainless steel execution and available in two versions. A HighPressure version (SS/HP) and a Slim (SS/SL) version for std. duties. Both versions are available in either Normally Closed (NC), Normally Open (NO) or an Air/Air (A/A) activated solution. Futhermore also ATEX compliant and autoclaveable.

The DV-ST UltraPure diaphragm valve can be fitted with sensing and control units from an extensive range. Options include control units that suit AS-Interface, IO-Link and digital operating platforms.

The diaphragms are available as soft elastomer (EPDM) as well as hard elastomers (PTFE/EPDM and TFM/EPDM).

Alfa Laval DV-ST UltraPure valve bodies are available in cast, forged, and block options to suit the most demanding applications. A choice of surface finishes and connection types are also available. For critical applications with corrosive media, special alloys such as Hastelloy, duplex, and AL-6XN materials in block design are available upon request.

Working principle

The Alfa Laval Unique DV-ST UltraPure Diaphragm Valve has two modes of operation: manual operation by means of a handle and pneumatic operation by means of a pneumatic actuator.

For manual operation, a simple turn of the handle lifts the compressor upwards, moving the diaphragm away from the weir of the valve body thereby opening the valve. Turning the handle in the opposite direction pushes the compressor downwards onto the diaphragm, pressing the diaphragm against the weir of the valve body, thereby closing the valve.

For pneumatic operation, the pneumatic actuator controls the axial movement of a piston, thereby opening or closing the valve depending on the actuator function.

Valve Body Design

The valve bodies are available in a wide variety of valve types and configuration options (dimension standards, connections, surface finish and material).

- 2-way body
- T-body (Zero dead-leg design)
- Tank outlet body
- Tandem body / IAV solutions
- Multi-port body

Configurator available.

Figure 1. 2–way

Figure 2. T-Block

Figure 3. Multi-port

Figure 4. Tandem

Figure 5. Tank outlet-block

PHYSICAL DATA

Materials

Body types	Forged 1.4435 (316L)	Block [1] 1.4404 (316L)
2-way	✓	✓
T		✓
Tank outlet		✓
Tandem / IAV solutions	✓	✓
Multi-port		✓

[1] Other alloys on request.

	Cast	Forged	Block
Material	CF3M (316L)	1.4435 (316L)	1.4404 (316L)
Delta ferrite	< 2.0%	< 0.5%	< 0.5%
Sulphur content	0.005%-0.017%	0.005-0.017%	0.005-0.017%
Internal surface finish	Ra < 20 µin Ra < 15 µin EP [1]	Ra < 20 µin Ra < 15 µin EP [1]	Ra < 0.51 µm Ra < 0.38 µm EP [1]
External surface finish		Blasted	Machined

[1] Electro Polished

20 µin = SF1, 15 µin = SF4

Sensing and control units:

A wide range of sensing and control units are available for actuators consisting of:

- Controls unit
- Indication units
- ATEX units
- Stroke limiters - Only for SS/SL Slim actuators

Unique DV-ST SS/HP HighPressure version actuator DN8-15 (1/4"-1/2")

Adapter for mounting of ThinkTop V50, ThinkTop Basic, ThinkTop D30 and IndiTop - see automation accessories

Unique DV-ST SS/SL Slim version actuator

All sizes require adaptor for mounting of Sensing & Control solutions - see automation accessories

Documentation

All UltraPure valves are delivered with our comprehensive Q-Doc documentation package, which includes:

- **3.1 (MTR)** - Compliance to EN 10204 type 3.1 (MTR)
- **FDA CFR 21** - Compliance to U.S. Food & Drug Administration (FDA) CFR 21 (indirect food additives)
- **USP or ISO 10993**- Declaration of biocompatibility (non-metallic parts)
- **ADI** - (Animal Derivative Ingredient) declaration
- Compound ID traceability and cure date of diaphragms
- **ASME BPE SF** - Surface finish compliance declaration

The following documentation is available upon request:

- Surface finish certificate (Ra test results)

Handle and actuator:

The diaphragm valves can be operated by a handle or pneumatic actuator. Alfa Laval offers 2 versions of manual handles and 2 versions of pneumatic actuator.

Actuator

Figure 6. Model SS/SL

Figure 7. Model SS/HP

Sizes			DN 8 - 100;1/4" - 4"		
Housing			Stainless steel		
Intermediate part			Stainless steel		
Compressor, stem			Stainless steel		
Full Vacuum			✓		
Leakage Detection			✓		
Autoclavable [1]			✓		
Max. Air Temperature			176°F		
Max. Air Pressure [2]			101 PSI		
Valve/Seat tightness		ANSI Class VI			ANSI Class VI
TA Luft (Air)			DIN EN ISO 15848–1		
ATEX			✓		
			II 2G Ex h IIB T4 Gb (14°F ≤ tamb ≤ 176°f)		
			II 3D Ex h IIIB T100°C Dc (14°F ≤ tamb ≤ 176°f)		
Stroke limiter		Yes			No
OD Surface		Polished			Blasted
Max working pressure		Delta P 100% [3]			Delta P 0% [3]
Sizes	¼" – 2"	EPDM 145.03 PSI	Sizes	'¼" – 4"	EPDM 145.03 PSI
		PTFE/EPDM 87 PSI			PTFE/EPDM 145.03 PSI
					TFM/EPDM 87 PSI
	2½"-3"	EPDM 116 PSI			
		PTFE/EPDM 72 PSI			

[1] 249.8°F for max. 60 min

[2] Min. Air pressure see instruction manual

[3] See figures below for Delta P 100% and Delta P 0%

Actuator		
		TFM/EPDM 72 PSI
	4”	EPDM 87 PSI
		PTFE/EPDM 58 PSI

[1] 249.8°F for max. 60 min

[2] Min. Air pressure see instruction manual

[3] See figures below for Delta P 100% and Delta P 0%

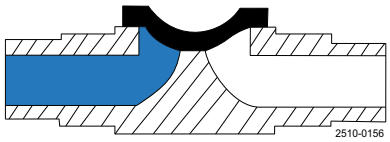


Figure 8. Delta P 100%

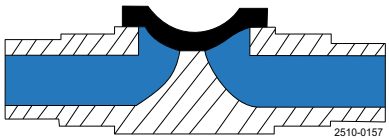


Figure 9. Delta P 0%

Handles		
	 **Figure 10. Model SS/SS**	 **Figure 11. Model C/SS**
Model	SS/SS	C/SS
Size	1/4” - 4”	1/4” - 4”
Handwheel	Stainless steel	PA [1]
Bonnet	Stainless steel	Stainless steel
Spindle + compressor [1]	Stainless steel	Stainless steel
Max. product pressure	145 PSI	145 PSI
Overclosure protection	✓	✓
Optical positioner	✓	✓
Autoclavable	✓ [2]	✓ [2]
Valve/Seat tightness	ANSI Class VI	ANSI Class VI
TA Luft (Air)	DIN EN ISO 15848–1	
Atex	II 2 G D 3 [3]	
Stroke limiter	Optional	Optional

Note! The stroke limiter manual handles, max opening per size as below:

DN8/10	100%
DN15	50%
DN20	40%
DN25	65%
DN40	75%
DN50	90%
DN65	100%
DN80	100%

[1] POM (Polyoxymethylene)

[2] 249.8°F for max. 60 min.

[3] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

Diaphragms

The diaphragms are available as soft elastomer (EPDM) as well as hard elastomers (PTFE/EPDM and TFM/EPDM).

The hard elastomers are supported by a soft elastomer (EPDM). The 2-piece design allows the two elastomers to work independently of each other, thereby reducing tension caused by different thermal properties.

Diaphragms are available with 3 different types of connections: thread, bayonet and button connection.

- Threaded connections are used on soft elastomers ≥ 1"
- Bayonet connections are used on all hard elastomer ≥ 1/2"
- Button connections are used on all small sizes.

Material selection:

Each application has different working conditions and therefore different demands on the diaphragm. In order to select the most suitable diaphragm for your application, the following factors should be considered:

- Working pressure
- Application temperatures
- Process fluids (product, cleaning liquid, sterilisation, passivation, etc.)

Soft elastomer (EPDM) is suitable for most applications and for high working temperatures. Including continuous steam application.

Hard elastomers offer the highest possible degree of chemical resistance. Our TFM (PFTE grade) elastomer is a more flexible material and has some of the features of soft elastomer including for example low creep.

For further information, please see below or contact Alfa Laval for further guidance.

Diaphragm properties:

Description	Temperature recommendations °F			Documentation			Available sizes	Available Diaphragm connections:		
	Min.	Max. Liquid	Max. Steam	FDA	USP	TSE		Button [1]	Thread	Bayonet [2]
EPDM	-40°F	266°F	302°F [3]	✓	✓	✓	0.3” - 4”	1/4” - 3/4”	1” - 4”	
PTFE/EPDM	23°F	347°F	302°F [4]	✓	✓	✓	1/2” - 4”			½” - 4”
TFM/EPDM	23°F	347°F	302°F [4]	✓	✓	✓	0.3” - 4”	1/4” - 3/8”		½” - 4”

[1] < DN25 thread optional

[2] TFM/EPDM point-fixed thread optional

[3] Continuous temperature

[4] 40 min. steam sterilization

FDA - Declaration of conformity to FDA (CFR 21: 177.2600 or 177.1550)

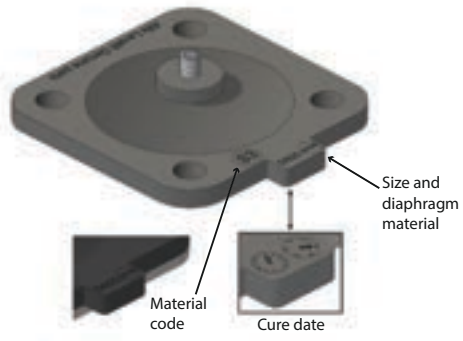
USP - Certificate of conformity to USP Class VI (chapter 88, biological reactivity test)

TSE/ADI Declaration (Transmissible Spongiform Encephalopathy /Animal Derived Ingredients)

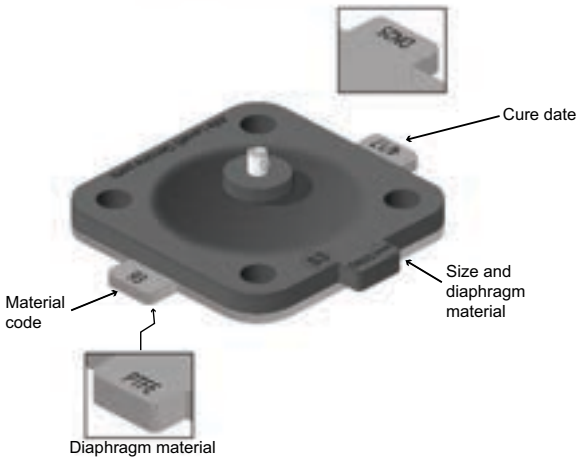
Alfa Laval Cast valve bodies with Optimized Flow utilize smaller diaphragm and topwork vs. Valve pipe dimension. Topwork being either pneumatic or manual. This giving the benefit of having a slim and light weight valve.

Correct spare parts are easy to identify via the diaphragm tab, stating the giving size of diaphragm and topwork to be used on the valve. See image below

Alfa Laval EPDM Diaphragm



Alfa Laval PTFE/EPDM



Pressure drop/capacity table

Kv value (Pipe standard ISO 1127 / DIN/A), Forged and Block

kv in m^3/h Δp = 1 bar								
DN 8-10 (1/4"-3/8")	DN 15 (1/2")	DN 20 (3/4")	DN 25 (1")	DN 40 (1½")	DN 50 (2")	DN 65 (2½")	DN 80 (3")	DN 100 (4")
1.6	4.2	8.8	13.1	41.0	69.4	94.3	152.0	204.9

Kv value (Pipe standard ASME BPE), Forged and Block

kv in m^3/h Δp = 1 bar								
DN 8-10 (1/4"-3/8")	DN 15 (1/2")	DN 20 (3/4")	DN 25 (1")	DN 40 (1½")	DN 50 (2")	DN 65 (2½")	DN 80 (3")	DN 100 (4")
0.20	2.2	4.8	9.5	23.9	46.5	69.7	111.7	200.0

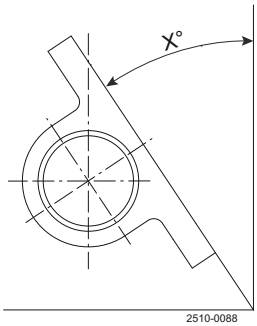
KV Value Cast bodies Optimized Flow (OP)

KV Value (Pipe standard ASME BPE / ISO 2037 Cast OP)

kv in m^3/h Δp = 1 bar							
DN8-10	DN15	DN20	DN25	DN40	DN50	DN65	DN80
1/4"-3/8"	1/2"	3/4"	1"	1½"	2"	2½"	3"
0.2	2.2	5.1	10.8	25.3	53.4	79.7	128.6

KV values are based on lab test.

Drain angle x:



Drain angles, forged and block valve bodies

Port size		ASME BPE	ISO 2037	DIN11850	ISO 1127
DN	Inch			(Series A)	(Series B)
8	¼”	42°	27°	32°	26°
10	⅜”	33°	25°	35°	28°
15	½”	35°	26°	24°	20°
20	¾”	34°	30°	28°	23°
25	1”	29°	29°	25°	21°
32	1¼”	-	-	18°	26°
40	1 ½”	30°	29°	27°	22°
50	2”	25°	24°	24°	20°
65	2 ½”	23°	23°	20°	16°
80	3”	26°	27°	23°	22°
100	4”	14°	14°	13°	8°

Drain angles, forged mini valve bodies

Port size		ASME
DN	Inch	
8	¼”	38°
10	⅜”	30°
15	½”	26°

Drain angles, Cast OP valve bodies

Port size		ASME	ISO 2037
DN	Inch		
15	1/2”	26.5°	7°
20	3/4”	20°	14°
25	1”	22.7°	22°
40	11/2”	13.8°	13°
50	2”	16.1°	15°
65	2"1/2”	14.7°	15°
80	3”	14.9°	15°

Dimensions (inch)

2-way body:

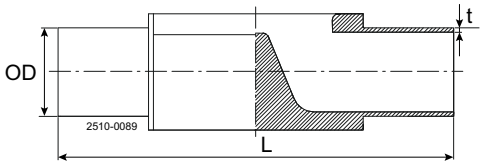
2-way bodies are the standard configuration for shut off and regulating functions.

The 2-way bodies are available from forged or cast material.

The cast bodies feature a unique Optimized Flow design (OP) providing optimization on diaphragm and topworks being applied on the valve.

See futher in the DV-ST catalogue.

Weld ends: (inch)

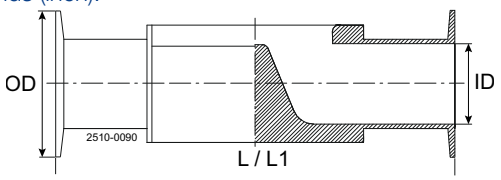


Port size		Length	ASME BPE
DN	Inch	L	OD x t
8	¼”	3.50	0.25 x 0.035
10	⅜”	3.50	0.38 x 0.035
15	½”	4.33	0.50 x 0.065
20	¾”	4.68	0.75 x 0.065
25	1”	5.08	1.00 x 0.065
40	1 ½”	6.34	1.50 x 0.065

Port size		Length	ASME BPE
DN	Inch	L	OD x t
50	2”	7.56	2.00 x 0.065
65	2 ½”	8.58	2.50 x 0.065
80	3”	10.08	3.00 x 0.065
100	4”	8.58	4.00 x 0.079

Build-in length of weld/clamp valve bodies: Weld ends L/2 + CL ends L/2 = total length of valve body.

Clamp ends (inch):



Port size		Length	Length	Clamp ASME BPE for ASME BPE	
DN	Inch	L	L1 [1]	OD	ID
8	¼”	3.50	2.5	0.98	0.18
10	⅜”	3.50	2.5	0.98	0.31
15	½”	4.25	3.5	0.98	0.37
20	¾”	4.65	4.0	0.98	0.62
25	1”	5.00	4.5	1.98	0.87
40	1½”	6.26	5.5	1.98	1.37
50	2”	7.52	6.25	2.52	1.87
65	2½”	8.50	7.63	3.05	2.37
80	3”	10.00	8.75	3.58	2.87
100	4”	12.01	4.68	3.83	4.69

[1] ASME BPE Clamp, short version

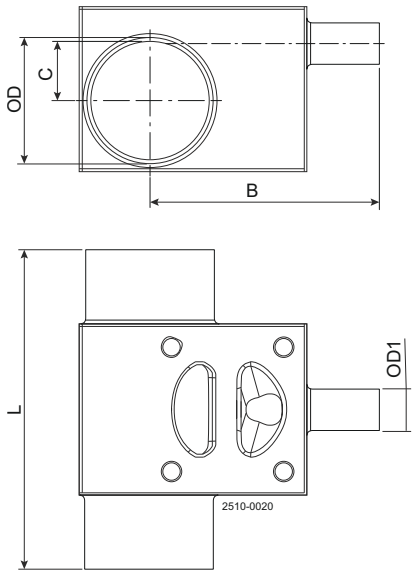
Build-in length of weld/clamp valve bodies: Weld ends L/2 + CL ends L/2 = total length of valve body.

Other sizes and connections available on request.

T- body:

T are constructed with weir as close as possible to the internal contour of the main tube thereby minimising potential dead leg. The T- bodies are available as machined from block. T valve can furthermore be made with steam or sample port solutions. See futher in the DV-ST catalogue.

Dimension table for T-block bodies - ASME



Main tube	Valve	Main tube OD x t	Valve OD1 x t	B - Weld	B - Clamp	C	L - Weld	L - Clamp
DN	DN	in	in	in	in	in	in	in
8	8	ø0.25x0.035	ø0.25x0.035	1.37	1.87	0.0	2.24	3.24
10	8	ø0.38x0.035	ø0.25x0.035	1.40	1.90	0.13	2.24	3.24
15	8	ø0.50x0.065	ø0.25x0.035	1.46	1.96	0.18	3.19	4.19
20	8	ø0.75x0.065	ø0.25x0.035	1.57	2.07	0.35	3.19	4.19
25	8	ø1.00x0.065	ø0.25x0.035	1.70	2.20	0.48	3.19	4.19
40	8	ø1.50x0.065	ø0.25x0.035	2.18	2.68	0.51	3.19	4.19
50	8	ø2.00x0.065	ø0.25x0.035	2.27	2.77	0.76	3.19	4.19
65	8	ø2.50x0.065	ø0.25x0.035	2.49	2.99	1.02	3.19	4.19
80	8	ø3.00x0.065	ø0.25x0.035	2.76	3.26	1.26	3.19	4.19
10	10	ø0.38x0.035	ø0.38x0.035	1.40	1.90	0.19	2.24	3.24
15	10	ø0.50x0.065	ø0.38x0.035	1.45	1.96	0.18	3.19	4.19
20	10	ø0.75x0.065	ø0.38x0.035	1.57	2.07	0.35	3.19	4.19
25	10	ø1.00x0.065	ø0.38x0.035	1.70	2.20	0.48	3.19	4.19
40	10	ø1.50x0.065	ø0.38x0.035	2.18	2.68	0.51	3.19	4.19
50	10	ø2.00x0.065	ø0.38x0.035	2.27	2.77	0.76	3.19	4.19
65	10	ø2.50x0.065	ø0.38x0.035	2.50	2.99	1.02	3.19	4.19
80	10	ø3.00x0.065	ø0.38x0.035	2.76	3.26	1.26	3.19	4.19
15	15	ø0.50x0.065	ø0.50x0.065	2.27	2.77	0.14	3.74	4.74
20	15	ø0.75x0.065	ø0.50x0.065	2.31	2.81	0.31	3.74	4.74
25	15	ø1.00x0.065	ø0.50x0.065	2.44	2.94	0.44	3.74	4.74
40	15	ø1.50x0.065	ø0.50x0.065	2.70	3.20	0.67	3.74	4.74
50	15	ø2.00x0.065	ø0.50x0.065	2.96	3.46	0.81	3.74	4.74
65	15	ø2.50x0.065	ø0.50x0.065	3.22	3.72	0.97	3.74	4.74
80	15	ø3.00x0.065	ø0.50x0.065	3.48	3.98	1.15	3.74	4.74
20	20	ø0.75x0.065	ø0.75x0.065	2.56	3.06	0.04	4.29	5.29
25	20	ø1.00x0.065	ø0.75x0.065	2.69	3.19	0.25	4.29	5.29
40	20	ø1.50x0.065	ø0.75x0.065	2.96	3.46	0.51	4.29	5.29
50	20	ø2.00x0.065	ø0.75x0.065	3.28	3.78	0.72	4.29	5.29
65	20	ø2.50x0.065	ø0.75x0.065	3.47	3.97	0.83	4.29	5.29
80	20	ø3.00x0.065	ø0.75x0.065	3.80	4.30	1.02	4.29	5.29
25	25	ø1.00x0.065	ø1.00x0.065	2.87	3.37	0.17	4.61	5.61
40	25	ø1.50x0.065	ø1.00x0.065	3.13	3.63	0.49	4.61	5.61
50	25	ø2.00x0.065	ø1.00x0.065	3.36	3.86	0.71	4.61	5.61
65	25	ø2.50x0.065	ø1.00x0.065	3.62	4.12	0.87	4.61	5.61
80	25	ø3.00x0.065	ø1.00x0.065	3.87	4.37	1.02	4.61	5.61
40	40	ø1.50x0.065	ø1.50x0.065	3.50	4.00	0.09	5.63	6.63
50	40	ø2.00x0.065	ø1.50x0.065	3.77	4.27	0.44	5.63	6.63

Main tube	Valve	Main tube OD x t	Valve OD1 x t	B - Weld	B - Clamp	C	L - Weld	L - Clamp
DN	DN	in	in	in	in	in	in	in
65	40	ø2.50x0.065	ø1.50x0.065	4.03	4.53	0.70	5.63	6.63
80	40	ø3.00x0.065	ø1.50x0.065	4.30	4.80	0.89	5.63	6.63
50	50	ø2.00x0.065	ø2.00x0.065	4.39	4.89	0.18	6.69	7.69
65	50	ø2.50x0.065	ø2.00x0.065	4.40	4.90	0.50	6.69	7.69
80	50	ø3.00x0.065	ø2.00x0.065	4.66	5.16	0.74	6.69	7.69
65	65	ø2.50x0.065	ø2.50x0.065	5.03	5.53	0.20	7.48	8.48
80	65	ø3.00x0.065	ø2.50x0.065	5.29	5.79	0.50	7.48	8.48
80	80	ø3.00x0.065	ø3.00x0.065	5.99	6.49	0.39	9.17	10.17

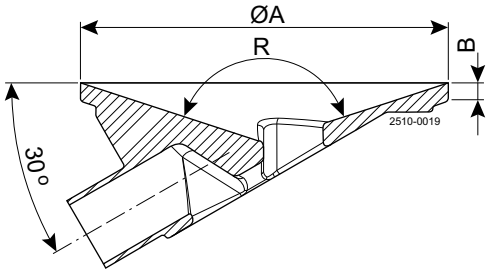
Contact Alfa Laval for 4" T-block valves.

T-block valves are available in all dimension standards (ASME, DIN, ISO2037, ISO1127) Hybrid solutions with mixed dimension standards (ASME, DIN, ISO2037, ISO1127) is furthermore possible, please contact Alfa Laval.

Tank outlet body:

Tank outlet bodies with minimised dead leg and complete drainability. The tank outlet valve bodies are available as machined from block. Tank outlet valves can furthermore be supplied with steam or sample port. See futher in the DV-ST catalogue.

Dimension table for Tank outlet-block bodies - all standards



DN	ØA	B	R
	(in)	(in)	
DN15 (1/2")	3.54	0.21	144°
DN20 (3/4")	3.94	0.21	144°
DN25 (1")	4.72	0.21	144°
DN40 (1½")	5.91	0.21	144°
DN50 (2")	7.09	0.21	144°
DN65 (2½")	7.87	0.21	144°
DN80 (3")	9.84	0.21	144°

For OD dimensions see two-way valves.

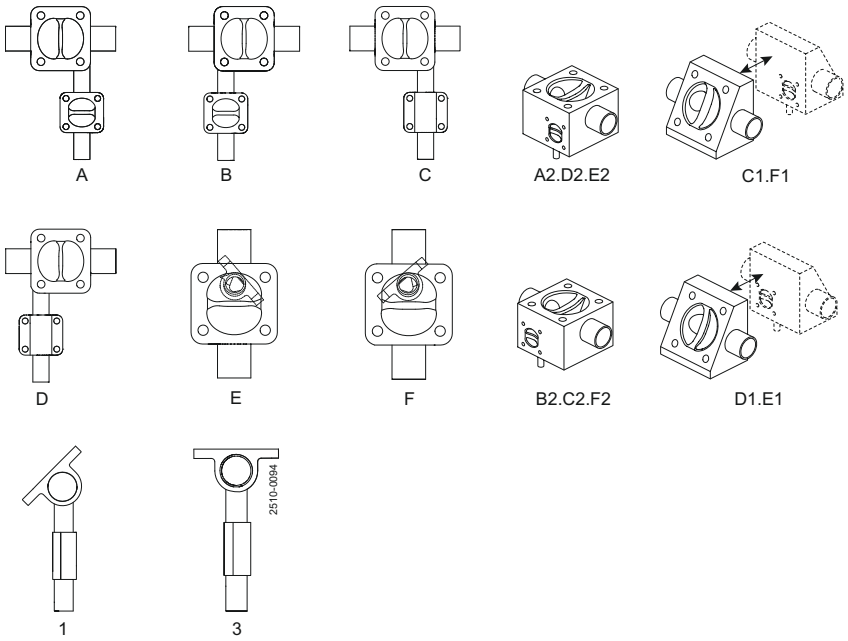
Note! Contact Alfa Laval for 4" T-block valves.

Tandem body:

Tandem solutions are available in a wide variety of angles and positions for sampling, steam, condensate drain or divert function. Tandem solutions can be made in a welded two valve construction or as an Integral Acess Valves block solution (IAV). See futher in the DV-ST catalogue.

Tandem body configuration

To configure the tandem body the position and the angle of the two bodies are selected by combining one of the letters with one of the numbers in the following overview.



Forged Tandem Valves configurations (sizes)

Valve size	DN8/10 (1/4"/3/8")	DN15 (1/2")	DN20 (3/4")	DN25 (1")	DN40 (1½")	DN50 (2")	DN65 (2½")	DN80 (3")
DN8/10 (1/4"/3/8")		X	X	X	X	X	X	X
DN15 (1/2")			X	X	X	X	X	X
DN20 (3/4")			X	X	X	X	X	X
DN25 (1")					X	X	X	X
DN40 (1½")							X	X
DN50 (2")								
DN65 (2½")								
DN80 (3")								

Note! For other size configurations please contact Alfa Laval

Multi-port body:

Multi-port bodies are a space and time saving alternative to valve clusters minimising dead volumes. Alfa Laval offers customised solutions for both simple and complex processes.

For more details, please contact Alfa Laval.

Unique DV-ST UltraPure Tandem valve options

Tandem valves are available in a wide variety of angles and positions, as machined from block or from forged material.
To price a tandem configuration: Price for main valve + price for branch valve + add-on price by the size of the branch valve.

Item no.	Size of branch valve	
	DN	inch
		Ra < 0.4 µm Electropolished 1) - (SF4)
	8.0	0.25"
	DN10	0.38"
	DN15	0.5"
	DN20	0.75"
	DN25	1.0"
	DN40	1.5"
	DN50	2.0"
	DN65	2.5"
	DN80	3.0"
		Ra < 0.5 µm - (SF1)
	8.0	0.25"
	DN10	0.38"
	DN15	0.5"
	DN20	0.75"
	DN25	1.0"
	DN40	1.5"
	DN50	2.0"
	DN65	2.5"
	DN80	3.0"

1) Available for forged only
When ordering please specify main valve, secondary valve, position (A, B, C, D, E or F) and angle (1, 2)

Double seal valves

Alfa Laval SMP-BC

Double seal valves

Introduction

The Alfa Laval SMP-BC Mixproof Valve is a hygienic pneumatic double-seal valve that safely handles the simultaneous flow of two different products through the same valve without any risk of cross-contamination. Standardized and cost-effective, the top-loaded valve is designed for quick leakage detection to maximize product safety and low maintenance due to few moving parts. It is often used in Cleaning-in-Place (CIP) lines and can also be used in other systems handling products.

Application

The Alfa Laval SMP-BC Mixproof Valve is designed for hygienic applications that require additional safety, leakage detection and CIP in the dairy, food and beverage, personal care and many other industries.

Benefits

- Hygienic double-seal mixproof valve
- Versatile, modular design meets most hygienic application requirements
- Cost effective

Working principle

The Alfa Laval SMP-BC Mixproof Valve is controlled by means of compressed air from a remote location. The valve is fitted with two small pneumatic normally open (NO) valves, a detecting valve and a CIP valve. The valve plug has two seals, which form an atmospheric leakage chamber. Any product leakage is discharged through the detecting valve. The leakage chamber may be cleaned by supplying a CIP system into the detecting valve. The SMP-BC is insensitive to water hammer in the product line above the plug.

Standard design

The Alfa Laval SMP-BC Mixproof Valve consists of valve bodies, bonnet, plug and an actuator. Two versions are available: a shut-off valve with one valve body and a shut-off valve with two valve bodies. A plug clip system and clamp rings secure the valve bodies to the actuator. The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

TECHNICAL DATA

Pressure	
Max. product pressure (depending on valve specifications):	145 PSI (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 116 PSI (5 to 8 bar)

Temperature	
Temperature range:	14°F to +284°F (EPDM)

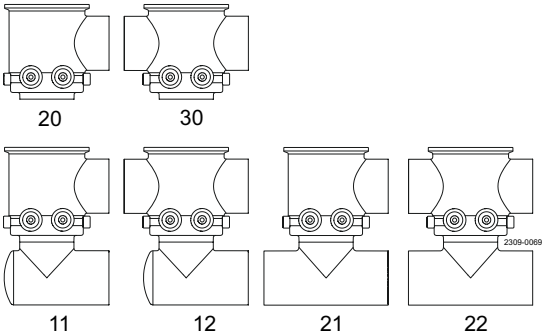
ATEX	
Classification:	II 2 G D [1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.

PHYSICAL DATA

Material	
Product wetted steel parts:	1.4401 (316L)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Ra ≤ 64 µinch
Optional:	Bright Polished Ra ≤ 32 µinch
Other steel parts:	1.4301 (304)
Product wetted seals:	EPDM (optional: NBR, FPM)
Other seals:	NBR

Valve body combination



Type 20 and 30 body versions are on request available in following configurations:

- Tee welded on lower port in 0 or 90 deg. version. Type: 21 and 22
- Bend welded on lower port in 0, 90, 180 or 270 deg. version. Type: 11 and 12

Options

- Male parts or clamp liners in accordance with required standard.
- Control and Indication: ThinkTop V50 and V70, IndiTop.
- Actuator with stronger spring.
- Larger actuator for valve sizes 1½”-2”.
- CIP installation kits.
- Other valve body combinations.
- Service tools for actuator.
- Tool for plug seals (Necessary for changing the seals).

Note!
For further details, see also instruction manual ESE02255.

Air Consumption at 80 PSI

Size	1.5-inch - 2-inch	2.5-inch - 3-inch	5-inch - 6-inch
Shut-off valve - Actuator function	67.1 in^3	235.0 in^3	503.4 in^3
Shut-off valve - Actuator function			1208.2 in^3

Operation/cleaning

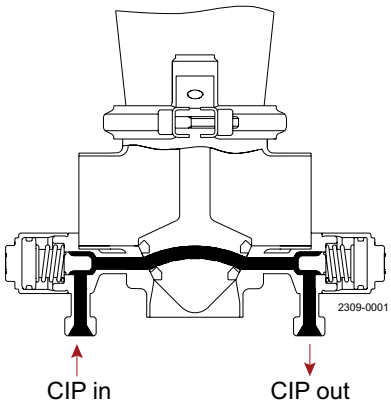


Figure 1. Closed shut-off valve: cleaning of the leakage chamber

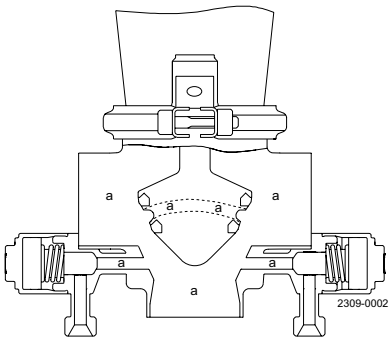
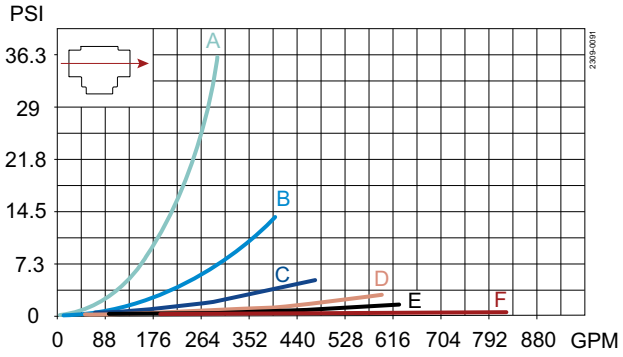


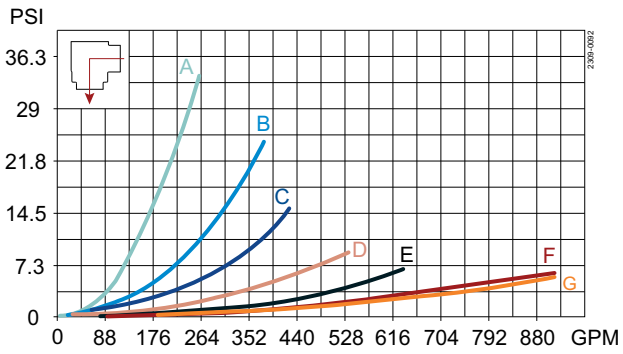
Figure 2. Open shut-off valve: cleaning of the valve body and the leakage chamber

Pressure drop/capacity diagrams

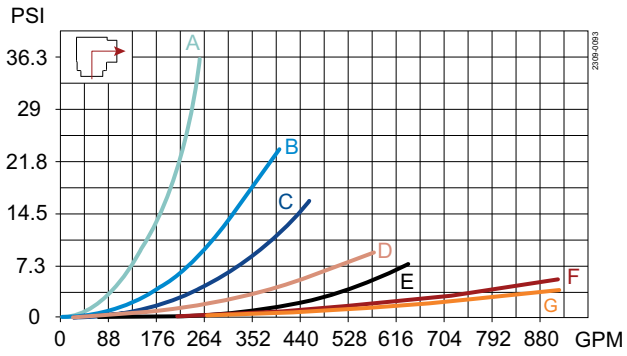
Shut-off valve:



A = 1.5” / DN40
B = 2” / DN50
C = 2.5” / DN65
D = 3” / DN80
E = 4” / DN100
F = DN125 / DN150

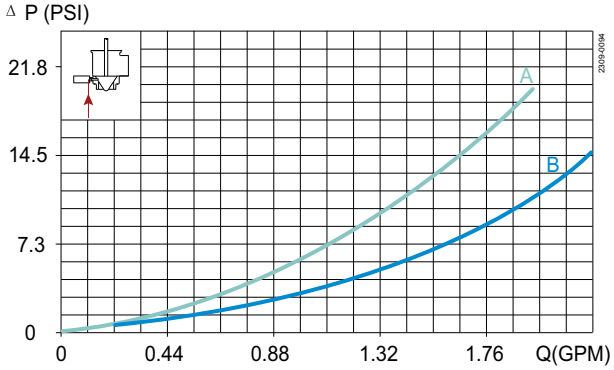


A = 1.5” / DN40
B = 2” / DN50
C = 2.5” / DN65
D = 3” / DN80
E = 4” / DN100
F = DN125
G = DN150



A = 1.5” / DN40
B = 2” / DN50
C = 2.5” / DN65
D = 3” / DN80
E = 4” / DN100
F = DN125
G = DN150

Leakage chamber, pressure drop and flow velocity

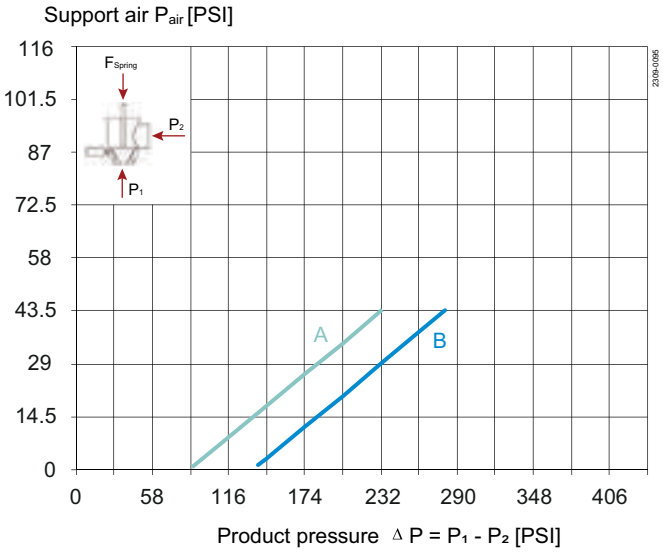


A = CIP / Detecting valve ø27
B = CIP / Detecting valve ø32

Note!
For the diagrams the following applies:
Medium: Water (68°F).
Measurement: In accordance with VDI 2.

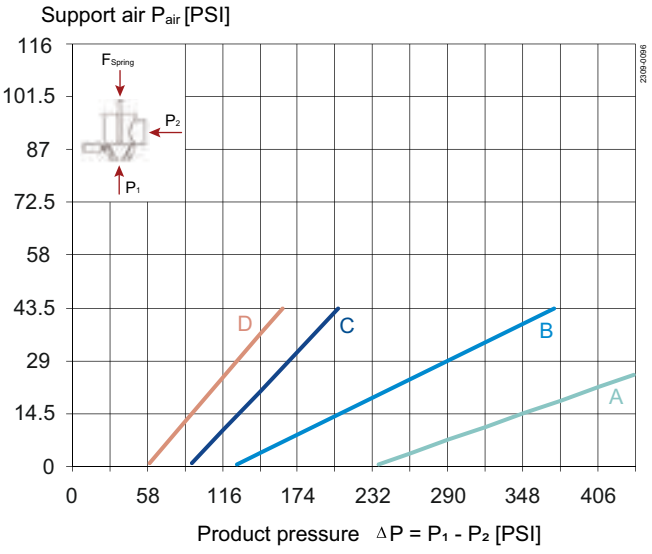
Max pressure difference/support air pressure diagrams

Upper plug max. product pressure without leakage, as a function of support air:



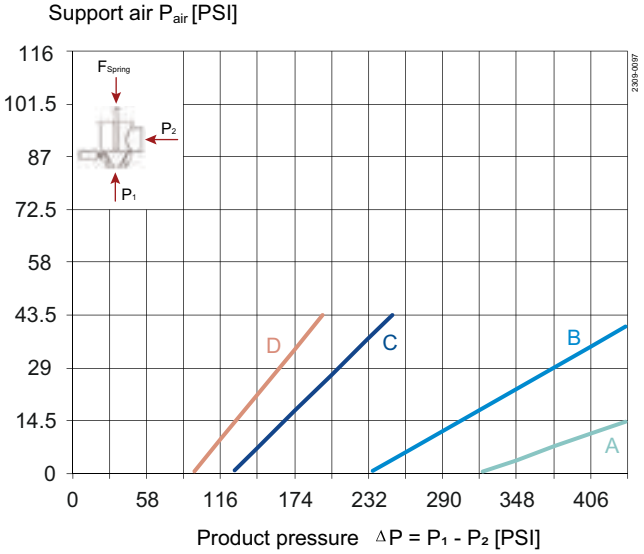
A = ø89 Std. spring: 1.5”/2”, DN40/DN50
B = ø89 Strong spring: 1.5”/2”, DN40/DN50

Figure 3. ø89 actuator



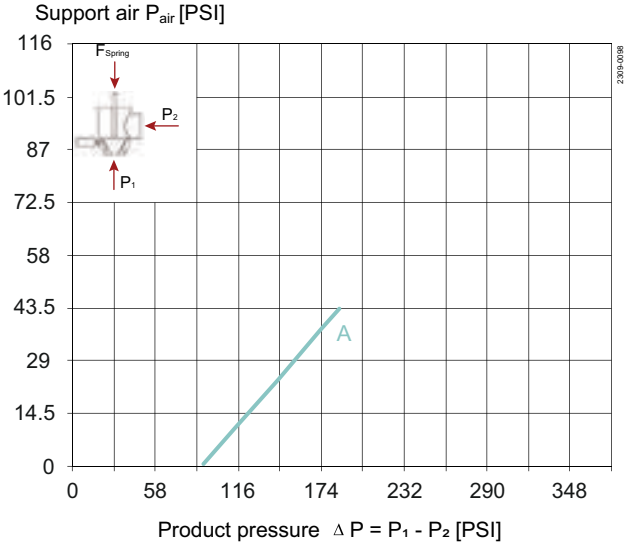
A = 1.5”/2”, DN40/DN50
B = 2.5”, DN65
C = 3”, DN80
D = 4”, DN100

Figure 4. ø133 actuator with standard spring



A = 1.5”/2”, DN40/DN50
B = 2.5”, DN65
C = 3”, DN80
D = 4”, DN100

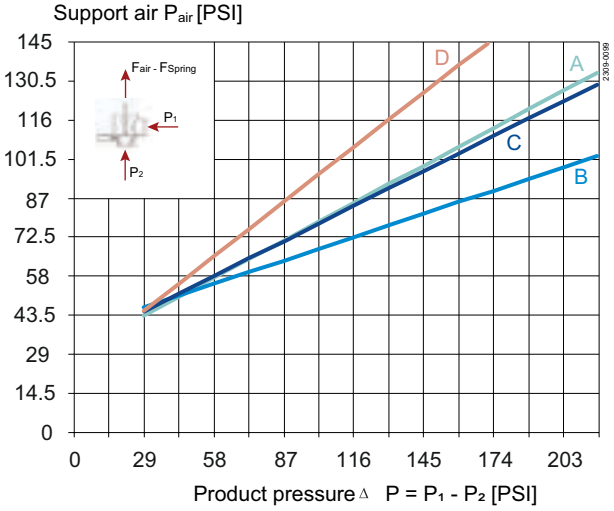
Figure 5. ø133 actuator with strong spring



A = DN125 / DN150

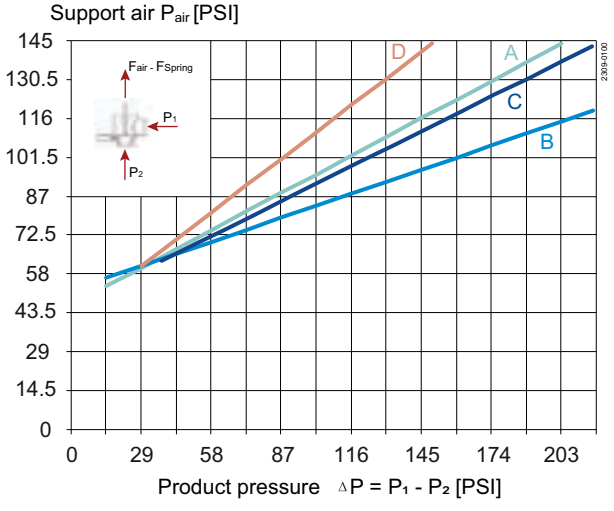
Figure 6. ø199 actuator

Upper plug max. product pressure against which the valve can open, as a function of air pressure:



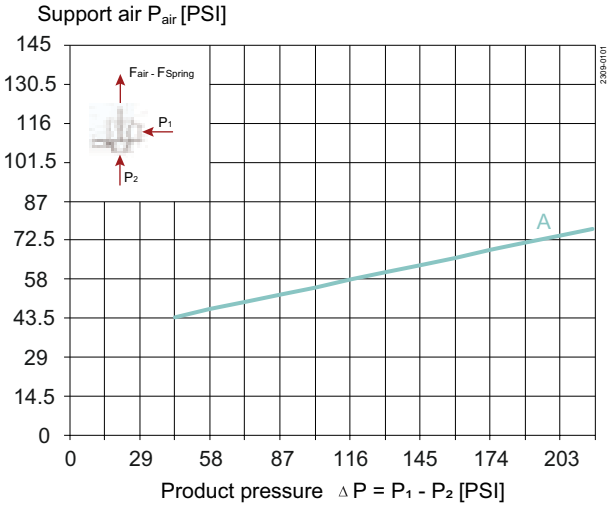
A = 1.5”/2”, DN40/DN50
B = 2.5”, DN65
C = 3”, DN80
D = 4”, DN100

Figure 7. ø89 actuator with standard spring



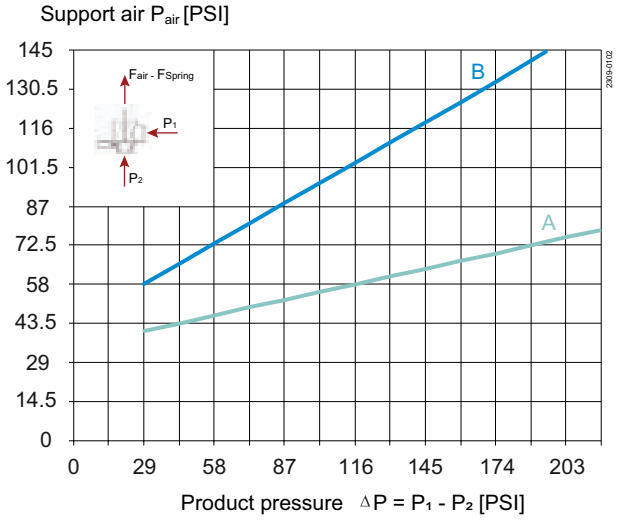
A = 1.5”/2”, DN40/DN50
B = 2.5”, DN65
C = 3”, DN80
D = 4”, DN100

Figure 8. ø89 actuator with strong spring



A = 1.5”/2”, DN40/DN50

Figure 9. ø133 actuator with standard spring

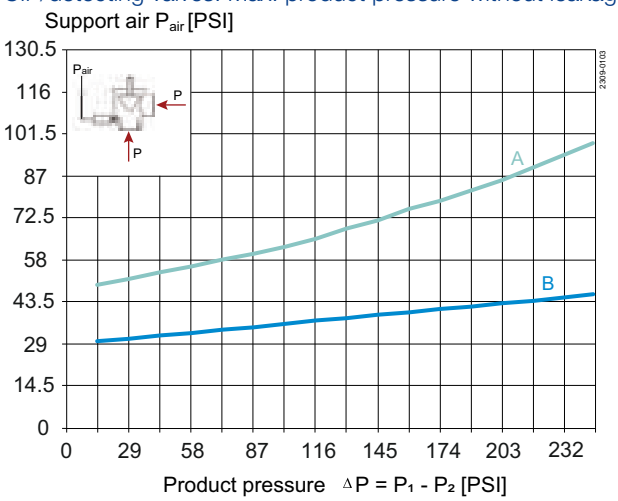


A = 1.5”/2”, DN40/DN50
B = DN125/DN150

Figure 10. ø133 actuator with strong spring

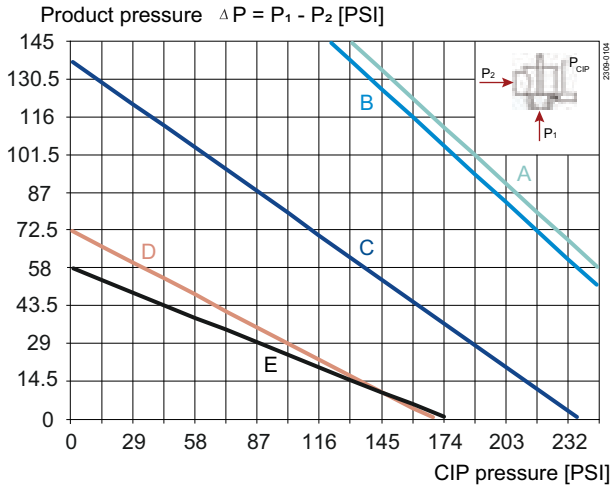
Note!
If actuator is supported by air on spring side max allowable pressure is 345 PSI (3 bar).
Air reduction valve: Alfa Laval item no. 9611995903 ensuring max 45 PSI support air.

CIP/detecting valves. Max. product pressure without leakage, as a function of air pressure:



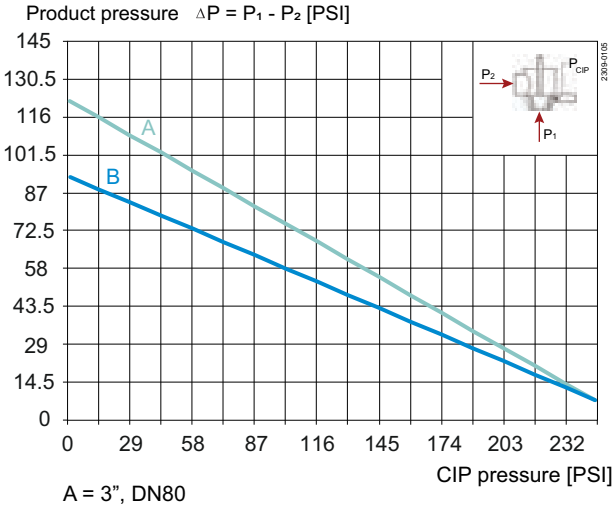
A = CIP valve ø27
B = CIP valve ø32

Max. CIP pressure in leakage chamber without leakage to product area, as a function of product pressure:



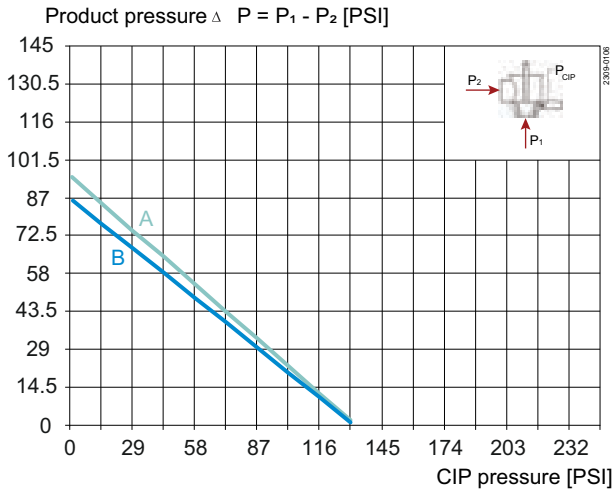
A = 1.5”, DN40
B = 2”, DN50
C = 2.5”, DN65
D = 3”, DN80
E = 4”, DN100

Figure 11. ø89 actuator with standard spring



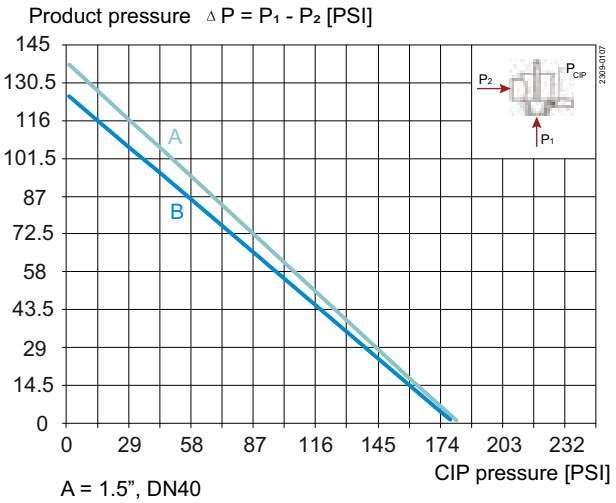
A = 3”, DN80
B = 4”, DN100

Figure 12. ø89 actuator with strong spring



A = 1.5”, DN40
B = 2”, DN50

Figure 13. ø133 actuator with standard spring



A = 1.5”, DN40
B = 2”, DN50

Figure 14. ø133 actuator with strong spring

Note!
If actuator is supported by air on spring side max allowable pressure is 345 PSI (3 bar).

Dimensions (inch)

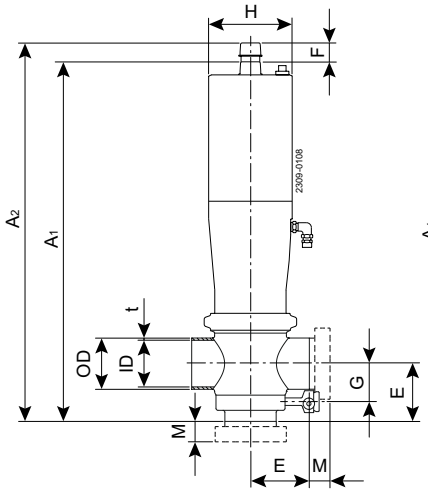


Figure 15. Shut-off valve with one valve body

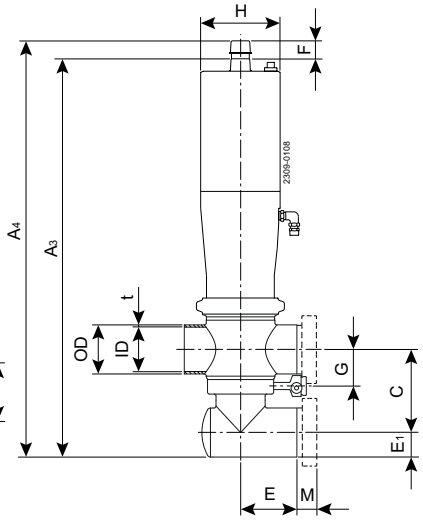
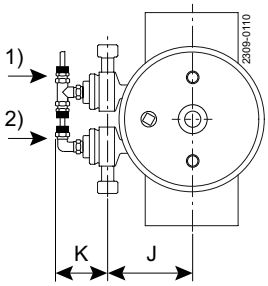


Figure 16. Shut-off valve with two valve bodies



1) CIP valve
2) Detecting valve

Figure 17. Top view

Size	1½"	2"	2½"	3"	4"	DN125	DN150
A1	13.58	13.98	17.05	17.91	20.75	21.06	23.00
A2	14.57	14.96	18.03	19.17	22.01	22.84	24.76
A3	16.27	16.61	20.00	21.10	24.06		
A4	17.26	17.60	21.26	22.36	25.32		
C	3.86	4.02	4.88	5.08	6.54		
C1	3.15	3.31	4.25	4.53	5.91		
OD	1.50	2.00	2.50	3.00	4.00	5.08	6.06
ID	1.37	1.87	2.37	2.84	3.84	4.92	5.91
t	0.06	0.06	0.06	0.08	0.08	0.08	0.08
E	1.95	2.42	3.24	3.44	5.26	5.91	5.91
E1	0.81	1.06	1.31	1.54	2.04		
F	0.98	0.98	1.26	1.26	1.26	1.93	1.93
G	1.06	1.31	1.56	1.80	2.30	2.83	3.33
H	3.50	3.50	5.24	5.24	5.24	7.83	7.83
J	1.84	1.84	2.24	2.62	3.32	3.92	3.92
K	2.48	2.48	2.48	2.48	2.48	2.30	2.30
Tri-Clamp®	0.83	0.83	0.83	0.83	0.83		
M/DIN male						1.81	1.97
Weight (lb.) Shut-off valve with one valve body	13.23	13.89	28.22	29.32	36.60	1.69	1.75
Weight (lb.) Shut-off valve with two valve bodies	15.65	16.13	31.31	35.05	47.18	95.68	98.11

Air Connections Compressed air:

R 1/8" (BSP), internal thread.

CIP connection:

R 3/8" (BSP), external thread.

Leakage connection:

R 3/8" (BSP), external thread.

Caution, opening/closing time:

Opening/closing time will be affected by the following:

- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Alfa Laval SMP-BCA

Double seal valves

Introduction

The Alfa Laval SMP-BCA Mixproof Valve with PTFE Diaphragm is an aseptic double-seal valve designed for use under aseptic conditions and sterilization involving high temperatures. Based on the Alfa Laval SMP-BC, the SMP-BCA features a straightforward design that keeps liquids separated using two seals on the same plug with a leakage chamber in between. With its PTFE face and reinforced EPDM rubber backing, the diaphragm follows the plug movement of the upper valve body and ensures no increase in the concentration of microorganisms in the product during processing.

Application

This aseptic double-seal mixproof valve is designed for extended shelf-life and aseptic applications in the dairy, food, beverage, biotech, pharmaceutical and many other industries.

Benefits

- Aseptic double-seal mixproof valve
- Versatile, modular design meets most aseptic application requirements
- Cost effective
- Easy to maintain

Working principle

The Alfa Laval SMP-BCA Mixproof Valve is operated by means of compressed air from a remote location. This aseptic valve is a normally closed (NC) valve. A specially designed diaphragm unit with a PTFE face and reinforced EPDM rubber backing ensures sterile steam sealing prevents intrusion from the atmosphere and does not allow product residues to build up on the product contact surface. The product lines are separated by two seals and a sterile barrier chamber to prevent mixing the products and to ensure immediate indication in the event of leakage from one of the seals. Two small pneumatic normally open (NO) valves control flow to and from the sterile barrier chamber. The barrier chamber must be clean and sterile when the main valve is closed.

Standard design

The Alfa Laval SMP-BCA Mixproof Valve consists of valve bodies, bonnet, stem with diaphragm unit, PTFE EPDM or FPM plug seals and an actuator. The valve is assembled by means of clamp rings and a stem clip system for easy maintenance. It is also available as a shut-off valve. The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

TECHNICAL DATA

Temperature	
Temperature range:	>7.25 PSI (0.5 bar) > 68 °F
Max. sterilization temperature (steam - short time)	302 °F - 55 PSI (3.8 bar)

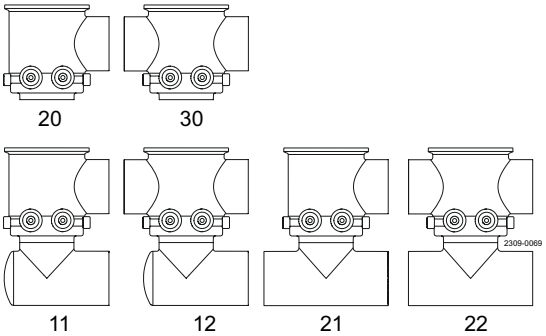
Pressure	
Pressure range:	0-116 PSI (0-8 bar)
Optimum process conditions:	>7.25 PSI (0.5 bar), > 68 °F
Air pressure:	72.5-116 PSI (5-8 bar)

Note! Vacuum is not recommended in aseptic applications.

PHYSICAL DATA

Material	
Product wetted steel parts:	1.4404 (316L)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Ra < 64 µinch
Optional:	Bright (polished) Ra ≤ 32 µinch
Other steel parts:	1.4301 (304)
Product wetted seals:	EPDM and PTFE
Optional:	NBR and PTFE, FPM and PTFE
Other seals:	NBR, EPDM

Valve body combination



Type 20 and 30 body versions are on request available in following configurations:

- Tee welded on lower port in 0 or 90 deg. version. Type: 21 and 22
- Bend welded on lower port in 0, 90, 180 or 270 deg. version. Type: 11 and 12

Options

- Male parts or clamp ends in accordance with required standard
- Control and Indication: ThinkTop V50 and V70, IndiTop
- Larger actuator for valve sizes 1½”-2” /DN 40-50
- CIP installation kits
- Other valve body combinations
- Service tool for actuator
- Tool for plug seals (Necessary for changing the seals)

Note! For further details, see also instruction manual ESE02251.

Air consumption (litres free air)

Size	1½, 2″/DN40,50 Actuator ø89	2½″, 3″,4″/DN 65, 80,100 Actuator ø133
Stop valve/Divert valve	0.2 x Air pressure (bar)	0.7 x Air pressure (bar)

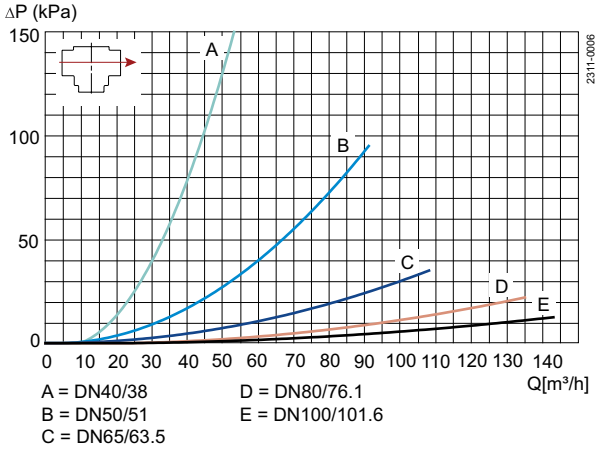
Expected lifetime of diaphragm unit under normal conditions:
(no pressure shocks or cavitation)

Size/Type	Stop valve activations	Divert valve activations
1½"/DN40	12.000	10.000
2"/DN50	12.000	10.000
2½"/DN65	12.000	5.000
3"/DN80	5.000	5.000
4"/DN100	5.000	5.000

Note! Activating the valve without internal product pressure reduces lifetime of diaphragm unit.

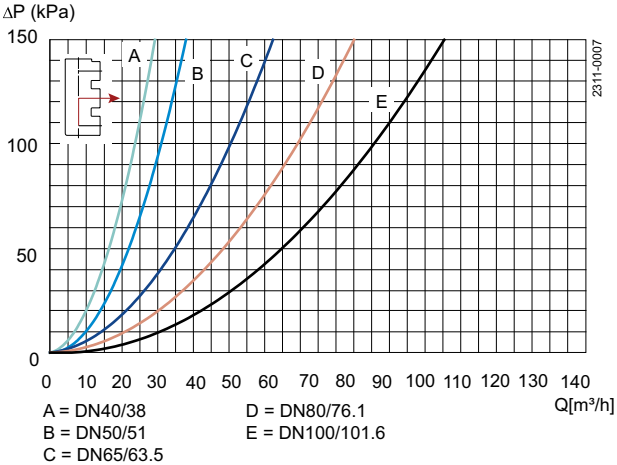
Pressure drop/capacity diagrams

Stop valve:

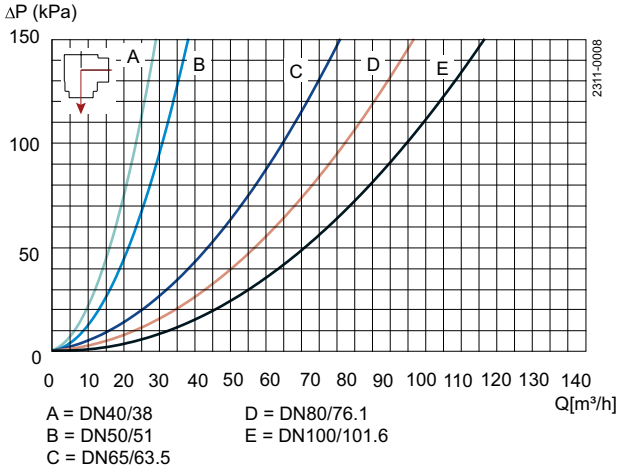


A = DN40/38
B = DN50/51
C = DN65/63.5
D = DN80/76.1
E = DN100/101.6

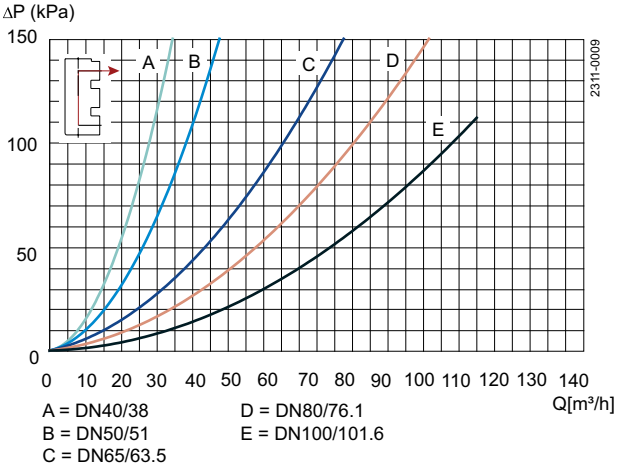
Divert valve (obsolete product):



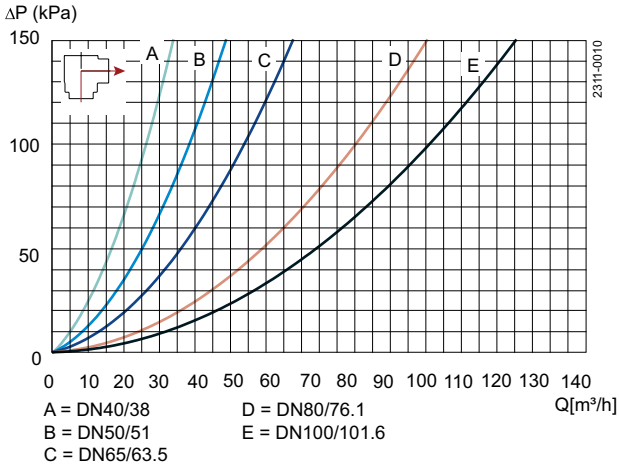
A = DN40/38
B = DN50/51
C = DN65/63.5
D = DN80/76.1
E = DN100/101.6



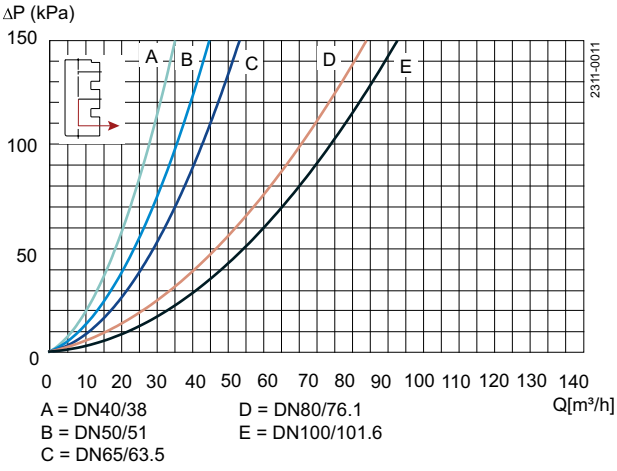
A = DN40/38
B = DN50/51
C = DN65/63.5
D = DN80/76.1
E = DN100/101.6



A = DN40/38
B = DN50/51
C = DN65/63.5
D = DN80/76.1
E = DN100/101.6



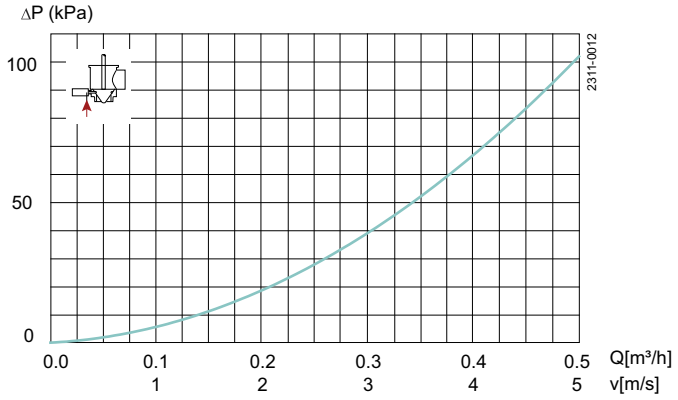
A = DN40/38
B = DN50/51
C = DN65/63.5
D = DN80/76.1
E = DN100/101.6



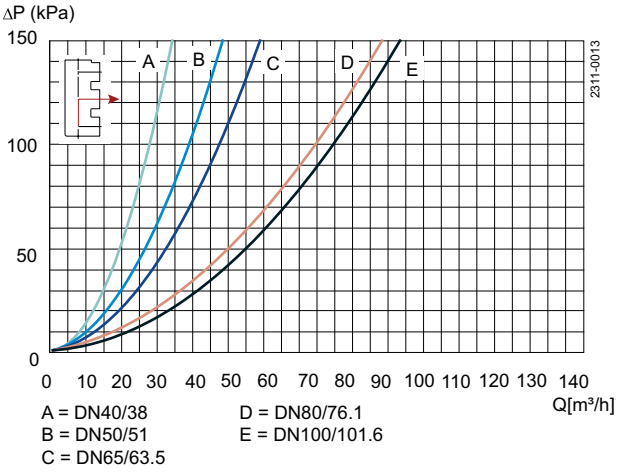
A = DN40/38
B = DN50/51
C = DN65/63.5
D = DN80/76.1
E = DN100/101.6

Note! For the diagrams the following applies:
Medium: Water (68°F).
Measurement: In accordance with VDI 2173.

CIP chamber:



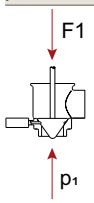
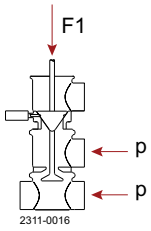
Divert valve (obsolete product):



Note! For the diagrams the following applies:
Medium: Water (68°F).
Measurement: In accordance with VDI 2173.

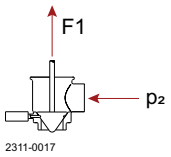
Pressure data for SMP-BCA

1. Upper plug. Max. product pressure P1 without leakage due to pressure shocks, as a function of support air pressure.

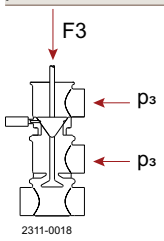
Direction of pressure	Valve size	Actuator size	Spring type	Support air pressure (bar)	
				0	3
	38mm/ DN40	ø89	Normal	6.0	16.0
		ø89	Strong	9.6	19.5
		ø133	Normal	16.0	30.0
		ø133	Strong	22.0	30.0
	51mm/ DN50	ø89	Normal	6.0	16.0
		ø89	Strong	9.6	19.5
		ø133	Normal	16.0	30.0
		ø133	Strong	22.0	30.0
	63.5mm/ DN65	ø133	Normal	9.6	25.5
		ø133	Strong	16.0	30.0
	76.1mm/ DN80	ø133	Normal	6.5	14.5
		ø133	Strong	9.2	17.5
	101.6mm/ DN100	ø133	Normal	4.0	11.0
		ø133	Strong	6.5	14.4

F1 = Spring + support Air

2. Upper plug. Max. product pressure P2 against which the valve can open, as a function of air pressure.

Direction of pressure	Valve size	Actuator size	Spring type	Support air pressure (bar) 3	4
	38mm/	ø89	Normal	8.0	8.0
	DN40	ø89	Strong	-	8.0
		ø133	Normal	8.0	8.0
		ø133	Strong	-	8.0
	51mm/	ø89	Normal	8.0	8.0
	DN50	ø89	Strong	-	8.0
		ø133	Normal	8.0	8.0
		ø133	Srong	-	8.0
	63.5mm/	ø133	Normal	4.0	8.0
	DN65	ø133	Strong	-	1.4
	76.1mm/	ø133	Normal	2.8	7.0
	DN80	ø133	Strong	-	2.0
	101.6mm/	ø133	Normal	2.2	4.6
	DN100	ø133	Strong	-	1.6

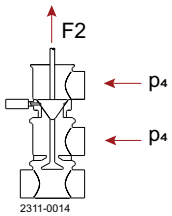
3. Upper valve. Max. product pressure P3 in upper valve body at which the valve can close.

Direction of pressure	Valve size	ø89, Normal	Actuator size, spring type ø89, Strong	ø133, Normal	ø133, Strong
	38mm/DN40	2.7	4.5	8.0	8.0
	51mm/DN50	2.4	4.0	6.0	8.0
	63.5mm/DN65	-	-	7.0	8.0
	76.1mm/DN80	-	-	7.0	8.0
	101.6mm/DN100	-	-	5.0	8.0

F2 = Air - spring
F3 = Spring

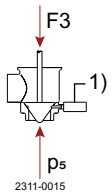
Note! If actuator is supported by air on spring side; max allowable pressure is 300 kPa (3 bar)
Air reduction valve: Alfa Laval item no. 9611995903 ensuring max 3 bar support air.

4. Lower valve, change-over. Max. product pressure P4 without leakage, as a function of air pressure.

Direction of pressure	Valve size	Actuator size	Spring size	Air pressure (bar) 3
	38mm/	ø89	Normal	*
	DN40	ø89	Strong	*
		ø133	Normal	8.6
		ø133	Strong	*
	51mm/	ø89	Normal	*
	DN50	ø89	Strong	*
		ø133	Normal	8.6
		ø133	Strong	*
	63.5mm/	ø133	Normal	3.4
	DN65	ø133	Strong	*
	76.1mm/	ø133	Normal	*
	DN80	ø133	Strong	*
	101.6mm/	ø133	Normal	*
	DN100	ø133	Strong	*

* = Valve cannot close

5. Upper valve. Max. CIP pressure PCIP without leakage to product area as a function of product pressure below plug.

Direction of pressure	Valve size	Actuator size	Spring size	Product pressure P_5 below plug (bar)		
				0	2	4
	38mm/	ø89	Normal	9.0	6.3	3.5
	DN40	ø89	Strong	10.0	9.9	7.2
		ø133	Normal	10.0	10.0	10.0
		ø133	Strong	10.0	10.0	10.0
	51mm/	ø89	Normal	9.0	6.3	3.5
	DN50	ø89	Strong	10.0	9.6	6.7
		ø133	Normal	10.0	10.0	10.0
		ø133	Strong	10.0	10.0	10.0
	63.5mm/	ø133	Normal	10.0	10.0	9.3
	DN65	ø133	Strong	10.0	10.0	10.0
	76.1mm/	ø133	Normal	10.0	10.0	8.5
	DN80	ø133	Strong	10.0	6.8	2.3
	101.6mm/	ø133	Normal	10.0	6.0	-
	DN100	ø133	Strong	10.0	10.0	6.5

F2 = Air - spring
F3 = Spring

Note! Max. recommended CIP pressure = 100 kPa (1 bar).
If actuator is supported by air on spring side; max allowable pressure is 300 kPa (3 bar)

Dimensions (inch)

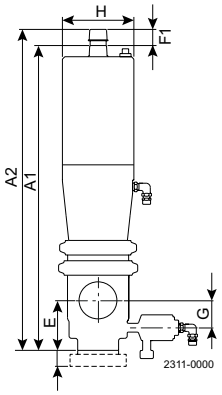


Figure 1. a. Stop valve

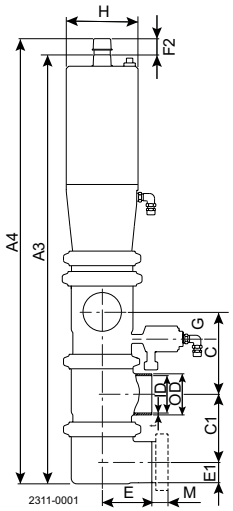
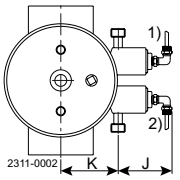


Figure 2. b. Divert valve (obsolete products)



1) CIP valve
2) Detecting valve

Figure 3. c. Top view 1) CIP valve - 2) Detecting valve

Size	1½"	2"	2½"	3"	4"	40	50	65	80	100
						DN	DN	DN	DN	DN
A_1	14.61	15.00	18.07	18.94	21.77	14.53	14.92	17.95	18.98	21.73
A_2	15.16	15.55	18.62	19.72	22.56	15.08	15.47	18.50	19.76	22.52
A_3	20.12	20.94	25.28	26.65	30.63	20.12	20.94	25.28	27.28	30.63
A_4	20.67	21.50	26.06	27.44	31.41	20.67	21.50	26.06	28.07	31.42
C	3.54	4.02	4.88	5.08	6.18	3.54	4.02	4.88	5.28	6.18
C_1	3.15	3.31	4.25	4.53	5.91	3.15	3.31	4.25	4.74	5.91
OD	1.5	2.00	2.5	3.00	4.00	1.61	2.09	2.76	3.35	4.09
ID	1.37	1.87	2.37	2.84	3.84	1.50	1.97	2.60	3.19	3.94
t	0.06	0.06	0.06	0.08	0.08	0.06	0.06	0.08	0.08	0.08
E	1.95	2.42	3.24	3.44	5.26	1.95	2.42	3.24	3.44	5.26

Size		1½”	2”	2½”	3”	4”	40	50	65	80	100
							DN	DN	DN	DN	DN
E_1		0.81	1.06	1.31	1.54	2.04	0.87	1.1	1.42	1.71	2.09
F_1		0.55	0.55	0.55	0.79	0.79	0.55	0.55	0.55	0.79	0.79
F_2		0.55	0.55	0.79	0.79	0.79	0.55	0.55	0.79	0.79	0.79
G		1.06	1.31	1.56	1.80	2.30	1.12	1.36	1.67	1.97	2.34
H		3.50	3.50	3.50	5.24	5.24	3.5	3.5	3.5	5.24	5.24
J		1.84	1.84	2.24	2.62	3.32	1.84	1.84	2.24	2.62	3.32
K		2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48
M/ISO	clamp	0.83	0.83	0.83	0.83	0.83					
M/ISO	male	0.83	0.83	0.83	0.83	0.83					
M/DIN	male					0.87	0.91	0.98	0.98	1.18	
M/SMS	male		0.79	0.79	0.94	0.94	1.38				
M/BS	male	0.87	0.87	0.87	0.87	1.06					
Weight (lb):	Stop valve	14.33	14.99	29.32	32.85	40.12	14.33	15.00	29.32	34.39	40.12
	Divert valve	18.08	18.96	34.17	41.01	54.23	18.08	18.96	34.17	43.21	54.23

Air Connections Compressed air:
R 1/8" (BSP), internal thread.

CIP connection:
R 3/8" (BSP), external thread.

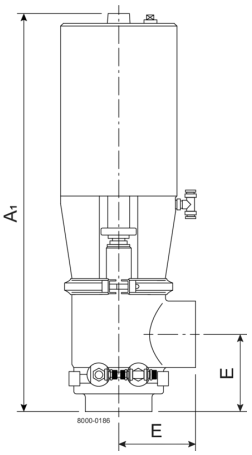
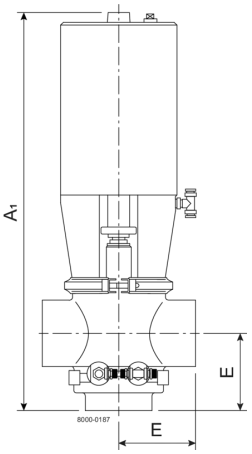
Leakage connection:
R 3/8" (BSP), external thread.

Caution, opening/closing time:

Opening/closing time will be affected by the following:
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

Valve Model Specification: Air-operated valve
ALSIS Code: 5252
Tube Standard: DIN tube

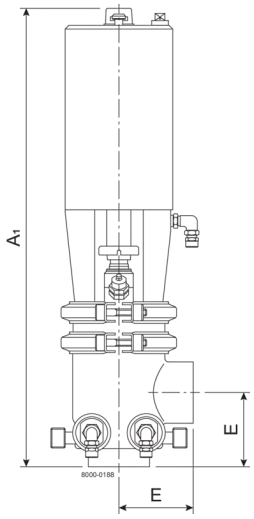
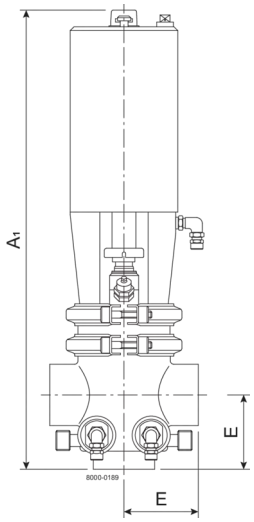
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC

Item no.	Tube standard	Size		Dimension (inch)			
		inch	DN	A1, inch	A1, DIN	E	
Shut-off 20							
9612364806	DIN tube	1.5"	40.0	13.60	13.50	1.90	
9612364807	DIN tube	2.0"	50.0	14.00	13.90	2.40	
9612364808	DIN tube	2.5"	65.0	17.00	16.90	3.20	
9612364809	DIN tube		80.0		18.00	3.40	
9612364810	DIN tube	4.0"	100.0	20.70	20.70	5.30	
9612465601	DIN tube		125.0		22.30	5.90	
9612465603	DIN tube		150.0		22.80	5.90	
9612364801	Inch tube	1.5"	40.0	13.60	13.50	1.90	
9612364802	Inch tube	2.0"	50.0	14.00	13.90	2.40	
9612364803	Inch tube	2.5"	65.0	17.00	16.90	3.20	
9612364804	Inch tube			17.90		3.40	
9612364805	Inch tube	4.0"	100.0	20.70	20.70	5.30	
Shut-off 30							
9612364816	DIN tube	1.5"	40.0	13.60	13.50	1.90	
9612364817	DIN tube	2.0"	50.0	14.00	13.90	2.40	
9612364818	DIN tube	2.5"	65.0	17.00	16.90	3.20	
9612364819	DIN tube		80.0		18.00	3.40	
9612364820	DIN tube	4.0"	100.0	21.80	20.70	5.30	
9612465602	DIN tube		125.0		22.30	5.90	
9612465604	DIN tube		150.0		22.80	5.90	
9612364811	Inch tube	1.5"	40.0	13.60	13.50	1.90	
9612364815	Inch tube	4.0"	100.0	20.70	20.70	5.30	

NOTE! Configurator available incl. body combination 11, 12, 21, 22 and other options.
For further information - please see PD-sheet.

Valve Model Specification: Aseptic air-operated
ALSIS Code: 5253
Tube Standard: Inch tube

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC

Item no.	Tube standard	Size		Dimension (inch)			
	inch	mm	DN	A1, inch	A1, DIN	E	
Shut-off 20							
9612502507	DIN tube	2.0"	50.0	15.00	15.00	2.40	
9612502508	DIN tube	2.5"	65.0				
9612502509	DIN tube		80.0		19.00	3.40	
9612502510	DIN tube	4.0"	100.0	21.80	21.80	5.30	
9612502501	Inch tube	1.5"	40.0	14.60	14.60	1.90	
9612502502	Inch tube	2.0"	50.0	15.00	15.00	2.40	
9612502503	Inch tube	2.5"	65.0	18.10	18.10	3.20	
9612502504	Inch tube			18.90		3.40	
9612502505	Inch tube			21.80	21.80	5.30	
Shut-off 30							
9612502516	DIN tube	1.5"	40.0	14.60	14.60	1.90	
9612502517	DIN tube	2.0"	50.0	15.00	15.00	2.40	
9612502518	DIN tube	2.5"	65.0	18.10	18.10	3.20	
9612502519	DIN tube		80.0		19.00	3.40	
9612502520	DIN tube	4.0"	100.0	20.70	20.70	5.30	
9612502511	Inch tube	1.5"	40.0	14.60	14.60	1.90	
9612502512	Inch tube	2.0"	50.0	15.00	15.00	2.40	
9612502513	Inch tube	2.5"	65.0	18.10	18.10	3.20	
9612502514	Inch tube			18.90		3.40	
9612502515	Inch tube	4.0"	100.0	21.80	21.80	5.30	

Note! Configurator available for options.
For further information - please see PD-sheet.

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Double seat valves

Alfa Laval Aseptic Mixproof

Double seat valves

Introduction

The Alfa Laval Aseptic Mixproof Valve is an advanced double block-and-bleed mixproof valve for use in hygienic and aseptic processes that demand a contaminant-free environment. The valve enables the simultaneous flow of two different products or fluids through the same valve without the risk of cross-contamination. Its one-piece diaphragm ensures hermetic sealing and prevents intrusion from the atmosphere, even during unwanted pressure spikes.

With a flexible, modular design, the Aseptic Mixproof Valve is easy to configure in Alfa Laval Anytime to meet virtually any process requirement. Choose from a broad range of components, including seat lift, temperature sensor or transmitter. Plus its design makes maintenance quick and easy, thereby reducing the total cost of ownership to the lowest level possible compared to other aseptic valves.

Application

This aseptic double-seat mixproof valve is designed for use in aseptic process applications across the dairy, food, beverage, and many other industries.

Benefits

- Exceptional hygiene for maximum product safety and minimal product loss
- Outstanding flexibility and modularity to meet virtually any requirement
- More uptime due to exceptional cleanability
- Up to 45% lower total cost of ownership compared to other aseptic valves
- Ease of maintenance and parts replacement

Standard design

The Alfa Laval Aseptic Mixproof Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. An integrated valve plug/diaphragm ensures aseptic operation. There is a total of four valves: two main product valves, which are normally closed (NC), and two small leakage detection valves, which are either normally open/normally open (NO/NO) or normally closed/normally open (NC/NO). The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Working principle

The Alfa Laval Aseptic Mixproof Valve is comprised of a series of base components, including valve body, valve plug/diaphragm, actuator, and cleaning options and accessories that support a wide range of aseptic applications. Composed of a PTFE face and reinforced EPDM backing, the diaphragm creates a hermetic seal to ensure aseptic processing conditions. Leakage detection holes enable visual inspection without requiring valve disassembly and provide advanced notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

When main actuation takes place, all four valves operate simultaneously. The two product valves open and the two leakage detection valves close to prevent product spillage. Please observe the maximum allowable working pressure for diaphragms on the product valves.

The product lines are separated by two individual plugs (two normally closed valves) and a sterile leakage chamber that acts

as a barrier to prevent product mixing and to provide immediate indication of any leakage from either of the two plug seals.

Two small leakage detection valves (NO/NO or NC/NO) control the flow of steam into and out of the leakage chamber; these must be kept clean and sterile when the main valves are closed. As an option, one of the two leakage detection valves can be supplied as a changeover valve to maintain the flow of steam, ensuring a continuous steam barrier in both leakage detection valves during the main actuation of the product valves.

A changeover valve may be used to control the steam flow in order to bypass the leakage chamber. On the steam-forward line, you can add an additional aseptic SSV valve to build up a condensate reservoir in order to flush the leakage chamber after main activation.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Temperature range:	14 °F to +284 °F (EPDM)
"Max. sterilization temperature (<1 min):	302 °F/380 kPa (55 PSI)
Pressure	
Pressure range:	0-116 PSI (0-8 bar)
Air pressure:	72.5-101.5 PSI (5-7 bar)
Pressure range, support air:	0-43 PSI (0-3 bar)

Note! Vacuum is not recommended in aseptic applications.

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
Surface finish	
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra <32 µin
Seals	
Product wetted seals:	EPDM
Optional product wetted seals:	HNBR
Other seals:	NBR
Diaphragm:	PTFE (Product wetted side) / EPDM
Option	
Temperature sensor (PT100):	with or without transmitter
Steam valve	Hygienic or Aseptic
Sizes	
Main valve ISO:	2", 2.5", 3"

Shut fully closed. Max. static pressure without leakage

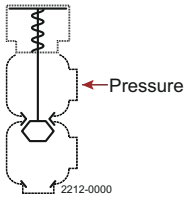


Figure 1. 1

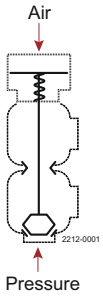


Figure 2. 2

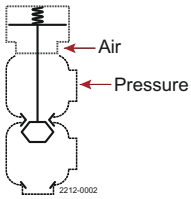


Figure 3. 3

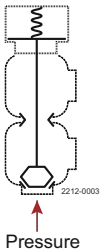


Figure 4. 4

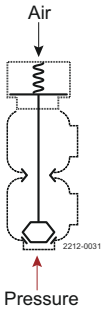
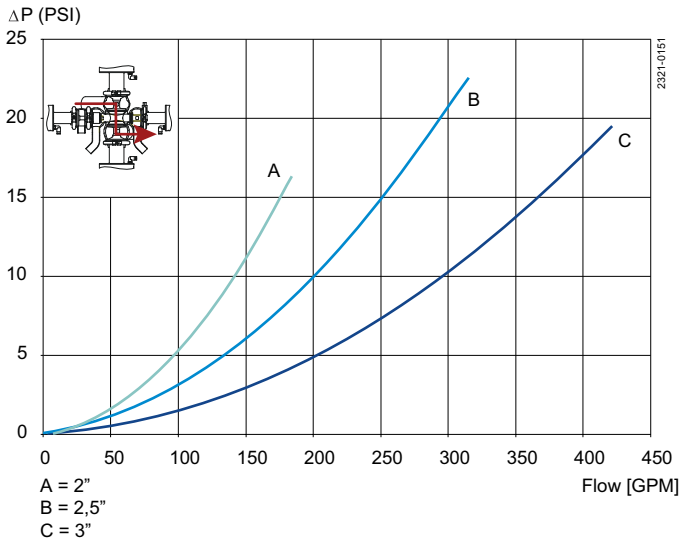


Figure 5. 5

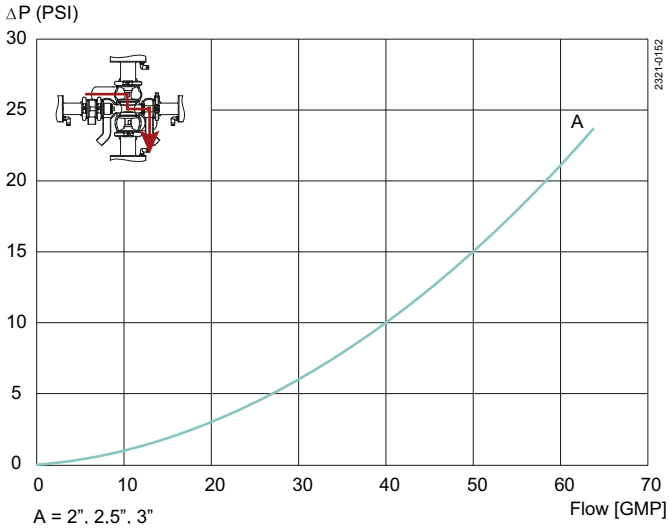
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size			
			Main valve			Leakage detection valve
			2"	2.5"	3"	1"
Figure 1. 1		NO				116.0 PSI
Figure 2. 2	87	NO				116.0 PSI
Figure 3. 3	87	NC				116.0 PSI
Figure 4. 4		NC	108.8 PSI	65.3 PSI	101.5 PSI	116.0 PSI
Figure 5. 5[1]	43	NC	116.0 PSI	116.0 PSI	116.0 PSI	

[1] support air

Pressure drop/capacity diagrams

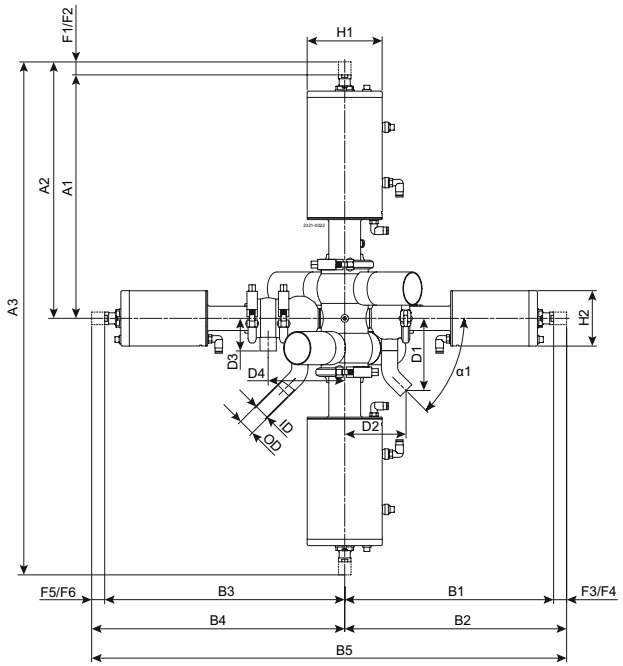


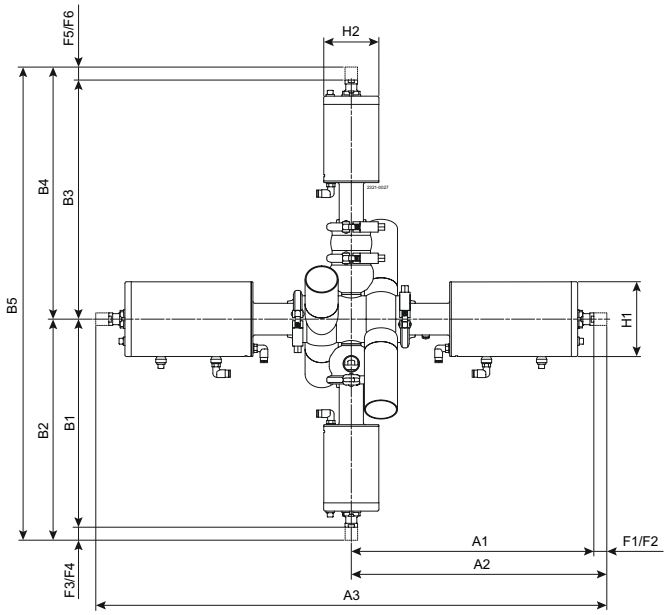
Seat lift	
	Cv-Value
2"	3.6 GPM
2½"	4.2 GPM
3"	4.7 GPM

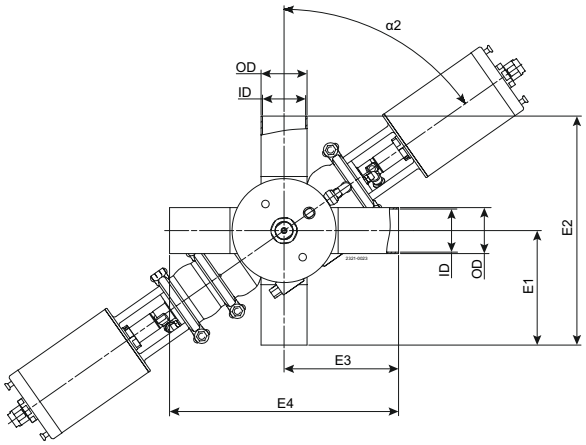


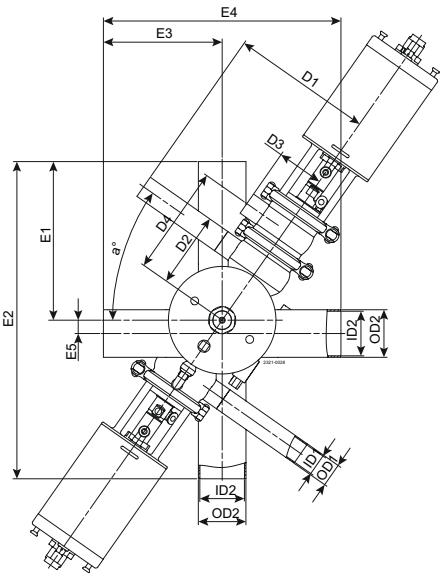
Dimensions (inch)

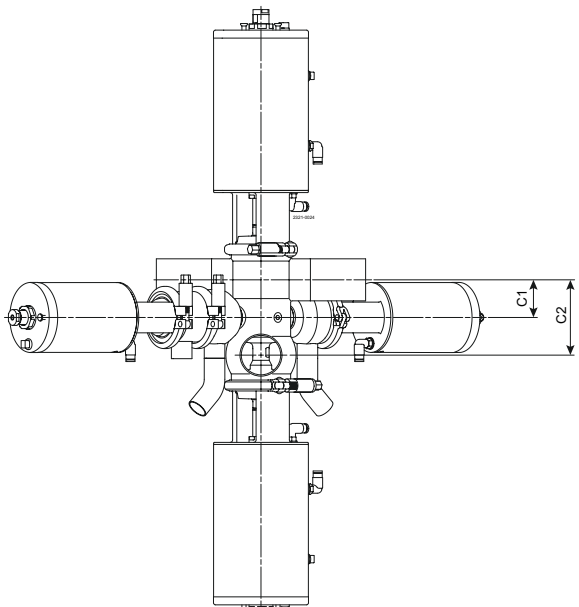
Note! Choose the version that is fully drainable in your installation setup.

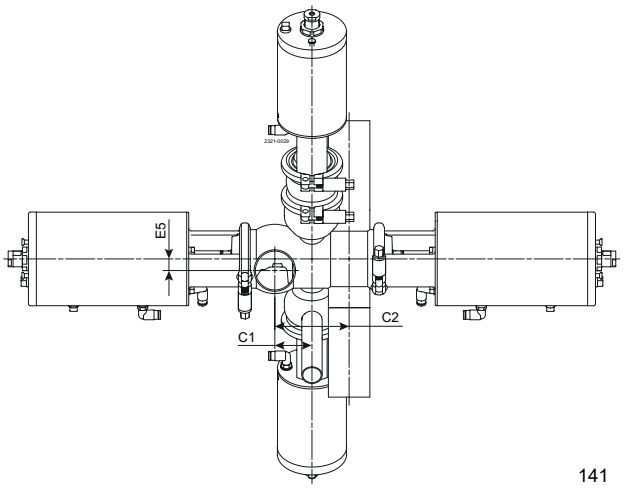

F1/F2
H1
A2
A1
A3
H2
D3
D4
D1
α1
ID
OD
D2
F5/F6
B3
B1
F3/F4
B4
B2
B5


F5/F6
H2
B4
B3
B5
H1
B2
B1
A1
F1/F2
A2
F3/F4
A3


α2
OD
ID
E2
ID
OD
E1
E3
E4


E4
E3
D1
D3
E1
α°
D4
D2
E2
E5
ID2
OD2
ID1
OD1
ID2
OD2


C1
C2


E5
C2
C1

Size	2 inch	2.5 inch	3 inch	2 inch	2.5 inch	3 inch
	Vertical mount			Horizontal mount		
A1	14.7	15.2	17.3	14.7	15.2	17.3
A2	15.3	15.8	18.0	15.3	15.8	18.0
A3	30.5	31.5	36.0	30.5	31.5	36.0
B1	13.2	13.5	13.8	13.2	13.5	13.8
B2	13.8	14.1	14.4	13.8	14.1	14.4
B3	15.0	15.3	15.6	15.0	15.3	15.6
B4	15.4	15.7	16.0	15.4	15.7	16.0
B5	29.2	29.8	30.4	29.2	29.8	30.4
C1	1.80	2.05	2.29	1.80	2.05	2.29
C2	3.60	4.09	4.59	3.60	4.09	4.59
D1	4.36	4.36	4.36	6.79	6.79	6.79
D2	3.71	4.02	4.32	2.71	3.02	3.32
D3	1.97	1.97	1.97	1.97	1.97	1.97
D4	4.63	4.94	5.24	4.63	4.94	5.24
E1	5.00	5.24	5.47	6.69	8.50	8.90
E2	10.00	10.47	10.94	13.39	17.01	17.80
E3	5.00	5.24	5.47	5.00	5.24	5.47
E4	10.00	10.47	10.94	10.00	10.47	10.94
E5	-	-	-	0.6	0.7	0.8
α1	45°	45°	45°	-	-	-
α2	55°	55°	55°	55°	55°	55°
F1	0.56	0.56	0.66	0.56	0.56	0.66
F2	0.08	0.08	0.08	0.08	0.08	0.08
F3	0.38	0.38	0.38	0.38	0.38	0.38
F4	0.59	0.59	0.59	0.59	0.59	0.59
F5	0.31	0.31	0.31	0.31	0.31	0.31
F6	0.47	0.47	0.47	0.47	0.47	0.47
H1	4.53	4.53	6.20	4.53	4.53	6.20
H2	3.35	3.35	3.35	3.35	3.35	3.35
t1	0.05	0.05	0.05	0.05	0.05	0.05
t2	0.06	0.06	0.06	0.06	0.06	0.06
ID1	0.89	0.89	0.89	0.89	0.89	0.89
ID2	1.88	2.37	2.87	1.88	2.37	2.87
OD1	0.98	0.98	0.98	0.98	0.98	0.98
OD2	2.01	2.50	3.00	2.01	2.50	3.00
Weight (lb)	64	66	99	64	66	99

Alfa Laval Valve Manifold

Double seat valves

Introduction

The Alfa Laval Valve Manifold is a service that provides a fluid transfer solution connecting two or more valves and piping in an automated processing system. Alfa Laval pre-manufactures, pre-tests, pre-assembles, and supplies customized valve manifolds based upon specific customer requirements to make onsite installation quick and easy and valve matrices more compact.

As specialists in providing pre-built valve clusters customized to meet specific, individual requirements, Alfa Laval ensures the most efficient flow management, using as few components as possible and dealing effectively with key issues that include thermal cycling, cleanability, drainability and flow control.

Application

The Alfa Laval Valve Manifold is widely used across the dairy, food, beverage and many other industries.

Benefits

- Safe and reliable operation
- Simple, cost-effective onsite installation
- Improved space utilization
- Minimized dead space and leakage risks
- Reduced loss of product, water and cleaning media
- Vast design and building experience
- Highly skilled and certified welders

General Information

As part of our valve program we also offer the service to supply pre-manufactured valve manifolds based upon specific customer requirements.

Standard design

- Welding procedures according to EN 288-3
- Orbital welding used to the extent possible
- All external pipe ends or connections as requested
- All external pipe ends have welding ends. TriClamp optional

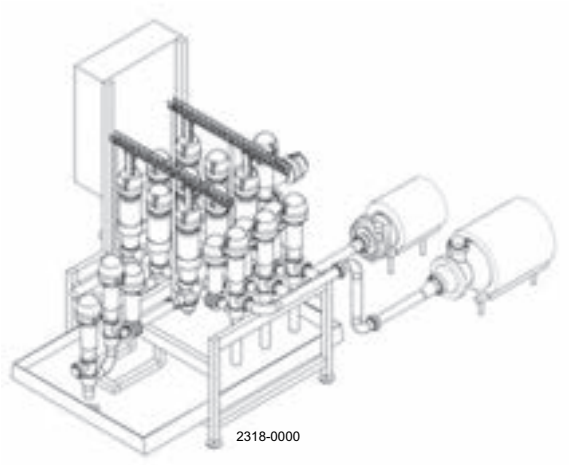
- Product wetted parts: AISI 316L
- Internal and external acid treatment and external blasting, after the welding
- Adjustable ball feet with 2.5" of adjustment
- Valves welded directly together to minimize footprint and dead space
- Maintenance catwalk for easy service access
- Frame supplied with #4 finish and drip pans
- The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve

TECHNICAL DATA

According to customer specification.

Options

- Connections welded on to the external pipe ends
- Polished surface
- Service aisles on larger manifold
- Internal air distribution
- Internal wiring and junction box
- Special frame design etc
- Dummy bodies for future expansion



Dimensions (inch)

According to customer specification.

Alfa Laval Unique Mixproof CP-3

Double seat valves

Introduction

The Alfa Laval Unique Mixproof CP-3 Valve is a versatile, highly efficient and lightweight valve for the safe and efficient management of fluids at intersection points in valve-matrix and piped systems.

Based on the well proven and exceptionally versatile principle of the Unique Mixproof valves from Alfa Laval, it enables the simultaneous flow of two different products or fluids through the same valve, or the safe handling of one product while seat-lift cleaning operations are being conducted in the other portion of the valve – without any risk of cross-contamination.

The valve provides exceptional spillage-free operation and is compliant with most hygienic standards, including the 3-A Sanitary Standards, the Pasteurized Milk Ordinance and the seat lift requirements of the US Food and Drug Administration.

With its modular design and a wide variety of options, the valve can be customized to meet any process requirement and provides low total cost of ownership. The valve maximizes available floor space while significantly minimizing downtime and consumption of Cleaning-in-Place (CIP) media.

Application

The Unique Mixproof CP-3 Valve is designed for continuous flow management in hygienic processes where product safety is at the top of the agenda. It is widely used across the dairy, food, beverage and many other industries.

Benefits

- Gentle product handling, enhanced product safety
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection and leakage chamber cleaning
- Fully configurable to fit your exact needs

Standard design

The Unique Mixproof CP-3 Valve is comprised of a series of base components, including valve body, valve plug, actuator and cleaning options and accessories that support a wide range of applications. Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

Working principle

The Alfa Laval Mixproof CP-3 Valve is a normally closed (NC) valve that is controlled from a remote location by means of compressed air.

To separate the two liquids, the valve has two independent plug seals. The space between the two seals forms an atmospheric leakage chamber. In the rare case of accidental product leakage, the product flows into the leakage chamber and is discharged through the leakage outlet.

When the valve is open, the leakage chamber is closed. The product can then flow from one line to the other without spillage. The valve can easily be cleaned and protected against the effects of water hammer according to the specific requirements

of the process and the configuration of the valve. (There is no product spillage during valve operation).

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Temperature range:	23°F to +257°F (Depending on seal material)

Pressure	
Max. product pressure:	145 psi
Min. product pressure:	Full vacuum
Air pressure:	116 psi

PHYSICAL DATA

Materials	
Product wetted steel parts:	Acid-resistant steel AISI 316L
Other steel parts:	Stainless steel AISI 304

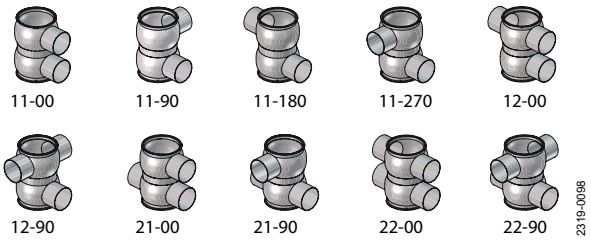
Surface finish choose from the following:	
Internal Bright (polished)/External semi-bright:	Ra<32 µin
Internal/external Bright (internal polished):	Ra<32 µin

Note!
The Ra values are only for the internal surface.

Product wetted seals:	EPDM (Standard), NBR, HNBR or FPM

Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips:	PTFE

Valve body combination



Valve body combinations, example: type 21-00

2 Number of ports - lower valve body
1 Number of ports - upper valve body
00 Angle between ports

Possible configurations

The Alfa Laval Unique Mixproof CP-3 offers a wide range of options, including:

Lower flush

The Alfa Laval lower flush option ensures CIP of the lower sealing element and the OD of the lower plug during seat push. This option efficiently cleans the lower seal in the housing without the need for external CIP connections, supporting continuous processing.

Balancing flexibility

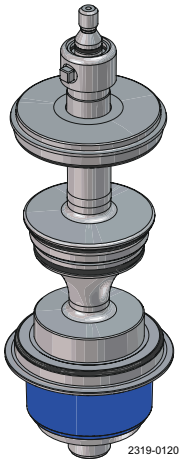
The Unique Mixproof CP-3 valve has a lower balanced plug to avoid product mix, even in the event of pressure spikes in the system. The upper plug can be configured with or without a balancer depending on the required performance.

SpiralClean

The Alfa Laval SpiralClean system makes it possible to clean the upper and lower plugs and leakage chamber by external CIP connections. The system cleans more efficiently, uses less cleaning fluid by ensuring that a directional flow of CIP fluid reaches all the surfaces in much less time than with conventional systems.

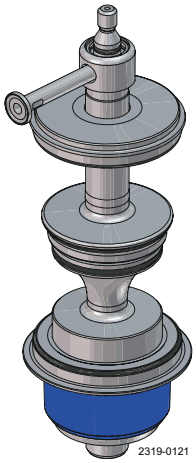
Spiral Clean of the leakage chamber is not depending on a special type of plug configuration, but can be added to any of the available plug configurations. Here shown in combination with plug configuration #11

11.



11. Upper: Unbalanced
Lower: Balanced (Blue bottom)

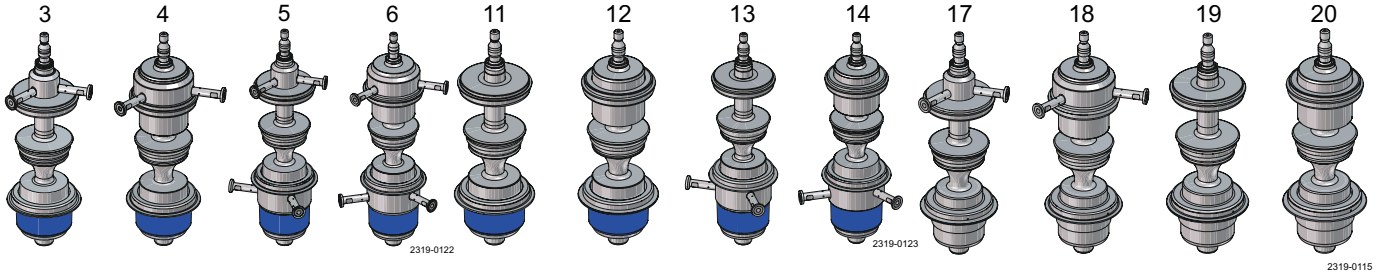
11a.



11a. Upper: Unbalanced
Lower: Balanced (Blue bottom)SpiralClean of leakage chamber

Selection guide (plug configurations)

The drawings below give an overview of the various plug configurations available.



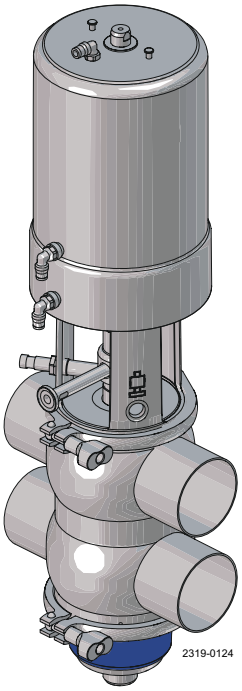
3	Upper: Unbalanced with SpiralClean OD spindle Lower: Balanced (blue bottom)	11	Upper: Unbalanced Lower: Balanced (blue bottom)	17	Upper: Unbalanced with SpiralClean OD spindle Lower: Flush OD Balancer (stainless steel bottom)
4	Upper: Balanced with SpiralClean OD balancer Lower: Balanced (blue bottom)	12	Upper: Balanced Lower: Balanced (blue bottom)	18	Upper: Balanced with SpiralClean OD balancer Lower: Flush OD Balancer (stainless steel bottom)
5	Upper: Unbalanced with SpiralClean OD spindle Lower: Balanced with SpiralClean OD balancer (blue bottom)	13	Upper: Unbalanced Lower: Balanced with SpiralClean OD balancer (blue bottom)	19	Upper: Unbalanced Lower: Flush OD Balancer (stainless steel bottom)
6	Upper: Balanced with SpiralClean OD balancer Lower: Balanced with SpiralClean OD balancer (blue bottom)	14	Upper: Balanced Lower: Balanced with SpiralClean OD balancer (blue bottom)	20	Upper: Balanced Lower: Flush OD Balancer (stainless steel bottom)

Size flexibility (mixed housing)

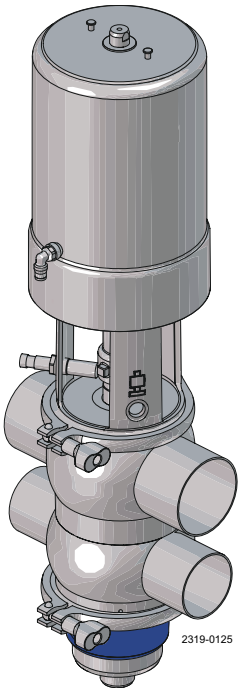
The valve body can be configured with mixed sizes. The body sections can be fully combined, including the full range of 1-4" sizes.

Seat lift and Seat push

Seat lift and seat push enable cleaning of the plug seals of either the upper or lower plug individually. The Unique Mixproof CP-3 range is available in a variety of configurations, including two separate actuator versions. An actuator with both upper seat lift and lower seat push or an actuator without any seat lift/push operations only one period.



1. 3"/3", 22-00, with lower balanced plug, SpiralClean leakage chamber, actuator with seat lift/push, and external proximity switch for indication of upper plug position



2. 2"/3", 22-00, with lower balanced plug, actuator without seat lift/push and external proximity switch for indication of upper plug position

The Unique Mixproof CP-3 modular range offers balanced and unbalanced plugs, seat lift/push, CIP for the plugs and leakage chambers and any combination in between.

Options

- Tri clamp connections.
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic. (ThinkTop is mandatory in a dairy application)
- External proximity switch for indication of upper plug position (This option is mandatory in dairy applications)
- Product wetted seals in HNBR, NBR or FPM
- Various external surface finishes

Pressure drop/capacity diagrams

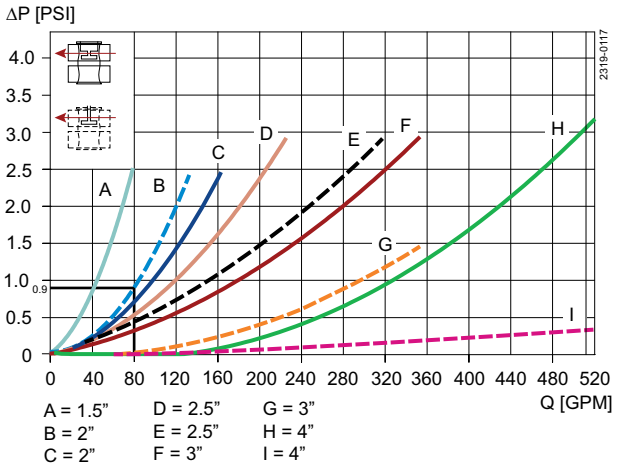


Fig. 3.

Pressure drop/capacity diagram, upper body.

Full lines: Balanced upper plug.Dotted lines: Unbalanced upper plug.

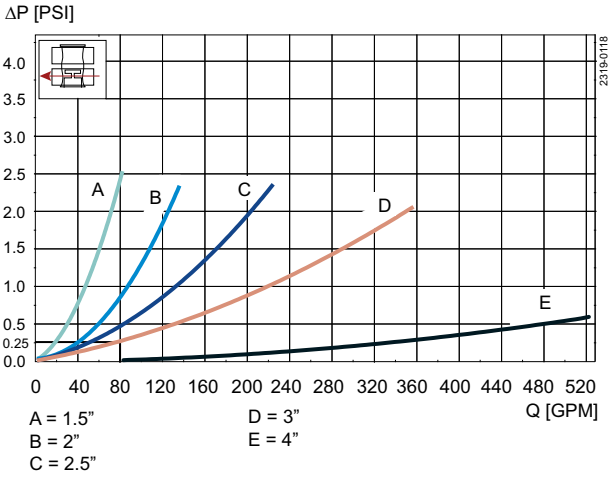


Fig. 4.

Pressure drop/capacity diagram, lower body, balanced plugs.

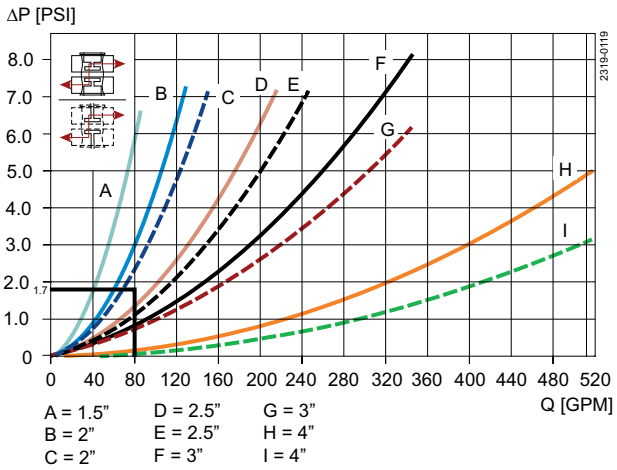


Fig. 5.

Pressure drop/capacity diagram, between bodies.

Full lines: Balanced.Dotted lines: Unbalanced upper plug only one period.

Example to determine pressure drop:

- **Upper body size: 2". Balanced upper plug.**
- Capacity: 80 gpm.
- **Lower body size: 3". Balanced lower plug.**
- Capacity: 80 gpm.
- **Between bodies:**
- Capacity: 60 gpm.

Result:

From fig. 3, Δp = 0.9 psi through upper body.
From fig. 4, Δp = 0.25 psi through lower body.
From fig. 5, Δp = 1.7 psi seeing that:

1. The smallest body determines the curve for Δp between bodies.
2. Always choose the curve for balanced plugs if upper plug is balanced. If only lower plug is balanced, always choose the curve for unbalanced.

Note!

For the diagrams the following applies:

- Medium: Water (68°F).
- Measurement: In accordance with VDI 2173.

Air and CIP consumption

Size	OD	OD	OD	OD	OD
ISO	**1½"**	**2"**	**2½"**	**3"**	**4"**
Cv-value					
Upper Seat-lift [gpm/psi]	1.7	1.7	2.9	2.9	3.6
Lower Seat-lift [gpm/psi]	1.0	1.0	2.2	2.2	2.9
Air consumption					
Upper Seat-lift * [cubic inches]	12	12	24	24	38
Lower Seat-lift * [cubic inches]	6.7	6.7	8	8	13
Main Movement * [cubic inches]	52	52	99	99	170
Cv-value SpiralClean					

Size	OD	OD	OD	OD	OD
ISO	1½"	2"	2½"	3"	4"
External CIP of upper and lower plug [gpm/psi]	0.14	0.14	0.14	0.14	0.14
External CIP of leakage chamber [gpm/psi]	0.29	0.29	0.34	0.34	0.34

Note!
* [cubic inches] = volume at atmospheric pressure
Recommended min. pressure for SpiralClean: 29 psi.

Formula to estimate CIP flow during seat lift:

(for liquids with comparable viscosity and density to water):

$Q = Cv \cdot \sqrt{\Delta p}$

Q = CIP - flow (gpm).

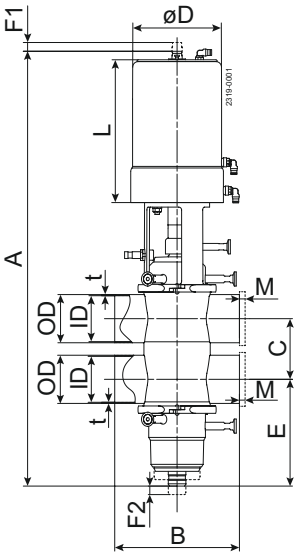
Cv = Cv value from the above table.

Δ p = CIP pressure (psi).

Actuator

Tube OD	STD Operating pressure (psi)
1½"	145
2"	145
2½"	145
3"	145
4"	145

Dimensions (inch)



Note for mixed bodies:

1. The seat always applies to the smallest valve body.
2. Dimension B is equal with the largest valve body size.

Size	1½"	2"	2½"	3"	4"
*A	24.055	25.827	29.921	29.921	36.299
B	6.693	8.661	8.661	8.661	11.811
**C	2.394	2.906	3.398	3.894	4.866
OD	1.5	2	2.5	3.0	4.0
ID	1.370	1.882	2.374	2.870	3.843
t	0.063	0.063	0.063	0.063	0.079
E	5.669	6.496	7.874	7.598	9.764
F1	1.240	1.240	1.496	1.496	2.323
F2	0.197	0.197	0.197	0.197	0.197
øD	4.724	4.724	6.181	6.181	7.323
L	9.055	9.055	9.921	9.921	11.063

Size	1½"	2"	2½"	3"	4"
M/Tri-clamp	0.827	0.827	0.827	0.827	0.827
Weight (lb)	32	35	60	60	84

Note!

*For the A-measure if different upper/lower body sizes, please refer to Configurator in Alfa Laval Anytime or contact Alfa Laval.

**The dimension C can always be calculated by the formula C = ½ID-upper + ½ID-lower + 1,02"

Alfa Laval Unique Mixproof

Double seat valves

Introduction

The Alfa Laval Unique Mixproof Valve is a versatile, highly flexible double block-and-bleed valve for the safe and efficient management of fluids at intersection points in matrix piped systems. The valve enables the simultaneous flow of two different products or fluids through the same valve without the risk of cross-contamination. Modular design and a wide variety of options enable the valve to be customized to meet any process requirement—whether higher demands on cleanability and the ability to withstand pressure peaks.

Application

The Alfa Laval Unique Mixproof is designed for continuous flow management and process safety in hygienic processes where product safety is at the top of the agenda across the dairy, food, beverage and many other industries.

Benefits

- Enhanced product safety
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection and leakage chamber cleaning
- Fully configurable to fit your exact needs

Standard design

The Alfa Laval Unique Mixproof Valve is comprised of a series of base components, including valve body, valve plug, actuator, and cleaning options and accessories that support a wide range of applications. There are four pre-configured versions: the Unique Mixproof Basic; the Unique Mixproof SeatClean Valve; the Unique Mixproof HighClean Valve; and the Unique Mixproof UltraClean Valve. Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs. The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Working principle

The Alfa Laval Unique Mixproof Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plugs and seals to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure during every working condition. Leakage rarely occurs but, should it occur, product flows into the leakage chamber and exits through the bottom outlet for easy detection.

When the valve is open, the leakage chamber is closed. The product then flows from one line to the other. The radial design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning and water hammer protection to the requirements of individual process specifications.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	145 psi
Min. product pressure:	Full vacuum
Air pressure:	116 psi

Temperature	
Temperature range:	23°F to +257°F (Depending on seal material)

ATEX	
Classification:	II 2 G D[1]

Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)

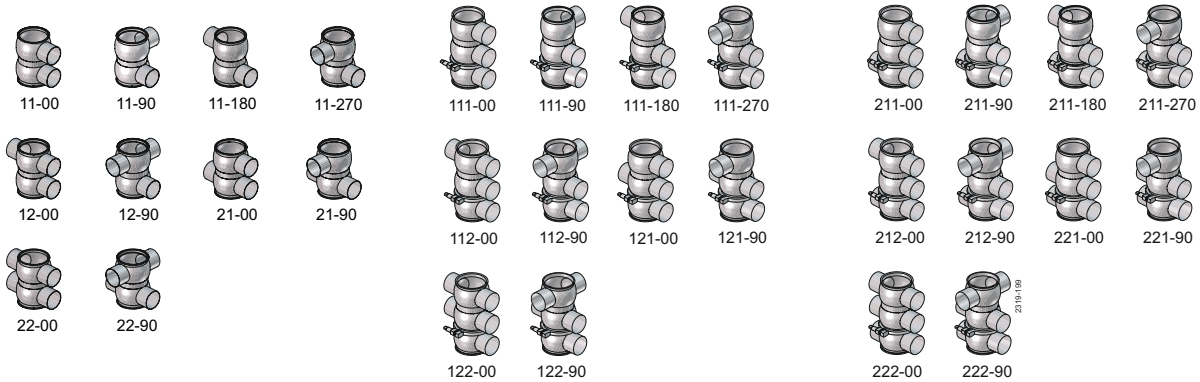
Surface finish choose from the following:	
Internal/external semi-bright	Ra<64µin
Internal Bright (polished)	Ra<32µin
Internal/external Bright (polished)	Ra<32µin

Note! The Ra values are only for the internal surface.

Product wetted seals:	EPDM

Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips:	PTFE

Valve body combination



Valve body combinations, example: type 11-00

1 Number of ports - lower valve body
1 Number of ports - middle valve body
1 Number of ports - upper valve body
00 Angle between

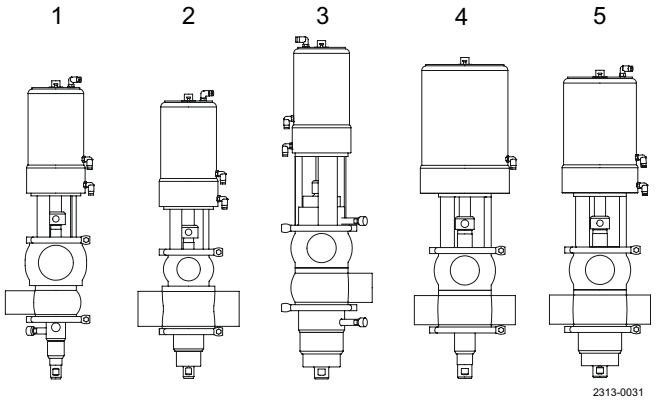
SpiralClean

The Alfa Laval SpiralClean system to clean the upper and lower balanced plugs and leakage chamber. The system cleans more efficiently, uses less cleaning fluid by ensuring that a directional flow of CIP fluid reaches all the surfaces in much less time than with conventional systems.

Selection guide

The drawings below give an overview of all options when choosing the valve to fit your process, thus demonstrating the actual flexibility of the Unique Mixproof Valve.

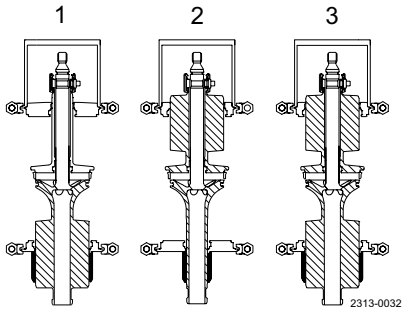
Size flexibility



The Unique Mixproof concept offers balanced and unbalanced plugs, seat lift, CIP for the plugs and leakage chambers and any combination in between.

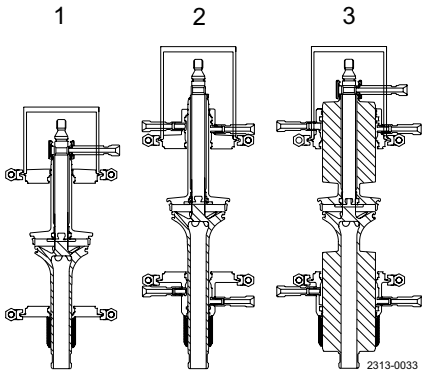
1. ISO 51 (2”)/ISO 76.1 (3”), 11-90, with spiral clean on lower unbalanced plug, group 3 basic actuator incl. seat lift and seat push
2. ISO 76.1(3”)/ISO 51 (2”), 22-90, with lower balanced plug, basic actuator incl. seat lift and seat push
3. ISO 63.5 (2½"), 12-90, with SpiralClean of upper, lower spindle and leakage chamber, upper and lower balanced plug, basic actuator incl. seat lift and seat push
4. ISO 63.5 (2½”), 22-90, with spiral clean on leakage chamber, unbalanced plugs, group 5 basic actuator
5. ISO 63.5 (2½”), 22-90, with lower balanced plug, group 4 basic actuator incl. seat lift and seat push

Balancing flexibility



1. Lower balanced plug
2. Upper balanced plug
3. Upper and lower balanced plugs

Hygienic flexibility (spiral clean options)



1. External CIP of leakage chamber
2. External CIP of upper and lower unbalanced plug
3. External CIP of leakage chamber upper and lower balanced plug

Standard configurations

To assist you in the selection we have included some standard configurations:

- Unique Basic
- Unique SeatClean
- Unique HighClean
- Unique UltraClean

You can either choose these directly or add additional features ensuring that the valve suits your specific needs.
Unique Basic has the basic components, providing significant safety and leakage detection.

- Actuator without seatlift.
- Unbalanced plugs.
- No SpiralClean of leakage chamber or plugs.
- Not applicable for 3-body version

Unique SeatClean meets the typical demands of a process valve in the food and drink industry.

- Actuator with seat lift integrated.
- Balanced lower plug, Unbalanced upper plug.
- No SpiralClean of leakage chamber or plugs.

Unique HighClean is sure to meet your processing needs when dealing with sticky products or if no recontamination can be accepted at all.

- Actuator without seatlift integrated.
- Balanced lower and upper plug.
- SpiralClean of leakage chamber as well as of upper and lower plug.
- Not applicable for 3-body version.

Unique UltraClean meets the highest demands for hygienic processing. It has:

- Actuator with seat lift integrated.
- Balanced lower and upper plug.
- SpiralClean of leakage chamber, upper and lower plug

Options

- Male parts or clamp liners in accordance with required standard.
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- Side indication for detection of upper seat lift
- Product wetted seals in HNBR, NBR or FPM
- Various internal/external surface finish
- 3A (hygienic standard) on request
- Mixed housing (Not applicable for 3-body version)

Pressure drop/capacity diagrams

Example to determine pressure drop:	
Upper body size:	2". Balanced upper plug. Capacity = 80 gpm
Lower body size:	3". Balanced lower plug. Capacity = 80 gpm
Between bodies:	Capacity = 60 gpm

Result:

From fig. 1, Δp = 0.9 psi through upper body.

From fig. 2, Δp = 0.25 psi through lower body.

From fig. 3, Δp = 1.7 psi seeing that:

1. The smallest body determines the curve for Δp between bodies.
2. Always choose the curve for balanced plugs if upper plug is balanced. If only lower plug is balanced, always choose the curve for unbalanced.

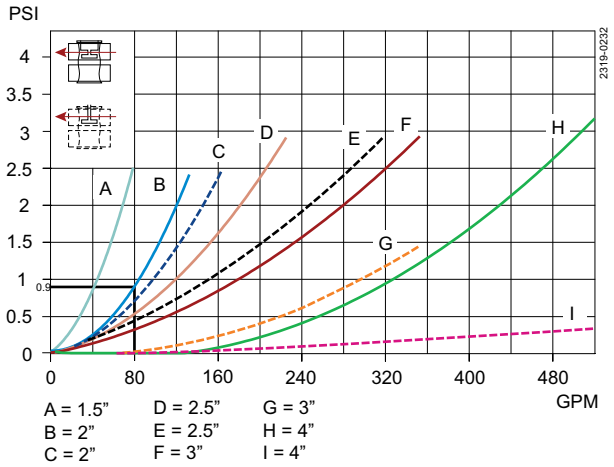


Figure 1. Pressure drop/capacity diagram, upper body.

Full lines: Balanced upper plug.

Dotted lines: Unbalanced upper plug.

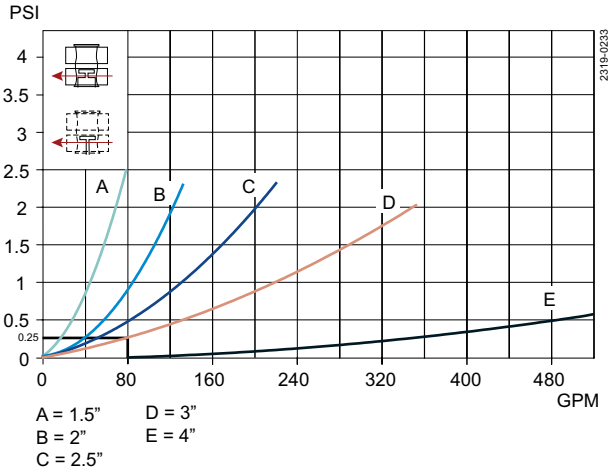


Figure 2. Pressure drop/capacity diagram, lower body, balanced and unbalanced lower plugs.

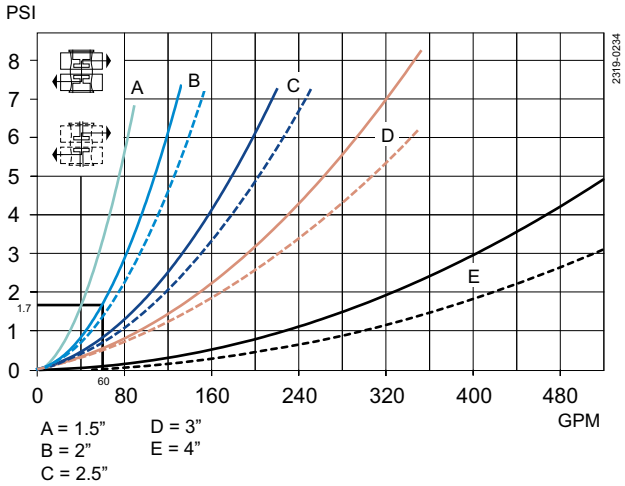


Figure 3. Pressure drop/capacity diagram, between bodies.

Full lines: Balanced.

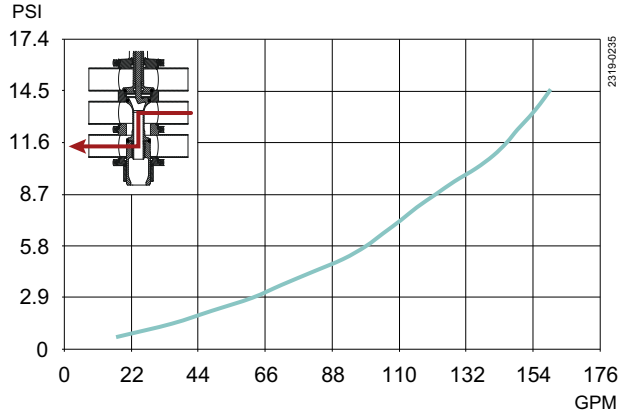
Dotted lines: Unbalanced.

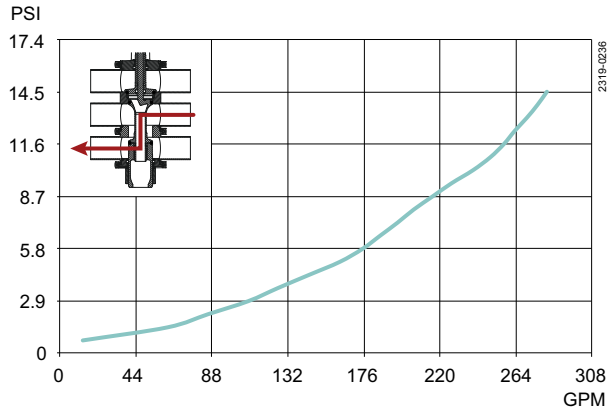
Note! For the diagrams the following applies:

- Medium: Water (68°F).
- Measurement: In accordance with VDI 2173.

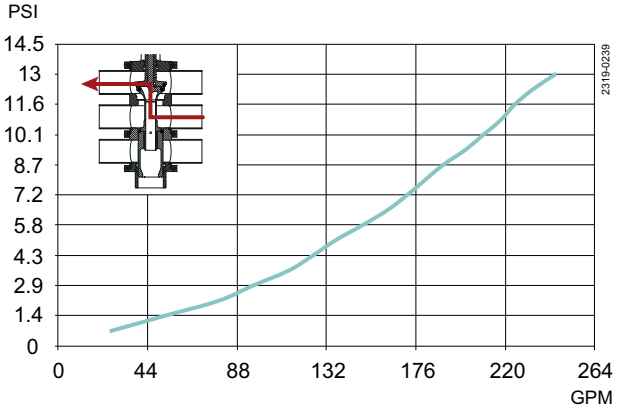
Pressure drop/capacity diagrams for 3 body valve

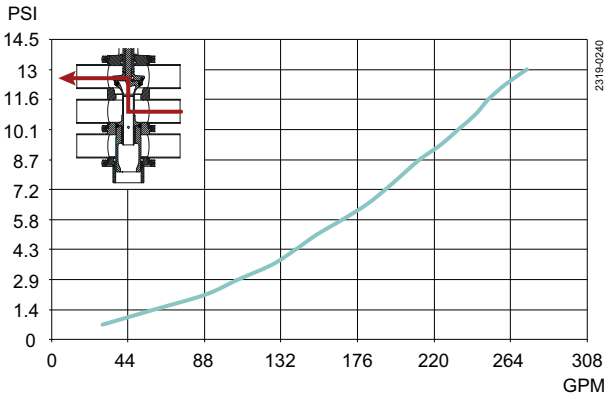
Between middle and lower body

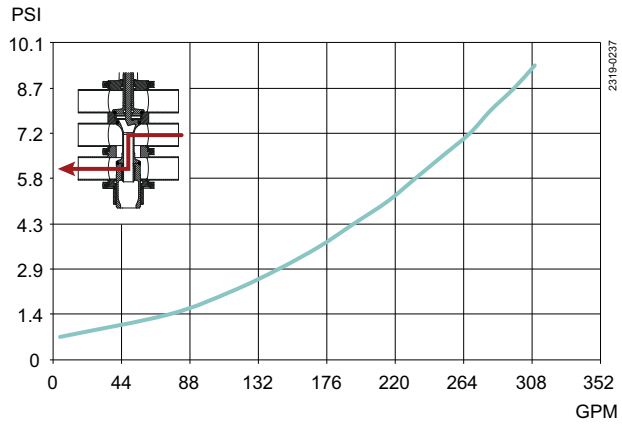




Between middle and upper body



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7.2
5.8
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GPM
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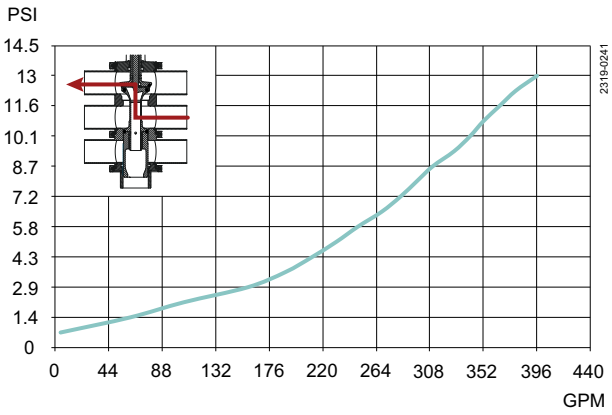
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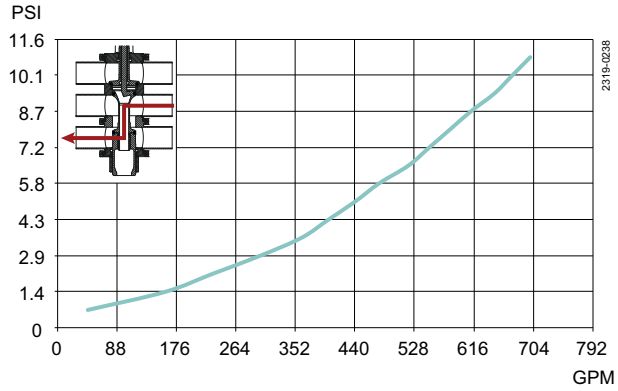
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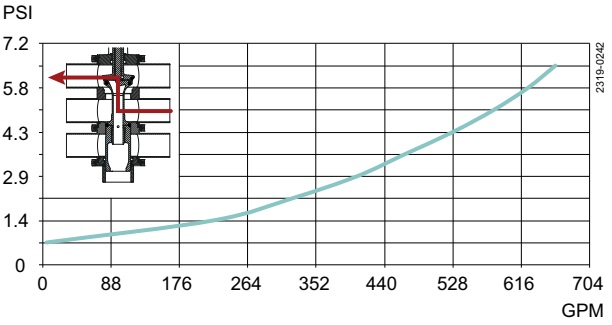
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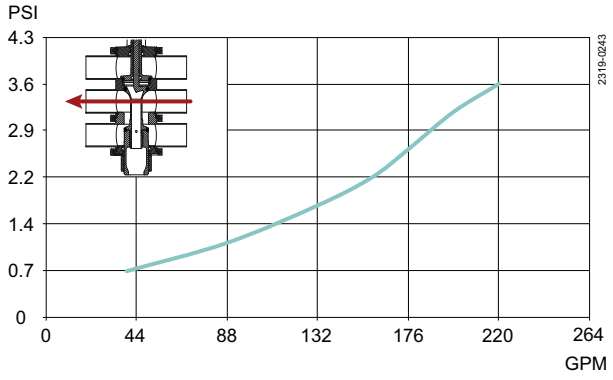
Middle body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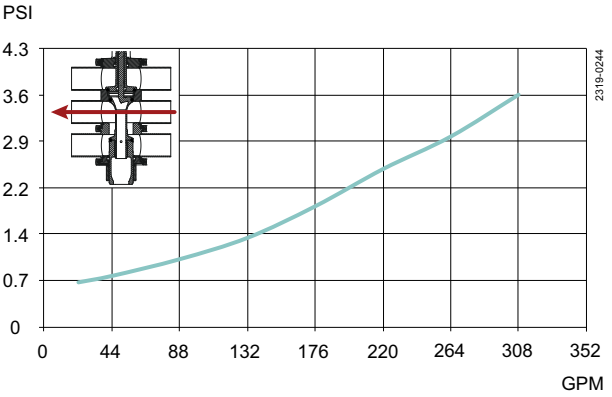
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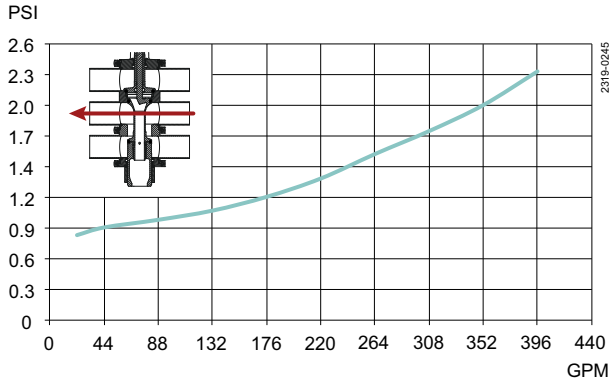
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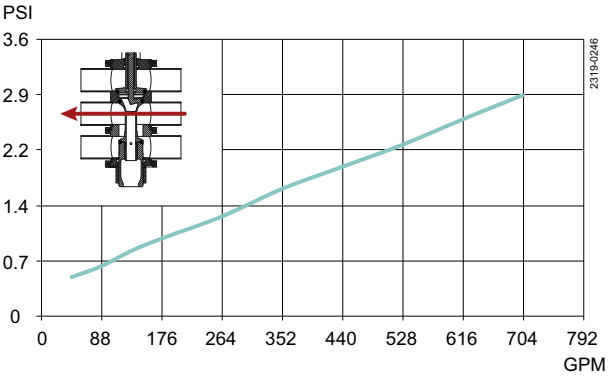
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0
88
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440
528
616
704
792
GPM
2319-0246

Air and CIP consumption

Size	OD	OD	OD	OD	OD
ISO	**1½"**	**2"**	**2½"**	**3"**	**4"**
Kv-value					
Upper Seat-lift [gpm/psi]	1.7	1.7	2.9	2.9	3.6
Lower Seat-lift [gpm/psi]	1.0	1.0	2.2	2.2	2.9
Air consumption					
Upper Seat-lift [1][cubic inches]	12	12	24	24	38
Lower Seat-lift [1][cubic inches]	6.7	6.7	8	8	13
Main Movement [1][cubic inches]	52	52	99	99	170
Cv-value SpiralClean					
Spindle CIP [gpm/psi]	0.14	0.14	0.14	0.14	0.14
External CIP of leakage chamber [gpm/psi]	0.29	0.29	0.34	0.34	0.34

Note! Recommended min. pressure for SpiralClean: 29 bar.

[1] [n litre] = volume at atmospheric pressure

Formula to estimate CIP flow during seat lift:

(for liquids with comparable viscosity and density to water):

$Q = Kv \cdot \sqrt{\Delta p}$

Q = CIP - flow (m^3/h).

Kv = Kv value from the above table.

Δp = CIP pressure (bar).

Actuator

						STD Operating pressure for SeatClean, High Clean and Ultra Clean at 6 bar air pressure	**STD/STD* Operating pressure for Basic at 6 bar air pressure**
Actuator Type	3	4BS[1]	4SS[2]	5BS[1]	5SS[2]		
Actuator dimensions	4.72 x	6.18 x	7.32 x	7.32 x	7.32 x		
øD x L	9.06	9.92	11.06	11.06	14.92		
Tube OD							
1½"	STD[3]	OP[4]	OP[4]			140	87
2"	STD[3]	OP[4]	OP[4]			140	87
2½"	OP[4]	STD[3]	STD*[5]	OP[4]	OP[4]	140	87
3"	OP[4]	STD[3]	STD*[5]	OP[4]	OP[4]	140	87
4"		OP[4]	OP[4]	STD[3]	STD*[5]	116	87

[1] BS = Basic spring

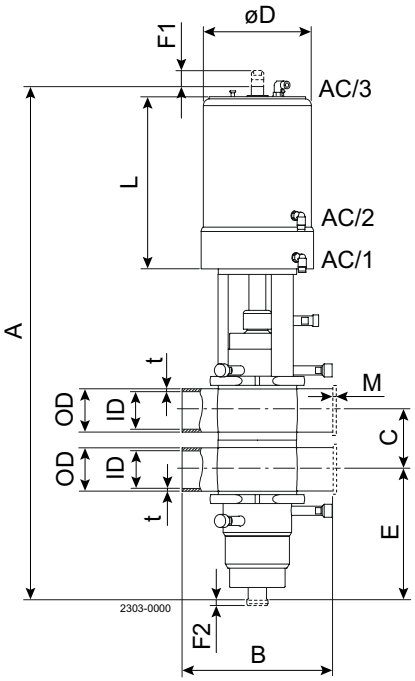
[2] SS = Strong spring

[3] STD: Normal size of actuator

[4] OP: Alternative size of actuator (NB: For choice and performance of optional actuators please contact Alfa Laval or refer to the Anytime Configurator).

[5] STD*: Normal size actuator if lower plug is UNBALANCED

Dimensions (inch)



Note for mixed bodies

1. The seat always applies to the smallest valve body.
2. Dimension B is equal with the largest valve body size.

Size	OD	OD	OD	OD	OD
ISO	**1½"**	**2"**	**2½"**	**3"**	**4"**
A Basic Clean[1]	20.88	22.66	27.54	27.54	35.03
A Seat Clean[1]	20.88	22.66	26.40	26.40	31.17
A High Clean/UltraClean[1]	24.07	25.85	29.94	29.94	36.33
B	6.70	8.67	8.67	8.67	11.82
C[2]	2.40	2.91	3.40	3.90	4.87
OD	1.50	2.01	2.50	3.00	4.00
ID	1.37	1.88	2.38	2.87	3.85
t	0.06	0.06	0.06	0.06	0.08
E Basic/Seat Clean	3.94	4.77	5.87	5.60	6.97
E High Clean/Ultra Clean	5.67	6.50	7.88	7.60	9.77
F1	1.24	1.24	1.50	1.50	2.33
F2	0.20	0.20	0.20	0.20	0.20
øD Basic	4.73	4.73	7.33	7.33	7.33
øD Seat Clean,					
High Clean and Ultra Clean	4.73	4.73	6.19	6.19	7.33
L Basic	9.06	9.06	11.07	11.07	14.93
L Seat Clean,					
High Clean and Ultra Clean	9.06	9.06	9.93	9.93	11.07
M/Tri-clamp	0.83	0.83	0.83	0.83	0.83
Weight (lb)					
Basic	30	33	53	53	75
Weight (lb)					
SeatClean	30	33	53	53	75
Weight (lb)					
High-/UltraClean	32	35	59	59	84

[1] For the A-measure if different upper/lower body sizes, please refer to Anytime configurator or contact Alfa Laval.

[2] The measure C can always be calculated by the formula C = ½IDupper + ½IDlower + 1.02 inch.

Dimension for 3-body version

Group	3	4	4	5	3	4	4	5
Size	**DN/OD**	**DN/OD**	**DN/OD**	**DN/OD**	**DN**	**DN**	**DN**	**DN**
ISO-DIN	**2”**	**2.5”**	**3”**	**4”**	**50**	**65**	**80**	**100**
A - without Spiral Clean	24.24	28.14	28.68	34.54	24.24	28.14	29.32	34.54
A - with Spiral Clean	27.41	31.68	32.22	39.69	27.41	31.68	32.86	39.7
A - Flushed	24.06	27.82	28.59	34.36	24.24	28.14	29.32	34.54
B	8.66	8.66	8.66	11.81	8.66	8.66	8.66	11.81
**C	2.91	3.4	3.89	4.87	2.99	3.62	4.21	4.96
OD	2.01	2.5	3	4	2.09	2.76	3.35	4.09
ID	1.88	2.37	2.87	3.84	1.97	2.6	3.19	3.94
t	0.06	0.06	0.06	0.08	0.06	0.08	0.08	0.08
E - without Spiral Clean	3.41	4.23	4.03	5.49	3.28	3.9	4.19	5.35
E - with Spiral Clean	5.13	6.22	6.02	8.29	5	5.89	6.18	8.15
E - Flushed	3.24	3.92	3.94	5.31	3.28	3.9	4.19	5.35
F1	1.24	1.5	1.5	2.32	1.24	1.5	1.5	2.32
F2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
øD	4.72	6.18	6.18	7.32	4.72	6.18	6.18	7.32
L	9.06	9.92	9.92	11.06	9.06	9.92	9.92	11.06
M/ISO clamp	0.83	0.83	0.83	0.83				
M/DIN clamp					0.83	0.83	0.83	0.83
M/ISO male	0.83	0.83	0.83	0.83				
M/DIN male					0.91	0.98	0.98	1.18
M/SMS male	0.79	0.94	0.94	1.38				
M/BS male	0.87	0.87	0.87	1.06				

Alfa Laval Unique Mixproof UltraPure

Double seat valves

Introduction

Alfa Laval Unique Mixproof UltraPure (UP) Valve is a versatile, highly flexible double block-and-bleed valve for the safe and efficient management of fluids at intersection points in matrix piped systems of high-purity process lines. The valve enables the simultaneous flow of two different products or fluids through the same valve without the risk of cross-contamination.

Modular design and a wide variety of options enable the valve to be customized to meet any process requirement needed—whether higher demands on cleanability, the ability to withstand high pressure, or greater resistance against corrosive conditions.

This provides optimized efficiency, a higher degree of plant flexibility, maximum high-purity process uptime, and uncompromised levels of product safety.

Application

The Alfa Laval Unique Mixproof UP Valve is designed for continuous flow management of product in high-purity applications across the biotechnology, pharmaceutical and other high-purity industries where the Alfa Laval Q-doc documentation package and full traceability is a requirement.

Benefits

- Modular, high-purity design
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection and leakage chamber cleaning
- Full component traceability with Q-doc

Standard design

The Alfa Laval Unique Mixproof UP Valve is comprised of a series of base components, including valve body, valve plug, actuator, and cleaning options and accessories that support a wide range of applications. Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs. The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Working principle

The Alfa Laval Unique Mixproof UP Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plug seals to separate the liquids; the space between the seals forms a leakage chamber under atmospheric pressure during every working condition. Leakage rarely occurs but, should it occur, product flows into the leakage chamber and exits through the bottom outlet for easy detection.

When the valve is open, the leakage chamber is closed. The product then flows from one line to the other. The radial design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning and water hammer protection to the requirements of individual process specifications.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	145 psi (10 bar)
Min. product pressure:	Full vacuum
Temperature	
Temperature range:	23°F to +257°F (depending on elastomer)
Steaming in Place (SIP):	284°F - 40 mins (depending on elastomer)

Note! Steaming In Place.It is recommended to allow the valve to cool down to operational temperature before operating the valve to minimize seal wear

Actuator air pressure:	87 to 116 psi (6-8 bar)
ATEX	
Classification:	II 2 G D[1]

Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
Surface finish choose from the following:	
Internal:	Ra< 32 µin
Optional:	Ra< 20 µin or <16 µin EP
External:	Polished

Note! The Ra values are only for the internal surface.

Product wetted seals:	EPDM Acc. To FDA & USP Class VI
Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips:	PTFE

Pressure drop/capacity diagrams

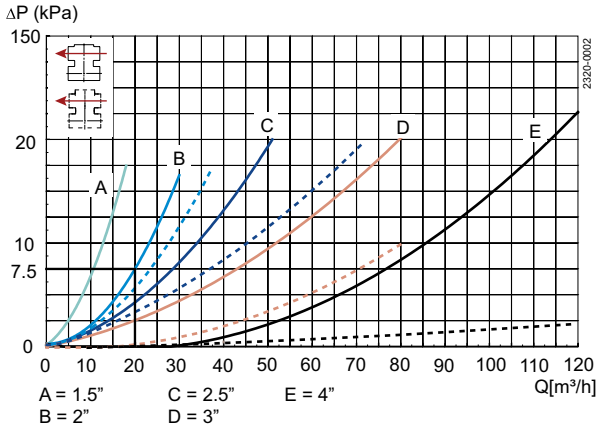


Figure 1. Pressure drop/capacity diagram, upper body.

Full lines: Balanced upper plug.

Dotted lines: Unbalanced upper plug.

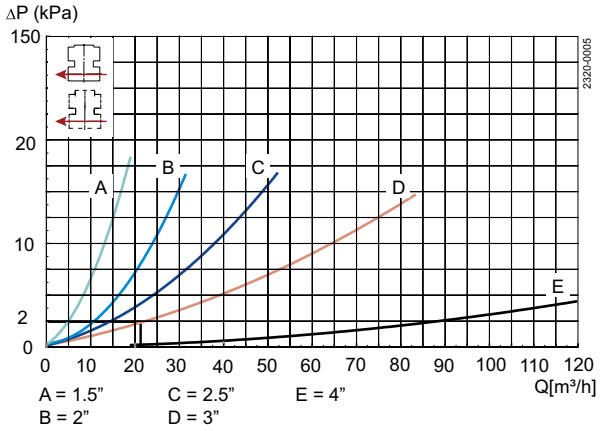


Figure 2. Pressure drop/capacity diagram, lower body, balanced

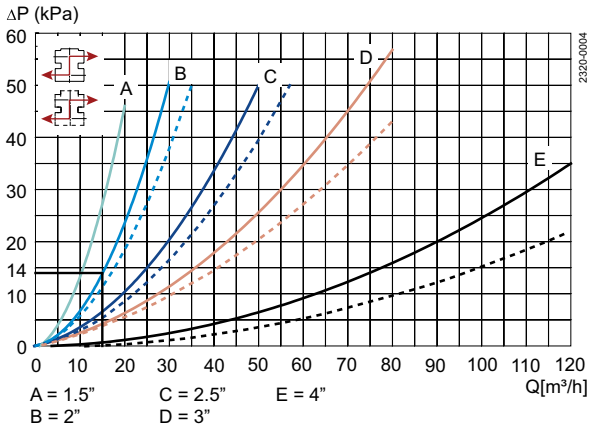


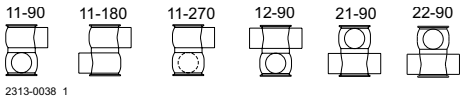
Figure 3. Pressure drop/capacity diagram, between bodies.

Full lines: Balanced.

Dotted lines: Unbalanced.

Note!
For the diagrams the following applies:
Medium: Water. (68°F)
Measurement: In accordance with VDI 2173.

Valve body combinations



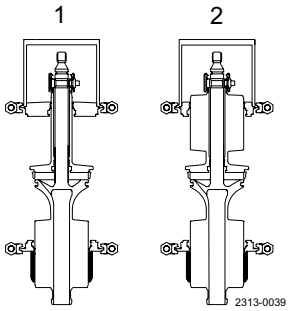
Valve body combinations, example: type 11-90

1 Number of ports - lower valve body

1 Number of ports - upper valve body

90° Angle between ports

Balancing plugs:



1. Lower balanced plug
2. Upper and lower balanced plugs

Options

- Control and Indication: ThinkTop or ThinkTop Basic.
- Side indication for detection of upper seat lift
- Leakage chamber collection
- Other sizes, options and configurations on request

Documentation

All UltraPure valves are delivered with our comprehensive Q-doc documentation package, which includes:

- 3.1/MTR traceability certificate corresponding to EN 10204
- FDA - Declaration of conformity to FDA (CFR 21; 177,2600 or 177.1550)
- USP - Certificate of conformity to USP Class VI (Chapter 88, biological reactivity test)
- TSE/ADI - Declaration (Transmissible Spongiform Encephalopathy/Animal Derived Ingredients)
- Surface finish conformity declaration

The following documentation is available upon request:

- Surface finish certificate (RA test results)
- ATEX

Air and CIP consumption

ASME BPE	1½”	2”	2½”	3”	4”
Kv-value					
Upper Seat-lift [gallon/h]	396.26	396.26	660.43	660.43	818.93
Lower Seat-lift [m'_3/h]	237.75	237.75	501.93	501.93	660.43
Air consumption					
Upper Seat-lift [1][n gallon]	0.052	0.05	0.11	0.11	0.16
Lower Seat-lift [1][n gallon]	0.29	0.29	0.03	0.03	0.06
Main Movement [1] [n gallon]	0.23	0.23	0.43	0.43	0.74

[1] [n litre] = volume at atmospheric pressure. Formula to estimate CIP flow during seat lift: (for liquids with comparable viscosity and density to water):Q = Kv ·√Δ pQ = CIP - flow (m3/h)Kv = Kv value from the above tablep = CIP pressure (bar)

Actuator

						STD Operating pressure at 87 psi air pressure
Actuator Type	3	4BS[1]	4SS[2]	5BS[1]	5SS[2]	
Actuator dimensions øD x L	4.72 x 9.06	6.18 x 9.92	7.32 x 11.06	7.32 x 11.06	7.32 x 14.92	
Connection Size ASME BPE						
1½”	STD[3]	OP[4]				145 psi
2”	STD[3]	OP[4]	OP[4]			145 psi
2½”	OP[4]	STD[3]	OP[4]	OP[4]	OP[4]	145 psi
3”	OP[4]	STD[3]	OP[4]	OP[4]	OP[4]	145 psi
4”		OP[4]	OP[4]	STD[3]	OP[4]	145 psi

[1] BS = Basic spring

[2] SS = Strong spring

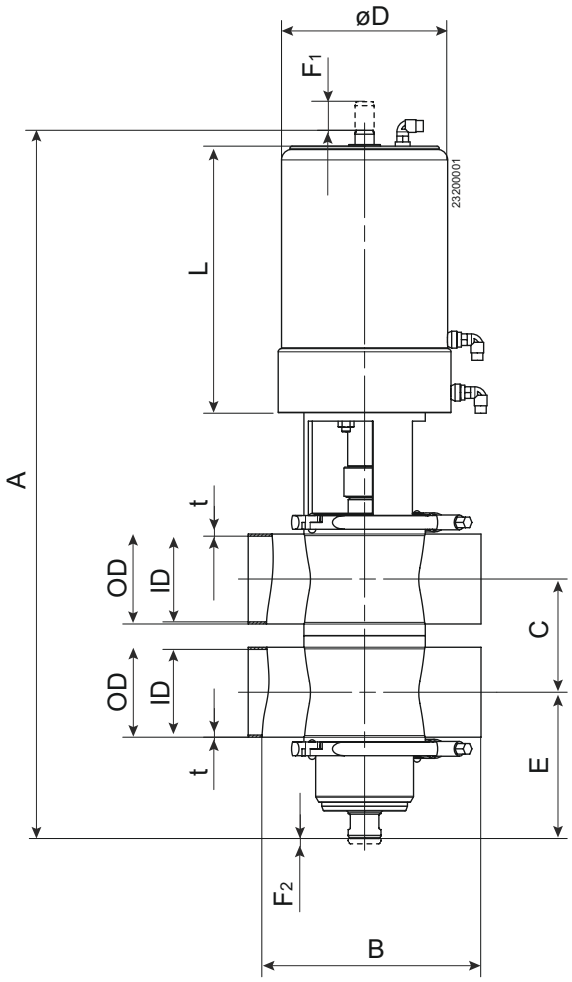
[3] STD: Normal size of actuator

[4] OP: Alternative size of actuator (NB: For choice and performance of optional actuators please contact Alfa Laval or refer to the Anytime Configurator).

Radial Seat Diameter

ASME BPE	Seat (mm)	Seat (in)
1½”	ø53.3	ø2.10
2”	ø53.3	ø2.10
2½”	ø81.3	ø3.20
3”	ø81.3	ø3.20
4”	ø100.3	ø3.95

Dimensions (inch)



Size ASME BPE	DN/OD									
	1½"		2"		2½"		3"		4"	
	mm	in	mm	in	mm	in	mm	in	mm	in
A -	530	20.87	575	22.64	670	26.38	670	26.38	791	31.14
B	170	6.69	220	8.66	220	8.66	220	8.66	300	11.81
C[1]	60.8	2.39	73.5	2.89	86.2	3.39	98.9	3.89	123.4	4.86
OD	38.1	1.5	50.8	2	63.5	2.5	76.2	3	101.6	4.00
ID	34.8	1.37	47.5	1.87	60.2	2.37	72.9	2.87	97.4	3.83
T	1.65	0.06	1.65	0.06	1.65	0.06	1.65	0.06	2.11	0.08
E	100	3.94	121	4.76	149	5.87	142	5.59	177	6.97
F1	31.5	1.24	31.5	1.24	38	1.5	38	1.5	59	2.32
F2	5	0.2	5	0.2	5	0.2	5	0.2	5	0.20
øD -	120	4.72	120	4.72	157	6.18	157	6.18	186	7.32
L -	230	9.06	230	9.06	252	9.92	252	9.92	281	11.06
Weight (kg)(lb) -	13.5	29.76	15	33.07	24	52.91	24	52.91	34	74.96

[1] The measure C can always be calculated be the formula C = ½IDupper + ½IDlower + 26 mm (1.02 in).

TD900074-1

Alfa Laval Unique Mixproof Large Particle Valve (Unique LP)

Double seat valves

Introduction

The Alfa Laval Unique Mixproof Large Particle (LP) Valve is a versatile, highly flexible double block-and-bleed valve for the safe and efficient management of fluids at intersection points in matrix piped systems. The valve enables the simultaneous flow of two different products or fluids through the same valve without the risk of cross-contamination.

Modular design and a wide variety of options enable the valve to be customized to meet any process requirement—whether higher demands on cleanability, the ability to withstand high pressure by means of balanced plugs. The valve is designed for gentle handling of products containing large particulates up to 1¾" (45 mm) or products with high viscosity.

Application

The Alfa Laval Unique LP Mixproof Valve is designed for use in hygienic processes that require process safety and continuous flow management of fluids with large particles that require gentle handling across the dairy, food, beverage, and many other industries.

Benefits

- Enhanced product safety
- Spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Gentle product handling
- Easy maintenance

Standard design

The Alfa Laval Unique Mixproof LP Valve is comprised of a series of base components, including valve body, valve plug and actuator. There are two sizes: 4” and 6”. The standard 6” valve comes equipped with balanced lower plug to protect against the effects of pressure peaks and water hammering. To accommodate 1¾" (45 mm) particles, the 4” valve is not equipped with a balanced lower plug but comes with a boost actuator to accommodate a product pressure of up to 145 PSI.

Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

Compliance

Meets 3A 85-03 requirements for dairy applications.

Working principle

The Alfa Laval Unique Mixproof LP Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plug seals to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure during every working condition. Leakage rarely occurs but, should it occur, product flows into the leakage chamber and exits through the bottom outlet for easy detection.

When the valve is open, the leakage chamber is closed. The product then flows from one line to the other. The radial design of the valve ensures that virtually no product spillage occurs during valve operation.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	145 PSI (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	Max. 116 PSI

Temperature	
Temperature range:	-23 °F to +257 °F (Depending on elastomer type)

ATEX	
Classification:	II 2 G D[1]

Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel parts:	Acid-resistant steel AISI 316L
Other steel parts:	Stainless steel AISI 304
Surface finish:	External bright/internal polished Ra<32 µin
Product wetted parts:	EPDM (std.) NBR, HNBR or FPM
Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips	PTFE

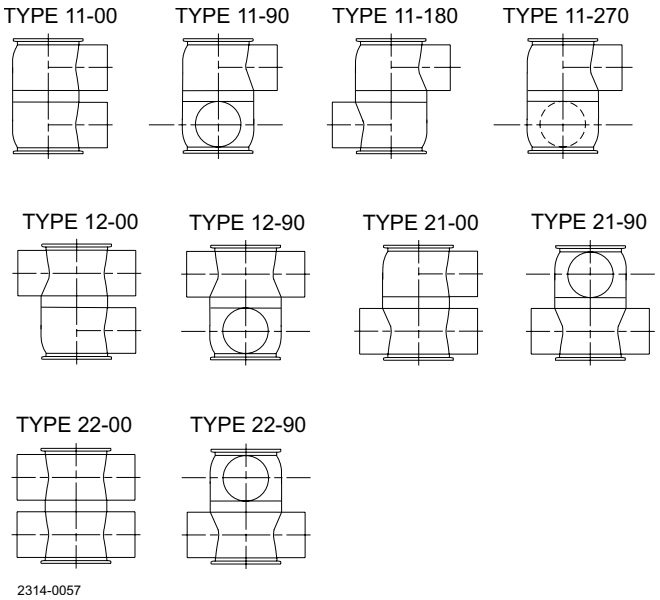
Availability

This LP edition of the Unique Mixproof valve is a high-end valve with regards to process security as well as from a hygienic point of view. The Unique Mixproof LP valve is available in 4" and 6" sizes.

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: ThinkTop
- Side indication for detection of upper seat lift
- Product wetted seals in HNBR, NBR or FPM

Valve body combinations



Pressure drop/capacity diagrams

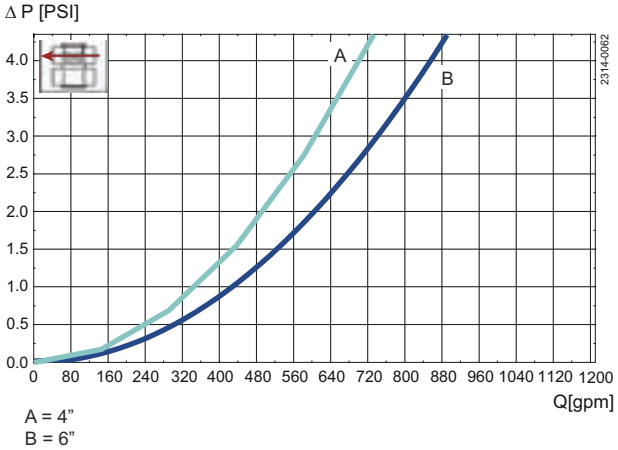


Figure 1. Pressure drop/capacity diagram, upper bodies

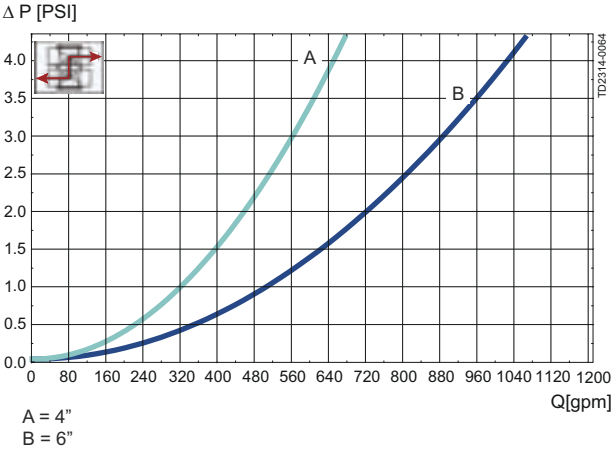


Figure 2. Pressure drop/capacity diagram, between bodies

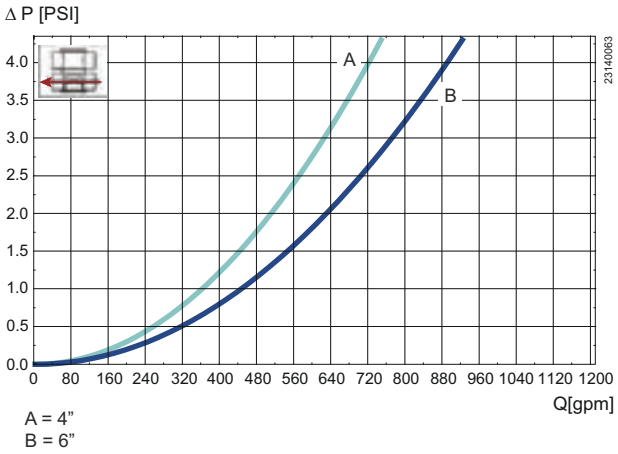


Figure 3. Pressure drop/capacity diagram, lower body

Note!
For the diagrams the following applies:
Medium: Water (68 °F).
Measurement: In accordance with VDI 2173.

Air and CIP consumption

Size		OD 4"	OD 6”
Cv-value Upper Seat-lift	[gpm/psi]	5.5	12.1
Cv-value Lower Seat-lift	[gpm/psi]	4.9	10.2
Air consumption Upper Seat-lift	[cubic inches][1]	38	38
Air consumption Lower Seat-lift	[cubic inches][1]	13	13
Air consumption Main Movement	[cubic inches][1]	216	216

[1] [cubic inches] = volume at atmospheric pressure

Formula to estimate CIP flow during seat lift:

$Q = Cv \cdot \sqrt{\Delta\ p}$

Q = water flow [gpm]

Cv = value from the above table

Δ p = water pressure [psi]

Dimensions (inch)

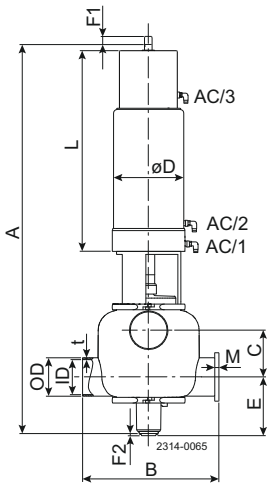


Figure 4. 4”

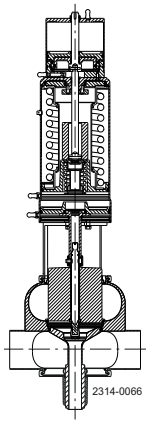


Figure 5. 4”

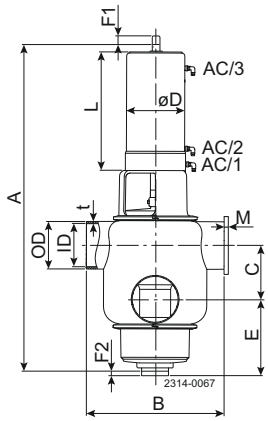


Figure 6. 6”

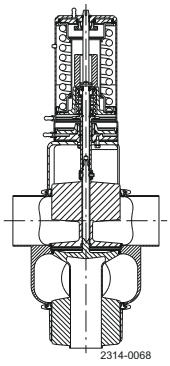


Figure 7. 6”

Size	4"	6"
A	40.87	39.45
A*	46.97	46.54
B	13.78	17.32
C**Note!** The measure C can always be calculated by the formula C = ½ID-$_{upper}$ + ½ID-$_{lower}$ + 1".	4.87	6.80
OD	4.00	6.00
ID	3.84	5.78
t	0.08	0.11
E	6.54	8.30
F1	2.95	2.95
F2	0.20	0.20
øD	7.32	7.32
L	21.02	14.92
M/Tri-clamp	0.83	1.52
Weight (lb)	143.00	190.00

Alfa Laval Unique Mixproof Large Particle (Unique LP-F)

Double seat valves

Introduction

The Alfa Laval Unique Mixproof Large Particle-Flush (LP-F) Valve is a versatile, highly flexible double block-and-bleed valve for the safe and efficient management of fluids at intersection points in matrix piped systems. The valve enables the simultaneous flow of two different products or fluids with large particles through the same valve without the risk of cross-contamination.

Modular design and a wide variety of options enable the valve to be customized to meet any process requirement—whether higher demands on cleanability, the ability to withstand high pressure. The valve is designed for gentle handling of products containing large particles up to 1¾" (45 mm) or products with high viscosity.

Unlike the Unique Mixproof LP Valve, the Unique Mixproof LP-F Valve is equipped with a lower flush for 100% cleanability of the lip seal in the lower sealing element through seat-lift cleaning alone. It also reduces the need for additional utility installations for external Cleaning-in-Place.

Application

The Alfa Laval Unique Mixproof LP-F Valve is designed for use hygienic processes that require product safety and continuous flow management of fluids with large particles that require gentle handling and thorough cleaning across the dairy, food, beverage, and many other industries.

Benefits

- Enhanced product safety
- Spillage-free operation
- Gentle product handling
- Optimized plant efficiency and enhanced cleanability
- Lower lip seal flush

Standard design

The Alfa Laval Unique Mixproof LP-F Valve is comprised of a series of base components, including valve body, valve plug and actuator that support a wide range of applications. It is supplied with a seat lift cleaning function, which enables handling of two different products at the same time, or safe handling of one product while seat-lift cleaning operations are being conducted in the other portion of the valve – all without any risk of cross-contamination. When performing seat lift of the lower plug, the valve simultaneously cleans the lower plug seal as well as the lip seal of the lower sealing element.

There are two sizes: 4” and 6”. The standard 6” valve comes equipped with balanced lower plug to protect against the effects of pressure peaks and water hammer. To accommodate 1¾" (45 mm) particles, the 4” valve is not equipped with a balanced lower plug but comes with a boost actuator to accommodate a product pressure of up to 10 bar 145 PSI.

Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

Compliance

Meets 3A 85-03 requirements for dariy applications

Working principle

The Alfa Laval Unique Mixproof LP-F Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plugs and seals to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure during every working condition. Leakage rarely occurs but, should it occur, product flows into the leakage chamber and exits through the bottom outlet for easy detection.

When the valve is open, the leakage chamber is closed. Product then flows from one line to the other. The radial design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning and water hammer protection to the requirements of individual process specifications.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	Max. 8 bar

Pressure	
Max. product pressure:	145 PSI (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	Max. 116 PSI

Temperature	
Temperature range:	-5 °C to +125 °C (Depending on elastomer type)

Temperature	
Temperature range:	-23 °F to +257 °F (Depending on elastomer type)

ATEX	
Classification:	II 2 G D[1]

Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Product wetted parts:	EPDM
Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips	PTFE

Materials	
Product wetted steel parts:	Acid-resistant steel AISI 316L
Other steel parts:	Stainless steel AISI 304
External surface finish:	Semi-bright (blasted)
Internal surface finish:	External bright/internal polished Ra<32 µin
Product wetted parts:	EPDM (std.) NBR, HNBR or FPM
Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips	PTFE

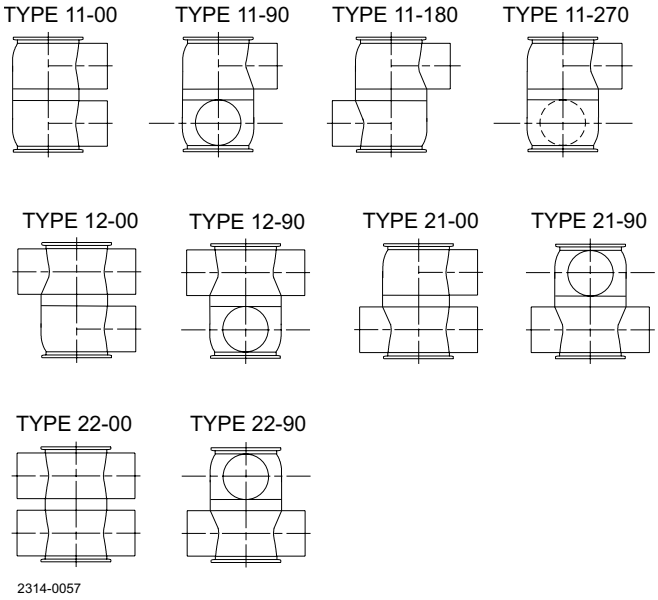
Availability

This LP-F edition of the Unique Mixproof valve is a high-end valve with regards to process security as well as from a hygienic point of view. The Unique Mixproof LP-F valve is available in 4" and 6" sizes.

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: ThinkTop
- Side indication for detection of upper seat lift
- Product wetted seals in HNBR, NBR or FPM

Valve body combinations



Pressure drop/capacity diagrams

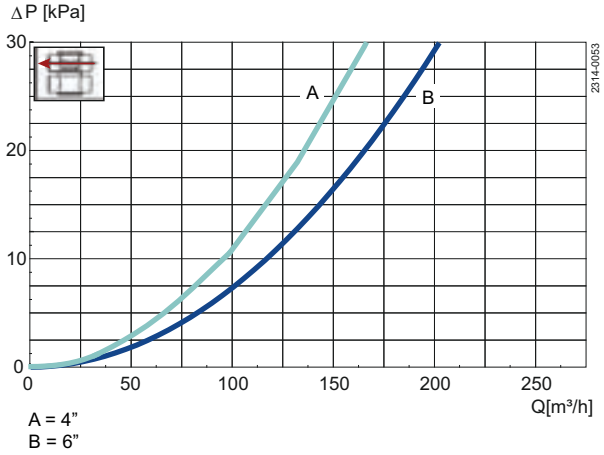


Figure 1. Pressure drop/capacity diagram, upper bodies

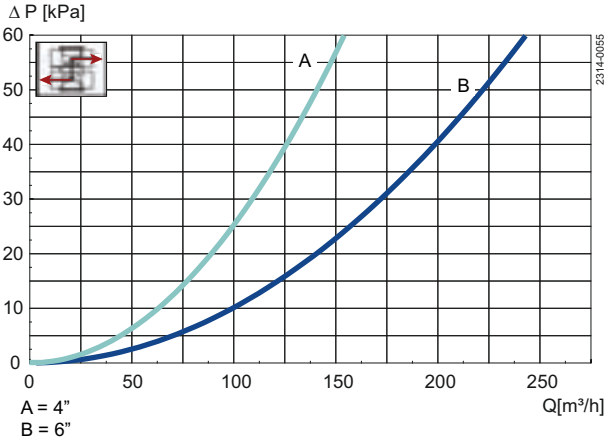


Figure 2. Pressure drop/capacity diagram, between bodies

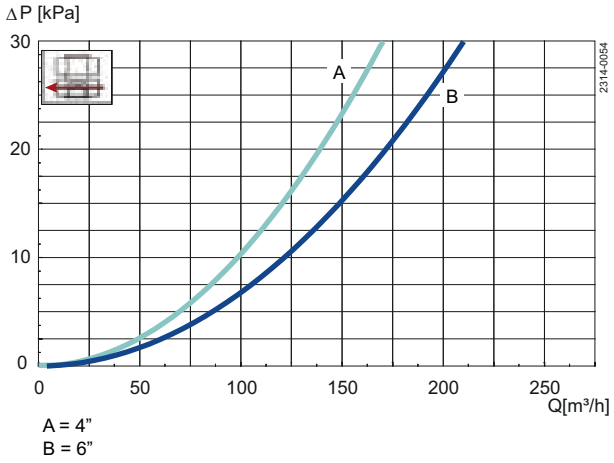


Figure 3. Pressure drop/capacity diagram, lower body

Note!

For the diagrams the following applies:
Medium: Water (20 °C).
Measurement: In accordance with VDI 2173.

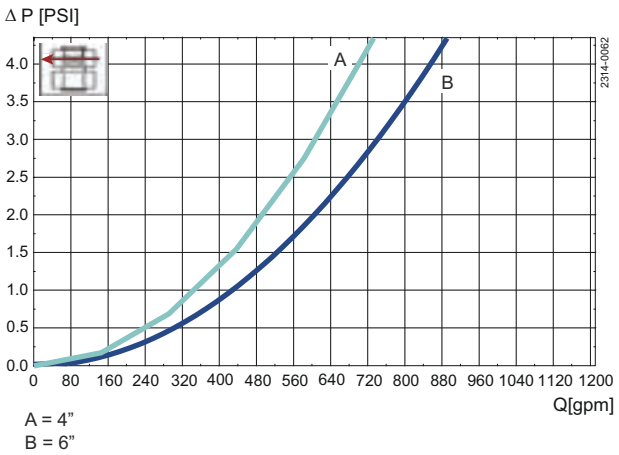


Figure 4. Pressure drop/capacity diagram, upper bodies

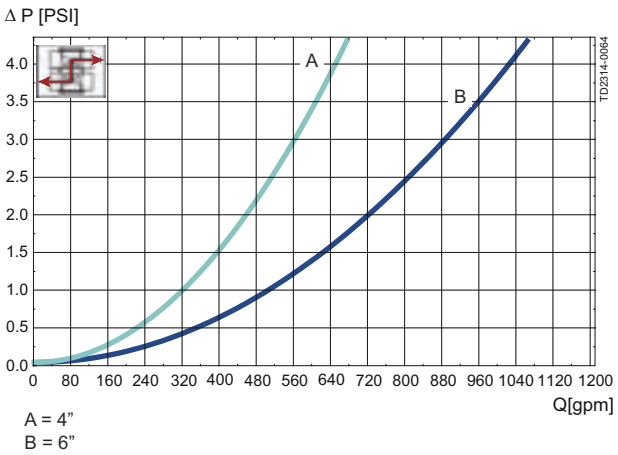


Figure 5. Pressure drop/capacity diagram, between bodies

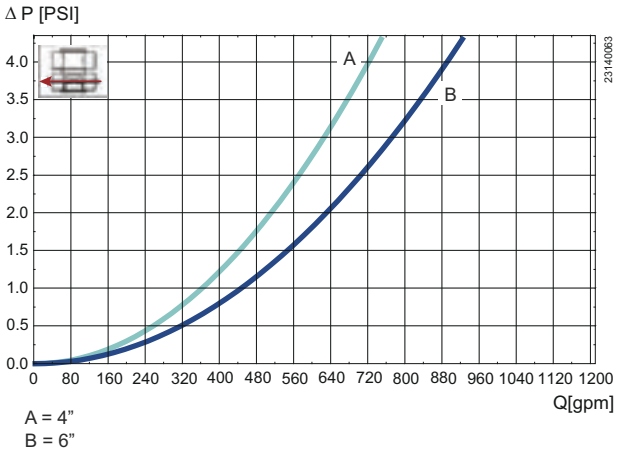


Figure 6. Pressure drop/capacity diagram, lower body

Note!

For the diagrams the following applies:
Medium: Water (68 °F).
Measurement: In accordance with VDI 2173.

Air and CIP consumption

		Size OD 4"	OD 6”
Kv-value			
Upper Seat-lift	[m^3/h]	3.2	7.1
Lower Seat-lift	[m^3/h]	3.9	8.9
Air consumption			
Upper Seat-lift	[n litre][1]	0.62	0.62
Lower Seat-lift	[n litre][1]	0.21	0.21
Main Movement	[n litre][1]	3.54	3.54

[1] [n litre] = volume at atmospheric pressure

Size		4"	6”
Cv-value Upper Seat-lift	[gpm/psi]	5.3	12.1
Cv-value Lower Seat-lift	[gpm/psi]	6.7	10.2

[1] [cubic inches]= volume at atmospheric pressure

Size			
		4"	6"
Air consumption Upper Seat-lift	[cubic inches][1]	38	38
Air consumption Lower Seat-lift	[cubic inches][1]	13	13
Air consumption Main Movement	[cubic inches][1]	216	216

[1] [cubic inches]= volume at atmospheric pressure

Formula to estimate CIP flow during seat lift:

(for liquids with comparable viscosity and density to water):

$Q = Kv \cdot \sqrt{\Delta p}$

$Q = Cv \cdot \sqrt{\Delta p}$

Q = CIP - flow (m^3/h)

Q = CIP - flow (ft^3/h)

Kv = Kv value from the above table

Kv = Kv value from the above table

Δ p = CIP pressure (bar)

Δ p = CIP pressure (psi)

Dimensions (mm) Dimensions (inch)

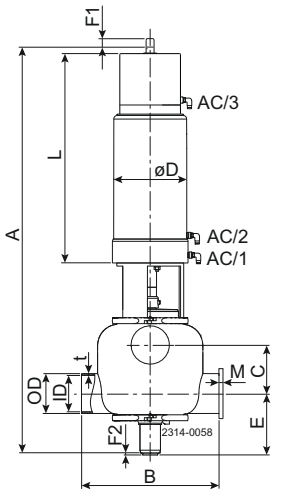


Figure 7. 4”

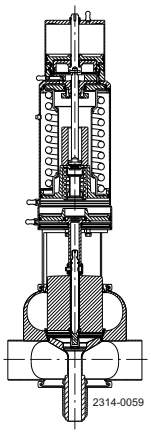


Figure 8. 4”

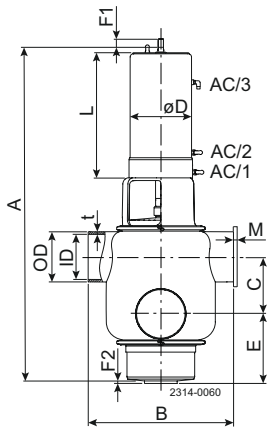


Figure 9. 6”

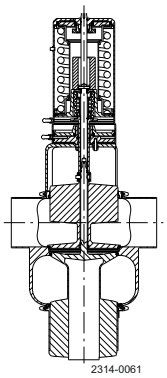


Figure 10. 6”

Size	4"	6"
A	1038.00	1002.00
B	350.00	440.00
C[1]	123.60	172.67
OD	101.60	152.40
ID	97.61	146.86
t	2.00	2.77
E	166.00	210.80
F1	75.00	75.00
F2	5.00	5.00
øD	186.00	186.00
L	534.00	379.00
M/Tri-clamp	21.00	38.60
Weight (kg)	64.90	86.20

[1] Note! The measure C can always be calculated by the formula C = ½ID-upper + ½ID-lower + 26mm.

Size	4"	6"
A	40.87	39.45
B	13.78	17.32
C[1]	4.87	6.80
OD	4.00	6.00
ID	3.84	5.78
t	0.08	0.11
E	6.54	8.30
F1	2.95	2.95
F2	0.20	0.20
øD	7.32	7.32
L	21.02	14.92
M/Tri-clamp	0.83	1.52
Weight (lb)	143.08	190.04

[1] Note! The measure C can always be calculated by the formula C = ½ID-upper + ½ID-lower +1.02 in

Alfa Laval Unique Mixproof Tank Outlet

Double seat valves

Introduction

The Alfa Laval Unique Mixproof Tank Outlet (TO) Valve is a versatile, highly flexible double block-and-bleed valve for the safe and efficient management of fluids at intersection points in matrix piped systems. Specially designed for mounting directly on the tank bottom or wall at the inlets and outlets, the valve enables the safe handling of two different products or fluids through the same valve. It provides full drainability and cleanability all the way up to the tank--without any risk of cross-contamination. Modular design and a wide variety of options enable the valve to be customized to meet any process requirement for all mixproof tank outlet operations allowing two different products in pipeline and tank.

Application

The Alfa Laval Unique Mixproof TO Valve is designed for continuous flow management and process safety in hygienic tank inlet and outlets across the dairy, food, beverage, and many other industries.

Benefits

- Enhanced product safety
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection and leakage chamber cleaning
- Configurable to fit your specific needs

Standard design

The Alfa Laval Unique Mixproof TO Valve is comprised of a series of base components, including valve body, valve plug, actuator, and cleaning options and accessories that support a wide range of applications. There are two versions: the Unique Mixproof TO Valve and the Unique Mixproof TO Valve with external cleaning. It is possible to install the Unique Mixproof TO in a horizontal position.

The valve body is connected either to tank flange or a stub flange with a clamp and can be turned in any position upon loosening the clamp slightly. Supplied with TÜV approval AD 2000 and inspection certificate 3.1 according to EN10204, the tank flange is welded directly into the tank. Please note that it is important to observe the welding guideline in instruction manuals.

Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Working principle

The Alfa Laval Unique Mixproof TO Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plugs and seals to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure during every working condition. Leakage rarely occurs but, should it occur, product flows into the leakage chamber and exits through the bottom outlet for easy detection.

When the valve is open, the leakage chamber is closed. The product then flows from the tank to the line. The radial design of

the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning to the requirements of individual process specifications.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure in pipeline:	145 PSI (1000 kPa)
Min. product pressure:	Full vacuum
Air pressure:	Max. 116 PSI (800 kPa)

Temperature	
Temperature range:	23°F to +257°F (Depending on rubber quality)

ATEX	
Classification:	II 2 G D[1]

Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
Product wetted parts:	EPDM, HNBR, NBR or FPM
Other seals:	CIP seals: EPDM Actuator seals: NBR

Surface finish - choose from the following:	
Internal/external Matt (blasted)	Ra<64 µin
Internal Bright (polished)	Ra<32 µin
Internal/external Bright (internal polished)	Ra<32 µin

Note! The Ra values are only for the internal surface.

Product wetted seals:	EPDM

Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips:	PTFE

Valve Body Combinations

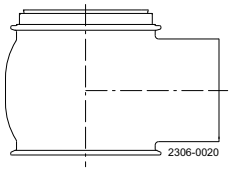


Figure 1. Type 20

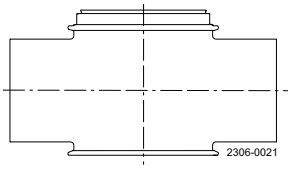


Figure 2. Type 30

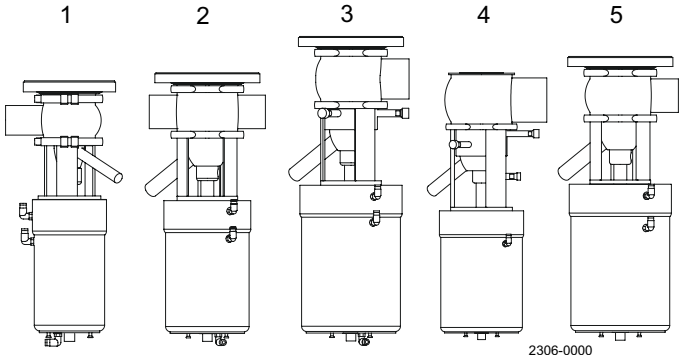
SpiralClean

The Alfa Laval SpiralClean system to clean the balanced plug and leakage chamber. The system cleans more efficiently, uses less cleaning fluid by ensuring that a directional flow of CIP fluid reaches all the surfaces in much less time than with conventional systems.

Selection guide

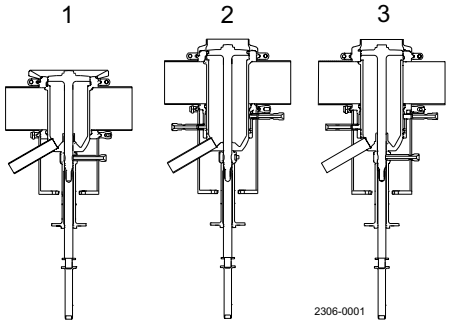
The drawings below gives an overview of all options when choosing the valve to fit your process, thus demonstrating the actual flexibility of the Unique Mixproof tank outlet valve.
The Unique-TO concept offers balanced plug in pipe line, seat lift, CIP for the plugs and leakage chambers and any combination in between.

Unique-TO size flexibility



1. DN50 with tank flange, group 3 actuator including seat lift and seat push
2. ISO63.5 (2½") with tank flange, group 4 basic actuator including seat lift and seat push
3. ISO76.1 (3") with spiral on upper balanced plug and tank flange, group 5 basic actuator including seat lift and seat push
4. DN150 with spiralclean on leakage chamber upper balanced plug and group 4 basic actuator
5. ISO 63.5 (2½") with tank flange, group 4 basic actuator including seat lift

Unique-TO hygienic flexibility (spiral clean options)



1. External CIP of leakage chamber
2. External CIP of upper balanced plug
3. External CIP cleaning of leakage chamber and upper balanced plug

Standard configurations

To assist you in the selection we have included some standard configurations:

- Unique-TO
- Unique-TO with external cleaning.

You can either choose these directly or add additional features ensuring that the valve suits your specific needs.

Unique-TO meets the typical demands of a process valve in the food and drink industry.

- Actuator with seat lift integrated.
- Standard balanced plug in pipeline.

Unique-TO with external cleaning meets the highest demands for hygienic processing.

- Actuator with seat lift integrated.
- Standard balanced plug in pipeline.
- SpiralClean of leakage chamber and balanced plug

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: ThinkTop
- Side indication for detection of upper seat lift
- Product wetted seals in HNBR, NBR or FPM
- Various internal/external surface finish
- 3A (hygienic standard) on request
- Blind flange
- Conversion flange that enables replacement of an SMP-TO valve though reusing the existing SMP-TO tank flange - see fig. 1.
- Tank connection supplied separately

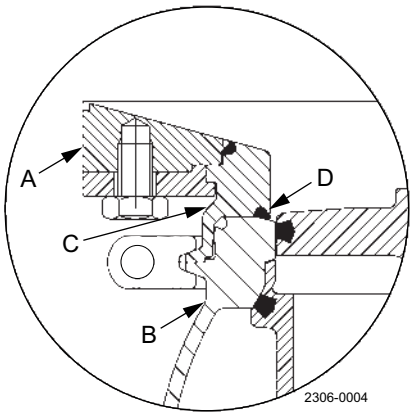


Figure 3. Converting from SMP-TO valve to Unique-TO valve in tank flange

A. SMP-TO tank flange

B. Unique Mixproof TO valve

C. Conversion flange

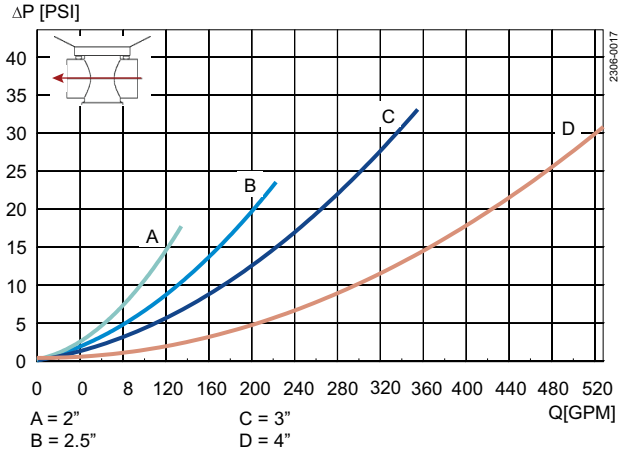
D. O-ring for conversion flange

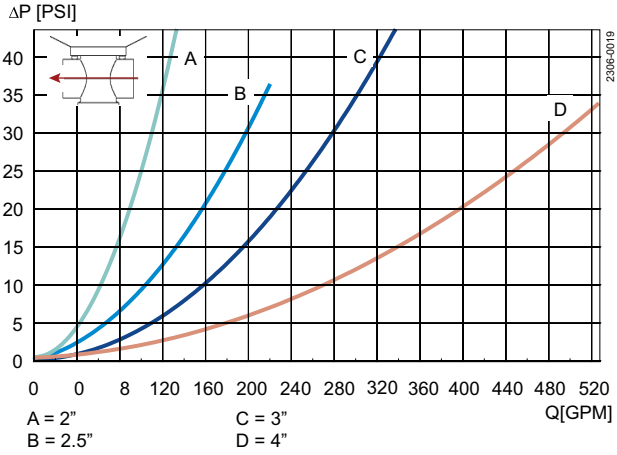
When Unique-TO is mounted on a SMP-TO flange via the Alfa Laval conversion flange add 28 mm to valve height dimensions (A1-A4)

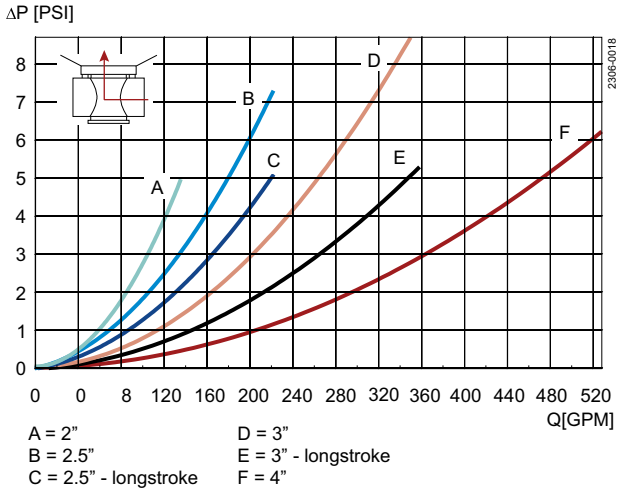
Size		Max. size of particle (in)	Max. tank pressure (psi)	Actuator size 3-Basic (ø4.7"x9")	Actuator size 4-Basic (ø6.2"x10")	Actuator size 5-Basic (ø7.3"x11")	Opening pressure in pipe line at 87 PSI air pressure (psi)
inch	DIN						
51 - 2"	DN50	ø0.35	58	Standard			145
63.5 - 2½"	DN65	ø0.60	65		Standard		145
63.5 - 2½"	DN65	ø1.22	87			Long stroke	145
76.1 - 3"	DN80	ø0.60	65		Standard		145
76.1 - 3"	DN80	ø1.22	87			Long stroke	145
101.6 - 4"	DN100	ø1.22	65			Standard	145
101.6 - 4"	DN100	ø0.60	50		Option		145
	DN125	ø1.29	50			Standard	145
	DN125	ø0.60	36		Option		145
	DN150	ø1.29	50			Standard	145
	DN150	ø0.60	36		Option		145

Note! Max. pressure in tank means that a higher pressure in tank will open the valve. It is possible to open with 145 PSI (10 bar) (1000 kPa) in pipe line. When closing the valve the pressure can not be higher than "Max. Tank pressure".

Pressure drop/capacity diagrams







Note!
For the diagrams the following applies:
Medium: Water 68° F (20°C)
Measurement: In accordance with VDI 2173

Air and CIP consumption

Size	Inch				DN		Longstroke	
ISO-DIN	2"	2½"	3"	4"	125	150	2½"	3"
Air consumption for Balanced Seat-lift	0.20	0.40	0.40	0.62	0.62	0.62	0.40	0.40
Air consumption for Tank Seat-lift	1.10	0.13	0.13	0.21	0.21	0.21	0.13	0.13
Air consumption for Main Movement	0.86	1.62	1.63	2.79	2.79	2.79	1.63	1.63
Cv-value for Balanced CIP Seat-lift [gpm]	1.744	2.907	2.907	2.209	4.302	4.302	2.907	2.907
Cv-value for Tank Seat-lift [gpm]	1.047	2.209	2.209	1.628	3.605	3.605	2.209	2.209
Cv-value for SpiralClean Spindle CIP [gpm]	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140
Cv-value for SpiralClean External CIP in leakage chamber [gpm]	0.291	0.337	0.337	0.337	0.337	0.337	0.337	0.337

Note! Recommended min. pressure for SpiralClean: 29 PSI.

Formula to estimate CIP flow during seat lift:

(for liquids with comparable viscosity and density to water):

$Q = Kv \cdot \sqrt{\Delta p}$

Q = CIP - flow gpm)
Cv = Cv value from the above table
Δ p = CIP pressure (psi)
Cv = US gallons/min

Dimensions (inch)

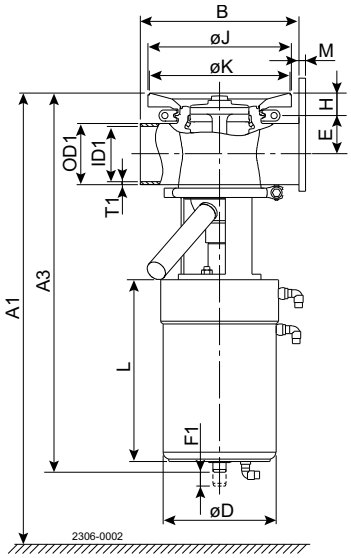


Figure 4. Unique-TO connected to tank flange

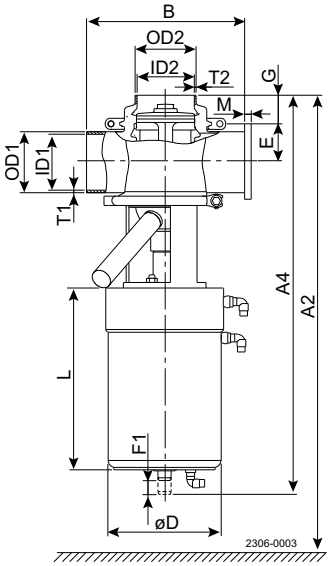


Figure 5. Unique-TO connected to stub flange

A1 + A2 = Min. clearance to allow that actuator and internal valve parts can be lifted out of the valve body. If ThinkTop is mounted, add 7.09 inch.

Group	3	4	4	5	6	6	4	4
Size			DN/OD				DN - longstroke	
ISO-DIN	2"	2½"	3"	4"	125	150	2½"	3"
A1 min. dimension. Unique-TO	22.80	25.43	25.95	29.65	31.69	35.04	27.56	28.07
A1 min. dimension. Unique-TO with external cleaning	24.25	27.01	27.52	32.01	34.06	xxx	29.13	29.65
A2 min. dimension Unique-TO	23.15	25.79	26.30	30.00	32.05	35.39	27.91	28.43
A2 min. dimension Unique-TO with external cleaning	24.61	27.36	27.87	32.36	34.41	xxx	29.49	30.00
A3 Unique-TO	18.43	20.71	20.71	23.39	24.41	26.77	22.64	22.64
A3 Unique-TO with external cleaning	19.88	22.28	22.28	25.75	26.77	xxx	24.21	24.21
A4 Unique-TO	18.78	21.06	21.06	23.74	24.76	27.13	22.99	22.99
A4 Unique-TO with external cleaning	20.24	22.64	22.64	26.10	27.13	xxx	24.57	24.57
B	8.66	8.66	8.66	11.81	11.81	11.81	8.66	8.66
OD1	2.01	2.50	3.00	4.00	5.08	6.06	2.50	3.00
ID1	1.88	2.37	2.87	3.84	4.92	5.91	2.37	2.87
t1	0.06	0.06	0.06	0.08	0.08	0.08	0.06	0.06
E	1.45	1.70	1.95	2.43	2.97	3.47	1.70	2.00
F1	1.24	1.50	1.50	2.32	2.32	2.32	2.32	2.32
F2 (Tank plug)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
G	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
H	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
øD	4.72	6.18	6.18	7.32	7.32	7.32	7.32	7.32
L	9.06	9.92	9.92	11.06	11.06	11.06	11.06	11.06
OD2	2.01	2.50	3.00	4.00	5.08	5.08	2.50	3.00
ID2	1.88	2.37	2.87	3.84	4.92	4.92	2.37	2.87
t2	0.06	0.06	0.06	0.08	0.08	0.08	0.06	0.06
øJ	6.26	7.84	7.84	7.84	7.84	7.84	7.84	7.84
øK	6.10	7.68	7.68	7.68	7.68	7.68	7.68	7.68
M/ISO clamp	0.83	0.83	0.83	0.83			0.83	0.83
M/DIN clamp					1.10	1.10		
M/ISO male	0.83	0.83	0.83	0.83			0.83	0.83
M/DIN male					1.81	1.97		
M/SMS male	0.79	0.95	0.95	1.38			0.95	0.95
M/BS male	0.87	0.87	0.87	1.06			0.87	0.87
Weight (kg)[1] Unique TO	27.50	49.50	49.50	72.60	79.20	83.60	61.60	61.60
Weight (kg)[1] Unique TO with external cleaning	28.60	51.70	51.70	74.80	81.40	xxx	63.80	63.80

[1] = without tank flange

Alfa Laval Unique Mixproof PMO Curd CP

Double seat valves

Introduction

The Alfa Laval Unique Mixproof PMO Curd CP Valve is a highly flexible, easy-to-service double block-and-bleed valve that is specially designed for use in dairy applications with very large particles or highly viscous fluids that require large openings up to 1¾” (45 mm) in diameter.

Based on the well proven and exceptionally versatile principle of the Unique Mixproof valves from Alfa Laval, it enables the simultaneous flow of two different products or fluids through the same valve, or the safe handling of one product while seat-lift cleaning operations are being conducted in the other portion of the valve – without the risk of cross-contamination.

The valve provides exceptional spillage-free operation and is compliant with most hygienic standards, including the 3-A Sanitary Standards, the Pasteurized Milk Ordinance and the seat lift requirements of the US Food and Drug Administration. With its modular design and a wide variety of options, the valve can be customized to meet any process requirement and provides low total cost of ownership.

Application

The Unique Mixproof PMO Curd CP Valve is designed for continuous flow management in hygienic processes where product safety is at the top of the agenda. It is widely used across the dairy, food, beverage and many other industries.

Benefits

- Gentle product handling, large particles handling
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection

Standard design

The Unique Mixproof PMO Curd CP Valve is comprised of a series of base components, including valve body, valve plugs, fail-safe actuator, and cleaning options and accessories that support a wide range of applications. Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

The valve plugs are balanced and not sensitive to pressure spikes. Both lower and upper seats are position-detectable with the Alfa Laval ThinkTop® sensing and control unit and a yoke-mounted, external sensor.

Available in 4" and 6"tube O.D. sizes, the Unique Mixproof PMO Curd CP valve has an O.D. balancer cleaning element which allows cleaning of the exterior of the lower seat balancer during a lower seat push operation. This eliminates Cleaning-in-Place downtime thereby enabling 24/7 uptime.

Working principle

The Alfa Laval Unique Mixproof PMO Curd CP Valve is a normally closed (NC) valve that is controlled from a remote location by means of compressed air. To separate the two liquids, the valve has two independent plug seals. The space between the two seals forms an atmospheric leakage chamber. In the rare case of accidental product leakage, the product flows into the leakage chamber and is discharged through the leakage outlet.

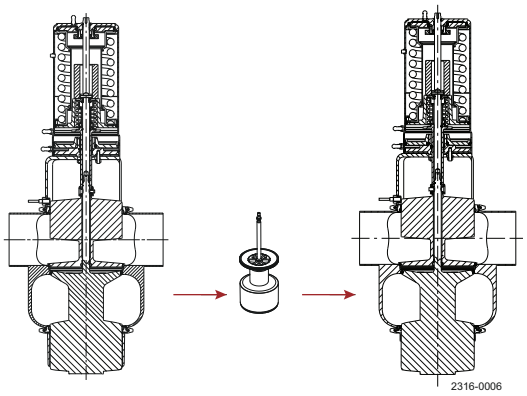
When the valve is open, the leakage chamber is closed. The product can then flow from one line to the other without spillage.

The radial design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning and water hammer protection to the requirements of individual process specifications.

Build-up

This PMO Curd CP edition of the Unique Mixproof valve is a high-end valve with regards to process security as well as from a hygienic point of view. The valve plugs are always balanced in both upper and lower valve body, securing no sensitivity to pressure spikes.The lower and upper seats are position-detectable by the ThinkTop® and a yoke-mounted, external sensor. The Unique Mixproof PMO Curd CP valve is provided with an O.D. balancer cleaning element which allows cleaning of the outside soiled area of the lower seat balancer during a lower seat push operation. This provides around-the-clock production by eliminating CIP downtime. The Unique Mixproof PMO Curd CP valve is available in 4" and 6" tube O.D. sizes.

Unique Mixproof PMO Curd CP Plug



Unique PMO Curd | O.D. Balancer Cleaning | Unique Mixproof PMO Curd CP

TECHNICAL DATA

Temperature	
Temperature range:	23 °F to +257 °F (Depending on elastomer type)

Pressure	
Max. product pressure:	145 PSI
Min. product pressure:	Full vacuum
Air pressure:	Max. 116 PSI

Air and CIP consumption

Size		**OD**	**OD**
		4"	**6”**
Cv-value Upper Seat-lift	[gpm/PSI]	5.3	12.1
Cv-value Lower Seat-lift	[gpm/PSI]	6.7	10.2
Air consumption Upper Seat-lift	* [cubic inches]	38	38
Air consumption Lower Seat-lift	* [cubic inches]	13	13
Air consumption Main Movement	* [cubic inches]	216	216

$Q = Cv \cdot \sqrt{\Delta\ p}$

Q = water flow [gpm]

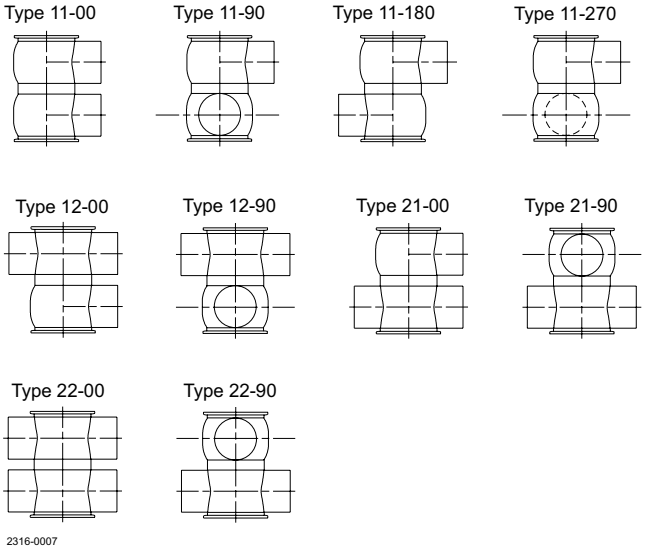
Cv = value from the above table.

Δ p = water pressure [psi]

PHYSICAL DATA

Materials	
Product wetted steel parts:	Acid-resistant steel AISI 316L
Other steel parts:	Stainless steel AISI 304
Product wetted parts:	NBR (std.) EPDM, HNBR or FPM
Other seals:	CIP seals: EPDM Actuator seals: NBR
Surface finish:	External bright/internal polished Ra<32 µ"

Valve body combinations



Ordering

For ordering, contact Alfa Laval.

Control & Indication for both upper and lower seat lift as well as main movement, is given via the ThinkTop® control unit. Please refer to 200006070 EN-US and 200006060 EN-US for further information.

Dimensions (inch)

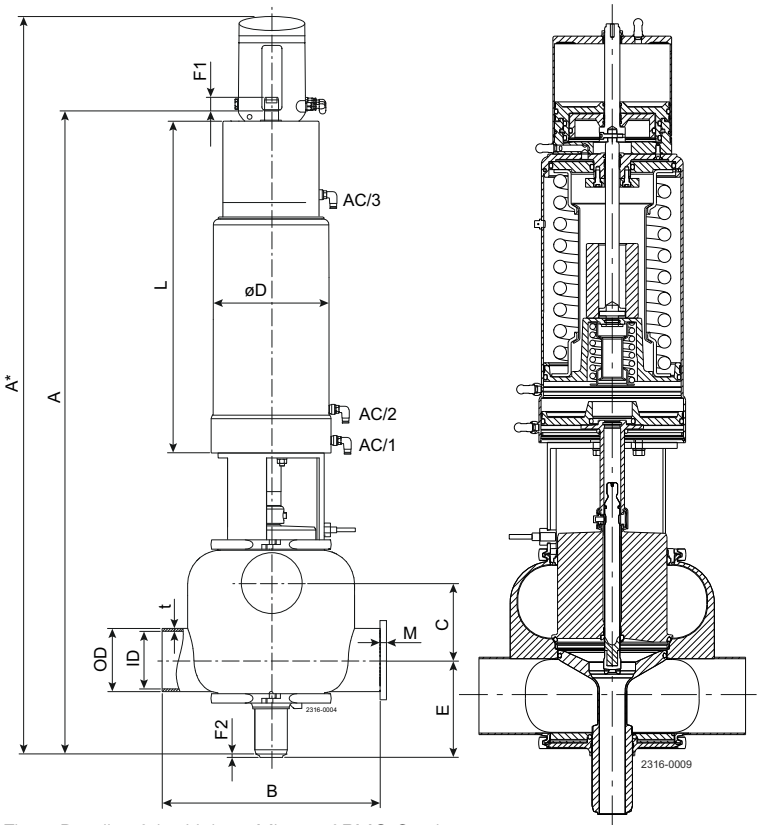
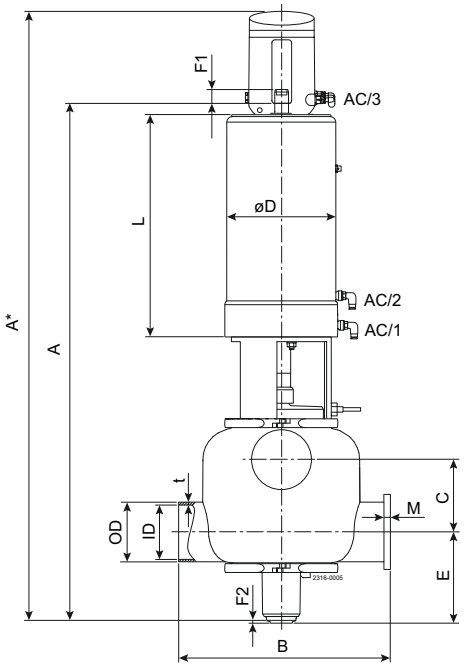


Fig. 1 Details of the Unique Mixproof PMO Curd CP valve 4”



Details of the Unique Mixproof PMO Curd CP valve 6”

Size	4"	6"
A	40.87	39.45
A*	46.69	46.26
B	13.78	17.32

Size	4"	6"
**C	4.87	6.80
OD	4	6
ID	3.84	5.78
t	0.08	0.11
E	6.54	8.30
F1	2.95	2.95
F2	0.20	0.20
øD	7.32	7.32
L	21.02	14.92
M/Tri-clamp	0.83	1.52
Weight (lb)	143	190

Note!
**The measure C can always be calculated by the formula C = ½ID-$_{upper}$ + ½ID-$_{lower}$ + 1".

Pressure drop/capacity diagrams

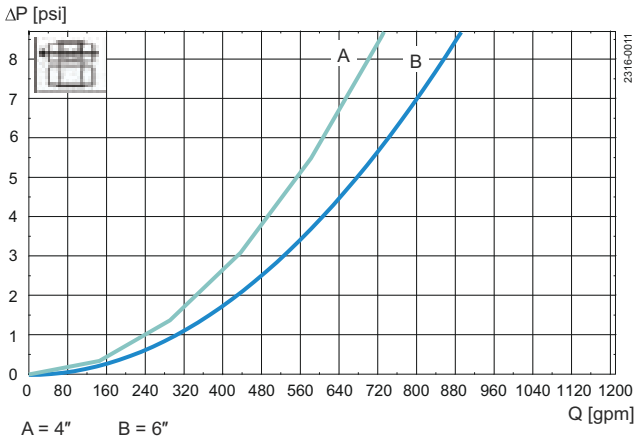


Fig. 2. Pressure drop/capacity diagram, upper bodies.

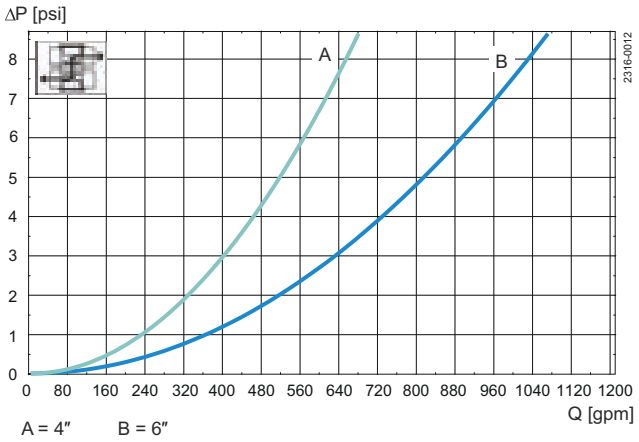


Fig. 3. Pressure drop/capacity diagram, between bodies.

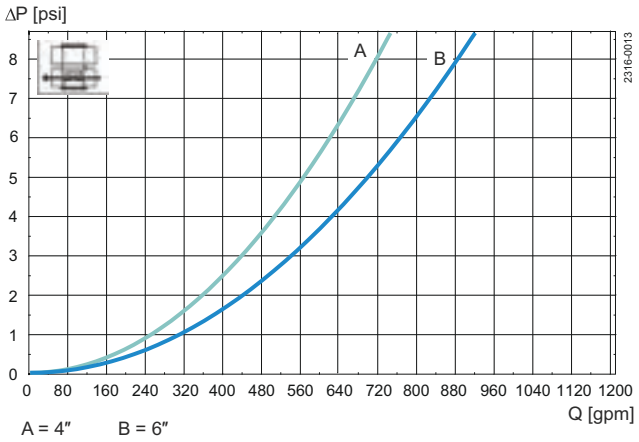


Fig. 4. Pressure drop/capacity diagram, lower body.

Example to determine pressure drop at a given flow rate:	
Upper body size:	2". Capacity = 80 gpm
Lower body size:	2". Capacity = 80 gpm
Between bodies:	2". Capacity = 60 gpm

Result:

From fig. 2, Δp = 0.72 PSI through upper body.

From fig. 3, Δp = 1.1 PSI between bodies.

From fig. 4, Δp = 0.52 PSI through lower body

Note!
For the diagrams the following applies:
Medium: Water (68 °F).
Measurement: In accordance with VDI 2173.

Alfa Laval Unique Mixproof PMO® Plus CP

Double seat valves

Introduction

The Alfa Laval Unique Mixproof PMO® Plus CP is a highly flexible, easy-to-service double block-and-bleed valve specially designed for continuous production in dairy applications.

Based on the well proven and exceptionally versatile design of the Unique Mixproof valves from Alfa Laval, it enables the simultaneous flow of two different products or fluids through the same valve, or the safe handling of one product while seat-lift cleaning operations are being conducted in the other portion of the valve – without the risk of cross-contamination.

The valve provides exceptional spillage-free operation and meets international standards for hygienic dairy processing. It complies with the seat lift requirements of the 3-A Sanitary Standards, the Pasteurized Milk Ordinance and the US Food and Drug Administration, which enable seat lift cleaning in one chamber while product flows through the other, thereby eliminating downtime. All valve movements are detectable, and the area of the vent tube is equal to or greater than the connection pipe.

With its modular design, the valve can be customized to meet any process requirement regardless of dairy size or capacity. It maximizes uptime and provides low total cost of ownership.

Application

The Unique Mixproof PMO Plus CP valve is designed for continuous flow management and process safety in hygienic processes where product safety is at the top of the agenda. It is widely used across the dairy, food, and other industries.

Benefits

- Complies with the seat lift requirements of the Pasteurized Milk Ordinance (PMO), 3-A Sanitary Standards and the US Food and Drug Administration (FDA)
- Enhanced product safety
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection and leakage chamber cleaning

Standard design

Available in 6″ tube outside diameter sizes, the Alfa Laval Unique Mixproof PMO Plus CP valve is comprised of a series of base components, including valve body, valve plug, actuator, and outside diameter (OD) balancer cleaning element for cleaning the outside soiled area of the lower seat balancer during a lower seat push operation. The valve plugs are always balanced in both upper and lower valve body, making the valve insensitive to pressure spikes. A spring return on the fail-safe actuator ensures proper closing the valve at all times. The OD balancer cleaning element enables cleaning of the outside soiled area of the lower seat balancer during a lower seat push operation. This eliminates Cleaning-in-Place downtime, enabling continuous production.

Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

The valve can be fitted with the Alfa Laval ThinkTop® V70 and a yoke-mounted external sensor for valve sensing and control, enabling detection of the upper and lower seat positions.

Working principle

The Alfa Laval Unique Mixproof PMO Plus CP is a normally closed (NC) valve controlled from a remote location by means of compressed air. To separate the two liquids, the valve has two independent plug seals. The space between the two seals forms an atmospheric leakage chamber. In the rare case of accidental product leakage, the product flows into the leakage chamber and is discharged through the leakage outlet.

When the valve is open, the leakage chamber is closed. The product can then flow from one line to the other without spillage. The radial design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning and water hammer protection to the requirements of individual process specifications.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	145 PSI
Min. product pressure:	Full vacuum
Air pressure:	Max. 116 PSI

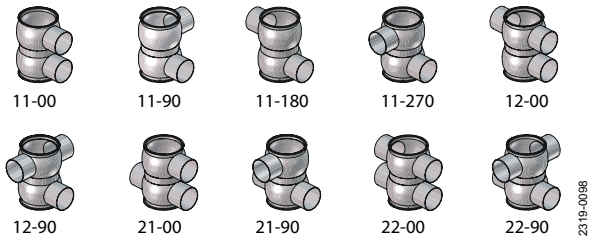
Temperature	
Temperature range:	23 °F to +257 °F (Depending on seal material)

PHYSICAL DATA

Materials	
Product wetted steel parts:	Acid-resistant steel AISI 316L
Other steel parts:	Stainless steel AISI 304
Product wetted parts:	NBR (std.) EPDM, HNBR or FPM

Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Surface finish:	External bright/internal polished Ra<32µ"

Valve body combination



Valve body combinations, example: type 21-00

2	Number of ports - lower valve body
1	Number of ports - upper valve body
00	Angle between ports

Dimensions (inch)

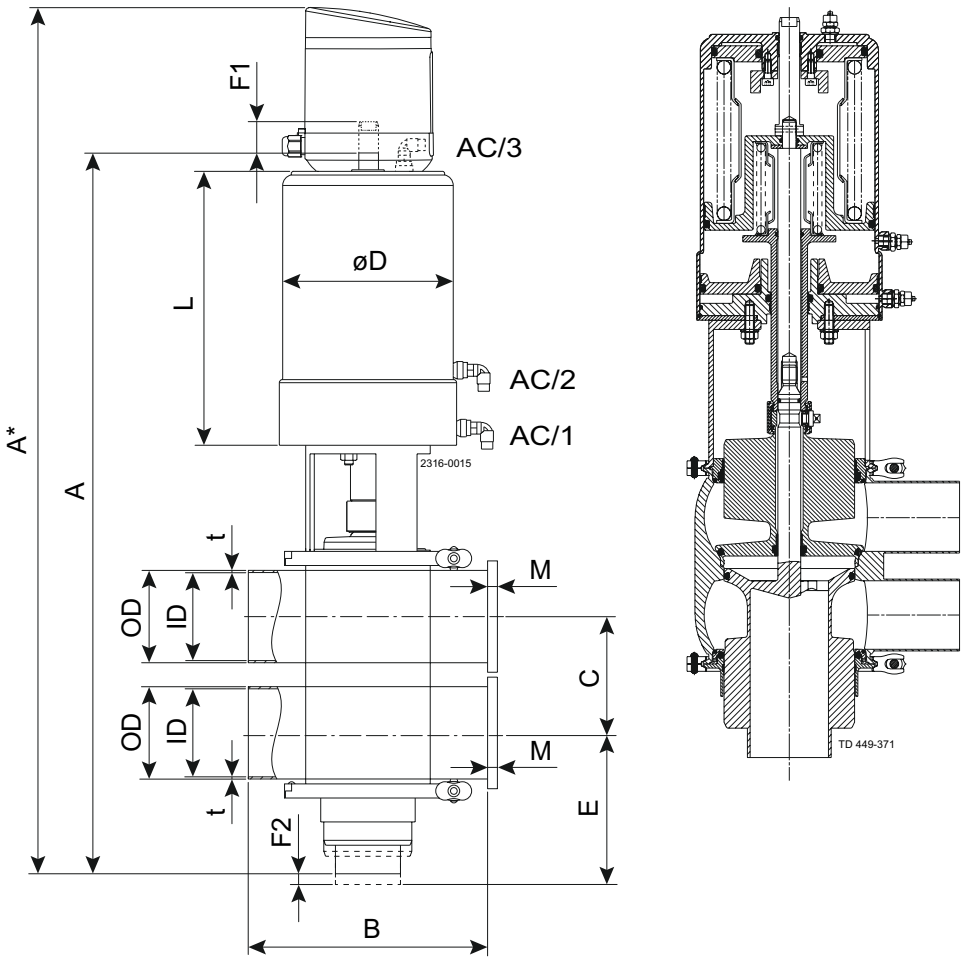


Fig. 1 Details of Unique Mixproof PMO Plus CP valve

Size	6"
A	39.449
A*	46.535
B	17.323
**C	6.798
OD	6.0
ID	5.782
t	0.109
E	8.298
F1	2.953
F2	0.197
øD	7.323
L	14.921
M/Tri-clamp	1.518
Weight (lb)	176.500

Note!
**The measure C can always be calculated by the formula C = ½ID-$_{upper}$ + ½ID-$_{lower}$ + 1".

Build-up

This **PMO Plus® CP** edition of the Unique Mixproof valve is a high-end valve with regards to process security as well as from a hygienic point of view. The valve plugs are always balanced in both upper and lower valve body, securing no sensitivity to pressure spikes.The lower and upper seats are position-detectable by the ThinkTop® and a yoke-mounted, external sensor. The Unique Mixproof PMO Plus CP valve is provided with an O.D. balancer cleaning element which allows cleaning of the outside soiled area of the lower seat balancer during a lower seat push operation. This provides around-the-clock production by eliminating CIP downtime.

Pressure drop/capacity diagrams

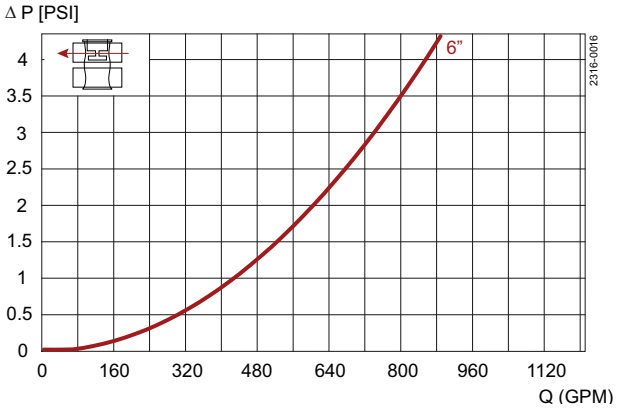


Fig. 1. Pressure drop/capacity diagram, upper bodies

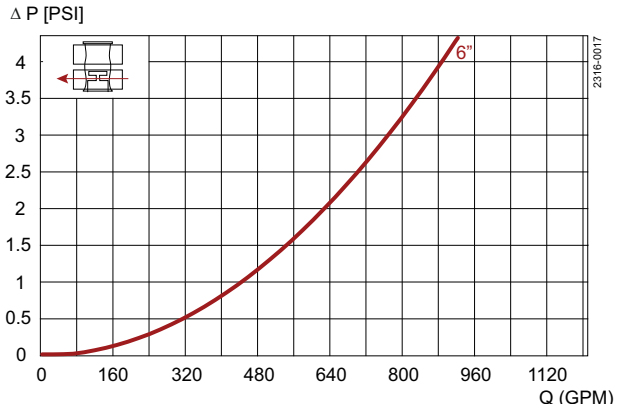


Fig. 2. Pressure drop/capacity diagram, lower body

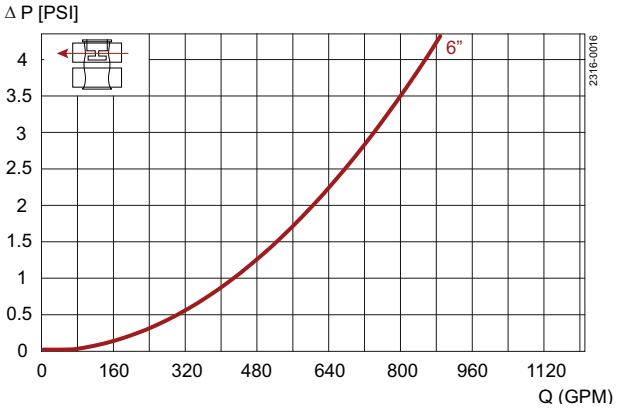


Fig. 3. Pressure drop/capacity diagram, between bodies

Note!
For the diagrams the following applies:Medium: Water (68 °F).Measurement: In accordance with VDI 2173.

Example to determine pressure drop at a given flow rate:	
Upper body size:	6". Capacity = 320 gpm
Lower body size:	6". Capacity = 320 gpm
Between bodies:	6". Capacity = 320 gpm

Result:

From fig. 1, Δp = 0.6 PSI through upper body.

From fig. 3, Δp = 0.8 PSI between bodies.

From fig. 2, Δp = 0.52 PSI through lower body

Air and CIP Consumption

Cv-value		
Cv-value Upper Seat-lift	[gpm/psi]	12.1
Cv-value Lower Seat-lift	[gpm/psi]	17.1
Air consumption		
Air consumption Upper Seat-lift	* [cubic inches]	38
Air consumption Lower Seat-lift	* [cubic inches]	13
Air consumption Main Movement	* [cubic inches]	216

$Q = Cv \cdot \sqrt{\Delta\ p}$

Q = water flow [gpm]

Cv = value from the above table.

Δ p = water pressure [psi]

Ordering

For ordering, contact Alfa Laval.

Control & Indication for both upper and lower seat lift as well as main movement, is given via the ThinkTop® control unit.

Alfa Laval Unique Mixproof Process

Double Seat valves

Introduction

The Alfa Laval Unique Mixproof Process valve is a versatile, double block-and-bleed valve that enables the simultaneous flow of two products or fluids through the same valve in valve matrices and pipelines without the risk of cross-contamination. This double seat valve with seat lift is a compact, cost-effective version of the premium Alfa Laval Unique Mixproof valve. High cleanability, the ability to withstand pressure peaks and its fit-for-purpose components make this valve a great addition to dairy, food and beverage applications. It comes in various sizes to meet your fundamental hygienic processing requirements.

Applications

The Alfa Laval Unique Mixproof Process is designed for continuous flow management and process safety in hygienic processes where product safety is at the top of the agenda across the dairy, food, beverage and many other industries.

Benefits

- Get the product safety you need by eliminating the risk of cross-contamination and product loss while ensuring efficient cleaning
- Enhance the reliability and flexibility of your process setup with proven valve technology tailored to your specific production needs, minimize the risk of unplanned downtime while spending as little time and resources as possible on routine maintenance
- Limit your environmental impact with significantly reduced water and CIP media consumption, no spillage and eliminated product loss
- Predefined and available in various sizes to meet your fundamental hygienic processing requirements

Standard design

The valve comprises a series of base components, including a proven valve body, valve plug and seals, maintenance-free actuator, and seat lift cleaning. Leakage detection holes enable visual inspection without requiring valve disassembly, alerting operators of the need for parts wear replacement. Few straightforward, moveable parts contribute to reliable operation and reduced maintenance costs. The valve can also be fitted with an Alfa Laval ThinkTop sensing and control unit.

Working principles

The Alfa Laval Unique Mixproof Process valve is a normally closed (NC) valve controlled remotely using compressed air. The valve has two independent plugs and seals to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure under every operating condition. Leakage rarely occurs, but should it happen, the product flows into the leakage chamber and drains through the outlet at the bottom of the chamber for easy detection.

When the valve is open, the leakage chamber is closed. The product then flows from one line to the other. The well-known radial design of the valve ensures that virtually no product spillage occurs during valve operation.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	1000 kPa (10 bar) / 145 PSI
Min. product pressure:	Full Vacuum
Air pressure range:	600-800 kPa (6-8 bar) / 87-116 PSI

Temperature	
Temperature range:	EPDM -5 °C to +125 °C / 23 °F to 257 °F

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)

Surface finish	
External (semi-bright):	Ra< 1.6 µm / Ra< 64 µi
Internal (polished):	Ra< 0.8 µm / Ra< 32 µi

Product wetted seals	
Sealing Material:	EPDM, FPM, HNBR

Other seals	
Actuator seals:	NBR
Guide strip:	PTFE

Valve body combination, welded or clamped

11-00 11-90 11-180 11-270 11-Clamped

12-00 12-90 12-Clamped

21-00 21-90 21-Clamped

22-00 22-90 22-Clamped

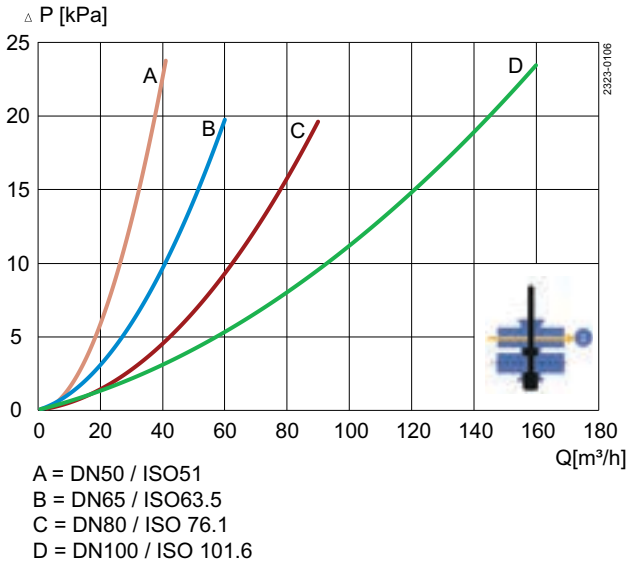
Valve body combinations, example: type 11-00

1 Number of ports - lower valve body

1 Number of ports - upper valve body

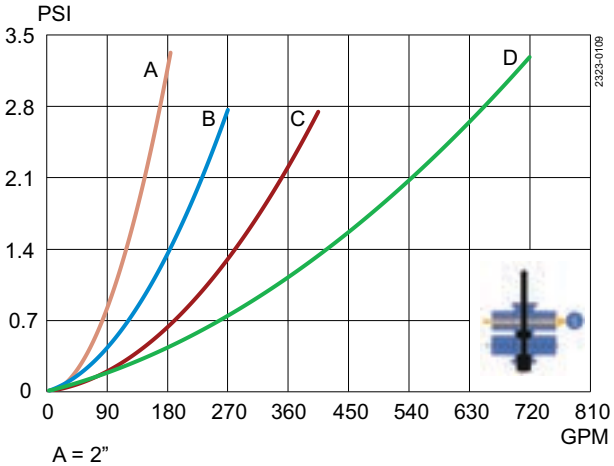
00 Angle between

Pressure drop/capacity diagrams



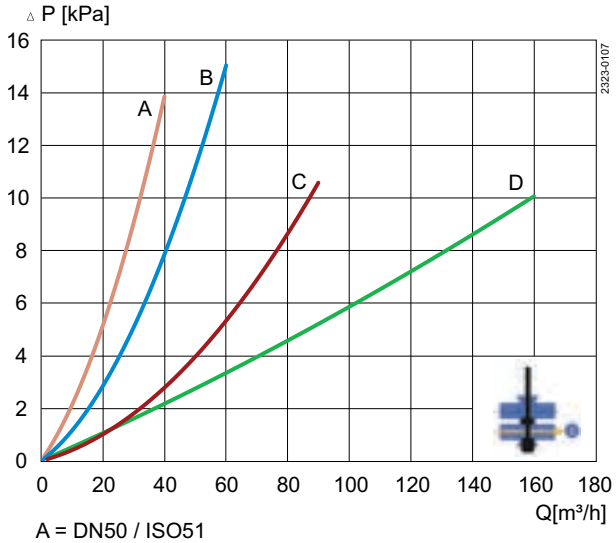
A = DN50 / ISO51
B = DN65 / ISO63.5
C = DN80 / ISO 76.1
D = DN100 / ISO 101.6

Figure 1. Pressure drop/capacity diagram, upper body



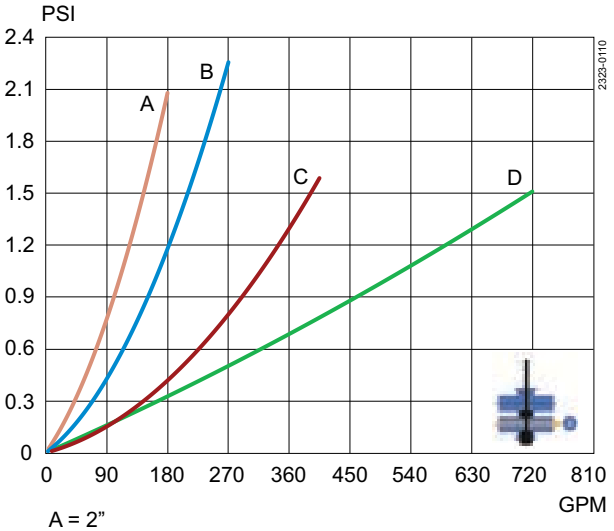
A = 2”
B = 2.5”
C = 3”
D = 4”

Figure 2. Pressure drop/capacity diagram, upper body



A = DN50 / ISO51
B = DN65 / ISO63.5
C = DN80 / ISO 76.1
D = DN100 / ISO 101.6

Figure 3. Pressure drop/capacity diagram, lower body



A = 2”
B = 2.5”
C = 3”
D = 4”

Figure 4. Pressure drop/capacity diagram, lower body

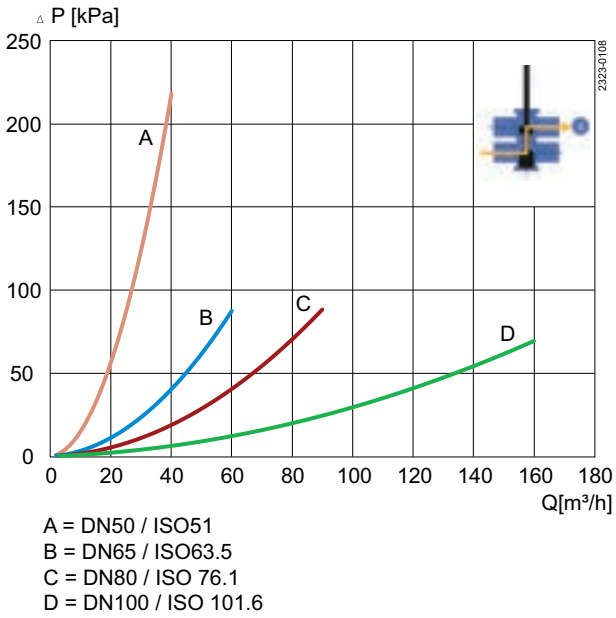


Figure 5. Pressure drop/capacity diagram, between bodies

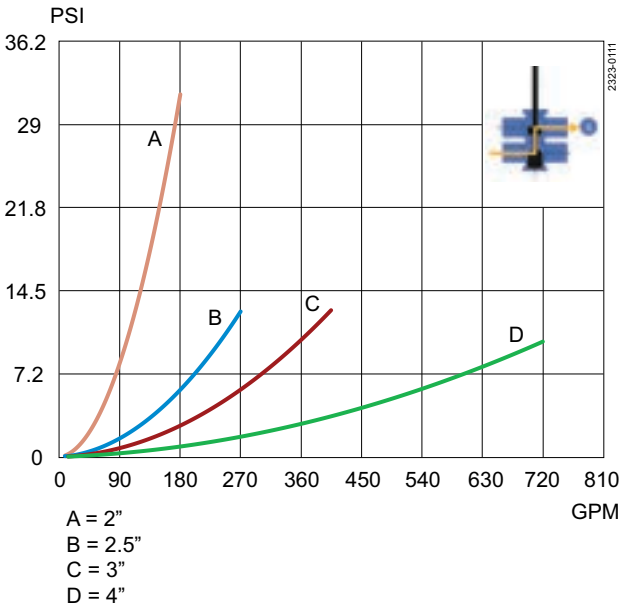


Figure 6. Pressure drop/capacity diagram, between bodies

Air and CIP consumption

Between bodies

Size	DN/OD				DN			
ISO/DIN	**51**	**63.5**	**76.1**	**101.6**	**50**	**65**	**80**	**100**
Kv-value [m^3/h]	26.9	64.3	95.8	194.5	26.9	64.3	95.8	194.5
Cv-value [gpm/psi]	31.1	74.3	110.8	224.8	31.1	74.3	110.8	224.8

Size	DN/OD				DN			
ISO/DIN	**51**	**63.5**	**76.1**	**101.6**	**50**	**65**	**80**	**100**
Kv-value								
Upper Seat-lift [m^3/h]	1.28	1.68	1.92	2.69	1.28	1.68	1.92	2.69
Lower Seat-push [m^3/h]	0.81	1.33	1.90	1.92	0.81	1.33	1.90	1.92
Air consumption								
Upper Seat-lift [n litre]	0.02	0.02	0.08	0.08	0.02	0.02	0.08	0.08
Lower Seat-push [n litre]	0.97	0.97	2.76	2.76	0.97	0.97	2.76	2.76
Main Movement [n litre]	0.55	0.55	1.31	1.31	0.55	0.55	1.31	1.31

Size	OD			
ISO	**51**	**63.5**	**76.1**	**101.6**
Cv-value				
Upper Seat-lift [gpm/psi]	1.48	1.95	2.23	3.11
Lower Seat-lift [gpm/psi]	0.94	1.53	2.19	2.22
Air consumption				
Upper Seat-lift [cubic inches]	1.41	1.41	4.70	4.70
Lower Seat-lift [cubic inches]	59.23	59.23	168.38	168.38
Main Movement [cubic inches]	33.78	33.78	79.86	79.86

Burst seat clean nominal consumption

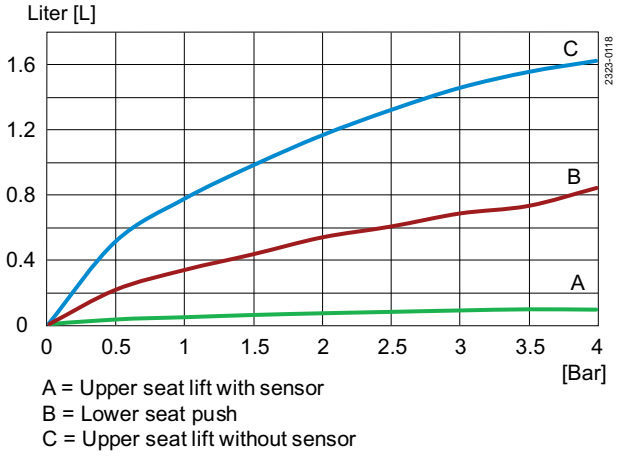


Figure 7. Unique Mixproof Process ISO51/DN50

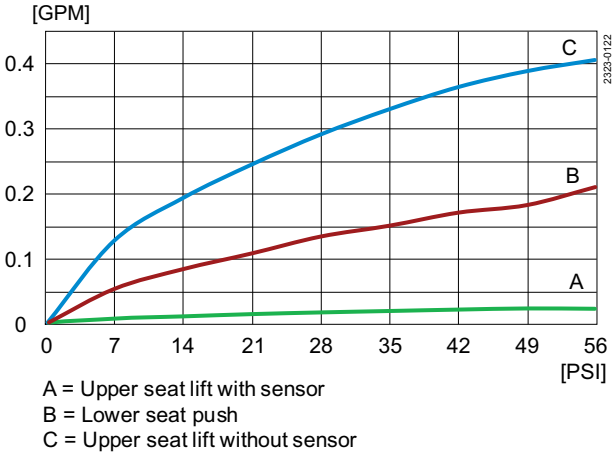


Figure 8. Unique Mixproof Process 2"

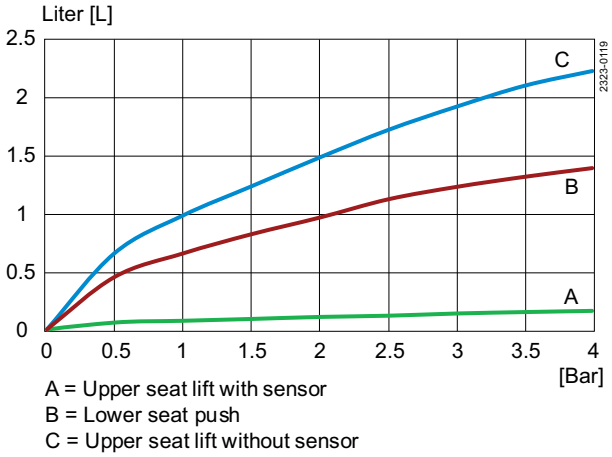


Figure 9. Unique Mixproof Process ISO63.5/DN65

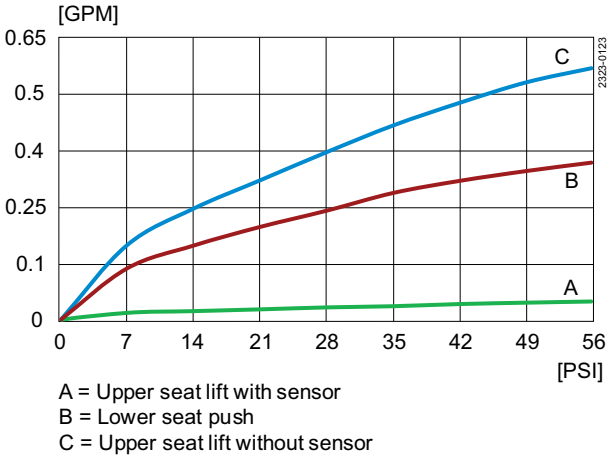


Figure 10. Unique Mixproof Process 2.5"

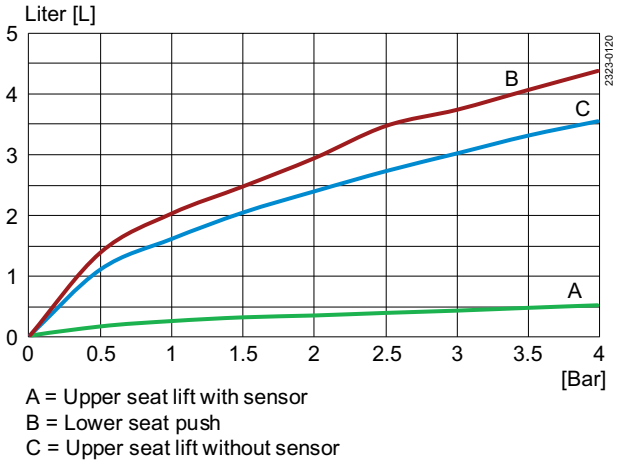


Figure 11. Unique Mixproof Process ISO76.1/DN80

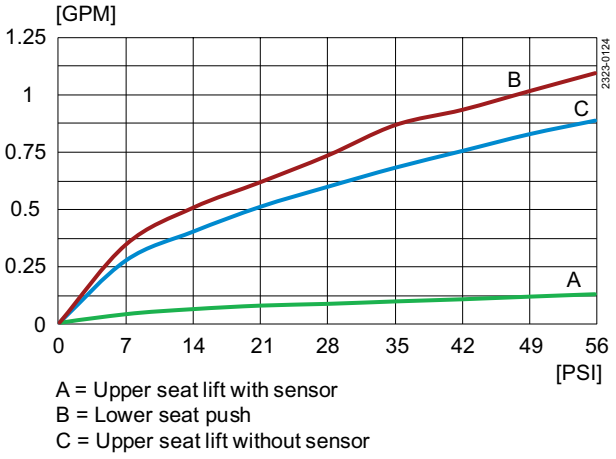


Figure 12. Unique Mixproof Process 3"

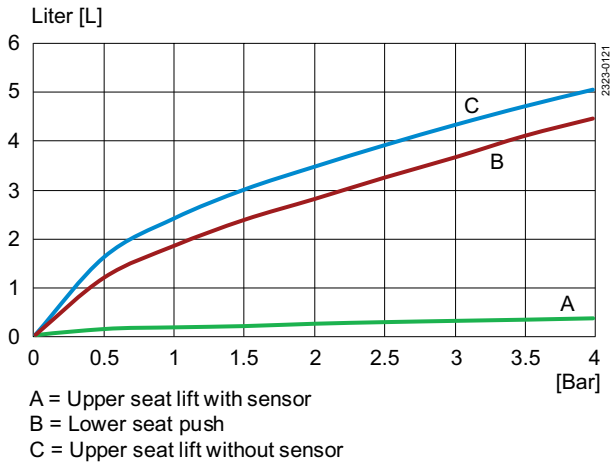


Figure 13. Unique Mixproof Process ISO101.6/DN100

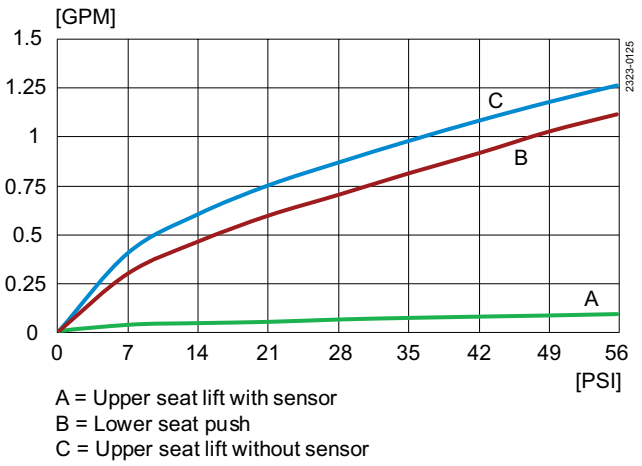
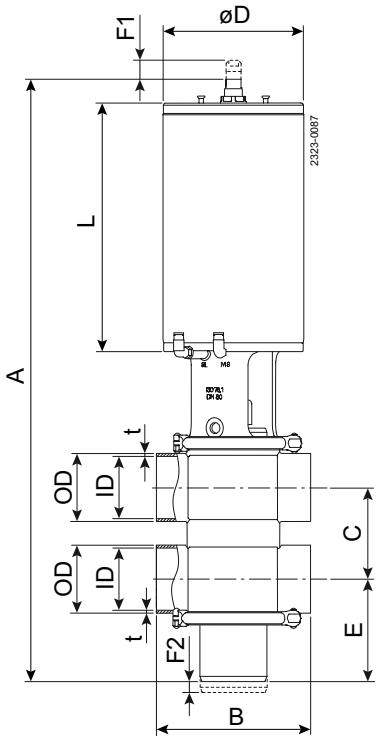


Figure 14. Unique Mixproof Process 4"

Dimensions



(mm)

Size	DN/OD				DN			
ISO/DIN	51	63.5	76.1	101.6	50	65	80	100
A	519	547	676	718	521	553	684	720
B	122	162	172	238	122	162	172	240
C	73.8	86.3	98.9	123.6	76	92	107	126
OD	51	63.5	76.1	101.6	53	70	85	104
ID	47.8	60.3	72.9	97.6	50	66	81	100
t	1.6	1.6	1.6	2	1.5	2	2	2
E	92	101	121	126	90	98	117	125
F1	30.5	30.5	43	43	30.5	30.5	43	43
F2	7	7	7	7	7	7	7	7
ØD	115	115	157	157	115	115	157	157
L	205	205	278	278	205	205	278	278
Weight, Welded (kg)	11.4	13.6	24.4	27.6	11.5	13.9	24.9	27.7
Weight, Clamped (kg)	11.6	13.9	24.7	27.9	11.7	14.2	25.2	28.0

(inch)

Size	OD			
ISO/DIN	**2″**	**2½″**	**3″**	**4″**
A	20.44	21.55	26.60	28.27
B	4.80	6.38	6.77	9.37
C	2.91	3.40	3.89	4.87
OD	2.01	2.50	3.00	4.00
ID	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.08
E	3.60	3.97	4.75	4.97
F1	1.20	1.20	1.69	1.69
F2	0.28	0.28	0.28	0.28
ØD	4.54	4.54	6.20	6.20
L	8.06	8.06	10.94	10.93
Weight, Welded (lb)	25.2	30.0	53.9	60.9
Weight, Clamped (lb)	25.6	30.6	54.5	61.5

Alfa Laval Unique PMO Mixproof Horizontal Tank Plus® CP Valve

Double seat valves

Introduction

The Unique PMO Mixproof Horizontal Tank Plus® CP Valve is a versatile, highly flexible double block-and-bleed valve for the safe and efficient management of fluids at intersection points in matrix piped systems.

To improve the cleanliness of the horizontal tank connections. It ensures that no area of the tank inlet or tank outlet is left uncleaned, it is specifically designed for horizontal mounting on the side of a tank or as a space-saving alternative at the bottom of a cone-formed tank. Its self-cleaning design provides state-of-the-art cleanability in the shadow area, where no Cleaning-in-Place pressure or flow from the tank side to clean the connection.

Based on the proven and versatile Alfa Laval Unique Mixproof Valve, Unique PMO Mixproof Horizontal Tank Plus® CP Valve enables the benefits of having two different products or fluids in the same valve without any risk of cross-contamination. The valve provides greater flexibility by filling and emptying a tank at the same time.

Application

The Alfa Laval Unique PMO Mixproof HT valve is designed for continuous flow management and process safety for horizontal tank inlet and outlet applications across the dairy, food, beverage and many other industries.

Benefits

- Enhanced product safety, cleanability and operating efficiency
- Spillage-free operation with leakage detection and leakage chamber cleaning
- Easy maintenance and parts replacement
- Low total cost of ownership
- Capable of cleaning shadow areas in tank connections

Standard design

The Alfa Laval Unique PMO Mixproof HT valve is comprised of a series of base components, including valve body, valve plug, actuator, seat lift and two patented Cleaning-in-Place (CIP) nozzles.

The double tangential design of the valve body ensures full drainability in any position, when mounted at the bottom of a cone-shaped tank or on the side. The design of the single valve body makes it suitable to weld directly on the tank or to connect it using a tri-clamp. There are three sizes: 2½", 3" and 4". The 4" model features a 1.77" opening, which enables the passage of large particles or efficient handling of high viscosity fluids.

The valve is self-cleaning, thanks to two patented CIP nozzles. The first nozzle is designed specifically for plug cleaning. This double-acting nozzle projects cleaning media through the tank connection, ensuring complete cleaning of the seat contact surfaces as well as the shadow area of the tank port. The second is a rotating CIP nozzle incorporated into the unit for optimum cleaning of the full-bore leakage chamber.

Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Working principle

The Alfa Laval Unique PMO Mixproof HT valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plugs to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure during every working condition. Leakage rarely occurs but, should it occur, product leaks into the leakage chamber and exits through the bottom outlet for easy detection.

When the valve is open, the leakage chamber is closed. The product then flows from one line to the other. The radial design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning and water hammer protection to the requirements of individual process specifications.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure in pipeline:	145 PSI (1000 kPa)
Min. product pressure:	Full vacuum
Air pressure:	Max. 116 PSI (800 kPa)
Temperature	
Temperature range:	23°F to +257°F (depending on rubber quality)
ATEX	
Classification:	II 2 G D [1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.

Note!
In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted.

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 32 µinch
Product wetted seals:	EPDM
Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips:	PTFE

Valve body combination

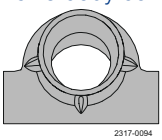


Figure 1. Welding ends

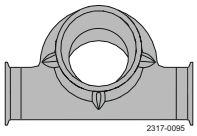


Figure 2. Clamp ends

State of the art – Cleanability

The Unique PMO Mixproof HT valve also provides a state of the art solution when there is no CIP pressure or flow from the tank side to clean the seat and plug. The valve is self-cleaning, thanks to two patented Cleaning-in-Place (CIP) nozzles. The first nozzle is designed specifically for plug cleaning. This double-acting nozzle projects cleaning solution through the tank connection, ensuring complete cleaning of the seat contact surfaces as well as the shadow area of the tank port. The second is a rotating CIP nozzle incorporated into the unit for optimum cleaning of the full-bore leakage chamber.

The design of the single valve body makes it suitable to weld directly on the tank or to connect it via a Tri-clamp.

The 4” and 6” models feature a 1.77” opening, which enables the passage of very large particles or efficient handling of high viscosity fluids.

Options:

- Male parts or clamp liners in accordance with required standard.
- Control and Indication: ThinkTop or ThinkTop Basic.
- Side indication for detection of upper seat lift.
- Product wetted seals in HNBR, NBR or FPM.

Pressure drop/capacity diagrams

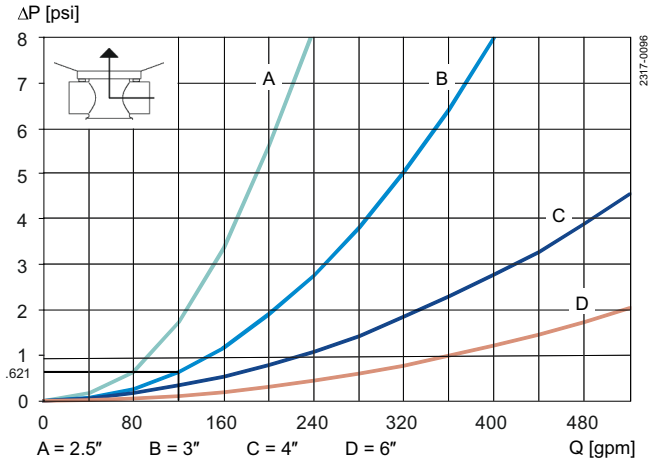


Figure 3. To tank

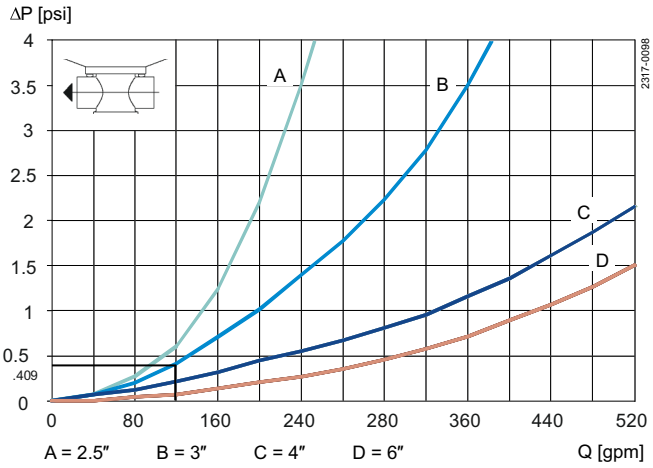


Figure 4. Straight through

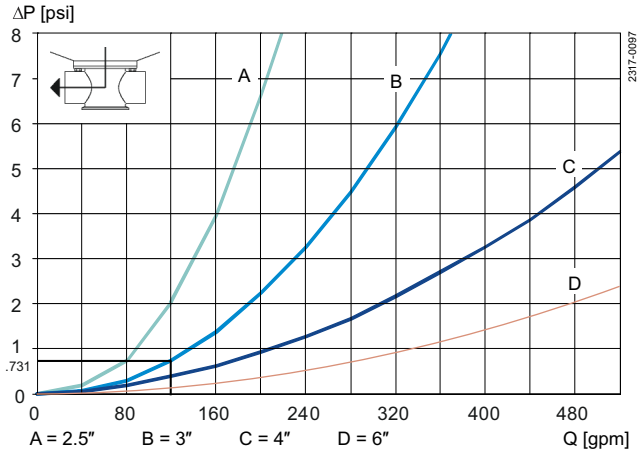


Figure 5. From tank

Air and CIP consumption

Size	DN/OD		
ISO	**2½”**	**3”**	**4”**
Cv-value			
Upper Seat-lift [gpm/psi]	2.5	2.5	3.1
Lower Seat-lift (tank seat lift) [gpm/psi]	11.5	11.5	34.1
Air consumption			
Upper Seat-lift * [cubic inches]	24	24	38
Lower Seat-lift (tank seat lift) * [cubic inches]	8	8	13
Main Movement * [cubic inches]	99	99	216
Cv-value - SpiralClean			
External CIP in leakage chamber [gpm/psi]	1.52	1.52	1.52

* [n litre] = volume at atmospheric pressure

Note!
Recommended min. pressure for External CIP in leakage champer 43.5 psi.

Formula to estimate CIP flow during seat lift:

(for liquids with comparable viscosity and density to water):

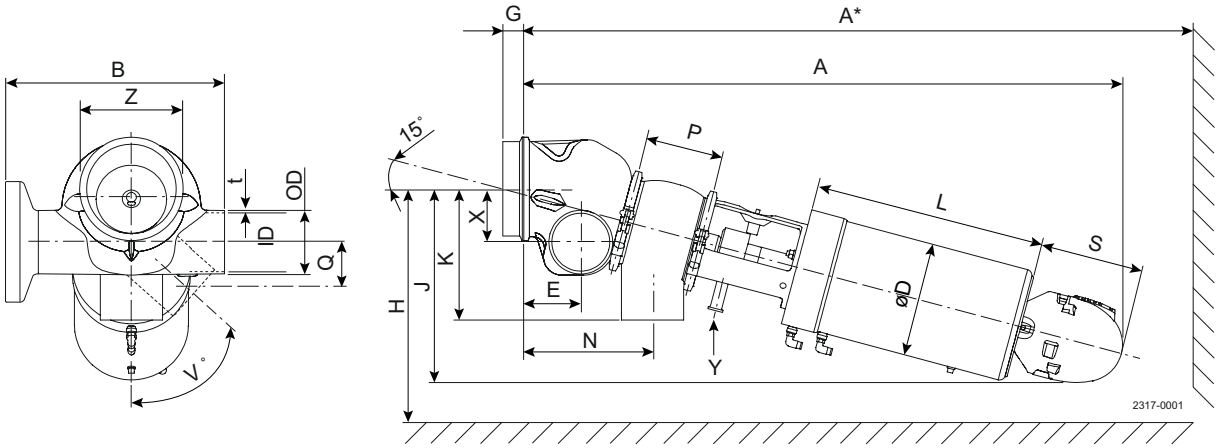
$Q = Kv \cdot \sqrt{\Delta p}$

Q = CIP - flow (m^3/h)

Kv = Kv value from the above table

Δ p = CIP pressure (bar)

Dimensions (inch)



Size	2.5"	3"	4"
A	28.94	29.88	38.47
A*	34.13	35.59	45.47
B	8.66	8.66	11.81
OD	2.50	3.00	4.00
ID	2.37	2.87	3.84
t	0.06	0.06	0.08
øD	7.32	7.32	7.32
E	2.79	3.04	3.63
F1	1.50	1.50	2.95
F2 (Tank plug)	0.39	0.39	0.39
G	0.63	0.63	1.50
H	11.06	11.46	14.33
J	9.69	9.92	12.48
K	6.02	6.22	8.47
L	9.92	9.92	14.92
N	5.98	6.69	8.27
P	3.52	4.01	4.98
Q	0.63	0.63	1.50
S	7.09	7.09	7.09
V°	0-67°	0-60°	0-53°
X	1.51	1.44	2.07
Y	3/4" clamp ferrule	3/4" clamp ferrule	3/4" clamp ferrule
Z	4"	4"	6"
M/Tri-clamp	0.50	0.50	0.63
Weight (lb)	28.66	31.31	95.02

Alfa Laval Unique Mixproof CIP

Double Seat valves

Introduction

The Alfa Laval Unique Mixproof CIP valve is a double block-and-bleed valve that enables the simultaneous flow of two fluids through the same valve without the risk of cross-contamination. Purpose-built for routing cleaning media, this versatile, lightweight CIP valve safely directs CIP media. The Unique Mixproof CIP can distribute pressurized CIP media toward the area that requires cleaning or direct cleaning media through the top of a tank cleaning device into the tank. Based on the proven Unique Single Seat valves, it easily adapts to process requirements while meeting hygiene standards.

Applications

The Alfa Laval Unique Mixproof CIP provides continuous flow management and CIP safety towards hygienic processes where product safety is high on the agenda, such as in the dairy, food, beverage, and many other industries.

Benefits

- Get the product safety you need by eliminating the risk of cross-contamination
- Enhance the reliability and flexibility of your process and CIP setup when operating
- Minimize the risk of unplanned downtime and time and resources spent on routine maintenance
- Improve sustainability and limit environmental impact by reducing water and CIP media use
- Lower the total cost of ownership with a proven, cost-efficient mixproof valve for routing cleaning media

Standard design

A series of base components, including a valve body, seals, a maintenance-free actuator, and an optimized plug design to minimize spillage, comprises the Alfa Laval Unique Mixproof CIP valve. Leakage detection holes enable visual inspection without requiring valve disassembly, alerting operators of the need for wear parts replacement.

Few straightforward, moveable parts contribute to reliable operation and reduced maintenance costs. The valve can also be fitted with Alfa Laval ThinkTop units.

Working principle

The Alfa Laval Unique Mixproof CIP valve is a normally closed (NC) valve controlled remotely using compressed air. The valve has two independent plugs and a three-seal design to separate the two media from each other; the space between the seals forms a leakage chamber at atmospheric pressure under all operating conditions. Leakage rarely occurs, but if it should, the fluid flows into the leakage chamber and drains at the outlet for easy detection. When the valve is open, the leakage chamber is closed. The fluid then flows from one line to the other. The valve's three-seal design minimizes spillage and ensures the water and CIP media pass through and flush the leakage chamber.

The valve primarily handles cleaning media. Its balanced design ensures complete flow control and eliminates water hammer. Mounting upside down is possible.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	1000 kPa (10 bar) / 145 PSI
Min. product pressure:	Full Vacuum
Holding pressure (lower plug):	600 kPa (6 bar) / 87 PSI
Air pressure range:	600-800 kPa (6-8 bar) / 87-116 PSI

Temperature	
Temperature range:	EPDM -5 °C to +140 °C / 23 °F to 284 °F

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product-wetted steel parts	1.4404 (316L)
Other steel parts:	1.4301 (304)

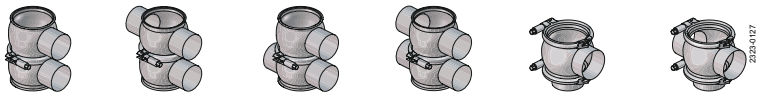
Surface finish	
External (semi-bright):	Ra< 1.6 µm / Ra< 64 µi
Internal (polished):	Ra< 0.8 µm / Ra< 32 µi

Note! The Ra values are only for the internal surface.

Product wetted seals	
Sealing material:	EPDM, FPM, HNBR

Other Seals	
Actuator seals:	NBR
Guide Strip:	PTFE

Valve body combination



11 12 21 22 20 30

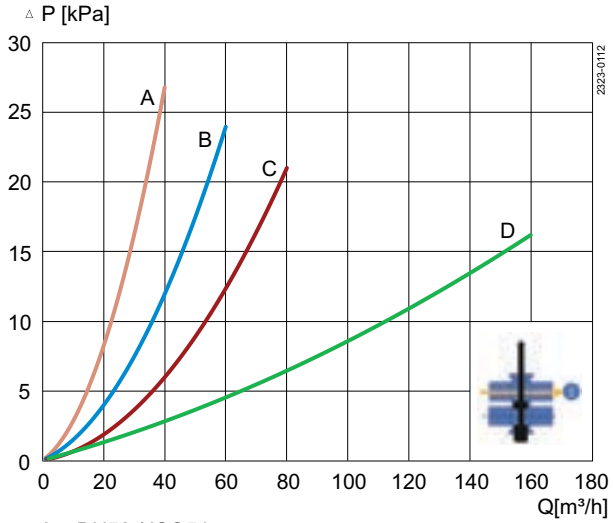
Valve body combinations, example: type 11

1 Number of ports - lower valve body

1 Number of ports - upper valve body

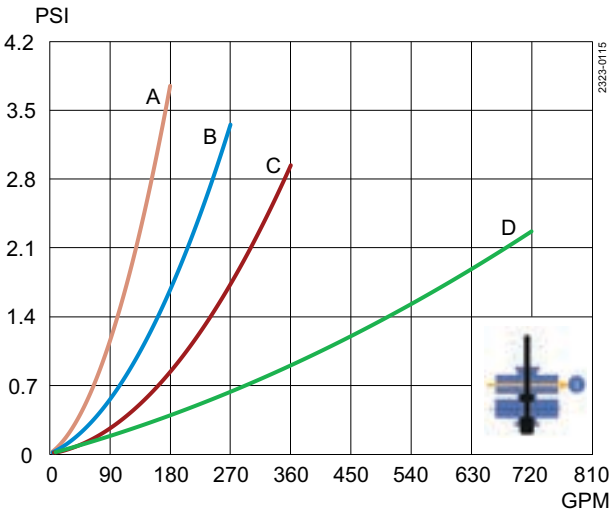
Note!
Standard: Inter-body clamped

Pressure drop/capacity diagrams



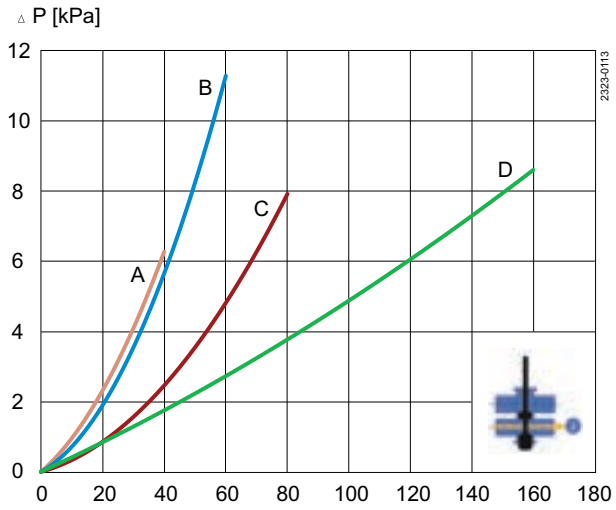
A = DN50 / ISO51
B = DN65 / ISO63.5
C = DN80 / ISO 76.1
D = DN100 / ISO 101.6

Figure 1. Pressure drop/capacity diagram, upper body



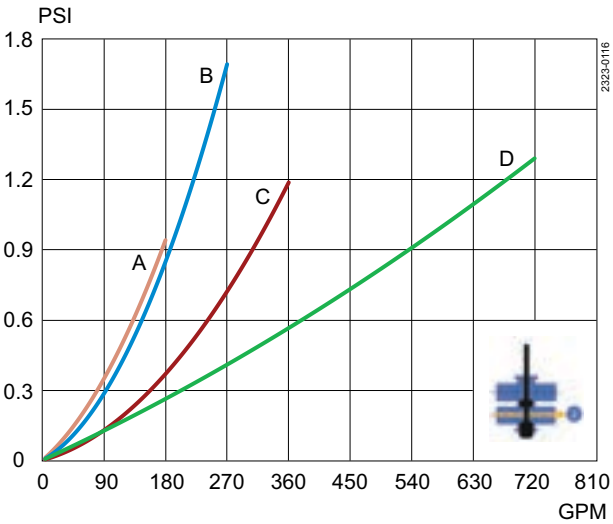
A = 2”
B = 2.5”
C = 3”
D = 4”

Figure 2. Pressure drop/capacity diagram, upper body



A = DN50 / ISO51
B = DN65 / ISO63.5
C = DN80 / ISO 76.1
D = DN100 / ISO 101.6

Figure 3. Pressure drop/capacity diagram, lower body



A = 2”
B = 2.5”
C = 3”
D = 4”

Figure 4. Pressure drop/capacity diagram, lower body

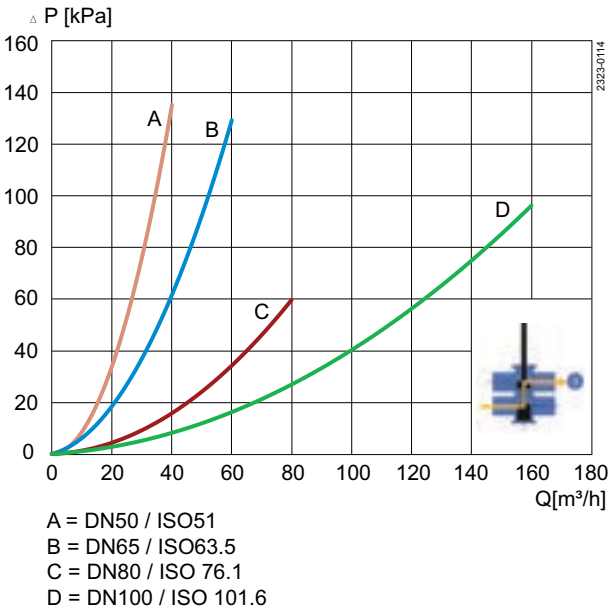


Figure 5. Pressure drop/capacity diagram, between bodies

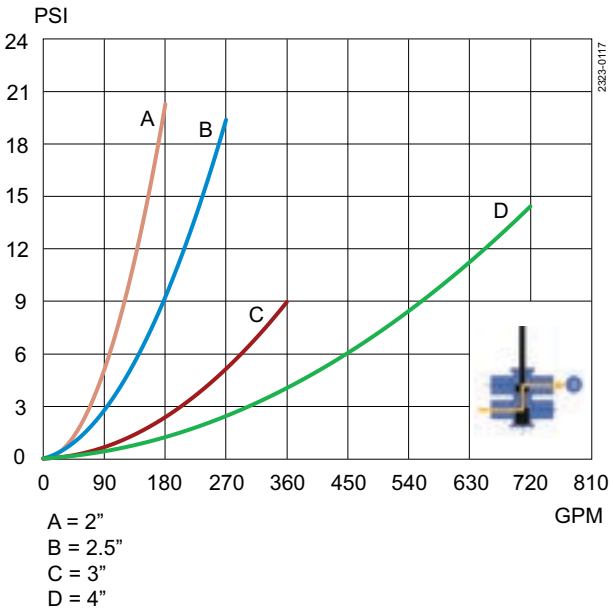


Figure 6. Pressure drop/capacity diagram, between bodies

Air consumption

Size	DN/OD				DN			
ISO/DIN	**51**	**63.5**	**76.1**	**101.6**	**50**	**65**	**80**	**100**
Kv-value [m³/h]	34.4	52.2	104.3	163.3	34.4	52.2	104.3	163.3
Cv-value [gpm/psi]	39.8	60.4	120.5	188.8	39.8	60.4	120.5	188.8
Airconsumption								
Main Movement [n litre]	0.64	0.64	1.48	1.48	0.64	0.64	1.48	1.48
Main Movement [cubic inches]	38.84	38.84	90.48	90.48	38.84	38.84	90.48	90.48

Dimensions

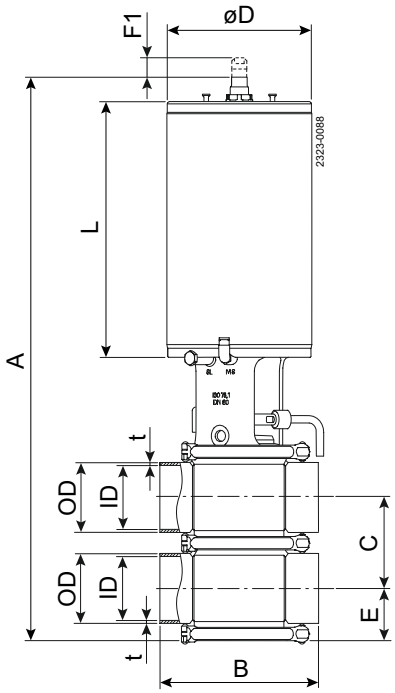


Figure 7. Unique Mixproof CIP

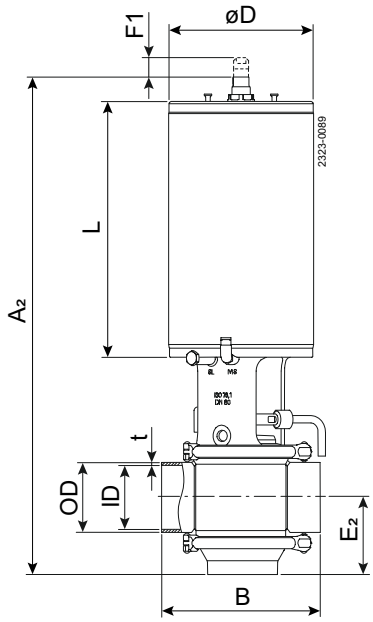


Figure 8. Unique Mixproof CIP Type 30

(mm)

Size	DN/OD				DN			
ISO/DIN	**51**	**63.5**	**76.1**	**101.6**	**50**	**65**	**80**	**100**
A	471	496	612	661	476	508	628	666
A_2	513	536	660	702	516	545	666	706
B	122	162	172	238	122	162	172	240
C	73.8	86.3	98.9	123.6	76	92	107	126
OD	51	63.5	76.1	101.6	53	70	85	104
ID	47.8	60.3	72.9	97.6	50	66	81	100
t	1.6	1.6	1.6	2	1.5	2	2	2
E	44	50	51	69	45	53	61	70
E_2	85	90	99	110	85	90	99	110
F1	30.5	30.5	43	43	30.5	30.5	43	43
ØD	115	115	157	157	115	115	157	157
L	205	205	278	278	205	205	278	278
Weight, Type 22 (kg)	10.7	12.9	22.2	25.0	10.8	13.2	22.7	25.1
Weight, Type 30 (kg)	9.9	11.5	20.3	21.8	9.9	11.7	20.6	21.9

(inch)

Size	OD			
ISO/DIN	**2″**	**2½″**	**3″**	**4″**
A	18.56	19.54	24.08	26.03
A_2	20.20	21.10	25.98	27.64
B	4.80	6.38	6.77	9.37
C	2.91	3.40	3.89	4.87
OD	2.01	2.50	3.00	4.00
ID	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.08
E	1.71	1.98	2.00	2.72
E_2	3.35	3.54	3.90	4.33
F1	1.20	1.20	1.69	1.69
ØD	4.54	4.54	6.20	6.20
L	8.06	8.06	10.94	10.93
Weight, Type 22 (lb)	23.6	28.4	49.0	55.1
Weight, Type 30 (lb)	21.8	25.4	44.8	48.1

Alfa Laval Unique Mixproof PMO® VTV

Double seat valves

Introduction

The Alfa Laval Unique Mixproof PMO® VTV is a flexible, easy-to-service double block-and-bleed valve that is specially designed for vertical mounting under a tank.

The valve is based on the well proven and exceptionally versatile principle of the Unique Mixproof valves from Alfa Laval. It enables one product in the tank on one side of the two valve plugs while allowing cleaning media to flow through the valve body for effective Cleaning-in-Place operations – without the risk of cross-contamination.

The valve provides exceptional spillage-free operation and is compliant with most hygienic standards, including the 3-A Sanitary Standards, the Pasteurized Milk Ordinance and the seat lift requirements of the US Food and Drug Administration. With its modular design and a wide variety of options, the valve can be customized to meet any process requirement and provides low total cost of ownership.

Application

The Unique Mixproof PMO VTV is designed for continuous flow management and process safety in hygienic processes where product safety is at the top of the agenda across the dairy, food, beverage and many other industries.

Benefits

- Complies with the Pasteurized Milk Ordinance (PMO)
- Enhanced product safety
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection and leakage chamber cleaning

Standard design

The Alfa Laval Unique Mixproof PMO VTV is comprised of a series of base components, including valve body, valve plug, actuator, and cleaning options and accessories that support a wide range of applications. Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs. The valve can also be fitted with the Alfa Laval ThinkTop V70 for sensing and control of the valve.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Temperature range:	23 °F to +257 °F (depending on rubber quality)

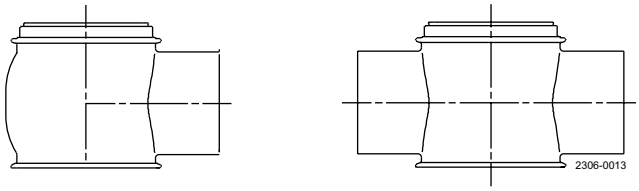
Pressure	
Max. product pressure in pipeline:	145 PSI (1000 kPa)
Min. product pressure:	Full vacuum
Air pressure:	Max. 116 PSI (800 kPa)

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Bright (polished)
Internal surface finish:	Bright (polished), Ra <32 µ"
Product wetted seals:	EPDM, HNBR, NBR or FPM
Guide strips:	PTFE

Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR

Valve body combination



Type 20 Type 30

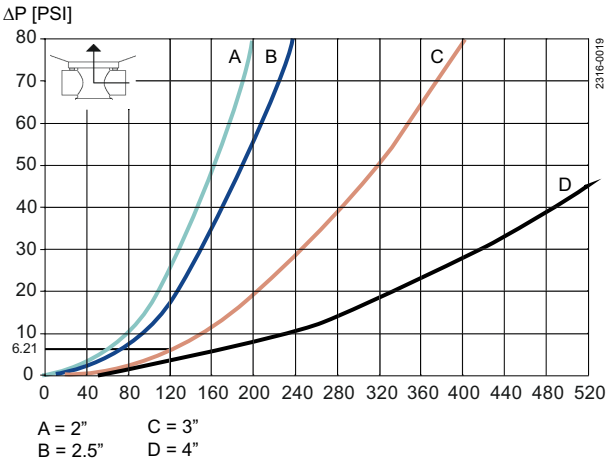
State of the art

The Unique Mixproof PMO® VTV also provides a state of the art solution when there is no CIP pressure or flow from the tank side to clean the seat and plug. The valve is self-cleaning, thanks to two Clean-in-Place (CIP) nozzles. The first nozzle is designed specifically for plug cleaning. This double-acting nozzle projects cleaning solution through the tank connection, ensuring complete cleaning of the seat contact surfaces as well as the shadow area of the tank port. The second is a rotating CIP nozzle incorporated into the unit for optimum cleaning of the full-bore leakage chamber.

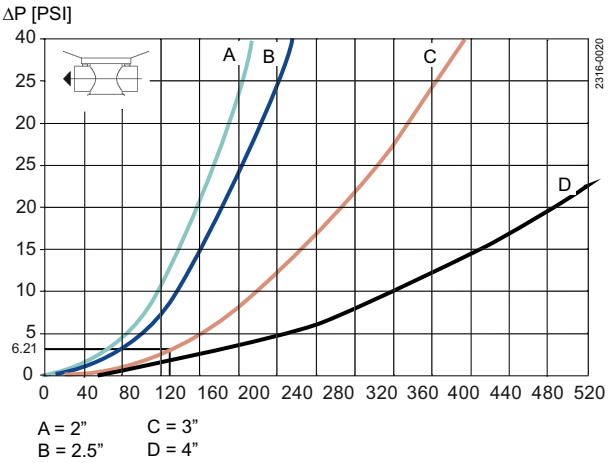
The valve can be connected with the tank via a weld in tank flange or a pipe end flange.

The 4″ model feature a 1.77 inches opening, which enables the passage of very large particles or efficient handling of high viscosity fluids.

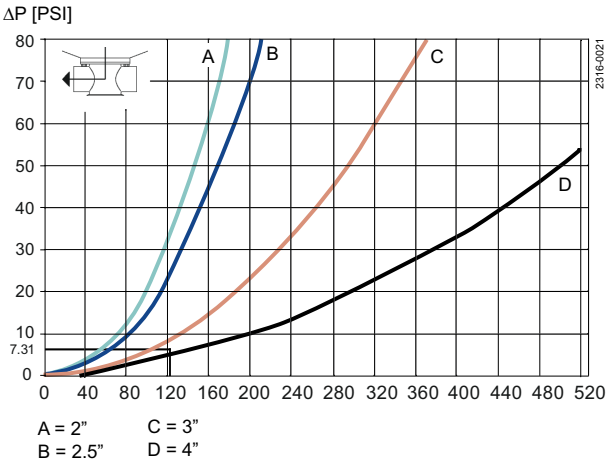
Pressure drop/capacity diagrams



To tank (fig. 1)



Straight through (fig. 3)



From tank (fig. 2)

Example to determine pressure drop at a given flow rate:	
To tank:	3". Capacity = 120 gpm
From tank:	3". Capacity = 120 gpm
Straight through:	3". Capacity = 120 gpm

Result:

From fig. 1, Δp = 6.21 PSI to tank

From fig. 2, Δp = 7.31 PSI from tank

From fig. 3, Δp = 4.09 PSI straight through

Note!
For the diagrams the following applies:
Medium: Water (68 °F).
Measurement: In accordance with VDI 2173.

Size inch	Max. size of particle (inch)	Max. tank pressure (PSI)	Actuator size 4-Basic (ø6.2"x10")	Actuator size 5-Basic (ø7.3"x11")	Opening pressure in pipe line at 87 PSI air pressure (kPa)
2”	1.26	85	Standard		145
2½”	1.26	85	Standard		145
3”	1.26	85	Standard		145
4”	1.77	85		Long stroke	145

Note!
Max. pressure in tank means that a higher pressure in tank will open the valve.
It is possible to open with 145 PSI (10 bar) (1000 kPa) in pipe line.
When closing the valve the pressure can not be higher than "Max. Tank pressure".

Air and CIP consumption

Size	DN/OD			
Inch	**2”**	**2½”**	**3”**	**4”**
Cv-value				
Upper Seat-lift [gpm/psi]	2.6	2.6	2.6	5.3
Lower Seat-lift (tank seat lift) [gpm/psi]	30	30	30	58.25
Air consumption				
Upper Seat-lift * [cubic inches]	24	24	24	38
Lower Seat-lift (tank seat lift) * [cubic inches]	8	8	8	13
Main Movement * [cubic inches]	99	99	99	216
Cv-value - SpiralClean				
External CIP in leakage chamber [gpm/psi]	1.59	1.59	1.59	1.59

Note!
* [cubic inches] = volume at atmospheric pressure
Recommended min. pressure for External CIP in leakage chamber: 44psi

Formula to estimate CIP flow during seat lift

(for liquids with comparable viscosity and density to water):

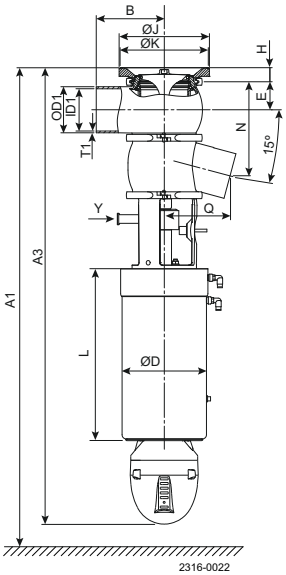
$Q = Cv \cdot \sqrt{\Delta p}$

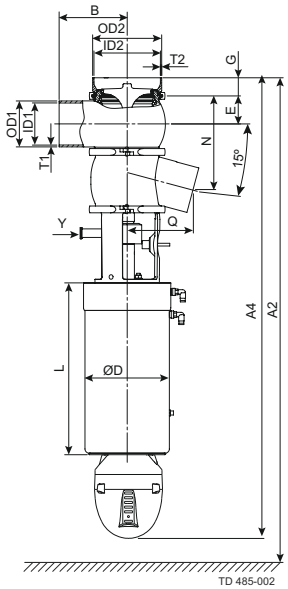
Q = CIP - flow (gpm).

Cv = Cv value from the above table.

Δ p = CIP pressure (psi).

Dimensions (inch)





	2"	2.5"	3"	4"
A1	35.039	36.614	36.220	47.638
A2	35.433	37.008	36.614	48.031
A3	28.858	29.882	29.961	39.449
A4	29.252	30.276	30.354	39.843
B	4.331	4.331	4.331	5.906
OD1	2.008	2.500	2.996	4.000
ID1	1.882	2.374	2.870	3.843

	2"	2.5"	3"	4"
t1	0.063	0.063	0.063	0.079
OD2	4.000	4.000	4.000	6.000
ID2	3.843	3.843	3.843	5.782
t2	0.079	0.079	0.079	0.109
øD	7.323	7.323	7.323	7.323
E	1.453	1.699	1.947	2.433
F1	1.496	1.496	1.496	2.953
F2 (Tank plug)	0.394	0.394	0.394	0.394
G	1.575	1.575	1.575	1.575
H	1.220	1.220	1.220	1.220
øJ	7.835	7.835	7.835	7.835
øK	7.677	7.677	7.677	7.677
L	9.921	9.921	9.921	14.921
N	4.949	5.709	5.555	8.185
Q	4.445	4.508	4.571	6.220
Y	¾" clamp ferrule	¾" clamp ferrule	¾" clamp ferrule	¾" clamp ferrule
M/Tri-clamp	0.827	0.827	0.827	0.827
Weight (lb)	26.2	27.3	28.6	88.9

Note!
A1 + A2 = min. installation measure to allow that actuator and internal parts can be lifted out of the valve body.

Alfa Laval Unique Mixproof

Double seat valves

Introduction

The Alfa Laval Unique Mixproof Valve is a versatile, highly flexible double block-and-bleed valve for the safe and efficient management of fluids at intersection points in matrix piped systems. The valve enables the simultaneous flow of two different products or fluids through the same valve without the risk of cross-contamination. Modular design and a wide variety of options enable the valve to be customized to meet any process requirement—whether higher demands on cleanability and the ability to withstand pressure peaks.

Application

The Alfa Laval Unique Mixproof is designed for continuous flow management and process safety in hygienic processes where product safety is at the top of the agenda across the dairy, food, beverage and many other industries.

Benefits

- Enhanced product safety
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection and leakage chamber cleaning
- Fully configurable to fit your exact needs

Standard design

The Alfa Laval Unique Mixproof Valve is comprised of a series of base components, including valve body, valve plug, actuator, and cleaning options and accessories that support a wide range of applications. There are four pre-configured versions: the Unique Mixproof Basic; the Unique Mixproof SeatClean Valve; the Unique Mixproof HighClean Valve; and the Unique Mixproof UltraClean Valve. Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs. The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Working principle

The Alfa Laval Unique Mixproof Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plugs and seals to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure during every working condition. Leakage rarely occurs but, should it occur, product flows into the leakage chamber and exits through the bottom outlet for easy detection.

When the valve is open, the leakage chamber is closed. The product then flows from one line to the other. The radial design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning and water hammer protection to the requirements of individual process specifications.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	145 psi
Min. product pressure:	Full vacuum
Air pressure:	116 psi

Temperature	
Temperature range:	23°F to +257°F (Depending on seal material)

ATEX	
Classification:	II 2 G D[1]

Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)

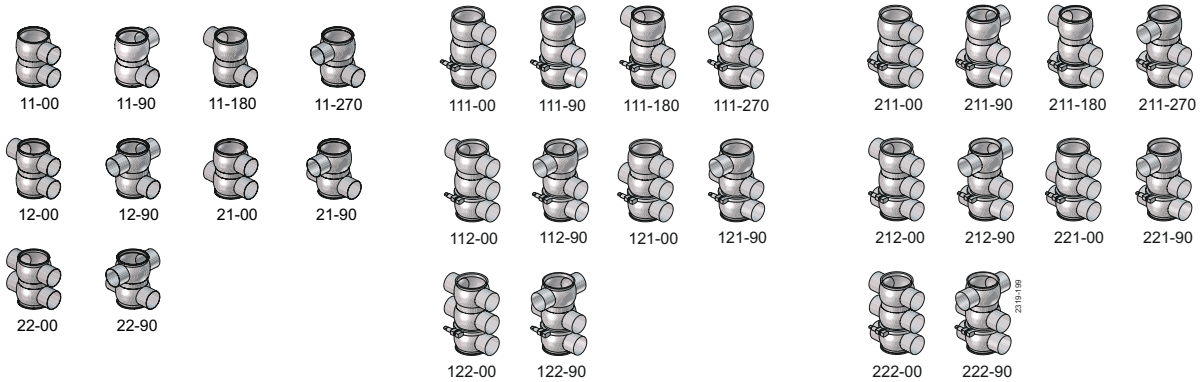
Surface finish choose from the following:	
Internal/external semi-bright	Ra<64µin
Internal Bright (polished)	Ra<32µin
Internal/external Bright (polished)	Ra<32µin

Note! The Ra values are only for the internal surface.

Product wetted seals:	EPDM

Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips:	PTFE

Valve body combination



Valve body combinations, example: type 11-00

1 Number of ports - lower valve body
1 Number of ports - middle valve body
1 Number of ports - upper valve body
00 Angle between

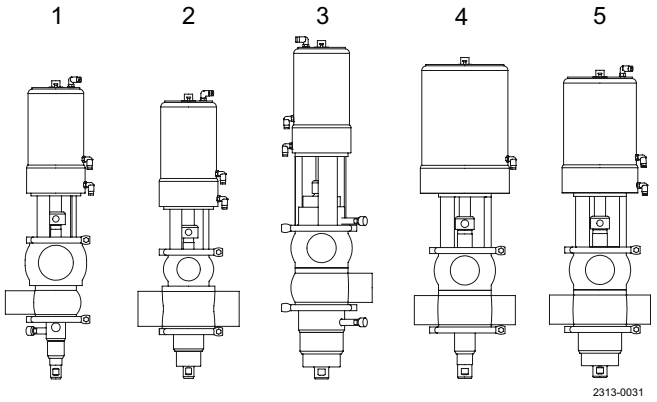
SpiralClean

The Alfa Laval SpiralClean system to clean the upper and lower balanced plugs and leakage chamber. The system cleans more efficiently, uses less cleaning fluid by ensuring that a directional flow of CIP fluid reaches all the surfaces in much less time than with conventional systems.

Selection guide

The drawings below give an overview of all options when choosing the valve to fit your process, thus demonstrating the actual flexibility of the Unique Mixproof Valve.

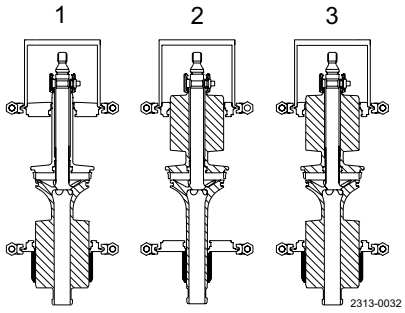
Size flexibility



The Unique Mixproof concept offers balanced and unbalanced plugs, seat lift, CIP for the plugs and leakage chambers and any combination in between.

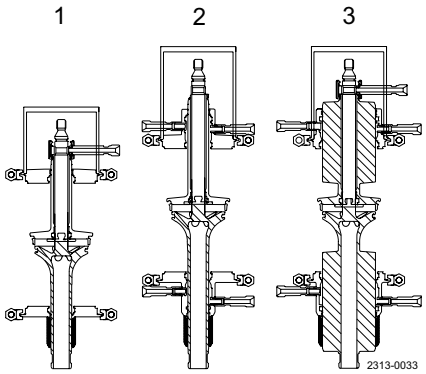
1. ISO 51 (2”)/ISO 76.1 (3”), 11-90, with spiral clean on lower unbalanced plug, group 3 basic actuator incl. seat lift and seat push
2. ISO 76.1(3”)/ISO 51 (2”), 22-90, with lower balanced plug, basic actuator incl. seat lift and seat push
3. ISO 63.5 (2½"), 12-90, with SpiralClean of upper, lower spindle and leakage chamber, upper and lower balanced plug, basic actuator incl. seat lift and seat push
4. ISO 63.5 (2½”), 22-90, with spiral clean on leakage chamber, unbalanced plugs, group 5 basic actuator
5. ISO 63.5 (2½”), 22-90, with lower balanced plug, group 4 basic actuator incl. seat lift and seat push

Balancing flexibility



1. Lower balanced plug
2. Upper balanced plug
3. Upper and lower balanced plugs

Hygienic flexibility (spiral clean options)



1. External CIP of leakage chamber
2. External CIP of upper and lower unbalanced plug
3. External CIP of leakage chamber upper and lower balanced plug

Standard configurations

To assist you in the selection we have included some standard configurations:

- Unique Basic
- Unique SeatClean
- Unique HighClean
- Unique UltraClean

You can either choose these directly or add additional features ensuring that the valve suits your specific needs.
Unique Basic has the basic components, providing significant safety and leakage detection.

- Actuator without seatlift.
- Unbalanced plugs.
- No SpiralClean of leakage chamber or plugs.
- Not applicable for 3-body version

Unique SeatClean meets the typical demands of a process valve in the food and drink industry.

- Actuator with seat lift integrated.
- Balanced lower plug, Unbalanced upper plug.
- No SpiralClean of leakage chamber or plugs.

Unique HighClean is sure to meet your processing needs when dealing with sticky products or if no recontamination can be accepted at all.

- Actuator without seatlift integrated.
- Balanced lower and upper plug.
- SpiralClean of leakage chamber as well as of upper and lower plug.
- Not applicable for 3-body version.

Unique UltraClean meets the highest demands for hygienic processing. It has:

- Actuator with seat lift integrated.
- Balanced lower and upper plug.
- SpiralClean of leakage chamber, upper and lower plug

Options

- Male parts or clamp liners in accordance with required standard.
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- Side indication for detection of upper seat lift
- Product wetted seals in HNBR, NBR or FPM
- Various internal/external surface finish
- 3A (hygienic standard) on request
- Mixed housing (Not applicable for 3-body version)

Pressure drop/capacity diagrams

Example to determine pressure drop:	
Upper body size:	2". Balanced upper plug. Capacity = 80 gpm
Lower body size:	3". Balanced lower plug. Capacity = 80 gpm
Between bodies:	Capacity = 60 gpm

Result:

From fig. 1, Δp = 0.9 psi through upper body.

From fig. 2, Δp = 0.25 psi through lower body.

From fig. 3, Δp = 1.7 psi seeing that:

1. The smallest body determines the curve for Δp between bodies.
2. Always choose the curve for balanced plugs if upper plug is balanced. If only lower plug is balanced, always choose the curve for unbalanced.

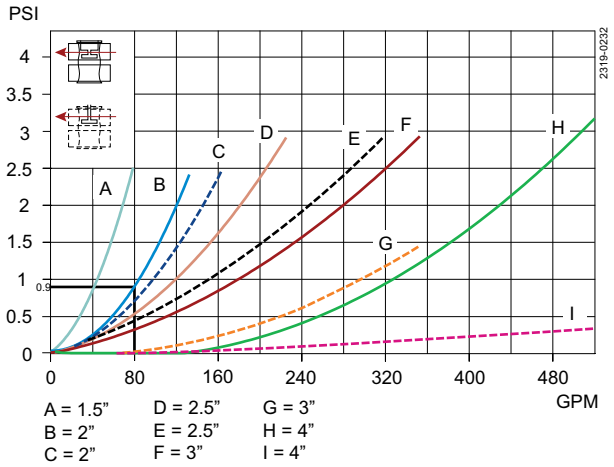


Figure 1. Pressure drop/capacity diagram, upper body.

Full lines: Balanced upper plug.

Dotted lines: Unbalanced upper plug.

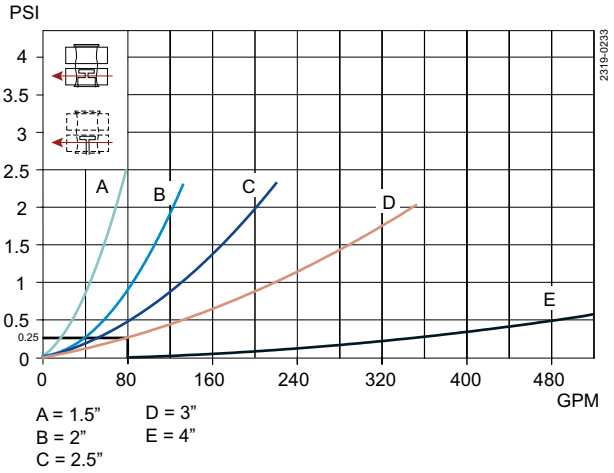


Figure 2. Pressure drop/capacity diagram, lower body, balanced and unbalanced lower plugs.

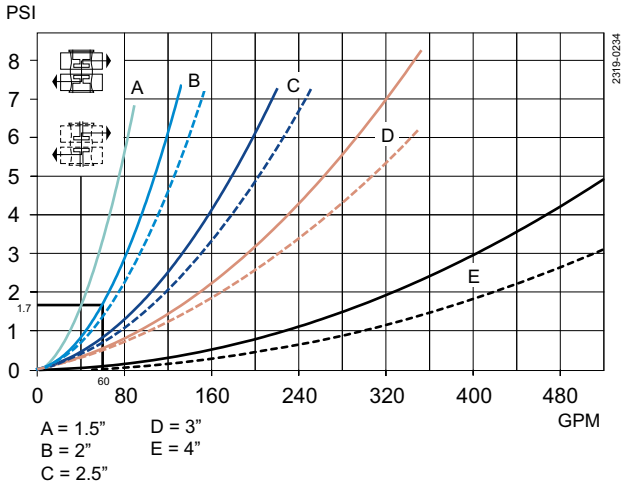


Figure 3. Pressure drop/capacity diagram, between bodies.

Full lines: Balanced.

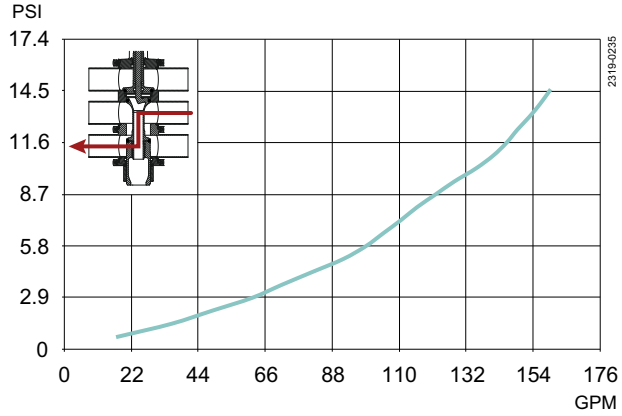
Dotted lines: Unbalanced.

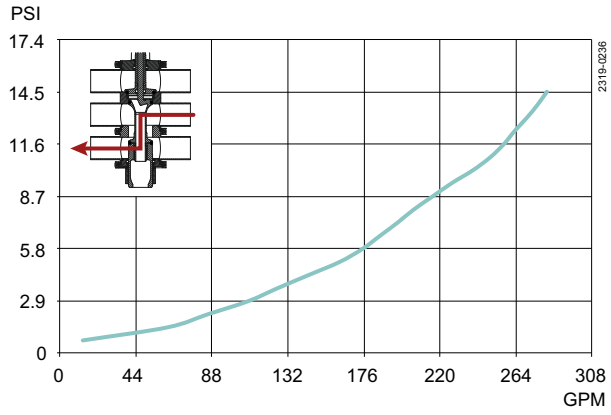
Note! For the diagrams the following applies:

- Medium: Water (68°F).
- Measurement: In accordance with VDI 2173.

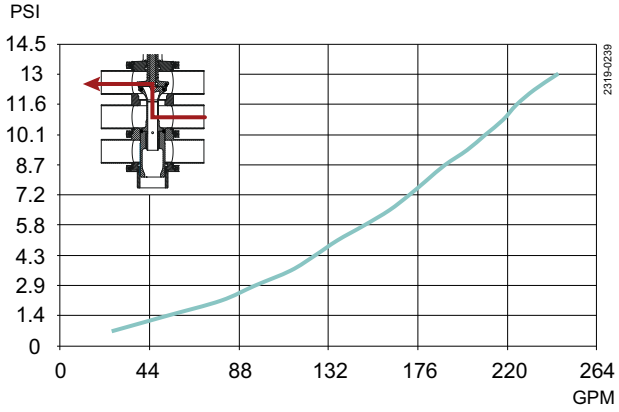
Pressure drop/capacity diagrams for 3 body valve

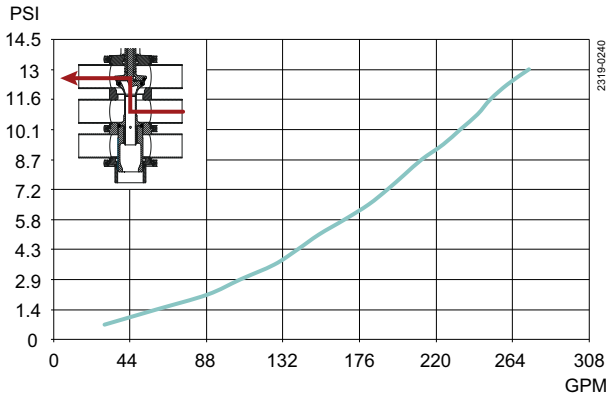
Between middle and lower body

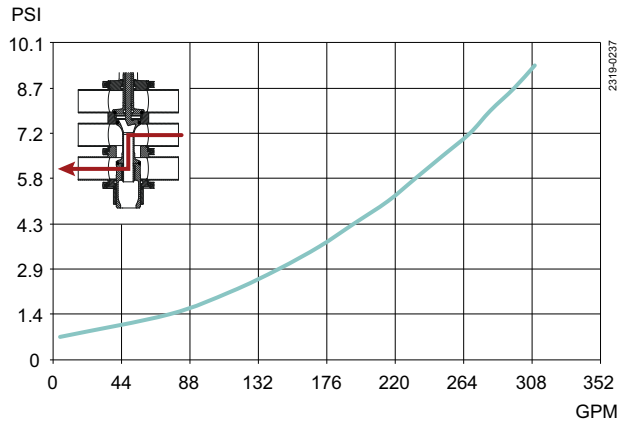


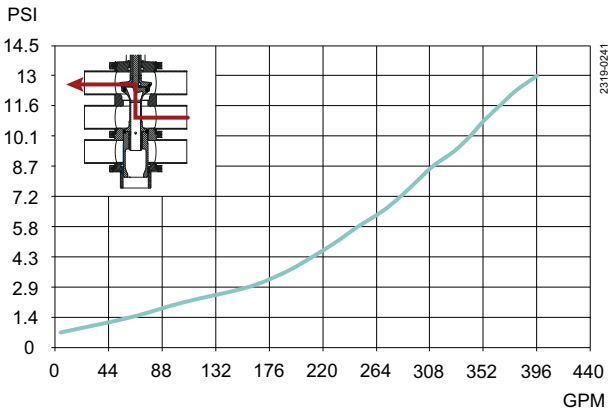


Between middle and upper body






PSI
10.1
8.7
7.2
5.8
4.3
2.9
1.4
0
0
44
88
132
176
220
264
308
352
GPM
2319-0237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13
11.6
10.1
8.7
7.2
5.8
4.3
2.9
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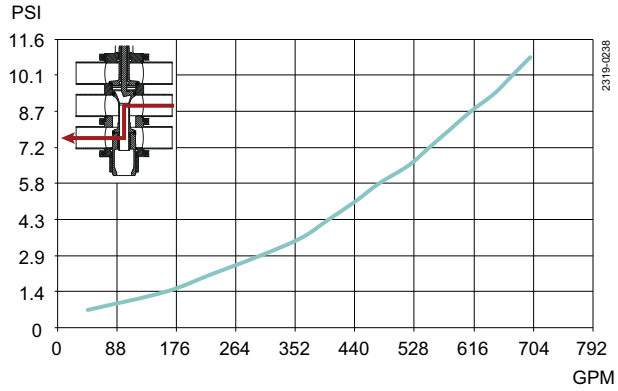
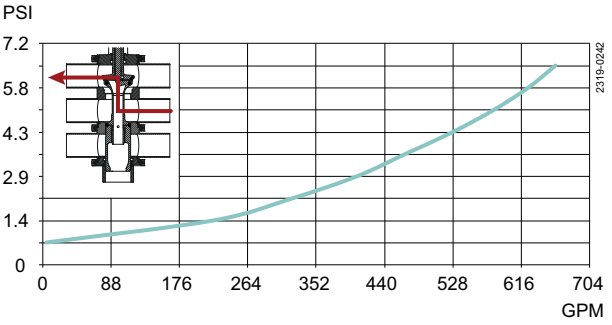
132
176
220
264
308
352
396
440
GPM
2319-0241


PSI
11.6
10.1
8.7
7.2
5.8
4.3
2.9
1.4
0
0
88
176
264
352
440
528
616
704
792
GPM
2319-0238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5.8
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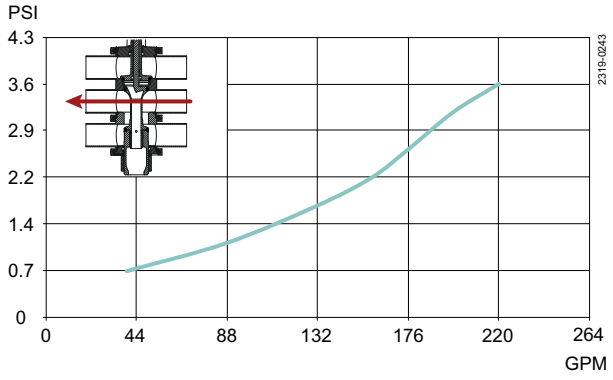
0
88
176
264
352
440
528
616
704
GPM
2319-0242

Middle body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2.2
1.4
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0
0
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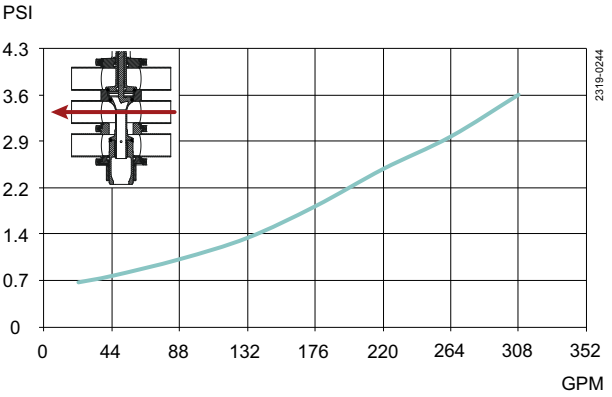
132
176
220
264
GPM
2319-0243


PSI
4.3
3.6
2.9
2.2
1.4
0.7
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0
44
88
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176
220
264
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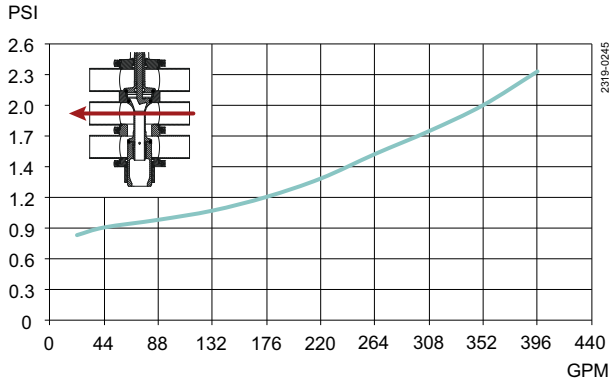
352
GPM
2319-0244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1.7
1.4
1.2
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0
0
44
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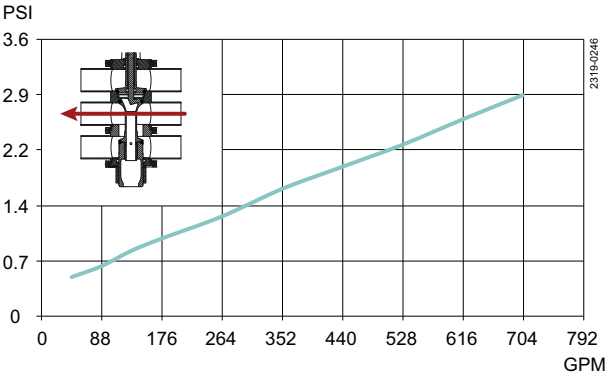
220
264
308
352
396
440
GPM
2319-0245


PSI
3.6
2.9
2.2
1.4
0.7
0
0
88
176
264
352
440
528
616
704
792
GPM
2319-0246

Air and CIP consumption

Size	OD	OD	OD	OD	OD
ISO	**1½"**	**2"**	**2½"**	**3"**	**4"**
Kv-value					
Upper Seat-lift [gpm/psi]	1.7	1.7	2.9	2.9	3.6
Lower Seat-lift [gpm/psi]	1.0	1.0	2.2	2.2	2.9
Air consumption					
Upper Seat-lift [1][cubic inches]	12	12	24	24	38
Lower Seat-lift [1][cubic inches]	6.7	6.7	8	8	13
Main Movement [1][cubic inches]	52	52	99	99	170
Cv-value SpiralClean					
Spindle CIP [gpm/psi]	0.14	0.14	0.14	0.14	0.14
External CIP of leakage chamber [gpm/psi]	0.29	0.29	0.34	0.34	0.34

Note! Recommended min. pressure for SpiralClean: 29 bar.

[1] [n litre] = volume at atmospheric pressure

Formula to estimate CIP flow during seat lift:

(for liquids with comparable viscosity and density to water):

$Q = Kv \cdot \sqrt{\Delta p}$

Q = CIP - flow (m^3/h).

Kv = Kv value from the above table.

Δp = CIP pressure (bar).

Actuator

						STD Operating pressure for SeatClean, High Clean and Ultra Clean at 6 bar air pressure	**STD/STD* Operating pressure for Basic at 6 bar air pressure**
Actuator Type	3	4BS[1]	4SS[2]	5BS[1]	5SS[2]		
Actuator dimensions	4.72 x	6.18 x	7.32 x	7.32 x	7.32 x		
øD x L	9.06	9.92	11.06	11.06	14.92		
Tube OD							
1½"	STD[3]	OP[4]	OP[4]			140	87
2"	STD[3]	OP[4]	OP[4]			140	87
2½"	OP[4]	STD[3]	STD*[5]	OP[4]	OP[4]	140	87
3"	OP[4]	STD[3]	STD*[5]	OP[4]	OP[4]	140	87
4"		OP[4]	OP[4]	STD[3]	STD*[5]	116	87

[1] BS = Basic spring

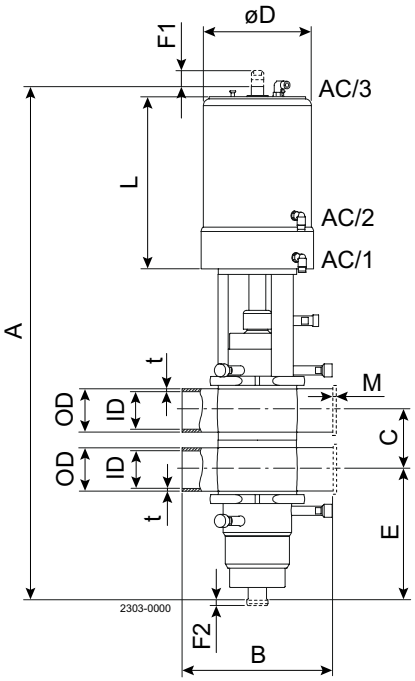
[2] SS = Strong spring

[3] STD: Normal size of actuator

[4] OP: Alternative size of actuator (NB: For choice and performance of optional actuators please contact Alfa Laval or refer to the Anytime Configurator).

[5] STD*: Normal size actuator if lower plug is UNBALANCED

Dimensions (inch)



Note for mixed bodies

1. The seat always applies to the smallest valve body.
2. Dimension B is equal with the largest valve body size.

Size	OD	OD	OD	OD	OD
ISO	**1½"**	**2"**	**2½"**	**3"**	**4"**
A Basic Clean[1]	20.88	22.66	27.54	27.54	35.03
A Seat Clean[1]	20.88	22.66	26.40	26.40	31.17
A High Clean/UltraClean[1]	24.07	25.85	29.94	29.94	36.33
B	6.70	8.67	8.67	8.67	11.82
C[2]	2.40	2.91	3.40	3.90	4.87
OD	1.50	2.01	2.50	3.00	4.00
ID	1.37	1.88	2.38	2.87	3.85
t	0.06	0.06	0.06	0.06	0.08
E Basic/Seat Clean	3.94	4.77	5.87	5.60	6.97
E High Clean/Ultra Clean	5.67	6.50	7.88	7.60	9.77
F1	1.24	1.24	1.50	1.50	2.33
F2	0.20	0.20	0.20	0.20	0.20
øD Basic	4.73	4.73	7.33	7.33	7.33
øD Seat Clean,					
High Clean and Ultra Clean	4.73	4.73	6.19	6.19	7.33
L Basic	9.06	9.06	11.07	11.07	14.93
L Seat Clean,					
High Clean and Ultra Clean	9.06	9.06	9.93	9.93	11.07
M/Tri-clamp	0.83	0.83	0.83	0.83	0.83
Weight (lb)					
Basic	30	33	53	53	75
Weight (lb)					
SeatClean	30	33	53	53	75
Weight (lb)					
High-/UltraClean	32	35	59	59	84

[1] For the A-measure if different upper/lower body sizes, please refer to Anytime configurator or contact Alfa Laval.

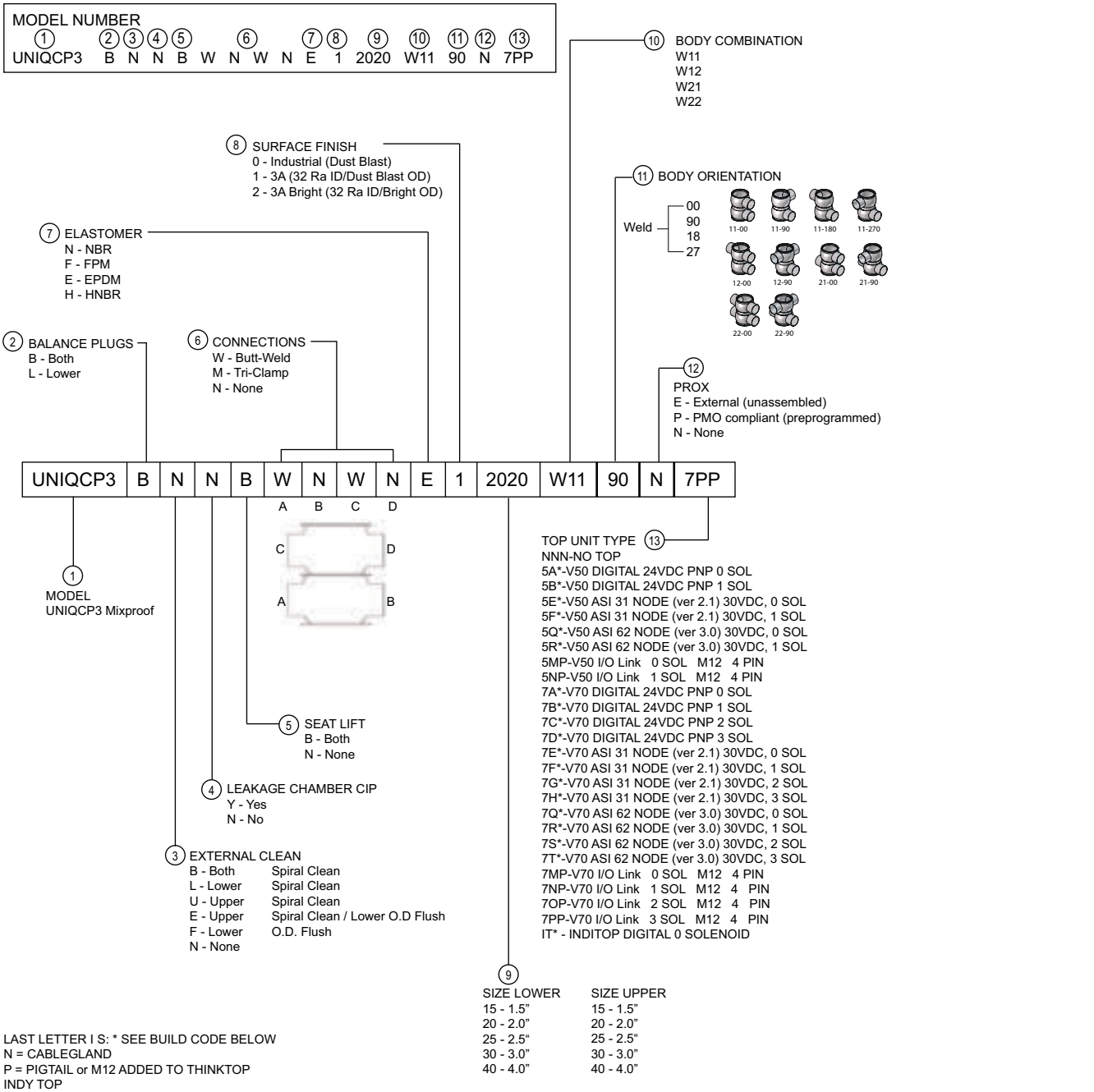
[2] The measure C can always be calculated by the formula C = ½IDupper + ½IDlower + 1.02 inch.

Dimension for 3-body version

Group	3	4	4	5	3	4	4	5
Size	**DN/OD**	**DN/OD**	**DN/OD**	**DN/OD**	**DN**	**DN**	**DN**	**DN**
ISO-DIN	**2”**	**2.5”**	**3”**	**4”**	**50**	**65**	**80**	**100**
A - without Spiral Clean	24.24	28.14	28.68	34.54	24.24	28.14	29.32	34.54
A - with Spiral Clean	27.41	31.68	32.22	39.69	27.41	31.68	32.86	39.7
A - Flushed	24.06	27.82	28.59	34.36	24.24	28.14	29.32	34.54
B	8.66	8.66	8.66	11.81	8.66	8.66	8.66	11.81
**C	2.91	3.4	3.89	4.87	2.99	3.62	4.21	4.96
OD	2.01	2.5	3	4	2.09	2.76	3.35	4.09
ID	1.88	2.37	2.87	3.84	1.97	2.6	3.19	3.94
t	0.06	0.06	0.06	0.08	0.06	0.08	0.08	0.08
E - without Spiral Clean	3.41	4.23	4.03	5.49	3.28	3.9	4.19	5.35
E - with Spiral Clean	5.13	6.22	6.02	8.29	5	5.89	6.18	8.15
E - Flushed	3.24	3.92	3.94	5.31	3.28	3.9	4.19	5.35
F1	1.24	1.5	1.5	2.32	1.24	1.5	1.5	2.32
F2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
øD	4.72	6.18	6.18	7.32	4.72	6.18	6.18	7.32
L	9.06	9.92	9.92	11.06	9.06	9.92	9.92	11.06
M/ISO clamp	0.83	0.83	0.83	0.83				
M/DIN clamp					0.83	0.83	0.83	0.83
M/ISO male	0.83	0.83	0.83	0.83				
M/DIN male					0.91	0.98	0.98	1.18
M/SMS male	0.79	0.94	0.94	1.38				
M/BS male	0.87	0.87	0.87	1.06				

Alfa Laval Unique Mixproof CP-3

Product description



INTRISICALLY SAFE NOT AVAILABLE WITH PIGTAIL

Alfa Laval Unique PMO

Product description

1		2,3,4,5		6		7		8		9,10		11	12		13	14
PMOPLUS	-	BNNB	-	WWWW	-	E	-	2	-	6060	-	W22	090	-	7D	N
0000000		0000		0000		0		0		0000		000	000			
				A		B		C		D						

1 Model
PMOPLUS PMO Plus Mixproof (6" only)
PMOPLCP PMO Plus - Continuous Process (6" only)

PMOVTCP PMO Plus CP Vertical Tank Valve (VT)
PMOHTCP PMO Plus CP Horizontal Tank Valve (HT)

PMOUQCC PMO Cheese Curd
PMOCCCP PMO Cheese Curd - Continuous Process
UNIQ-LP Large Particle

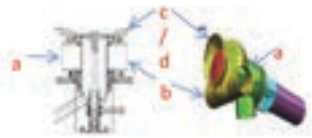
2 Balance Plugs
B - Both (Std)
U - Upper *(HT or VT Only)*

3 Spindle Clean
N - No (Std)

4 Leakage Chamber CIP
N - None *(Std)*
I - Included *(HT or VT Only)*

5 Seat Lift
B - Both (Std)

6 Connection
W - Tri-Weld
M - Tri-Clamp



For VT or HT valves only
a b c d
W W W O

"a, b & c" = connection
W - Tri-Weld
M - Tri-Clamp
D - Weld Flange
N - None

"d" = tank connection fitting
I - tank flange included
O - tank flange omitted

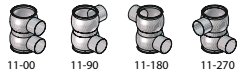
7 Elastomer
U - HNBR
Y - SFY
E - EPDM (Std)
N - NBR
N - NBR

8 Surface Finish
1-3A (32Ra ID / Dust blast OD)
2-3A Bright (32Ra ID / Bright OD) (Std)

9 Size (in) Lower Body
15 - 1.5" *(not for VT, HT, LP & Curd)*
20 - 2.0" *(not for HT, LP & Curd)*
25 - 2.5" *(not for LP & Curd)*
30 - 3.0" *(not for LP & Curd)*
40 - 4.0"
60 - 6.0" *(not for VT)*

10 Size (in) Upper Body**
**Must be same size as lower body
20 - 2.0"
25 - 2.5"
30 - 3.0"
40 - 4.0"
60 - 6.0"

11 Body Combination
W11
W12
W21
W22
200 *(VT only)*
300 *(VT only)*
309 tangential cross* *(HT only)*



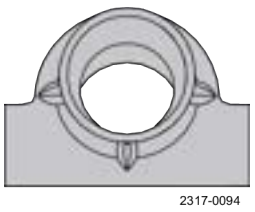
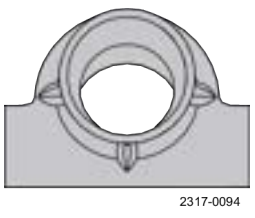
12 Body Orientation
090 *(not for HT or VT)*
180 *(on HT or VT two pipeline ports)*
270 *(not for HT or VT)*
000 *(on HT or VT one pipeline ports)*

13 Indication
7A* V70 Digital 24VDC PNP 0 SOL
7D* V70 Digital 24VDC PNP 3 SOL
7E* V70 ASI 31 NODE (ver 2.1) 30VDC, 0 SOL
7H* V70 ASI 31 NODE (ver 2.1) 30VDC, 3 SOL
7Q* V70 ASI 62 NODE (ver 3.0) 30VDC, 0 SOL
7T* V70 ASI 62 NODE (ver 3.0) 30VDC, 3 SOL
7MP V70 I/O Link 0 SOL M12 4 PIN
7PP V70 I/O Link 3 SOL M12 4 PIN

Last letter of section 13
If* Make selection below
N Cablegland
P M12 or Pigtail added

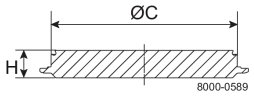
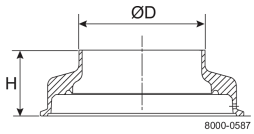
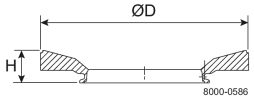
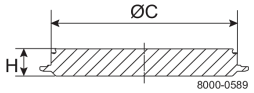
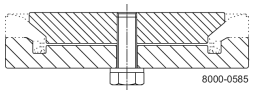
Air-operated valves Upper and lower seat lift No SpiralClean Balanced upper plug
ALSIS Code: 5225

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: FPM
Inside surface finish: Ra ≤ 1.6 µm Polished
Outside surface finish: Blasted

Item no.	Item no.	Item no.	Size	
			inch	
EPDM	**FPM**	**NBR**		**Cross with clamp**
9614097733 9614097736 9614097739	9614097748 9614097751 9614097754	9614097703 9614097706 9614097709	2 1/2" 3" 4"	
HNBR				**Cross with clamp**
9614097718 9614097721 9614097724			2 1/2" 3" 4"	
EPDM	**FPM**	**NBR**		**Cross with welding ends**
9614097833 9614097836 9614097839	9614097848 9614097851 9614097854	9614097803 9614097806 9614097809	2 1/2" 3" 4"	
HNBR				**Cross with welding ends**
9614097818 9614097821 9614097824			2 1/2" 3" 4"	

NOTE! Clamp ring tank ferrell

ALSIS Code: 5267

Item no.	Size		Dimension (mm)		Description	
	DN/OD, mm	DN	ØD	H		
						Conversion flange SMP-TO to Unique-TO**
9613444601 9613004103 9613444701	63.5 - 76.1 51 101.6	65.0 - 80.0 DN50 DN100		20.0		
						Stub flange
9613004702 9613004802 9613004804 9613004902 9613005001 9613004801 9613004803 9613004701 9613004901	 63.5 63.5 51 101.6	DN50 DN65 DN65 DN100 DN125		40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0		
						Tank flange
9613099201 9613099301 9613099101	63.5 - 76.1 101.6 51	65.0 - 80.0 100.0 -150.0 DN50	Ø199 Ø199 Ø159	31.0 31.0 31.0		
						Unique blind flange
9613004104 9613004106 9613004102 9613004105	63.5 - 76.1 38 101.6	65.0 - 80.0 125.0 - 150.0 DN40 DN100		20.0 20.0 20.0 20.0		
						Welding tool for Tank flange
9613099902 9613099903 9613099901	63.5 - 76.1 101.6 51	65.0 - 80.0 100.0 -150.0 DN50				

Regulating valves

Alfa Laval Unique RV-ST

Regulating valves

Introduction

The Alfa Laval Unique RV-ST Regulating Valve is the third generation of the Alfa Laval single-seat regulating valve designed to meet the highest process demands of hygiene and safety. Built on a well-proven platform from an installed base of more than a million valves, it is ideal for high-volume, hygienic liquid processing applications that require precision control of flow rate or pressure.

RV-ST has a vast range of Kv-values to fit customers exact needs. 1½"-4" sizes come with a plug seal to also function as a shut-off valve, where 1" sizes do not have a plug seal.

Application

This pneumatic single-seat regulating valve is ideal for use as a hygienic product valve in the dairy, food, beverage, chemical, pharmaceutical and many other industries.

Benefits

- Reliable, automated performance
- Versatile, modular design
- Outstanding precision flow
- Easy to maintain
- Large operating range

Standard design

The Alfa Laval Unique RV-ST Regulating Valve with positioner consists of valve body, valve stem, EPDM plug seal, actuator with advanced electro-pneumatic process controller, and stem bushings threaded to the actuator shaft. The control unit comes in two versions: with or without display.

Working principle

The Alfa Laval Unique RV-ST Regulating Valve is controlled from a remote location by means of a digital electro-pneumatic process controller. Few straightforward moveable parts ensure reliable operation.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure	
Max. product pressure (depending on valve specifications):	145 psi
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 101.5 psi

Temperature	
Temperature range:	14°F to +284°F (EPDM)

Positioner data	
Supply voltage:	24 VDC +/- 10%
Working temperature:	32 to 131 °F
Pilot air ports	Push-in connector (external Ø6mm or 1/4") or threaded ports G1/8
Protection class:	IP65 and IP67
Position detection module:	Contact-free, wear-free
Communication:	Analog

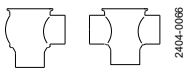
8692 Positioner – Top control with display	
Setpoint setting:	0/4 to 20mA and 0 to 5 5/10V
Output resistance:	0/4 to 20 mA: 180Ω 0 to 5/10V: 19Ω
Power consumption:	< 5W
Cable gland:	2xM16x1.5 (cable-ø10mm), terminal screws (1.61 ft^2)
Max. wire diameter:	0.06 in^2

8694 Positioner – Basic control without display	
Setpoint setting:	0/4 to 20mA
Output resistance:	180Ω
Power consumption:	< 3,5W
Cable gland:	2xM16x1,5 (cable-ø510mm), terminal screws (1.61 ft^2)
Max. wire diameter:	0.06 in^2

PHYSICAL DATA

Materials	
Material:	PPS, stainless steel
Cover:	PC
Seals:	EPDM
Product wetted steel parts:	1.4404 (316L)
External finish:	Semi-bright (blasted)
Internal finish:	Bright (polished), internal Ra < 32 µ inch
Other steel parts:	1.4301 (304)
Plug seal:	EPDM (optional HNBR or FPM)
Other product wetted seals:	EPDM (optional HNBR or FPM)
Other seals:	NBR

Valve Body Combinations



200 300

Other valves in the same basic design

- Unique Single Seat
- Standard valve
- Reverse acting valve
- Long stroke valve
- Manually operated valve
- Aseptic valve

Options

- Male parts or clamp liners in accordance with required standard
- Product wetted seals in HNBR or FPM
- Maintainable actuator
- External surface finish blasted
- Optional plug seal: HNBR or FPM (Not relevant for 1" / DN25 sizes)

Note! For further details, see instruction manual.

Valve Sizing

Flow Coefficients (Kv)

The following formula and flow coefficient values enable you to select the correct regulating valve for your application.

Formula for water and other products with a specific gravity equal to 1.0:

$$Cvq = \frac{Q}{\sqrt{\Delta P}}$$

Formula for products with a specific gravity other than to 1.0:

$$Cvq = \frac{Q}{\sqrt{\Delta P/SG}}$$

Where:

Q =Product flow rate in m^3 per hour

SG =Specific gravity of product

Δ P = Pressure drop across valve in psi

(inlet pressure minus outlet pressure)

Example of Cv Calculation:

Determine the proper size valve for 175 GPM of water.

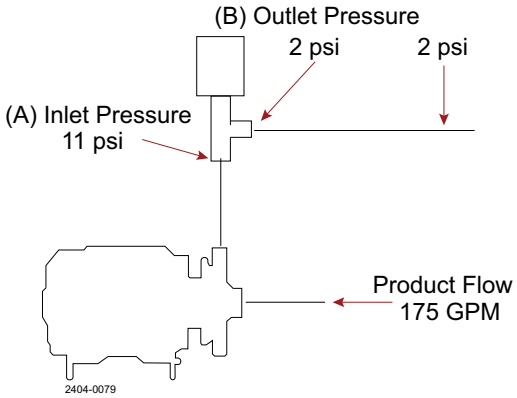
Inlet pressure of 11 psi

Outlet pressure of 2 psi

Solution: Inlet pressure (A) minus outlet pressure (B):

Δ P = 11 psi - 2 psi = 9 psi

$$Cvq = \frac{175}{\sqrt{9}} = 58.3$$



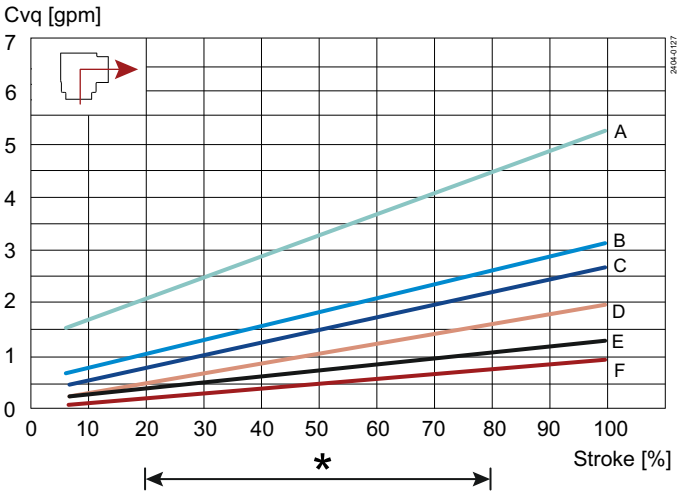
How to Use Data to Select Valve Size

After the Cv factor for a specific application has been calculated, locate the factor on the following diagrams. Choose the curve closest to the 50% stroke.

Using the above example, refer to the chart on the following diagrams you will find that the Cv factor (58.3) is marked on the chart. You will find that a 2" valve crosses 1 Cv curve, 2½" 1 curve, 3" 3 curves and 4" 3 curves. The correct valve size to use is 2" because Cv 58.3 crosses the curve closest to the optimum operating point 50%. Alternatively the 4" valve is also close to the 50%.

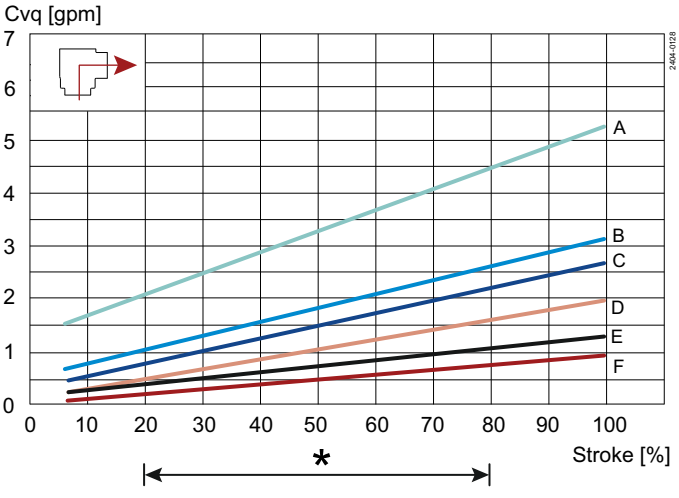
Pressure drop/capacity diagrams

For Δ P = 14.5 psi (1bar)



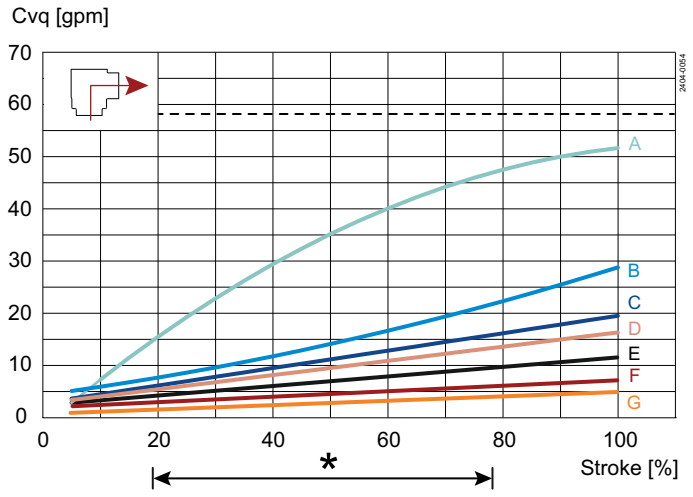
A = Cv 6.9
B = Cv 3.7
C = Cv 3.1
D = Cv 2.2
E = Cv 1.7
F = Cv 1.2

Figure 1. Valve size ISO 1”



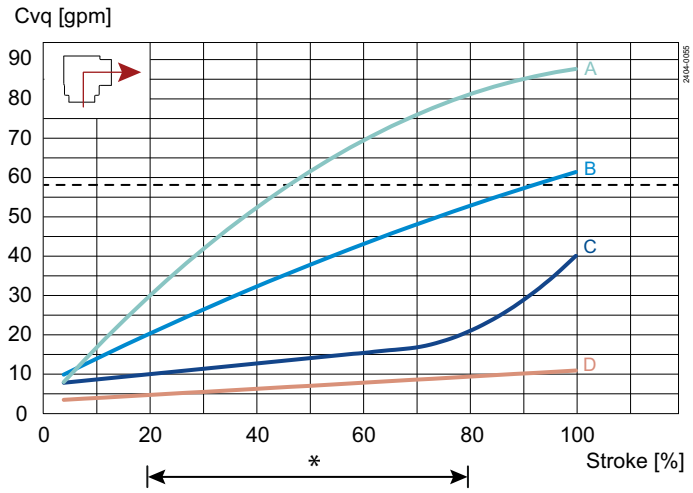
A = Cv 6.9
B = Cv 4
C = Cv 3.6
D = Cv 2.7
E = Cv 1.8
F = Cv 1.4

Figure 2. Valve size DN25



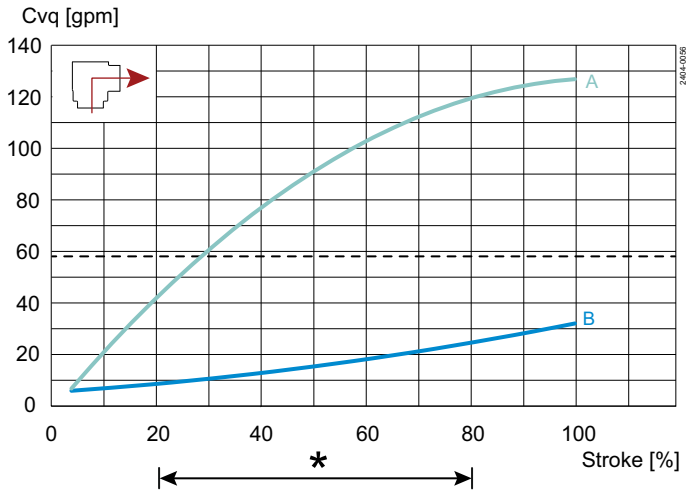
A = Cv 52
B = Cv 28
C = Cv 19
D = Cv 16
E = Cv 11
F = Cv 7
G = Cv 5

Figure 3. Valve size ISO 1.5”/DN40



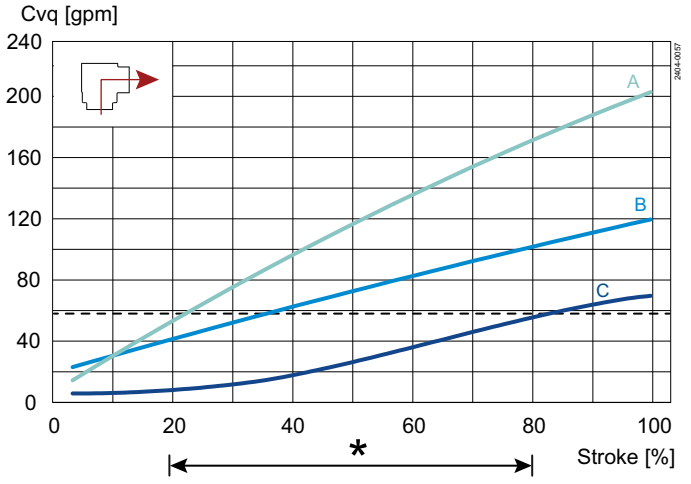
A = Cv 88
B = Cv 60
C = Cv 35
D = Cv 11

Figure 4. Valve size ISO 2”/DN50



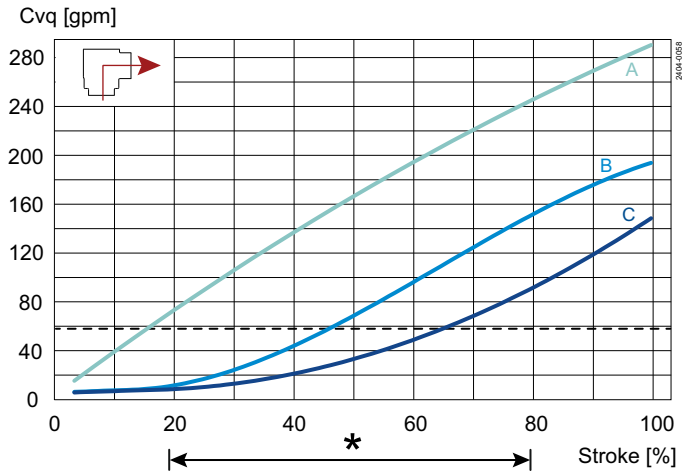
A = Cv 126
B = Cv 30

Figure 5. Valve size ISO 2,5”/DN65



A = Cv 202
B = Cv 119
C = Cv 69

Figure 6. Valve size ISO 3”/DN80



A = Cv 290
B = Cv 193
C = Cv 148

Figure 7. Valve size ISO 4”/DN100

* Recommended working area

Note! For the diagrams the following applies

Medium: Water (68° F)

Measurement: In accordance with VDI 2173:

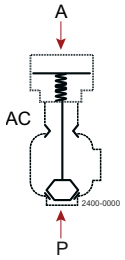
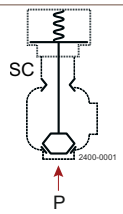
-------- (dotted line) = Cv 58.3

Alfa Laval recommend max. flow velocity in tubing and valves to be 5 m/sec.

Pressure data

Shut-off valves

Max. pressure in psi without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure [PSI]	Plug position	Valve size [mm]				
			DN40/38	DN50/51	DN65/63.5	DN80/76.1	DN100/101.6
	87	NO	110.23	139.24	81.22	104.43	69.62
		NC	91.23	104.43	60.92	63.82	60.92

A = Air
P = Product pressure
AC = Air closes
SC = Spring closes

Dimensions (inch)

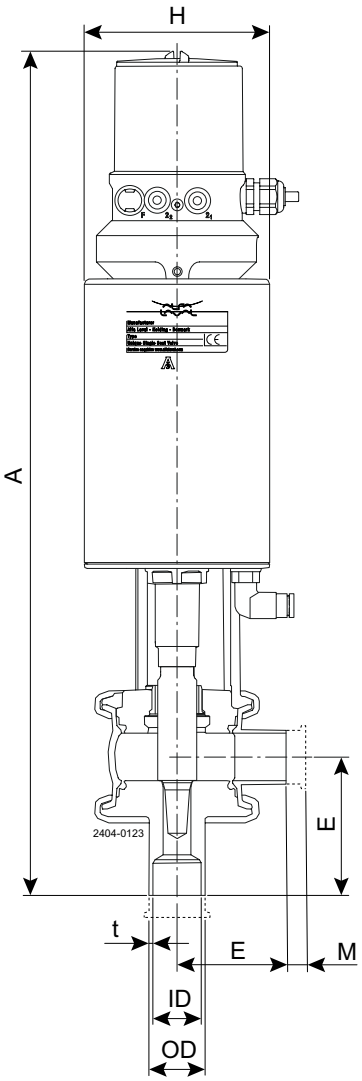


Figure 8. Needle valve

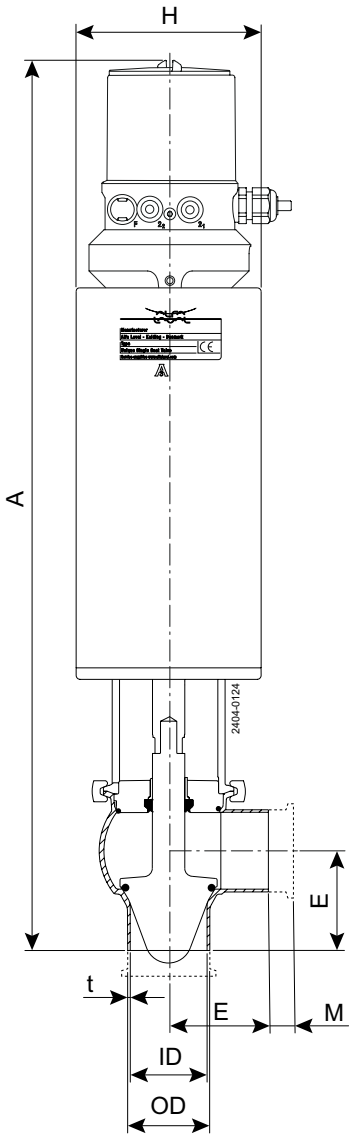


Figure 9. RV-ST valve

Size	1"[1]	1.5"	2"	2.5"	3"	4"
A (with positioner 8694)	17.68	17.70	19.63	20.66	21.97	23.76
A (with positioner 8692)	19.13	19.15	21.1	22.12	23.4	25.21
OD	0.98	1.5	2.0	2.5	3	4
ID	0.86	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.06	0.08
E	1.97	1.95	2.40	3.19	3.39	4.69
H	3.35	3.35	4.53	4.53	6.20	6.20
M/ Clamp	0.5	0.5	0.5	0.5	0.5	0.63
Weight (lb)	6.83	16.09	20.94	23.15	36.16	41.01

[1] Dimensions for Needle valve

Air Connections Compressed air:

R 1/8" (BSP) internal thread for actuator.

Electrical connections

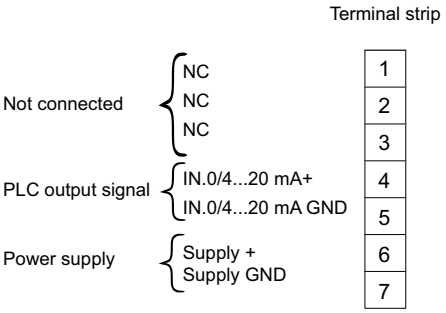


Figure 10. Positioner 8694
without display

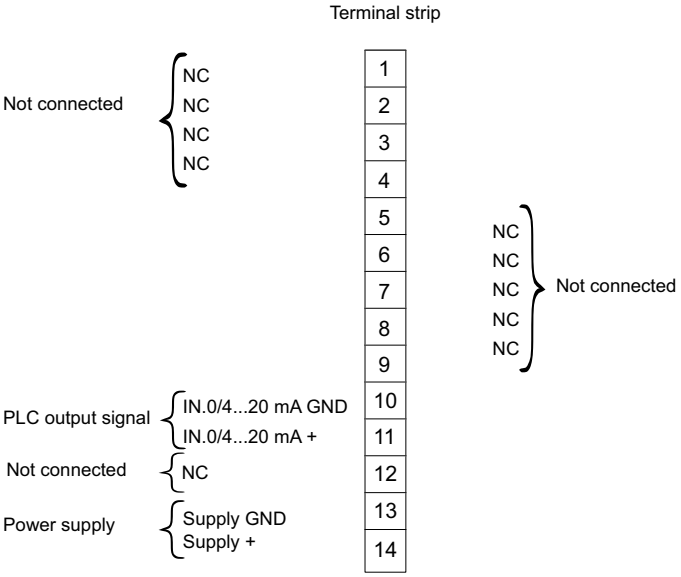


Figure 11. Positioner 8692
without display

Alfa Laval Unique RV-P

Regulating valves

Introduction

The Alfa Laval Unique RV-P Regulating Valve is an automatic hygienic regulating valve with an electro-pneumatic actuator for use in applications that require precision control of flow as well as pressure, temperature, and tank fluid levels.

Application

The Unique RV-P Regulating Valve is designed for precise flow control in the dairy, food, beverage, biotechnology, pharmaceutical and many other industries.

Benefits

- Precision flow control
- Advanced hygienic valve design
- Dedicated protection
- Reliable operation
- Large operating range

Standard design

Built on the Alfa Laval Unique SSV platform, the Unique RV-P Regulating Valve consists of valve body, valve plug, lip seal, and an external normally open (NO) actuator with bonnet. The actuator is fitted to the valve body by means of a clamp. The Kv value is flexible as lower element can be exchanged. Manual and aseptic versions are available. Upon request, the valve can also be supplied with a normally closed (NC) actuator.

Working principle

The Alfa Laval Unique RV-P Regulating Valve is controlled from a remote location by means of compressed air. An actuator with an integrated IP converter IP converter transforms the electrical signal to a pneumatic signal. This signal conversion is based on a highly accurate and reliable contactless AMR sensor, making it insensitive to vibrations and pressure shocks. The pneumatic signal is transmitted to the integrated positioner which operates by means of the force-balance principle, ensuring that the position of the actuator piston is directly proportional to the input signal. Signal range and zero point can be adjusted individually. The actuator can be used for split-range operation by using a different measuring spring.

Certificates

Authorized to carry the 3A symbol

Technical Data

Valves	
Max. product pressure:	1000 kPa (145 PSI)
Min. product pressure:	Full vacuum
Temperature range (EPDM):	14 °F to 284 °F
Flow range Kv (Δ P = 1bar):	2.2 - 484.32 US GPM
Max. pressure drop:	500 kPa (72.52 PSI)

Actuator	
Air connection:	R1/8" BSP thread with air fitting for 1/4" hose
Max. pressure:	600 kPa (87 PSI)
Working pressure:	400 kPa (58 PSI)
Air quality:	ISO 8573-1, Class 0.2.4

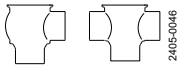
I/P converter	
Signal range:	4 - 20 mA (standard)
Input resistance:	200 Ω
Inductivity/capacitance:	Negligible

Physical Data

Materials, Valves	
Product wetted steel parts:	Stainless steel, 1.4404 (AISI 316L)
Other steel parts:	Stainless steel, 1.4301 (AISI 304)
Product wetted seals:	EPDM
External finish:	Semi-bright (blasted)
Internal finish:	Bright (polished), Ra<32 µin

Materials, Actuator	
Actuator cases:	Aluminium with plastic coating
Diaphragms:	NBR with reinforced fabric insert
Springs:	Stainless steel uncovered/spring steel epoxy resin coated
Actuator stem:	Polyamide
Screws, nuts:	Stainless steel, polyamide
Other parts:	Stainless steel

Valve body combinations



200 300

Accuracy

Deviation:	≤1.5%
Hysteresis:	≤0.5%
Sensitivity:	<0.1%
Influence of air supply pressure:	≤0.1% between 20.3 and 87 PSI

Air consumption at steady state condition:	With 8.7 PSI signal pressure and supply pressures up to 87 PSI ≤100 ln/h

Ambient temperature:	-13 °F to +158 °F

Protection class:	IP66

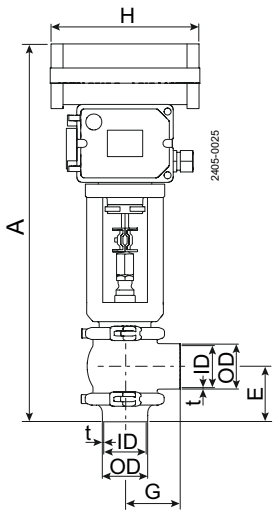
Flow sizes/tube connections

Kv	Seat diam.		Tube connections	
	(mm)	inch	ISO (mm)	Inch
0.5 E	**6**	**0.24**	**38**	**1½"**
1.0 E	10	0.39	38	1½"
2 E	12	0.47	38	1½"
4 E	14	0.55	38	1½"
8 E	23	0.91	38	1½"
16 E	29	1.14	38	1½"
25 E	38	1.50	51	2"
32 E	48.5	1.91	51	2"
40 E	42	1.65	63.5	2½"
64 L	51	2.01	63.5	2½"
75 L	51	2.01	76.1	3"
110 L	72	2.83	101.6	4"

Options

- Male parts or clamp liners in accordance with required standard
- Product wetted seals of HNBR or Fluorinated rubber (FPM)
- Profibus communication
- Aseptic configuration Max 116 PSI

Dimensions (inch)



Size	1.5"	2"	2.5"	3"	4"	DN40	DN50	DN65	DN80	DN100
	NO/NC	NO/NC	NO/NC	NO/NC	NO/NC	NO/NC	NO/NC	NO/NC	NO/NC	NO/NC
A- std	16.1	16.7	15.9	17.3	18.9	16.2	16.7	16.2	17.6	19
A- aseptic	16.2	16.8	16.2	17.6	19.2	16.3	16.8	16.5	17.9	19.3
E	2.2	2.5	2.6	3.3	3.8	2.2	2.5	2.8	3.5	3.9
G	1.9	2.4	3.2	3.4	4.7	1.9	2.4	3.1	3.4	4.7
H	6.6	6.6	6.6	6.6	11	6.6	6.6	6.6	6.6	11
OD	1.5	2	2.5	3	4	1.6	2.1	2.8	3.3	4.1
ID	1.4	1.9	2.4	2.9	3.8	1.5	2	2.6	3.2	3.9
t	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
M/ISO clamp	0.8	0.8	0.8	0.8	0.8	-	-	-	-	-
M/DIN clamp	-	-	-	-	-	0.8	0.8	1.1	1.1	1.1
M/DIN male	-	-	-	-	-	0.9	0.9	1	1	1.2
M/SMS male	0.8	0.8	0.9	0.9	1.4	-	-	-	-	-
Weight lb	18.1	20.5	21.4	24.7	54.9	18.1	20.5	21.4	24.7	54.9

Capacity diagram

For Δ P= 100 kPa (1bar).

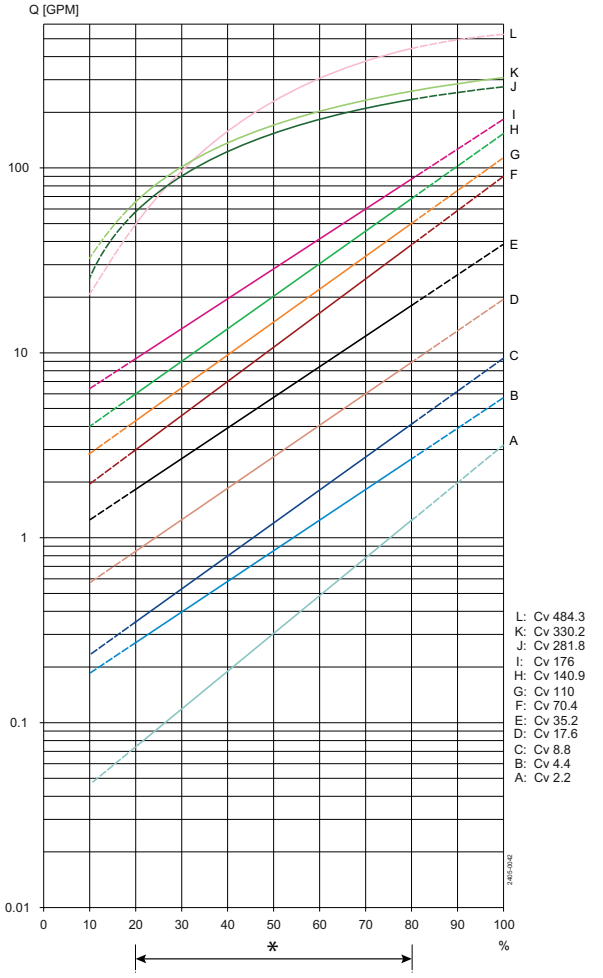


Figure 1. Standard

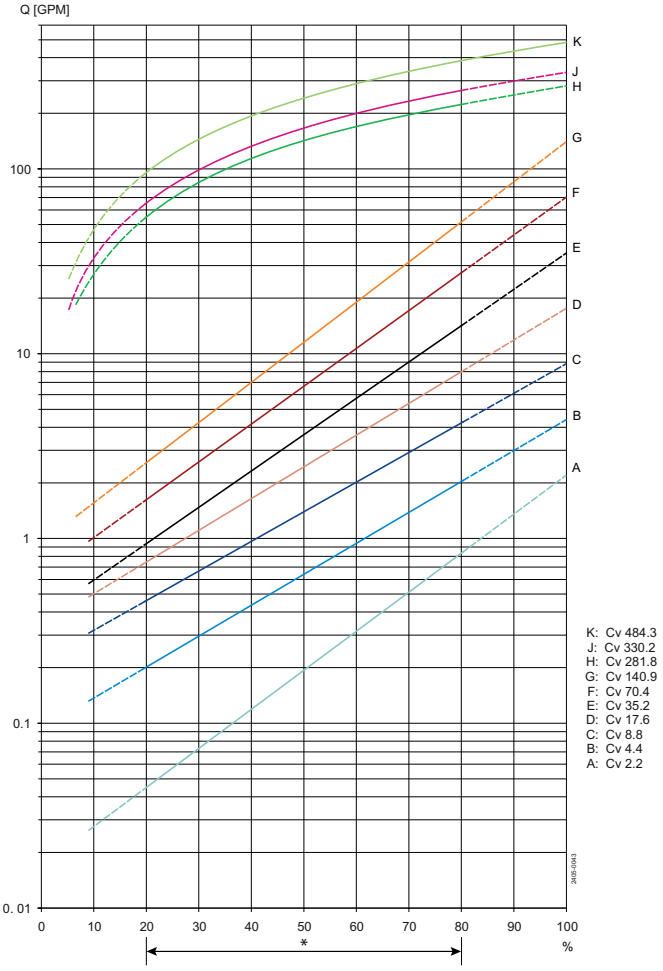


Figure 2. Aseptic

*Recommended working area

Note! For the diagram the following applies:
Medium: Water (68 °F).
Measurement: In accordance with VDI 2173.
Alfa Laval recommend max. flow velocity in tubing and valves to be

Conversion Table

100 kPa = 1 bar = 14.5 PSI

10 mm = 0.39 inch

10 m^3/h = 44.03 US GPM

Pressure drop calculation

The Kv designation is the flow rate in m^3/h at a pressure drop of 1 bar when the valve is fully open (water at 68°F or similar liquids). To select the Kv value it is necessary to calculate the Kv_q value using the following formula:

$$Kv_q = \frac{Q}{\sqrt{\Delta p}}$$

Where:

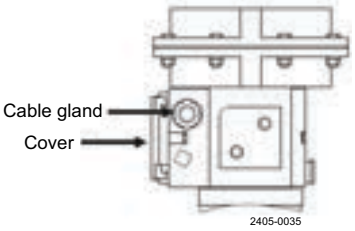
Kv_q = Kv value at specific flow and specific pressure drop

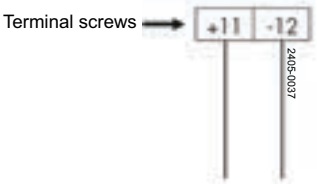
Q = Flow rate (m^3/h)

Δ P = Pressure drop over valve (bar)

Electrical connection

Electrical connection - Analogue 4-20 mA
Positioner 3725



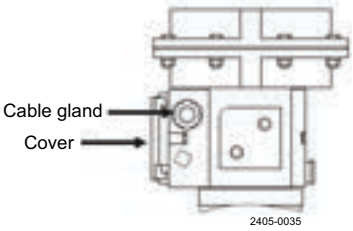


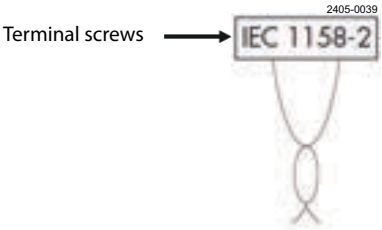
4-20 mA control signal

Route the two-wire line to the screw terminals marked “11 and 12”, whereby the correct polarity has to be ensured

1. Open the cover of the positioner for electrical connection
2. Fit the cable through the cable gland and connect the cable wires to the terminal screws. (+11 and -12)
3. Tighten the cable gland and close the cover of the positioner

Electrical connection - Profibus PA
Positioner 3730-4





Bus control signal
Route the two-wire bus line to the screw terminals marked “IEC 1158-2”, whereby no polarity has to be observed

1. Open the cover of the positioner for electrical connection
2. Fit the bus cable through the cable gland and connect the cable wires to the terminal screws. (IEC 1158-2)
3. Tighten the cable gland and close the cover of the positioner

By searching on positioner type 3730-4 you can either retrieve the GSD files for PROFIBUS PA communication directly from the World Wide Web server of Samson or the PROFIBUS User Organization

Alfa Laval CPM

Regulating valves

Introduction

The Alfa Laval CPM Constant-Pressure Modulating Valve is a pneumatic regulating valve that maintains a constant pressure in hygienic process lines at the valve inlet or outlet. Safe, reliable and easy to clean, these regulating valves provide accurate pressure control, quickly adjusting position to maintain the pressure at pre-set values without any need for electronic control.

Application

This pneumatic regulating valve maintains uniform inlet or outlet pressure in hygienic process lines for the dairy, food, beverage, personal care and many other industries. Typical applications include filling and bottling equipment.

Benefits

- Safe, effective pressure control
- Self-draining design
- Excellent valve cleanability
- Easy to install, simple to operate
- High hygienic level

Authorized to carry the 3A symbol

Standard design

The CPM Constant-Pressure Modulating Valve is available in two versions: the CPMI-2, the CPMO-2. The CPMI-2 and the CPMO-2 consist of a valve body with valve seat, cover, valve plug with a special diaphragm, and clamp. The diaphragm consists of two flexible PTFE and EPDM diaphragms supported by 12 stainless steel sectors between them. The cover and the valve body are clamped together. The valve body and the seat are welded together.

Working principle

The Alfa Laval CPM Constant-Pressure Modulating Valve is controlled from a remote location by means of compressed air. A diaphragm or valve plug system reacts immediately to any alteration of product pressure and adjusts its position accordingly to maintain a constant inlet and outlet pressure at pre-set values.

Certificates

CPMI-2 and CPMO-2 are authorized to carry the 3A Symbol

TECHNICAL DATA

Pressure	
Max. product pressure:	145 PSI
Min. product pressure:	0 PSI
Air pressure (CPMI-2/CPMO-2):	0 to 116 PSI

Temperature range:	
With upper diaphragm NBR and lower PTFE/EPDM:	14 °F to 203 °F
With upper diaphragm PTFE/EPDM and lower PTFE/EPDM:	14 °F to 284 °F

ATEX	
Classification:	II 3 G D [1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.

Flow	
Flow Kv 23, fully open (Δp = 14.5 PSI):	Approx 812 gpm
Flow Kv 7 (Δp = 14.5 PSI):	Approx 247 gpm
Flow Kv 9 (Δp = 14.5 PSI):	Approx 317.8 gpm
Flow Kv2/15, low capacity (Δp = 14.5 PSI):	Approx 70.6 gpm
(Alternative size):	(regulating area). Approx. 529.7 gpm. (CIP area)

PHYSICAL DATA

Materials	
Product wetted steel parts:	Acid-resistant steel AISI 316 L
Other steel parts:	Stainless steel AISI 304
Lower diaphragm:	PTFE covered EPDM rubber
Upper diaphragm:	NBR
Finish	32 RA

Surface finish choose from the following:	
Standard Internal/external semi-bright:	Ra≤ 62 µin
Optional Inside/outside:	Ra≤ 32 µin or 20 µin

Air Connections	
R 1/4" (BSP), internal thread:	

Options

- Male parts or clamp liners in accordance with required standard.
- Pressure gauge 0-87 PSI, 1.5-inch
- Pressure gauge 0-145 PSI, 1.5-inch
- Air pressure regulating valve kit, 0-116 PSI (D)
- Air throttling valve for adjustment of regulating speed for the CPM-2 valve
- Booster for product pressure exceeding the available air pressure (Product pressure = 1.8 x air pressure)
- 3A (hygienic Standard) labelling on request for CPM-2 valves

Material grades CPM-2

- Upper diaphragm of PTFE covered EPDM and O-ring of Fluorinated rubber (FPM) covered EPDM rubber (for temperature 203 - 284 °F)
- Both diaphragms of solid PTFE and O-ring of Fluorinated rubber (FPM) (for temperatures above 284 °F)

Principle

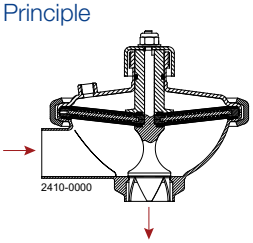


Figure 1. CPMI-2: Reduced product pressure

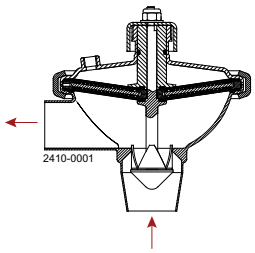


Figure 2. CPMO-2

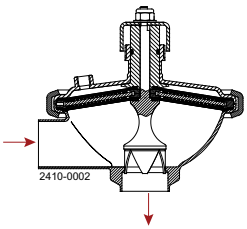


Figure 3. CPMI-2: Increased product pressure

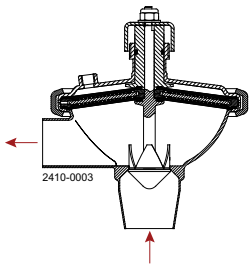


Figure 4. CPMO-2

CPMI-2 opens at increasing product pressure and vice versa.

CPMO-2 closes at increasing product pressure and vice versa.

Diaphragm Unit

CPMI-2 and CPMO-2: The diaphragm unit consists of a stainless steel disc which is divided into sectors and of flexible diaphragms which are placed on each side of the sectors.

Note!
For further details, see also instructions ESE01825 and ESE01834.

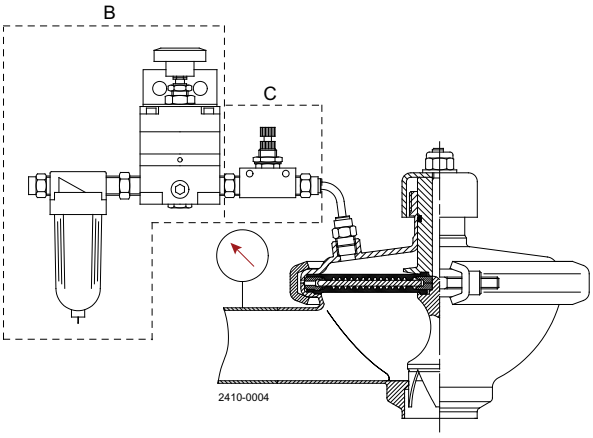


Figure 5. CPMI-2 with pressure regulating valve and pressure gauge

The valves operate without a transmitter in the product line and require only a pressure regulating valve for the compressed air and a pressure gauge in the product line.

Pressure drop/capacity diagrams

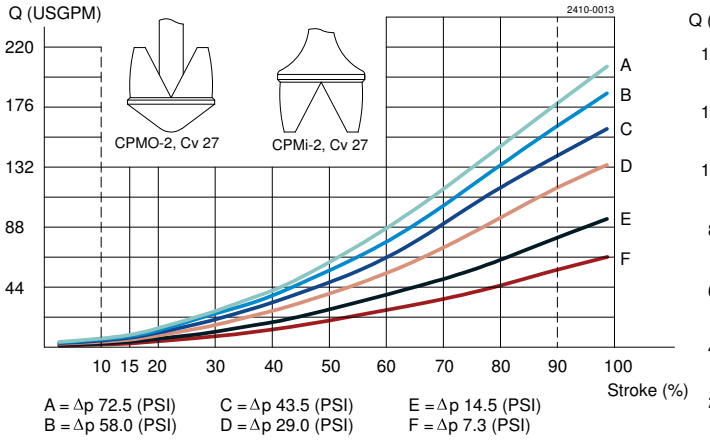


Figure 6. CPM-2, Cv 27

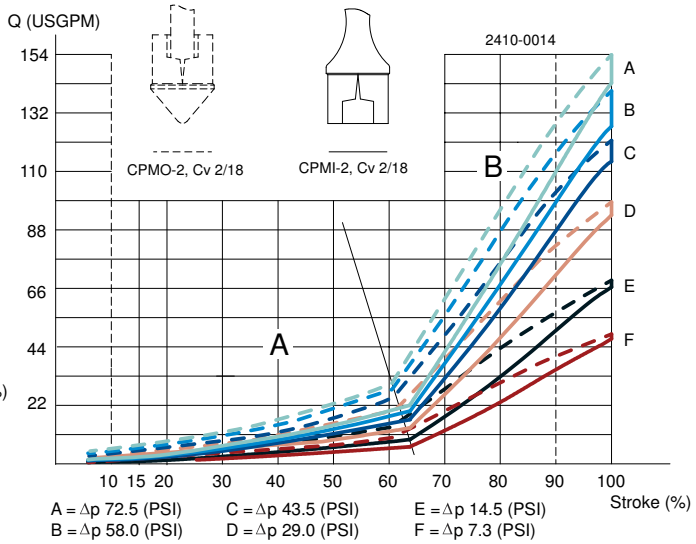


Figure 7. CPM-2, Cv 2/18

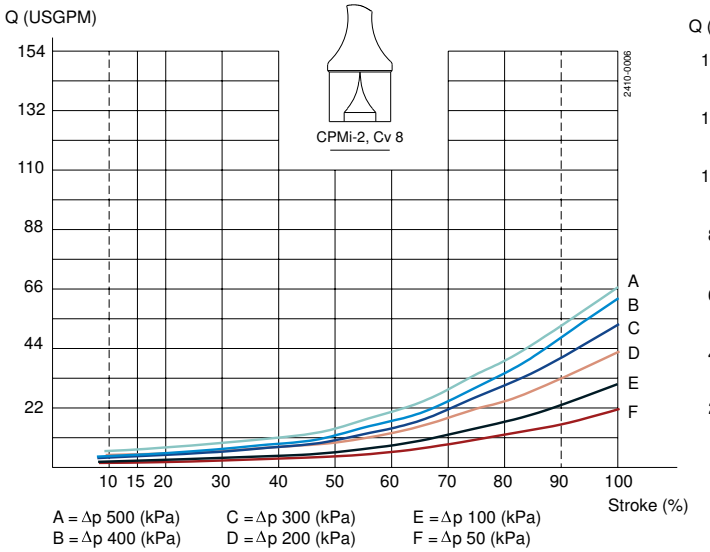


Figure 8. CPMI-2, Cv 8

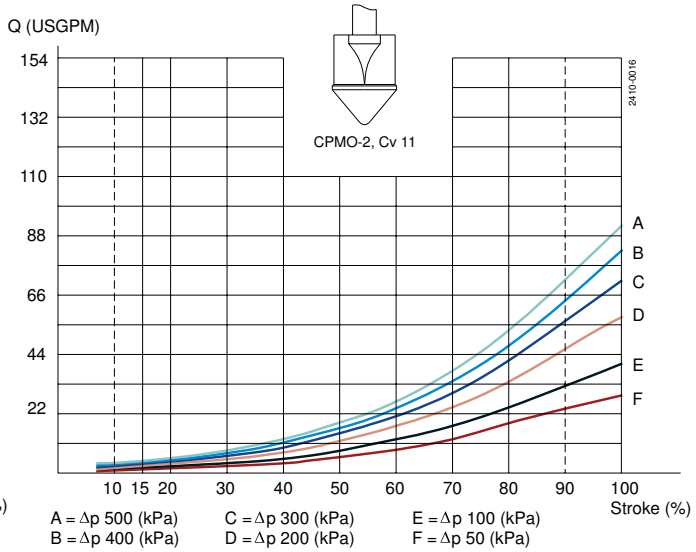


Figure 9. CPMO-2, Cv 11

Note!
For all diagrams the following applies:
Medium: Water (68° F)
Measurement: In accordance with DI 2173
Alfa Laval recommend max. flow velocity in tubing and valves to be 5 m/sec.

Example 1:

Pressure drop Δp = 29 PSI

Flow Q = 35.2 GPM Select: CPM-2

Cv 27 which at working point will be 48% open.

Example 2:

CPMI-2: Pressure drop Δp = 43.5 PSI

Flow Q = 35.2 GPM Select: CPM-2

Select: CPMI-2, Cv 2/18 which at working point will be approx. 35% open equal to about 50% of the regulating area.

Example of using the diagram:

1. Pressure drop Δp = 36 PSI

2. Flow =220 GPM

The intersection is on the 50% curve.

Note!
Always try to get as near as possible to the 50% open curve.

Dimensions (inch)

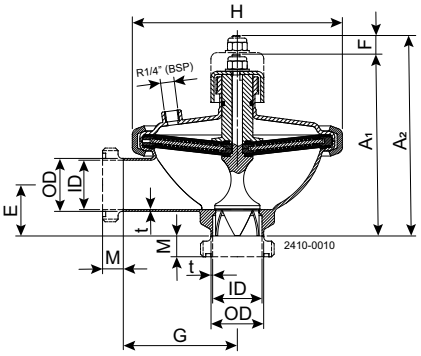


Figure 10. CPMI-2

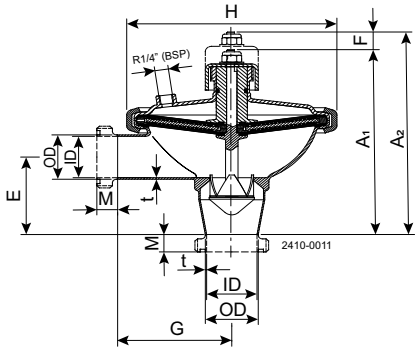


Figure 11. CPMO-2

Size	CPMI-2			CPMO-2		
	Cv 27	Cv 8	Cv 2/18	Cv 27	Cv 11	Cv 2/18
A1	6.89	6.89	6.89	8.31	6.89	6.89
A2	7.61	7.61	7.61	9.03	9.03	7.61
C	-	-	-	-	-	-
OD	2	2	2	2	2	2
ID	1.97	1.97	1.97	1.97	1.97	1.97
t	0.06	0.06	0.06	0.06	0.06	0.06
E	1.97	1.97	1.97	3.51	1.97	1.97
F	0.72	0.72	0.72	0.72	0.72	0.72
G	4.33	4.33	4.33	4.33	4.33	4.33
H	7.99	7.99	7.99	7.99	7.99	7.99
Tri-Clamp®	0.5	0.5	0.5	0.5	0.5	0.5
Seat Diameter	1.65	1.22	1.22	1.65	1.22	1.22
Weight (lb.)	12.13	12.13	12.13	12.13	12.13	12.13

Alfa Laval SB Tank Pressure Regulator

Regulating valves

Introduction

The Alfa Laval SB Tank Pressure Regulator maintains the working pressure in the vapour space, or at the top, of a process tank during filling, processing and emptying. It generally connects directly to the gas pipe or Cleaning-in-Place (CIP) pipe that leads in to the tank top, or is incorporated into a flow panel. This ensures process safety and effectiveness as well as safeguards product integrity.

Application

This control valve typically regulates the pressure in tanks used in the dairy, food, beverage, brewery and many other industries. The valve easily integrates with an Alfa Laval SCANDI BREW® tank top system.

Benefits

- Reliable, constant tank pressure control
- Variable pressure setting
- Optimized cleaning
- Built-in pressure gauge
- Fully cleanable with Cleaning-in-Place system

Standard design

The pressure regulator comprises a single valve unit including pressure exhaust valve, pressure supply valve and connection for pressure gauge. On top is a vent port with outlet connection. A tank connection at the side branch is normally connected to the pipe leading to the tank top. It is also possible to incorporate the pressure regulator in a flow panel.

Working principle

The valve unit has a variable setting, which enables adjustment of the relieving pressure to match the required working pressure in the tank. When tank top pressure exceeds the preset pressure, the regulator releases gas through the vent port—either for atmospheric discharge or for collection. If the tank top pressure decreases, a gas supply connection at the bottom of the valve allows gas to flow into the tank.

TECHNICAL DATA

Nominal size	Pressurerange	Max. Filling/emptying speed	Working capacity of fermentation [1]
1"	3-58 PSI	110 GPM	3500 ft³
1½"	3-58 PSI	220 GPM	7000 ft³
2"	3-58 PSI	440 GPM	14000 ft³
3"	3-58 PSI	800 GPM	28000 ft³

[1] At max. fermentation rate 2.4 deg. Plato / 24 hrs.

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4307 (AISI 304L)
Product wetted seals:	EPDM

Connections
Connections
Union IDF acc. ISO 2853
Union SMS Swedish Standard Union
lamp ferrule acc. ISO 2852

Cleaning in place (CIP)

Cleaning of the Tank Pressure Regulator is necessary before the next batch. The Tank Pressure Regulator is incorporated in the tank CIP procedure by means of the CIP adaptor. Before cleaning, the CIP adaptor is mounted on the pressure regulator whereby gas supply valve and pressure relief valve are forced open and fully cleaned in bypass. During the CIP procedure, all functions are blocked. See schematic drawing of the regulator.

Options

Pos. 1: CIP bend

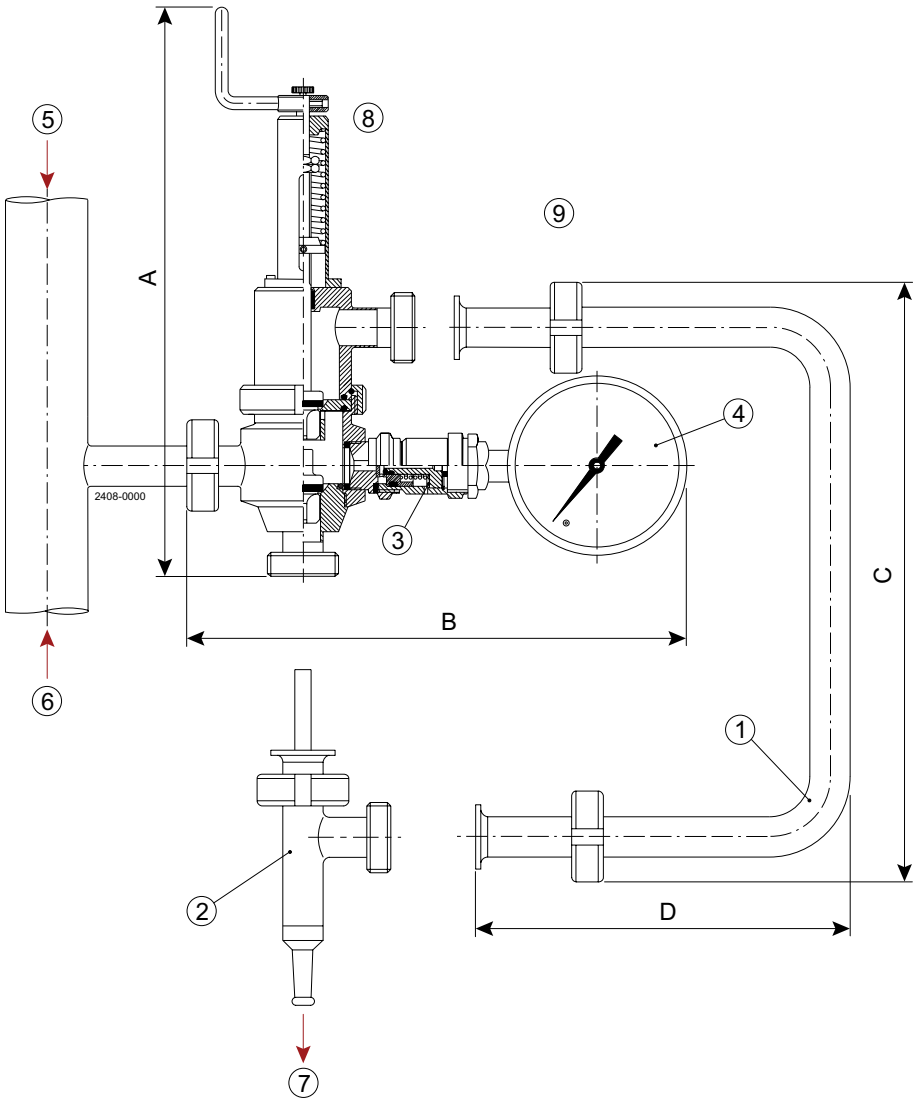
Pos. 2: CIP T-piece

Pos. 3: Protection valve for pressure gauge

Pos. 4: Pressure gauge

Mounting bracket

Dimensions (inch)



- 5 - CO_2
- 6 - CIP pipe to tank top
- 7 - CIP
- 8 - Variable pressure setting
- 9 - Pressure regulator with CIP adapter

Size	A	B
1.00	15.35	13.58
1.50	17.32	15.35
2.00	21.26	15.35
3.00	24.41	14.96

Size	Connection	C	D
1.00	DIN	12.00	8.46
1.57	DIN	13.98	8.66
1.97	DIN	17.13	9.06
3.15	DIN	19.68	9.06
1.00	SMS	11.42	8.07
1.50	SMS	13.98	8.27
2.00	SMS	16.73	8.46
3.00	SMS	18.90	8.46
1.00	Clamp	13.58	8.66
1.50	Clamp	15.16	8.86
2.00	Clamp	18.11	9.06

Size	Connection	C	D
3.00	Clamp	19.68	9.06
1.00	IDF	11.81	8.27
1.50	IDF	13.98	8.46
2.00	IDF	16.93	8.66
3.00	IDF	18.70	8.66

Alfa Laval SB Pressure Exhaust Valve

Regulating valves

Introduction

The Alfa Laval SB Pressure Exhaust Valve is a pneumatic regulating valve that automatically releases pressure in a hygienic process tank when it exceeds the set pressure. To ensure safe pressure regulations at all times, the set pressure can easily be adjusted manually or from a remote location that is connected to the central control system.

Application

This pneumatic regulating valve is designed for use in process tanks or vessels for hygienic applications in the brewery, food, dairy, beverage and many other industries.

Benefits

- Reliable control of tank top pressure
- Easy to integrate with SCANDI BREW® safety valves and top plates
- Fully cleanable with Cleaning-in-Place system
- Easy to integrate into existing installations
- Low investment due to simplified installation

Standard design

The Alfa Laval SB Pressure Exhaust Valve consists of an AISI 316L stainless steel body, EPDM seals, and fittings for 0.16”/ 0.24” nylon air hoses for set pressure and force opening. A cleaning nozzle and closing plug for the Cleaning-in-Place (CIP) inlet are also supplied. An optional pneumatic cleaning nozzle is available to replace the closing plug.

The valve can be mounted directly on top of the tank or vessel, as part of a SCANDI BREW® tank top system, or elsewhere along the pipework as long as there is proper drainage from the valve housing.

Working principle

The Alfa Laval SB Pressure Exhaust Valve is operated by means of the set pressure being applied to the top of a membrane set. The pressure regulation will be identical to the set point pressure. The set pressure is either reduced to the required pressure by means of a manual precision regulator or an IP converter controlled by a programmable logic controller (PLC). When the tank pressure exceeds the set pressure, the valve will open and release pressure through the valve side branch for atmospheric discharge or collection. To ensure correct working conditions, there should be no pressure buildup after the vent port.

Air pressure exerted on the lower portion of the membrane set forces the SB Pressure Exhaust Valve open. The valve is now fully cleanable either by an optional CIP supply valve, supplying CIP to the cleaning nozzle on the valve housing, or cleaning along with rest of the installation with a separate CIP line.

TECHNICAL DATA

Size (diameter)	Size (diameter)
1.5”	14.5-58 PSI
2”	7.25-58 PSI

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L)
Product wetted seals:	EPDM
Product wetted polymers:	Polypropelen

Connection

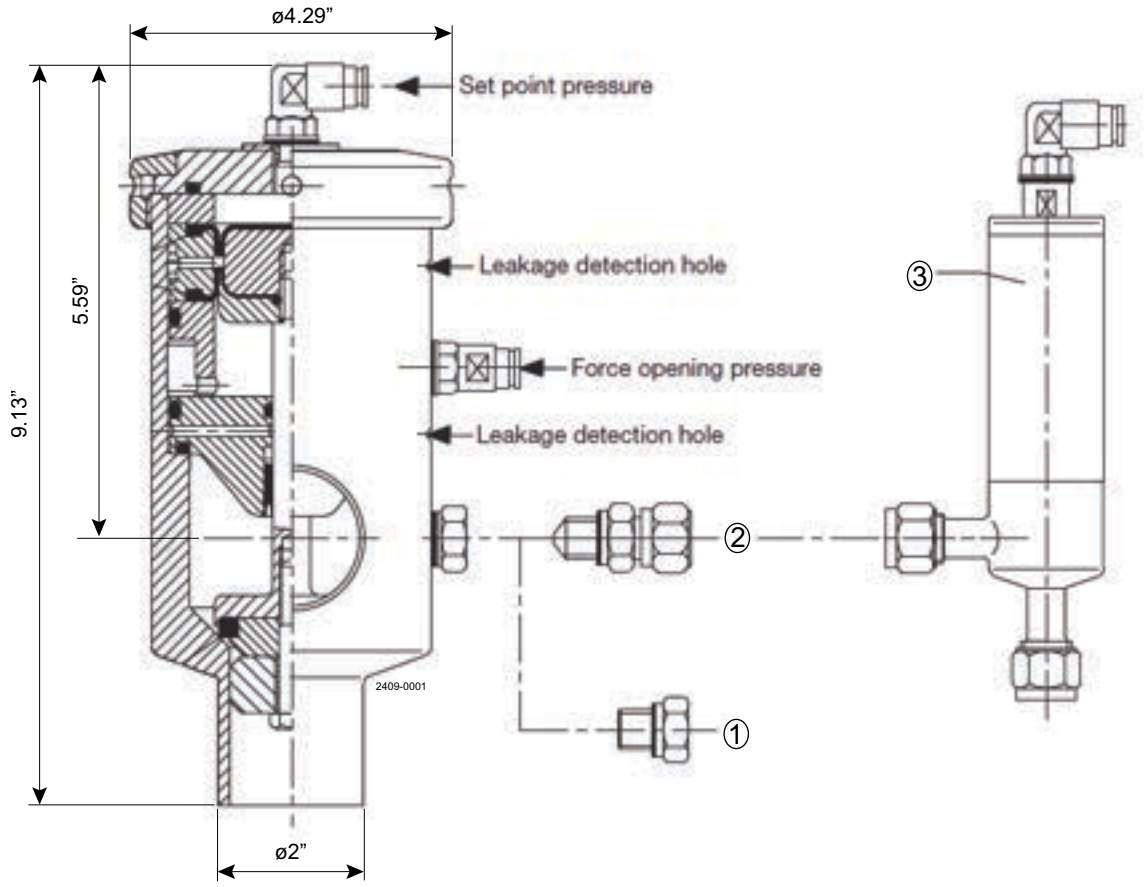
Weld End acc. ISO 2037

Unions DIN 11851

Cleaning In Place (CIP)

After force-opening of the Pressure Exhaust Valve by an air signal to the lower part of the membrane set, the valve is fully cleanable either by means of an optional CIP supply valve to the cleaning nozzle on the valve housing or simultaneously in line with cleaning of vent/recovery mains.

Dimensions (inch)



Pos. 1: Cleaning nozzle

Pos. 2: Closing plug

Pos. 3: Pneumatic CIP supply valve

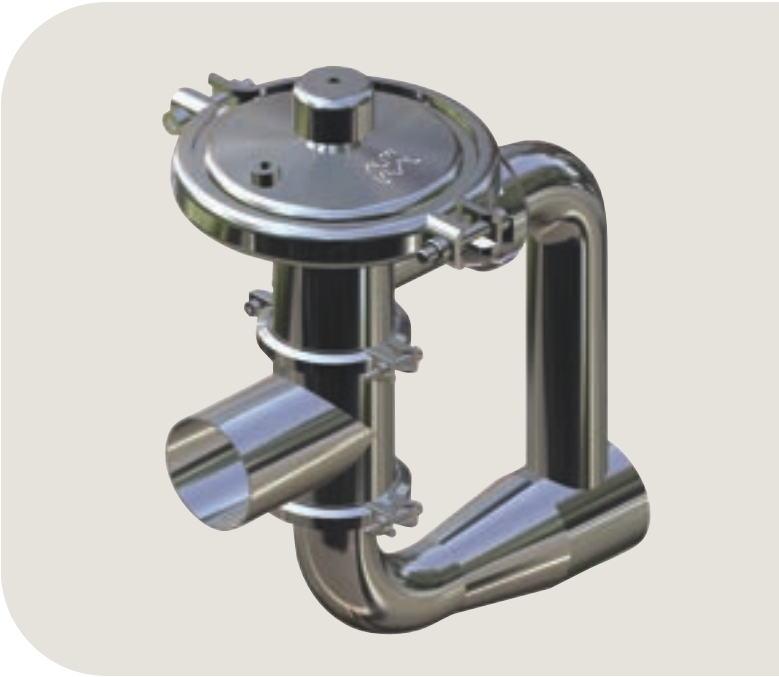
Pos. 1 and 2 included in valve

Alfa Laval CPM-I-D60

Regulating valves

Introduction

The Alfa Laval CPM-I-D60 Constant Pressure Modulating Valve is a pneumatic regulating valve that maintains constant pressure in hygienic process lines and stainless steel pipe systems at the inlet side of the valve. Safe, reliable and easy to clean, this regulating valve provides accurate pressure control, quickly adjusting position to maintain the pressure at pre-set values without any need for electronic control.



Application

This pneumatic regulating valve maintains uniform inlet pressure in hygienic process lines across the dairy, food, beverage, personal care and many other industries. The valve is often installed downstream of separators and heat exchangers and may also be used as an overflow valve.

Benefits

- Safe, accurate pressure control
- Self-draining design
- Excellent valve cleanability
- Easy to install and operate High hygienic level

Standard design

The valve consists of upper and lower valve bodies, an inlet tube, a cover, a valve plug with diaphragm unit and clamps. The diaphragm unit consists of a stainless steel disc, which is divided into sectors, and flexible diaphragms, which are placed on each side of the sectors. The cover and the valve bodies are clamped together.

Working principle

The Alfa Laval CPM-I-D60 is controlled remotely by means of compressed air. The valve operates without a transmitter in the product line and requires only a self-relieving precision air regulator with gauge for the compressed air and a pressure gauge in the product line. A diaphragm/valve plug system reacts immediately to any alteration of the product pressure and changes position to maintain the pre-set pressure. The CPM-I-D60 opens when the product pressure increases and closes when the product pressure decreases.

TECHNICAL DATA

Temperature	
Temperature range:	14° F to 203° F
Temperature range with upper diaphragm in PTFE/EPDM:	14° F to 286° F

Pressure	
Max. product pressure:	145 PSI
Min. product pressure:	0 PSI
Air pressure:	0 to 87 PSI
Flow Kv 60, fully open (Dp = 14.5 psi):	Approx 264 gpm

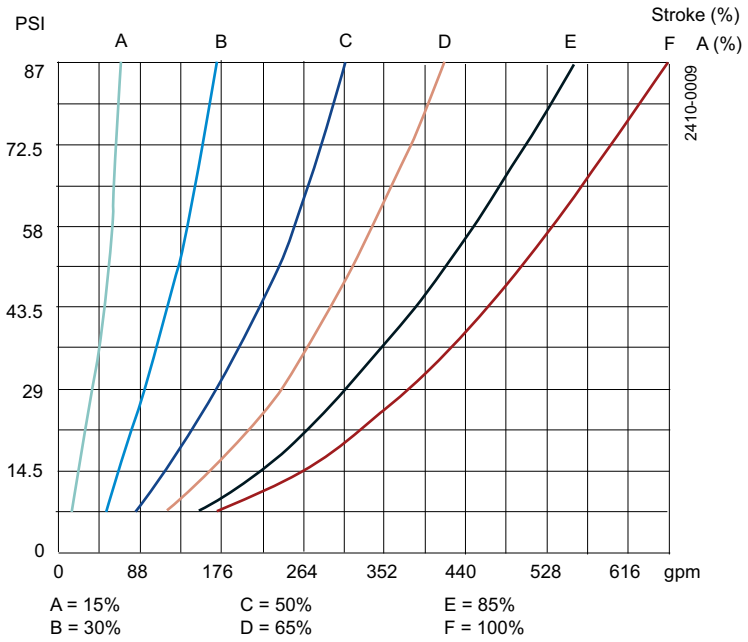
PHYSICAL DATA

Materials	
Product wetted steel parts:	Acid-resistant steel AISI 316 L
Other steel parts:	Stainless steel AISI 304
Lower diaphragm:	PTFE covered EPDM rubber
Upper diaphragm:	NBR
O-ring:	Nitrile (NBR)
Seal rings:	EPDM (standard)
Finish:	≤ 32 RA

Air Connections

R 1/4" (BSP), internal thread.

Pressure drop/capacity diagram



Note!
For the diagram the following applies: Medium: Water (68° F) Measurement: In accordance with VDI 2173

Example of using the diagram:

1. Pressure drop Δp = 36 PSI
2. Flow = 220 GPM

The intersection is on the 50% curve

Note!
Always try to get as near as possible to the 50% open curve. If the CPM-I-D60 is too big, select from the CPMI-2 curves.

Options

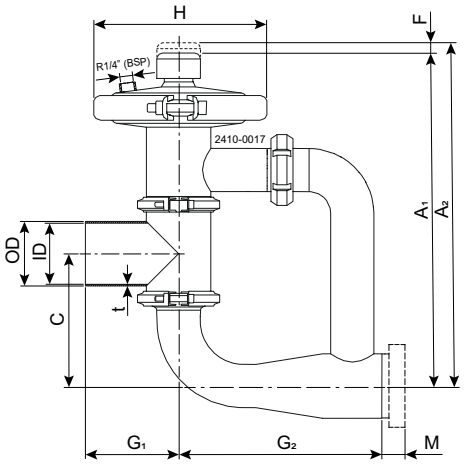
Equipment

- Male parts or clamp liners in accordance with required standard
- Pressure gauge 0-87 PSI, 1.5-inch
- Pressure gauge 0-145 PSI, 1.5-inch
- Pressure gauge 0-145 PSI, 2-inch
- Air pressure regulating valve kit, 0-116 PSI
- Booster for product pressure exceeding the available air pressure. (Product pressure = 1.8 x air pressure)

Material Grades

- Upper diaphragm of PTFE covered EPDM rubber (for temperatures 194° F - 284° F)
- Valve body seal rings of Nitrile (NBR) or Fluorinated rubber (FPM)
- Guide O-ring of Fluorinated rubber (FPM), (for temperatures above 203° F)

Dimensions (inch)



Size	3-inch
A1	16.27
A2	16.93
C	6.10
OD	3.00
ID	2.83
t	0.079
F	0.66
G1	4.33
G2	9.45
H	0.83
Weight (lbs.)	22.00

Ordering

Please state the following when ordering:

- Valve type CPM-I-D60
- Diaphragm type if not standard
- Connections if not welding ends
- Pressure gauge size if required
- Air pressure regulating valve kit, if required
- Other options

Alfa Laval Manual Pressure Control Valve

Regulating valves

Introduction

The Alfa Laval Manual Pressure Control Valve is a hygienic regulating valve that provides manual control of pressure and flow of the retentate in crossflow membrane filtration plants. Versatile and modular, the valve can be customized to match exact process requirements.

Application

This pressure control valve is ideal for manual regulation of pressure and flow of the retentate in crossflow membrane filtration plants used in hygienic applications such as the dairy, food, beverage, brewery, personal care and many other industries.

Benefits

- Hygienic regulating valve
- Straightforward, easy-to-use design
- Reliable and safe operation
- Large operating area, very low to high Kv values

Standard design

The Alfa Laval Manual Pressure Control Valve consists of valve body, a valve guide and a valve stem. All materials comply with FDA regulations, and all product wetted parts are made of AISI 316L stainless steel. Please specify flow and pressure drop when placing your order.

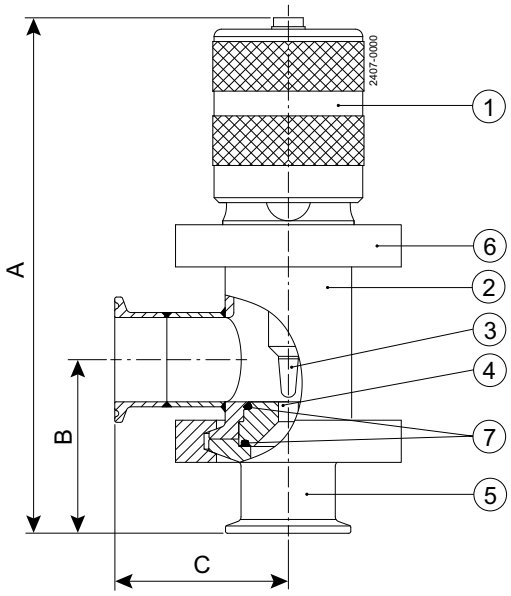
TECHNICAL DATA

Max. flow rate:	88.06 gpm
Max. working pressure:	928 psi (6.4 MPa)
Kv:	0.02-20
Turn down:	10

PHYSICAL DATA

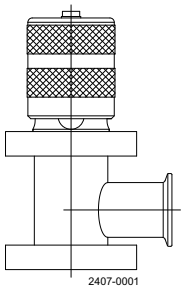
Inlet:	1½" clamp ISO 2852 or 2" clamp ISO 2852
Outlet:	1½" clamp ISO 2852
Weight:	8 lbs

Dimensions (inch)



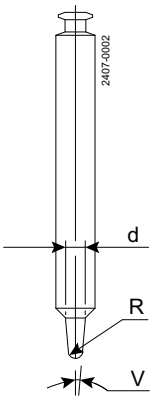
1. Control part
2. Valve housing
3. Spindle
4. Seat
5. Bottom piece
6. 51 mm clamp assembly
7. O-ring

A	B	C
9.06	2.76	2.76

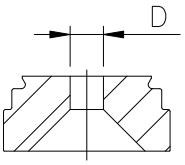


Control part

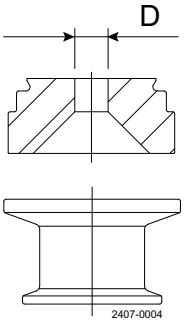
Code no. 103263



Spindle
Code no. 103268
d = ø0.31 inch
V = 5°
R = 0.12 inch
Code no. 103266
d = øinch
V = ° (angel)
R = inch



Seat
Code no. 103269
D = ø0.31 inch
Code no. 103267
D= mm



Bottom piece
1½" - Code no. 103264
2" - Code no. 103265
Bottom piece with incorporated counter valve
1½" - Code no. 103274
2" - Code no. 103275

Order example
Manually controlled valve with ø2" inlet.
Code numbers 103263, 103266, 103267, 103265. When ordering, please specify d, D, V and R.

Alfa Laval Pneumatic Pressure Control Valve for Membrane Filtration Systems

Regulating valves

Introduction

The Alfa Laval Pneumatic Pressure Control Valve for Membrane Filtration Systems is a hygienic regulating valve that provides control of the pressure and flow of the retentate in cross-flow membrane filtration plants. Versatile and modular, the valve can be customized to match exact process requirements.

Application

This pneumatic pressure control valve is ideal for automatic regulation of pressure and flow of the retentate in cross-flow membrane filtration plants used in hygienic applications such as dairy, food, beverage, brewery, personal care and many other industries.

Benefits

- Hygienic regulating valve
- Straightforward, easy-to-use design
- Reliable, safe, automated operation
- Large operating area, very low to high Kv values

Standard design

The Alfa Laval Pneumatic Pressure Control Valve for Membrane Filtration Systems consists of a valve body, valve guide, valve stem and actuator. All materials comply with FDA regulations, and all product wetted parts are made of AISI 316L stainless steel. Please specify flow and pressure drop when placing your order.

TECHNICAL DATA

Operation	
Max. flow rate:	88 gpm
Max. working pressure:	928.2 psi
Pneumatic pilot pressure:	3-11 psi
Kv:	0.02-20
Turn down:	10

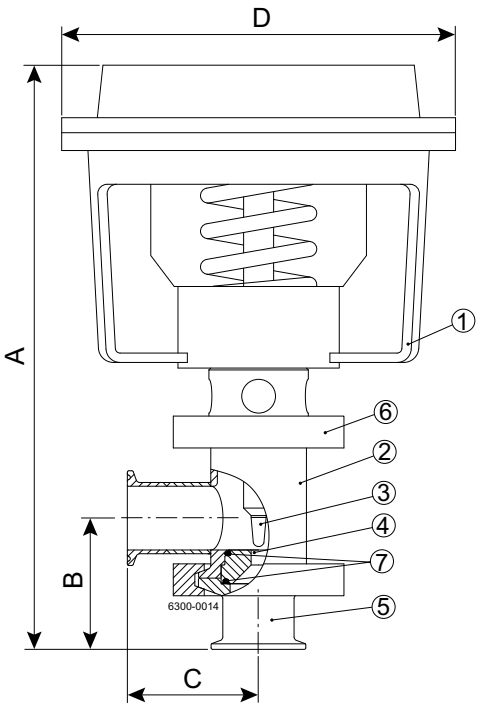
PHYSICAL DATA

Connections	
Inlet:	1½" clamp ISO 2852 or 2" clamp ISO 2852
Outlet:	1½" clamp ISO 2852
Weight:	11.4 lbs

Options

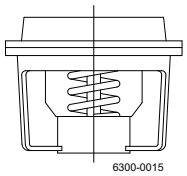
- Reverse acting actuator
- Built-in electropneumatic positioner
- Samson actuator

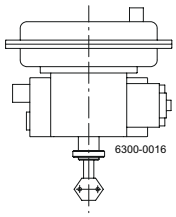
Dimensions (inch)



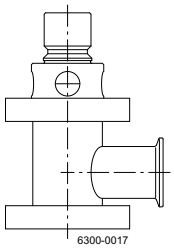
1. Actuator
2. Valve housing
3. Spindle
4. Seat
5. Bottom piece
6. 51 mmclamp assembly
7. O-ring

A	B	C	D
12.20	2.76	2.76	8.66

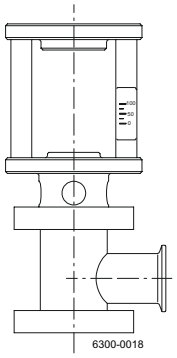




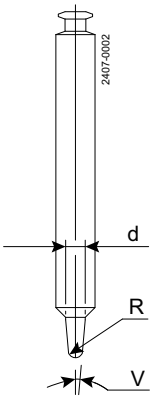
Actuator
8" Honeywell direct actuator
3 psi (0.21 bar) = open valve
Code no. 103278
7" Honeywell reversed actuator
3 psi (0.21 bar) = closed valve
Code no. 103277 (option)
Samson actuator*
*Please contact Alfa Laval for calculation of type of Samson actuator



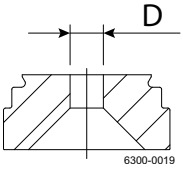
Valve housing
Regulation valve housing for Honeywell
Code no. 103270



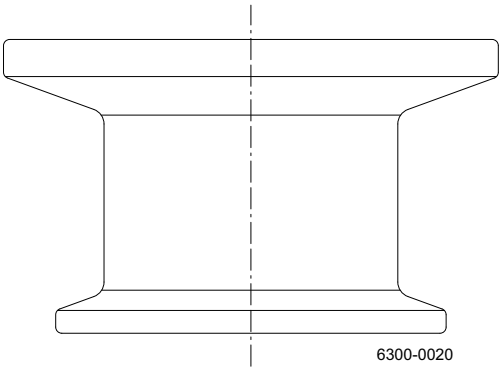
Regulation valve housing for Samson
Code no. 526051



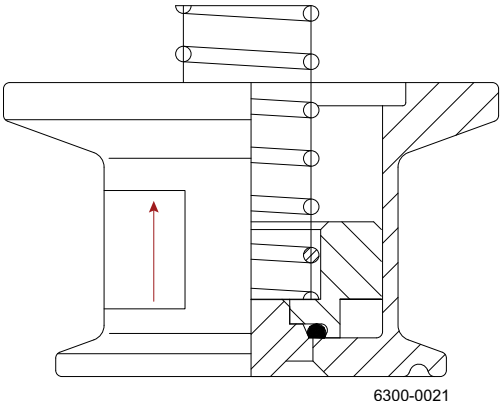
Spindle
Spindle for Honeywell 8"
Code no. 103271
Spindle for Honeywell 7"
Code no. 502057
Spindle for Samson
Code no. 519744
d = mm
V = ° (angle)
R = mm



Seat
Code no. 103267
D = mm



Bottom piece
1.5”
Code no. 103264
2”
Code no. 103265



Bottom piece with incorporated counter valve
1.5”
Code no. 103274
2”
Code no. 103275

Order example Pneumatically controlled valve, direct acting, with ø2” inlet.

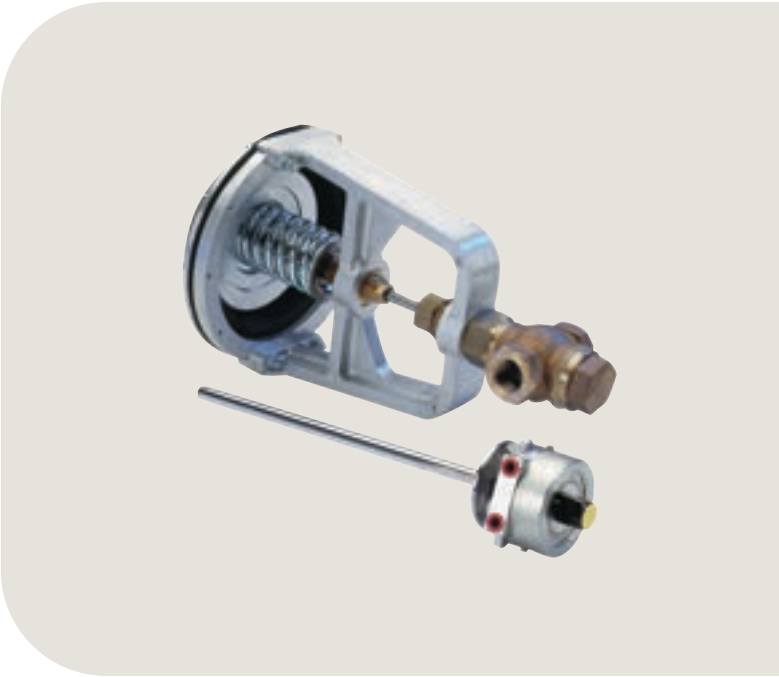
Code numbers 103278, 103270, 103271, 103267, 103265. When ordering, please specify d, D, V and R.

Alfa Laval Thermostatically Controlled Valve

Regulating valves

Introduction

The Alfa Laval Thermostatically Controlled Valve is a hygienic regulating valve to control the temperature in cross-flow membrane filtration plants. The thermostat is preset to control either cooling or heating. When cooling, cooling medium is either water or other coolants. When heating, the heating medium is either hot water or steam. Quick signal conversion makes it easy to adjust the temperature instantly.



Application

This temperature control valve is ideal for automatic regulation temperature of the retentate in cross-flow membrane filtration plants used in hygienic applications such as the dairy, food, beverage, brewery, personal care and many other industries.

Benefits

- Hygienic regulating valve
- Straightforward, easy-to-use design
- Reliable and safe operation

Standard design

The Alfa Laval Thermostatically Controlled Valve is a normally closed diaphragm valve that consists of a valve body, a valve guide, a valve stem and an actuator. The thermostat includes an AISI 316L stainless steel sensor, which is available with a 3", 2" or 1" ISO 2852 clamp.

Working principle

The Alfa Laval Thermostatically Controlled Valve is operated by means of an output air signal that controls the valve actuator. If the set temperature differs from the actual operating temperature (measured at the sensor), the screw in the dial button should be loosened, the button set point at the measured temperature, and then the screw should be tightened again.

The working rate of the thermostat can be changed by loosening the inlet throttle screw (max. 1/6 revolution). This will result in faster activation of the membrane valve and reduce any movement. The thermostat can be adjusted instantly, switching from direct-acting mode to reverse-acting mode by exchanging the spring and the adjustment screw on the rocker arm (see drawing).

Selections

Item	Code no.	Air supply	Signal pressure	Dial range	Weight - lbs
Regulation Valve	106160				11
Thermostat [1]	106161 [2]	Max. 22 psi, (0.15 MPa) clean, dry air	Max. 3-15 psi, (0.02-0.1 MPa)	14-194°F	2.2
	106162 [2]	Max. 22 psi, (0.15 MPa) clean, dry air	Max. 3-15 psi, (0.02-0.1 MPa)	14-194°F	1.7
	106163 [2]	Max. 22 psi, (0.15 MPa) clean, dry air	Max. 3-15 psi, (0.02-0.1 MPa)	14-194°F	1.5

[1] When ordering please specify: Clamp size and Cooling or heating

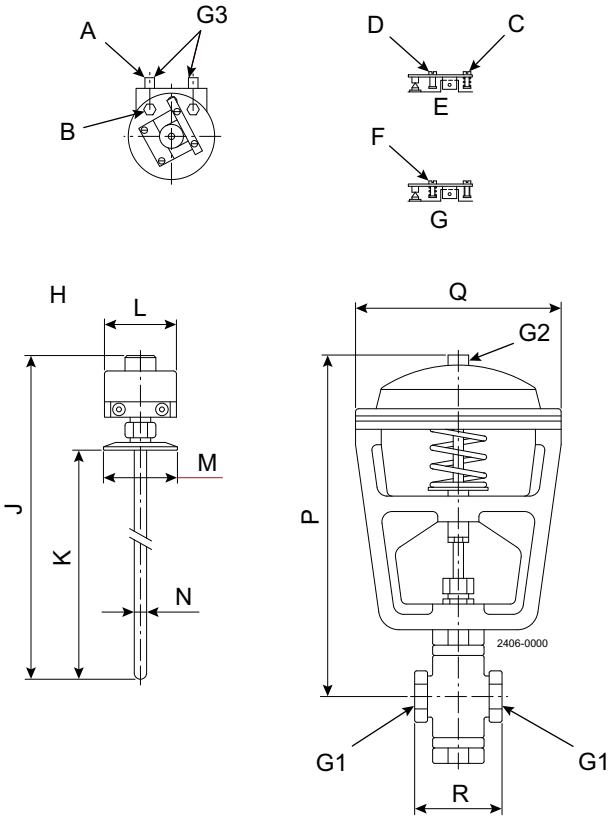
[2] + order type 105 for cooling (increasing signal pressure at increasing temperature) + order type 106 for heating (increasing signal pressure at decreasing temperature)

Item	Code no.	Connection - G1	Connection - G2	Connection - G3	Connection - DN
Regulation Valve	106160	Cooling/heating medium: ¾" BSP female	Signal pressure: ⅛" BSP female		
Thermostat [1]	106161 [2]			Air supply and signal pressure: ⅛" BSP female	Clamp, 76 mm (3" ISO 2852)
	106162 [2]			Air supply and signal pressure: ⅛" BSP female	Clamp, 51 mm (2" ISO 2852)
	106163 [2]			Air supply and signal pressure: ⅛" BSP female	Clamp, 38 mm (1½" ISO 2852)

[1] When ordering please specify: Clamp size and Cooling or heating

[2] + order type 105 for cooling (increasing signal pressure at increasing temperature) + order type 106 for heating (increasing signal pressure at decreasing temperature)

Dimensions (inch)



A= Supply

B= Inlet - throttle screw

C= Spring

D= Adjustment screw

E= Direct acting

F= Spring

G= Reverse acting

H= Type 105/106

L	M	N	K	J	P	Q	R
2.76	DN	0.47	10.83	14.17	12.99	7.87	3.45

Interruption of operation

Impurities in the compressed air may cause choking of the filter and throttle. Normally, such impurities can be blown away by opening the inlet throttle screw, which forces large amounts of air through the filter and throttle. The position of the throttle screw should be noted so that it can be set to its original position after such a procedure.

Alfa Laval Unique RV-ST

Product description

MODEL NUMBER All PORTS TRI - CLAMP

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
7710 -	200 -	S -	M -	2	H20	1	S	S	S	C	Y	S	NNN

COMBINATION PORTS WELD AND TRI-CLAMP

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
7710 -	200 -	S -	S W M M N N N N	2	H20	1	S	S	S	C	Y	S	NNN

8710 Kv values	Stem Code
1.5"	21	V
2"	40	X
2.5"	90	Y
3"	90	Y
4"	130	Z

⑪ 7710 / 7711 STEM TYPE / Regulating Kv

Size	1	2	3	4	5	6	7	R	U	W	A	H	I	B	G	K	L	C	J	D	M	N	E	O	P	F
1" NEEDLE	1	1.5	1.9	2.5	2.9																					
1" STD.						6.6	13																			
1.5"								4	6	10	14	16	25	44												
2"															9	34	52	75								
2.5"																			27	106						
3"																					59	100	171			
4"																								125	164	250

① MODEL
7710 - UNIQUE RV-ST
W/ or W/O MOORE POS.
7711 - UNIQUE RV-ST W/ BURKERT POS.
8710 - MANUAL ASEPTIC REGULATING VALVE

② BODY STYLE
200 - SHUT-OFF (2 PORT)
300 - SHUT-OFF (3 PORT)

③ BUILD
S - ASSEMBLED VALVE with WINGNUT
H - ASSEMBLED VALVE with HEXNUT
C- 700 SERIES BUILD DIMENSION
CENTER TO FACE with WINGNUT

⑤ SURFACE FINISH
1-3A 32RA ID DUST BLAST OD
2-3A BRIGHT 32RA ID BRIGHT OD
3-PC 20 RA ID DUST BLAST OD
4-PL 20 RA ID BRIGHT OD
5-PP 15 RA ID BRIGHT OD
6-PM 15 RA W/ EP ID BRIGHT OD

⑩ HOLDING PRESSURE
S-STANDARD
H-HIGH PRESSURE

⑨ ACTUATOR TYPE
R - MAINTAINABLE
S - SEMI -MAINTAINABLE

⑭ TOP UNIT TYPE
NNN-PLACE HOLDER ONLY

⑫ ELASTOMERS
E-EPDM
U-HNBR
Y-FPM

7710	200	S	S	W	M	M	N	N	N	N	2	H40	1	S	S	S	A	E	S	NNN
				A	B	C	D	E	F	G										

④ CONNECTIONS
(SINGLE LETTER FOR IDENTICAL PORTS)
W- WELD
M-TRI-CLAMP

"S" FOR MIXED PORTS
THEN LETTER EACH PORT
W- WELD END
C-UNION DIN
M-TRI-CLAMP
D-DIN
I-ISO
S-UNION SMS
N-NO PORT

B C A

⑥ SIZE
H10 - 1"
H15 - 1.5"
H20 - 2"
H25 - 2.5"
H30 - 3"
H40 - 4"

⑦ ACTUATION MODE
1 - NORM OPEN/SPRING TO OPEN
2 - NORM CLOSED/SPRING TO CLOSE
3 - NORM CLOSED - NO POSITIONER
4 - NORM OPEN - NO POSITIONER
5 - MANUAL

⑧ ACTUATOR STROKE
S = STANDARD

⑬ BUILD TYPE

7710 BUILD SELECTION
S - STANDARD

7711 ELECTRO-PNUEMATIC POSITIONER SELECTION
4 - 8694 M12 Multi-pole Analog Feedback
2 - 8692 M12 Multi-pole Analog Feedback
3 - 8694 M12-5 Pin I/O Link
7 - 8694 M12 Multi-pole/VAMPIRE pigtail ASI 62 NODE (ver. 3)

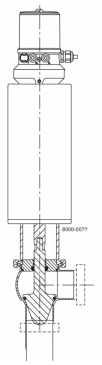
8 - 8692 M12 Multi-pole Ethernet IP **
9 - 8692 M12 Multi-pole EDIP (CANbus)**
** = Cables provided be others

RV-ST without display

ALSIS Code: 5913

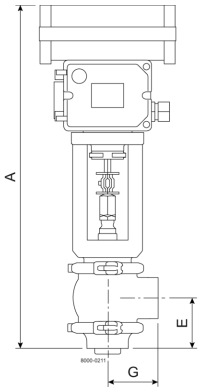
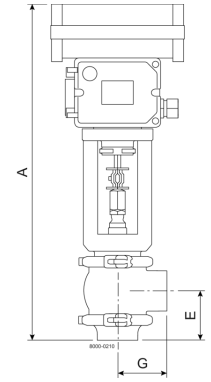
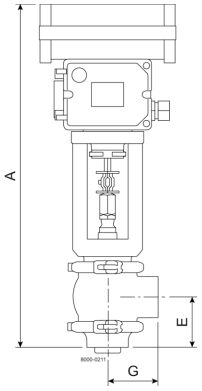
Material: 1.4404 (316L)
Connection Type: ISO Welding ends
Seals: EPDM
Inside surface finish: Ra 32 µin
Outside surface finish: 3A Bright
Actuation: Pneumatic NC

Item no.	Kv	Plug type	in	
				Valve complete with positioner 8694 without display
9634089401	1.0	1	1.0"	
9634089402	1.5	2	1.0"	
9634089404	2.5	4	1.0"	
9613334685	9.0	G	2.0"	
9613345457	13.0	7	1.0"	
9613334686	14.0	A	1.5"	
9613334939	16.0	H	1.5"	
9613335077	25.0	I	1.5"	
9613334684	27.0	J	2.5"	
9613334757	34.0	K	2.0"	
9613335078	44.0	B	1.5"	
9613334682	52.0	L	2.0"	
9613335020	59.0	M	3.0"	
9613334700	100.0	N	3.0"	
9613335306	106.0	D	2.5"	
9613350450	125.0	O	4.0"	
9613339978	164.0	P	4.0"	
9613335729	171.0	E	3.0"	
9613335227	250.0	F	4.0"	



Valve Model Specification: Standard valve
ALSIS Code: 5370

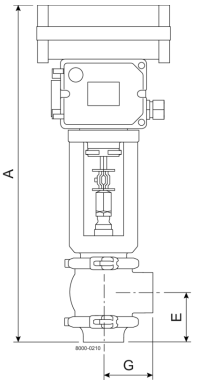
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC and NO

Item no.	Size	Plug type		Dimension (inch)			Dimension (mm)	
	inch	DN	GMP	(m3/h)	A	E	G	
								DIN tube, normally closed
9615223214	1.5"	40.0	E	18.0	16.20	2.20	1.90	
9615223216	1.5"	40.0	E	70.0	16.20	2.20	1.90	
9615223215	1.5"	40.0	E	35.0	16.20	2.20	1.90	
9615223211	1.5"	40.0	E	2.0	16.20	2.20	1.90	
9615223212	1.5"	40.0	E	4.0	16.20	2.20	1.90	
9615223213	1.5"	40.0	E	9.0	16.20	2.20	1.90	
9615223217	2.0"	50.0	E	141.0	16.70	2.50	2.40	
8010001809	2.0"	50.0	E	176.0	16.70	2.50	2.40	
9615223218	2.5"	65.0	L	282.0	16.20	2.20	1.90	
8010001813	2.5"	65.0	L	110	16.20	2.20	1.90	
9615223219	3.0"	80.0	L	330.0	17.60	3.50	3.40	
9615223220	4.0"	100.0	L	484.0	18.30	3.90	4.70	
								DIN tube, normally open
9615223204	1.5"	40.0	E	18.0	16.20	2.20	1.90	
9615223205	1.5"	40.0	E	35.0	16.20	2.20	1.90	
9615223206	1.5"	40.0	E	70.0	16.20	2.20	1.90	
9615223201	1.5"	40.0	E	2.0	16.20	2.20	1.90	
9615223202	1.5"	40.0	E	4.0	16.20	2.20	1.90	
9615223203	1.5"	40.0	E	9.0	16.20	2.20	1.90	
9615223207	2.0"	50.0	E	141.0	16.70	2.50	2.40	
8010001810	2.0"	50.0	E	176.0	16.70	2.50	2.40	
9615223208	2.5"	65.0	L	282.0	16.20	2.20	1.90	
8010001814	2.5"	65.0	L	110	16.20	2.20	1.90	
9615223209	3.0"	80.0	L	330.0	17.60	3.50	3.40	
9615223210	4.0"	100.0	L	484.0	18.30	3.90	4.70	
								Inch tube, normally closed
9615223114	1.5"	40.0	E	18.0	16.10	2.20	1.90	
9615223113	1.5"	40.0	E	9.0	16.10	2.20	1.90	
9615223115	1.5"	40.0	E	35.0	16.10	2.20	1.90	
9615223116	1.5"	40.0	E	70.0	16.10	2.20	1.90	
9615223111	1.5"	40.0	E	2.0	16.10	2.20	1.90	
9615223112	1.5"	40.0	E	4.0	16.10	2.20	1.90	
9615223117	2.0"	50.0	E	141.0	16.70	2.50	2.40	
8010001806	2.0"	50.0	E	176.0	16.70	2.50	2.40	
9615223118	2.5"	65.0	L	282.0	15.90	2.60	3.20	
8010001811	2.5"	65.0	L	110	15.90	2.60	3.20	
9615223119	3.0"	80.0	L	330.0	17.30	3.30	3.40	
9615223120	4.0"	100.0	L	484.0	18.90	3.80	4.70	

For further information - please see PD-sheet.

Valve Model Specification: Standard valve
ALSIS Code: 5370

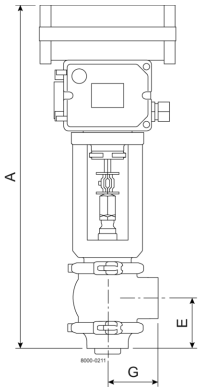
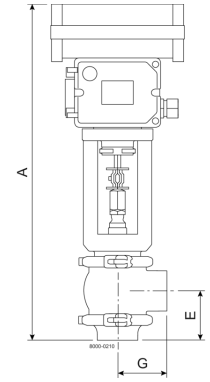
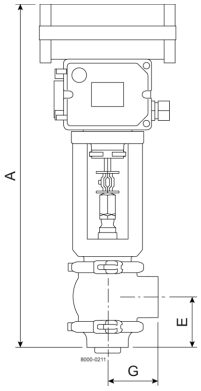
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC and NO

Item no.	Size	Plug type		Dimension (inch)			Dimension (mm)	
	inch	DN	GMP	(m3/h)	A	E	G	
								Inch tube, normally open
9615223105	1.5"	40.0	E	35.0	16.10	2.20	1.90	
9615223102	1.5"	40.0	E	4.0	16.10	2.20	1.90	
9615223104	1.5"	40.0	E	18.0	16.10	2.20	1.90	
9615223103	1.5"	40.0	E	9.0	16.10	2.20	1.90	
9615223106	1.5"	40.0	E	70.0	16.10	2.20	1.90	
9615223101	1.5"	40.0	E	2.0	16.10	2.20	1.90	
9615223107	2.0"	50.0	E	141.0	16.70	2.50	2.40	
8010001808	2.0"	50.0	E	176.0	16.70	2.50	2.40	
9615223108	2.5"	65.0	L	282.0	15.90	2.60	3.20	
8010001812	2.5"	65.0	L	110	15.90	2.60	3.20	
9615223109	3.0"	80.0	L	330.0	17.30	3.30	3.40	
9615223110	4.0"	100.0	L	484.0	18.20	3.80	4.70	

For further information - please see PD-sheet.

Valve Model Specification: Aseptic valve
ALSIS Code: 5370

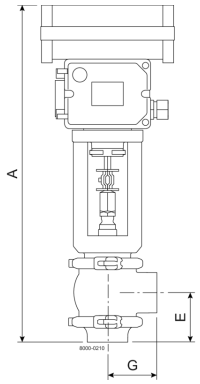
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC and NO

Item no.	Size		Plug type	Flow Kv	Dimension (inch)			
	inch	DN		GPM	A	E	G	
DIN tube, normally closed								
9615223411	1.5"	40.0	E	2.0	16.30	2.20	1.90	
9615223413	1.5"	40.0	E	9.0	16.30	2.20	1.90	
9615223414	1.5"	40.0	E	18.0	16.30	2.20	1.90	
9615223412	1.5"	40.0	E	4.0	16.30	2.20	1.90	
9615223415	1.5"	40.0	E	35.0	16.30	2.20	1.90	
9615223416	1.5"	40.0	E	70.0	16.30	2.20	1.90	
9615223417	2.0"	50.0	E	141.0	16.80	2.50	2.40	
9615223418	2.5"	65.0	L	282.0	16.50	2.40	3.10	
9615223419	3.0"	80.0	L	330.0	17.90	3.50	3.40	
9615223420	4.0"	100.0	L	484.0	18.60	3.90	4.70	
DIN tube, normally open								
9615223401	1.5"	40.0	E	2.0	16.30	2.20	1.90	
9615223402	1.5"	40.0	E	4.0	16.30	2.20	1.90	
9615223404	1.5"	40.0	E	18.0	16.30	2.20	1.90	
9615223403	1.5"	40.0	E	9.0	16.30	2.20	1.90	
9615223405	1.5"	40.0	E	35.0	16.30	2.20	1.90	
9615223406	1.5"	40.0	E	70.0	16.30	2.20	1.90	
9615223407	2.0"	50.0	E	141.0	16.80	2.50	2.40	
9615223408	2.5"	65.0	L	282.0	16.50	2.40	3.10	
9615223409	3.0"	80.0	L	330.0	17.90	3.50	3.40	
9615223410	4.0"	100.0	L	484.0	18.60	3.90	4.70	
Inch tube, normally closed								
9615223316	1.5"	40.0	E	70.0	16.20	2.20	1.90	
9615223311	1.5"	40.0	E	2.0	16.20	2.20	1.90	
9615223312	1.5"	40.0	E	4.0	16.20	2.20	1.90	
9615223314	1.5"	40.0	E	18.0	16.20	2.20	1.90	
9615223313	1.5"	40.0	E	9.0	16.20	2.20	1.90	
9615223315	1.5"	40.0	E	35.0	16.20	2.20	1.90	
9615223317	2.0"	50.0	E	141.0	16.80	2.50	2.40	
9615223318	2.5"	65.0	L	282.0	16.20	2.20	1.90	
9615223319	3.0"	80.0	L	330.0	17.60	3.30	3.40	
9615223320	4.0"	100.0	L	484.0	18.50	3.80	4.70	

For further information - please see PD-sheet.

Valve Model Specification: Aseptic valve
ALSIS Code: 5370

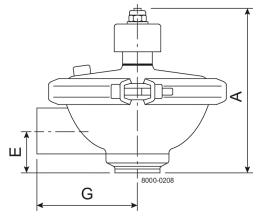
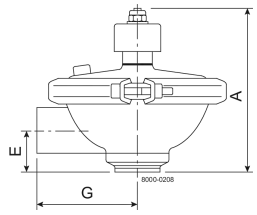
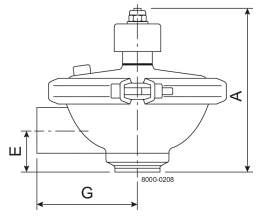
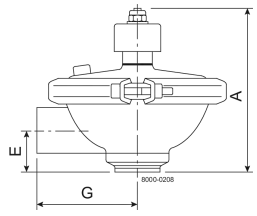
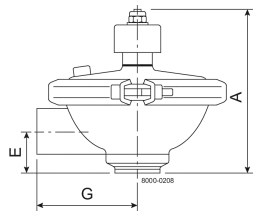
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC and NO

Item no.	Size		Plug type	Flow Kv	Dimension (inch)			
	inch	DN		GPM	A	E	G	
								Inch tube, normally open
9615223301	1.5"	40.0	E	2.0	16.20	2.20	1.90	
9615223303	1.5"	40.0	E	9.0	16.20	2.20	1.90	
9615223304	1.5"	40.0	E	18.0	16.20	2.20	1.90	
9615223302	1.5"	40.0	E	4.0	16.20	2.20	1.90	
9615223305	1.5"	40.0	E	35.0	16.20	2.20	1.90	
9615223306	1.5"	40.0	E	70.0	16.20	2.20	1.90	
9615223307	2.0"	50.0	E	141.0	16.80	2.50	2.40	
9615223308	2.5"	65.0	L	282.0	16.20	2.20	1.90	
9615223309	3.0"	80.0	L	330.0	17.60	3.30	3.40	
9615223310	4.0"	100.0	L	484.0	18.50	3.80	4.70	

For further information - please see PD-sheet.

Valve Model Specification: Constant pressure valve
ALSIS Code: 5284

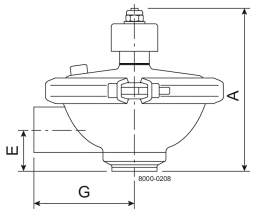
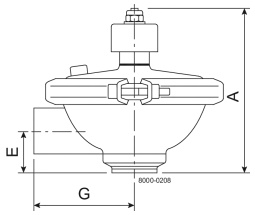
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC

Item no.	Tube standard	Size		Flow Kv	Dimension (inch)			
	Inch	inch	DIN	(m3/h)	A	E	G	
								CPM-I2-IND - CPM-I2
9612305540	Inch tube	2.0"		23.0	6.89 - 7.61	1.94	4.33	
9612305542	Inch tube	2.0"		2.0/15.0	6.89 - 7.61	1.94	4.33	
								CPM-I2-POL - CPM-I2
9612305509	Inch tube	2.0"		23.0	6.89 - 7.61	1.94	4.33	
9612305548	Inch tube	2.0"		2.0/15.0	6.89 - 7.61	1.94	4.33	
								CPM-O2-IND - CPM-O2
9612305543	Inch tube	2.0"		2.0/15.0	6.89 - 7.61	1.94	4.33	
								CPM-O2-POL - CPM-O2
9612305549	Inch tube	2.0"		2.0/15.0	6.89 - 7.61	1.94	4.33	
								CPMI
9612650329	Inch tube	2.0"		7.0	6.89 - 7.61	1.94	4.33	
9612650305	Inch tube	2.0"		7.0	6.89 - 7.61	1.94	4.33	

For further information - please see PD-sheet.

Valve Model Specification: Constant pressure valve
ALSIS Code: 5284

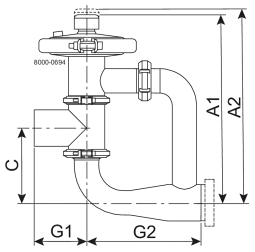
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC

Item no.	Tube standard	Size		Flow Kv	Dimension (inch)			
	Inch	inch	DIN	(m3/h)	A	E	G	
CPMI-2								
9612650318	DIN tube		1.97"	7.0	6.89 - 7.61	1.98	4.33	
9612305501	Inch tube	2.0"		23.0	6.89 - 7.61	1.94	4.33	
9612305503	Inch tube	2.0"		2.0/15.0	6.89 - 7.61	1.94	4.33	
9612305517	Inch tube	2.0"		7.0	6.89 - 7.61	1.94	4.33	
9612650304	Inch tube	2.0"		23.0	6.89 - 7.61	1.94	4.33	
9612650173	Inch tube	2.0"		23.0	6.89 - 7.61	1.94	4.33	
9612650291	Inch tube	2.0"		7.0	6.89 - 7.61	1.94	4.33	
9613600235	Inch tube	2.0"		23.0	6.89 - 7.61	1.94	4.33	
9612650324	Inch tube	2.0"		7.0	6.89 - 7.61	1.94	4.33	
88239556	Inch tube	2.0"		7.0	6.89 - 7.61	1.94	4.33	
9613600001	Inch tube	2.0"		23.0	6.89 - 7.61	1.94	4.33	
9612650306	Inch tube	2.0"		2.0/15.0	6.89 - 7.61	1.94	4.33	
9612650172								
CPMI-D60								
9612650309	Inch tube	2.0"		60.0	6.89 - 7.61	1.94	4.33	
9612650307	Inch tube	2.0"		60.0	6.89 - 7.61	1.94	4.33	

For further information - please see PD-sheet.

Valve Model Specification: CPM-D-60
ALSIS Code: 5284

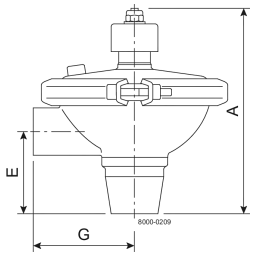
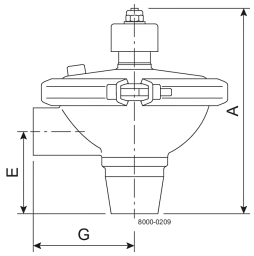
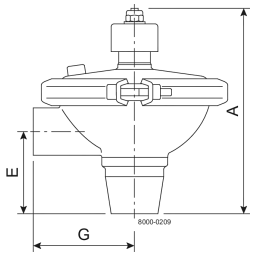
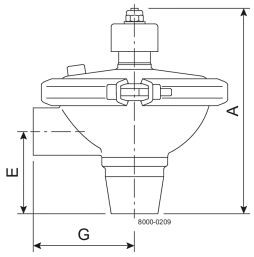
Material: 1.4404 (316L)
Connection Type: Tri-Clamp

Item no.	Size	Dimension (inch)					
	inch	A1	A2	C	G1	G2	
9612305547 882303760	2.0" 3.0"	16.27 16.27	16.93 16.93	6.10 6.10	4.33 4.33	9.45 9.45	

For further information - please see PD-sheet.

Valve Model Specification: Constant pressure valve
ALSIS Code: 5284

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC

Item no.	Tube standard	Size		Flow Kv	Dimension (inch)			
	Inch	inch	DIN	(m3/h)	A	E	G	
								CPM-I2-POL - CPM-I2
9612305511	Inch tube	2.0"		2.0/15.0	7.61	1.98	1.98	
9612305546	Inch tube	2.0"		23.0	7.61	1.98	1.98	
								CPM-O2-IND - CPM-O2
9612305514	Inch tube	2.0"		23.0	7.61	1.98	1.98	
9612305541	Inch tube	2.0"		23.0	7.61	1.98	1.98	
9612305516	Inch tube	2.0"		2.0/15.0	7.61	1.98	4.33	
								CPM-O2-POL - CPM-O2
9612305512	Inch tube	2.0"		2.0/15.0	7.61	1.98	1.98	
								CPMO-2
9612305502	Inch tube	2.0"		23.0	8.27 - 9.03	3.51	4.33	
9612305518	Inch tube	2.0"		9.0	6.89 - 9.03	1.98	4.33	
9612305504	Inch tube	2.0"		2.0/15.0	6.89 - 7.61	1.98	4.33	

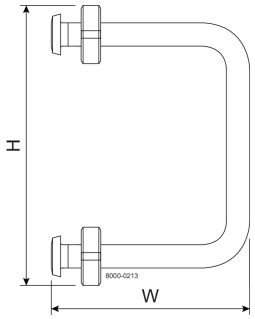
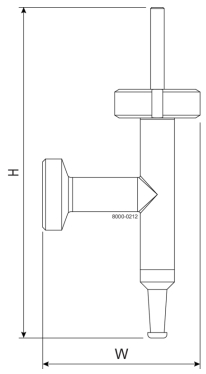
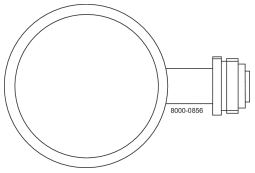
For further information - please see PD-sheet.

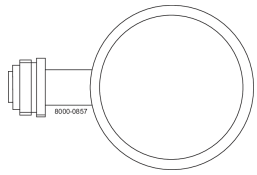
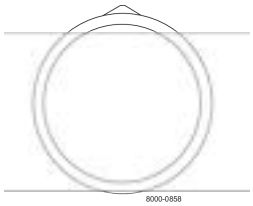
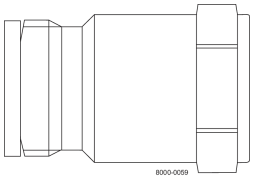
Valve Model Specification: CPM-I2-POL, CPM-I2
ALSIS Code: 5284

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals:
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC

Item no.	Size	Flow Kv	Dimension (inch)		
	inch	(m3/h)	A	E	G
					CPM-I2-IND - CPM-I2
9612305513	2.0"	23.0	6.89 - 7.61	1.94	4.33

For further information - please see PD-sheet.

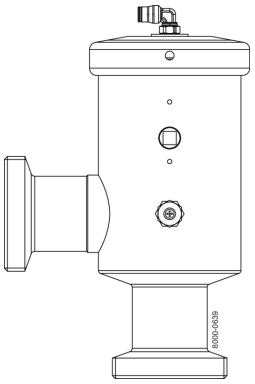
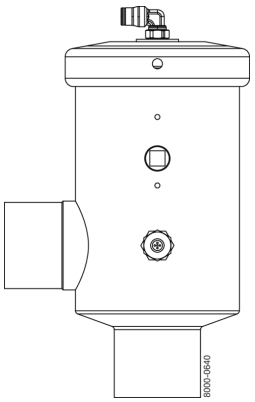
Item no.	Connection	Size	Pressure	Dimension (inch)		
		mm	PSI	H	W	
						CIP Bend, Outside: Shot blasted
9615107201	Clamp	25.0		13.58	8.66	
9615102901	Clamp	38.0		15.16	8.86	
9615104001	Clamp	51.0		18.11	9.06	
9615113501	Clamp	76.1		19.69	9.06	
9615107202	DIN	25.0		12.01	8.46	
9615102902	DIN	40.0		13.98	8.66	
9615104002	DIN	50.0		17.13	9.06	
9615113502	DIN	80.0		19.69	9.06	
9615107203	IDF	25.0		11.81	8.27	
9615102903	IDF	38.0		13.98	8.46	
9615104003	IDF	51.0		16.93	8.66	
9615113503	IDF	76.1		18.70	8.66	
9615107204	SMS	25.0		11.42	8.07	
9615102904	SMS	38.0		13.98	8.27	
9615104004	SMS	51.0		16.73	8.46	
9615113504	SMS	76.1		18.90	8.46	
						Cip T-Piece, Outside: Ra ≤ 1.6 µm
9615148301	Clamp	25.0		10.24	5.51	
9615148401	Clamp	38.0		11.42	6.69	
9615148501	Clamp	51.0		12.80	7.28	
9615148601	Clamp	76.1		12.80	7.09	
9615148302	DIN	25.0		9.65	4.72	
9615148402	DIN	40.0		10.63	6.10	
9615148502	DIN	50.0		12.01	6.89	
9615148602	DIN	80.0		12.40	6.69	
9615148303	IDF	25.0		10.04	4.92	
9615148403	IDF	38.0		11.22	6.30	
9615148503	IDF	51.0		12.40	6.89	
9615148603	IDF	76.1		12.40	6.69	
9615148304	SMS	25.0		9.45	4.53	
9615148404	SMS	38.0		10.83	6.50	
9615148504	SMS	51.0		12.20	7.09	
9615148604	SMS	76.1		12.40	6.69	
						Pressure gauge - inlet 3 o'clock
9615142201			0 - 23.2	5.91	2.21	
9615142202			0 -36.3	5.91	2.21	
9615142203			0 - 58.0	5.91	2.21	
9615142204			0 - 87.0	5.91	2.21	

Item no.	Connection	Size	Pressure	Dimension (inch)		
		mm	PSI	H	W	
						Pressure gauge - inlet 9 o'clock
9615142205			0 -36.3	5.91	2.21	
9615142206			0 -36.3	5.91	2.21	
9615142207			0 -36.3	5.91	2.21	
9615142208			0 - 87.0	5.91	2.21	
						Pressure gauge - inlet 12 o'clock
9615142209			0 - 23.2	4.17	3.66	
9615142210			0 -36.3	4.17	3.66	
9615142211			0 - 58.0	4.17	3.66	
9615142212			0 - 87.0	4.17	3.66	
						Safety valve for pressure gauge
9615096001			0 - 23.2	1.77	2.36	
9615096002			0 -36.3	1.77	2.36	
9615096003			0 - 58.0	1.77	2.36	
9615096004			0 - 87.0	1.77	2.36	

SB Pressure Exhaust Valve

Valve model:
ALSIS Code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Ra ≤ 1.6 µm

Item no.	Size		Dimension (mm)		
	mm	DN	H	W	
Male part Acc. DIN 11851					
9615091301		DN40	255	170	
9615088501		DN50	215	135	
Welding Ends Acc. ISO 2037					
9615091302	38		195	115	
9615088502	51		235	145	

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Safety valves

Alfa Laval SB Anti Vacuum Valve

Safety valves

Introduction

The Alfa Laval SB Anti Vacuum Valve is a compact safety valve that protects tanks from collapse or implosion due to internal vacuum conditions. These conditions occur during emptying, cool-rinsing after hot-cleaning, or caustic cleaning in a CO_2 atmosphere. The compact, easy-to-clean safety valve fits onto any closed process tank, optimizing the personnel safety, reliability and performance of critical processes and maximizing uptime.

Application

This safety valve is designed for use in hygienic processes in the brewery, dairy, food, beverage and many other industries.

Benefits

- Greater process safety
- Low initial cost of investment
- Compact design
- Superior hygiene
- Easy installation

Standard design

The Alfa Laval SB Anti Vacuum Valve is a flange-mounted safety valve. All product wetted steel parts are made of AISI 316L stainless steel with a surface roughness of Ra< 32 µin; all other steel parts are made of AISI 304L stainless steel. All product-wetted seals are made of EPDM and all product-wetted polymers are made of PEEK. The valve is PED 2014/68/EU-compliant and available in two versions: either integrated in a SCANDI BREW® tank top system or mounted on its own counter flange.

Working principle

The Alfa Laval SB Anti Vacuum Valve is delivered with a counterweight set and locked for an individual opening vacuum to suit the tank or vessel design pressure. When a vacuum in the tank or vessel is lower than the pre-set opening value, the valve opens and lets in atmospheric air.

TECHNICAL DATA

Nominalsize	Opening pressure Range (ΔP)	Allowable pressure PS
4”	0.07-0.7 PSI	87 PSI
6”	0.035-0.7 PSI	87 PSI
8”	0.035-0.7 PSI	87 PSI
10”	0.035-0.43 PSI	58 PSI
12”	0.035-0.7 PSI	58 PSI
16”	0.035-0.14 PSI	58 PSI

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L) with 3.1 cert.
Product wetted steel surfaces:	Surface roughness Ra< 32 µin
Product wetted seals:	EPDM/NBR
Product wetted polymers:	PEEK
Other steel parts:	EN 1.4307 (AISI 304L)

Cleaning In Place (CIP)

The Anti Vacuum Valve is cleaned, when closed, by the tank cleaning head, but this will not include the valve seating.

To include the valve seating in the cleaning cycle, there are two options:

CIP Kit 1 - Force opener; splash guard

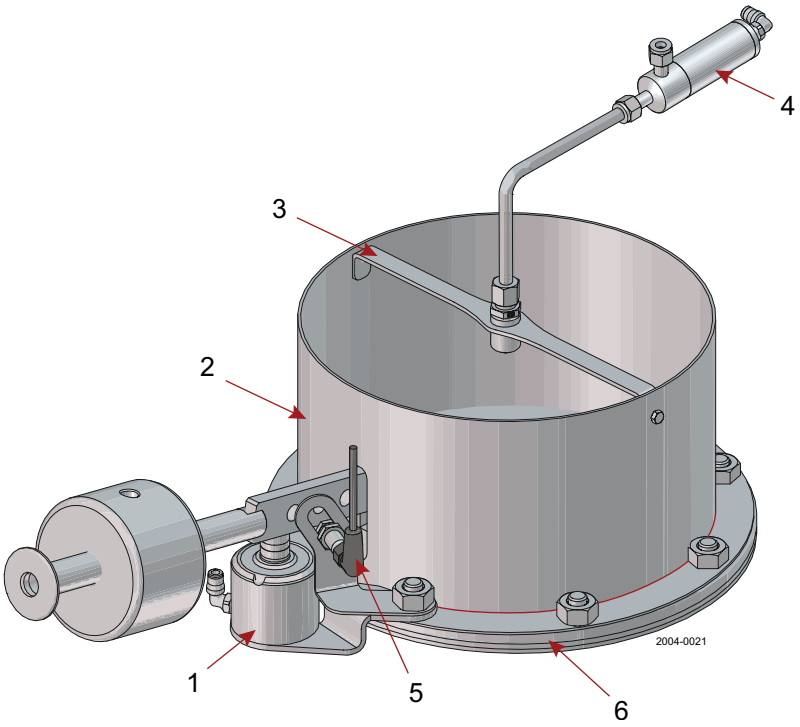
The valve is force-opened during tank CIP. The cleaning of valve seat is dependent on cleaning jets from the tank cleaning head. Any CIP liquid escaping the tank is contained by the splash guard and drains back in to the tank.

CIP Kit 2- Force opener; splash guard; CIP nozzle; CIP closing valve

The valve is force-opened during tank CIP. The cleaning of valve seat is performed by the CIP nozzle. All CIP liquid from the CIP nozzle is contained by the splash guard and drains back in to the tank.

Note! Applying any of above CIP options provides that the tank is pressureless at the moment of force opening the Anti Vacuum Valve

Options



Pos. 1: Force opener: force-opening during valve seat cleaning

Pos. 2: Splash guard: containing CIP liquid during valve seat cleaning

Pos. 3: CIP Nozzle: for cleaning valve seat

Pos. 4: CIP closing valve: applying CIP liquid

Pos. 5: Proximity sensor: for operation detection

Pos. 6: Welding flange: for installation

Heating elements: for valves exposed to sub-zero temperatures

Dimensions (inch)

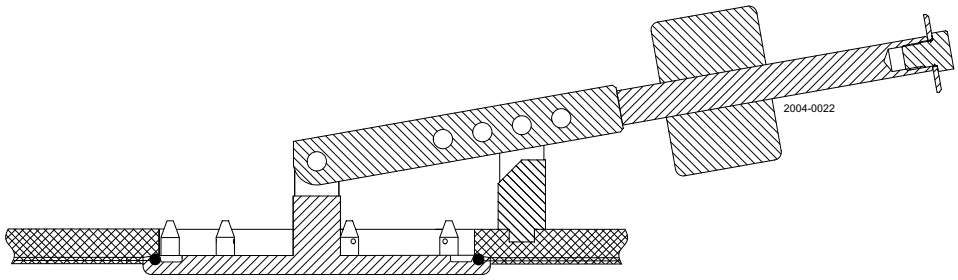


Figure 1. Integrated Valve

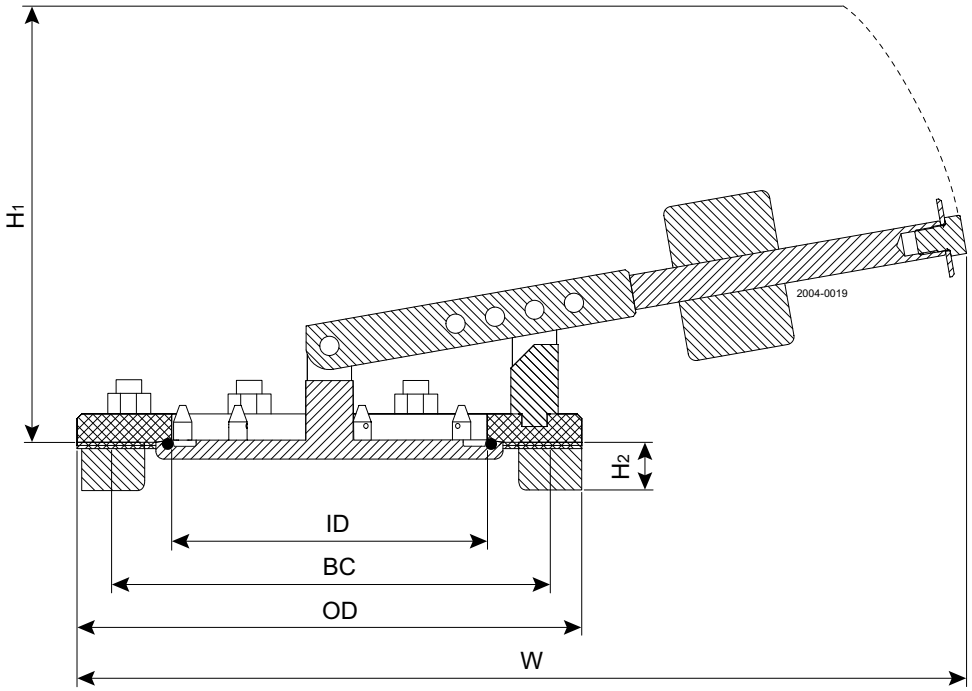


Figure 2. Flange Mounted Valve

ID = Active diameter

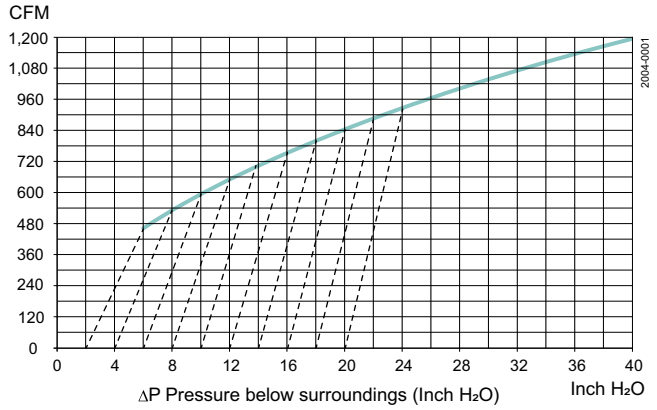
BC = Bolt circle

OD = Outside diameter

Interface requirements (inch)

Nominal size	ID	BC	OD	Bolts	H1	H2	W
4	3.93	6.50	7.87	4xM16	12.20	1.18	20.07
6	5.91	9.06	10.63	8xM16	12.80	1.18	21.65
8	7.87	11.02	12.60	8xM16	12.20	1.18	22.44
10	9.84	12.99	14.57	8xM16	12.80	1.18	23.62
12	11.81	14.96	16.54	12xM16	19.66	1.18	37.00
16	15.75	20.26	22.05	12xM16	19.29	1.18	39.76

Opening pressures

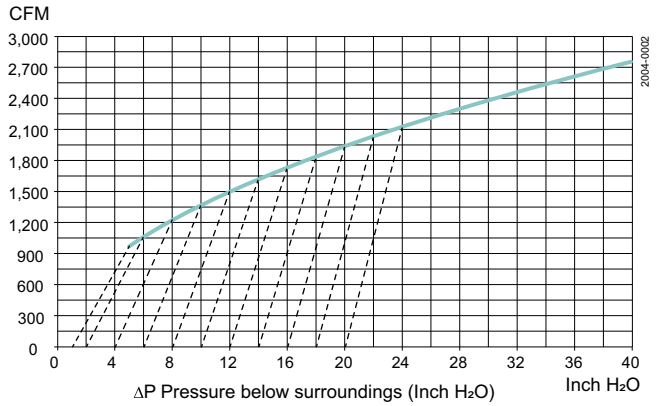


Nominal size : 4"

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

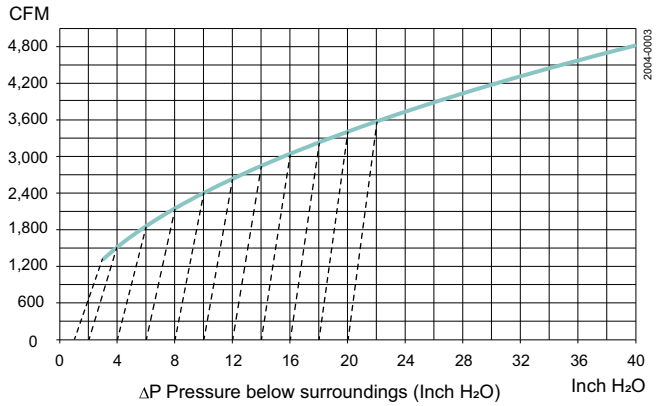


Nominal size : 6"

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

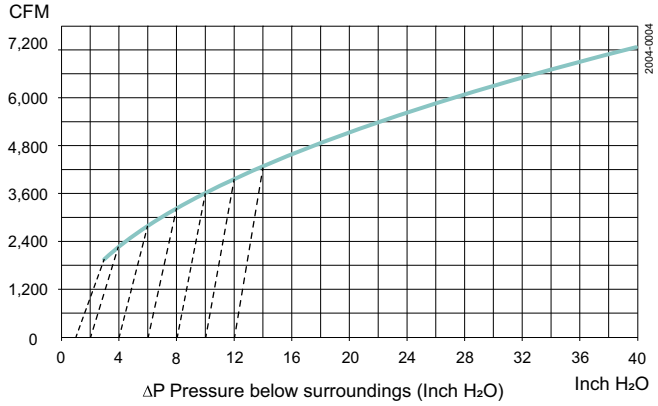


Nominal size : 8"

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

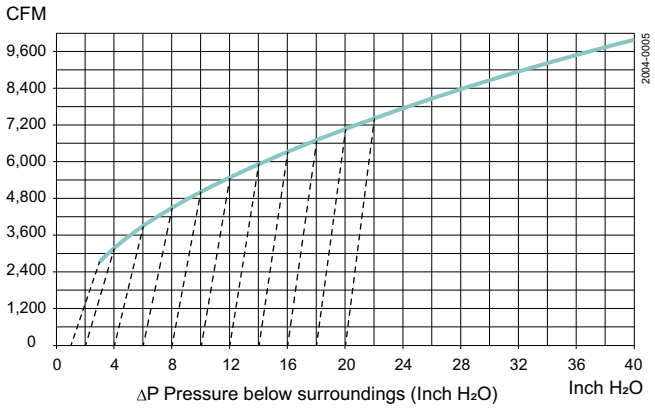


Nominal size : 10"

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

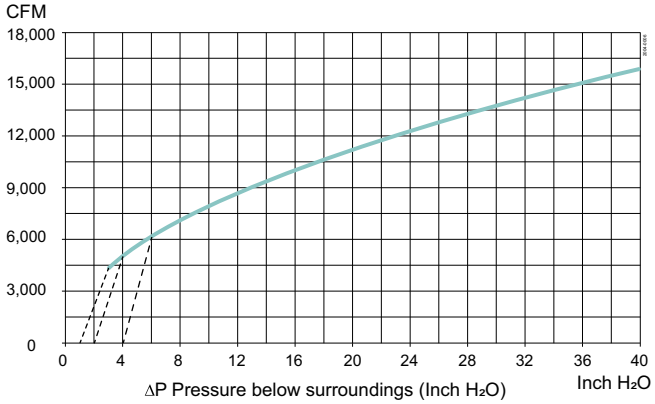


Nominal size : 12"

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve



Nominal size : 16”

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

Alfa Laval SB Anti Vacuum House

Safety valves

Introduction

The Alfa Laval SB Anti Vacuum House is a safety valve housing that minimizes the risk of implosion in closed process tanks or vessels that are subject to vacuum conditions while emptying the tank, cool rinsing after hot-cleaning, or caustic cleaning in a CO_2 atmosphere. It helps protect tanks from vacuum conditions that may cause tank implosion, damage or deformation. It can be combined with safety valves or pressure regulators mounted at the tank top. This is a cost-efficient, reliable and easy to install, it provides effective vacuum protection, while boosting process reliability, equipment and personnel safety.

Application

This anti-vacuum valve housing is designed for use in hygienic process tanks in the brewery, dairy, food, beverage and many other industries

Benefits

- Minimal risk of tank collapse due to internal vacuum conditions
- Fully cleanable via built-in Cleaning-in-Place nozzle
- Easy to integrate
- Low investment due to simplified installation
- Can be combined with other valves in a customized tank top

Standard design

The Alfa Laval Anti Vacuum House consists of an AISI 316L stainless steel housing, a vacuum tail and an EPDM seal. PED 97/23/EU-compliant, it can be used as an integral part of a SCANDI BREW® tank top system.

Working principle

The Alfa Laval Anti Vacuum House operates at a pressure of 0.07 PSI for all valve sizes to protect against implosion. When combined with a safety valve, it also helps protect the tank from overpressure and ensures discharge if pressure in the tank exceeds the pre-set opening value. When combined with regulating valves, it helps ensure pressure relief if pressure in the tank exceeds the pre-set opening value.

TECHNICAL DATA

Nominal size	Opening pressure (ΔP)	Allowable pressure PS
2”	0.07 PSI	65 PSI
3”	0.07 PSI	65 PSI
4”	0.07 PSI	65 PSI
6”	0.07 PSI	65 PSI

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L)
Product wetted seals:	EPDM

Connections

Nut and liner acc. DIN 11851

Clamp ferrule ISO 2852

Nut and liner acc. SMS Swedish Standard Union

Weld End acc. DIN 11850 or ISO 2037 depending on valve size

Options

The Anti Vacuum House provides vacuum protection and can be combined with other valves to provide following functions:

- Safety valves for tank overpressure protection
- Regulating valves for process protection

Available combinations

Anti Vacuum House	Regulating Valve		Safety Valve
Nominal size	CO2 House	Pressure Exhaust	Pressure Relief Valve
2”	X	X	
3”	X	X	X
4”	X	X	X
6”	X	X	X

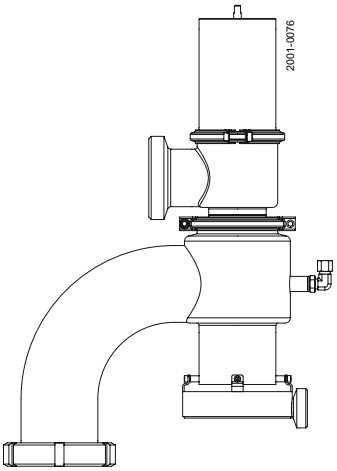


Figure 1. Anti Vacuum House with CO2 House

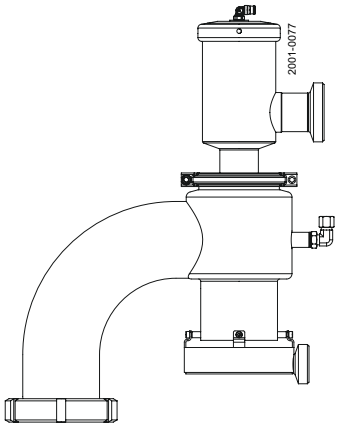


Figure 2. Anti Vacuum House with Pressure Exhaust

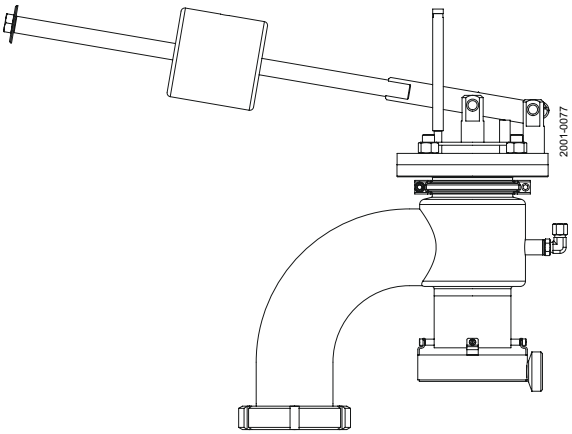


Figure 3. Anti Vacuum House with Pressure Relief Valve

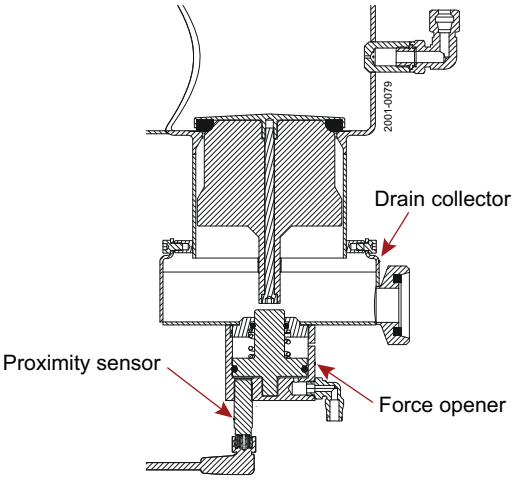
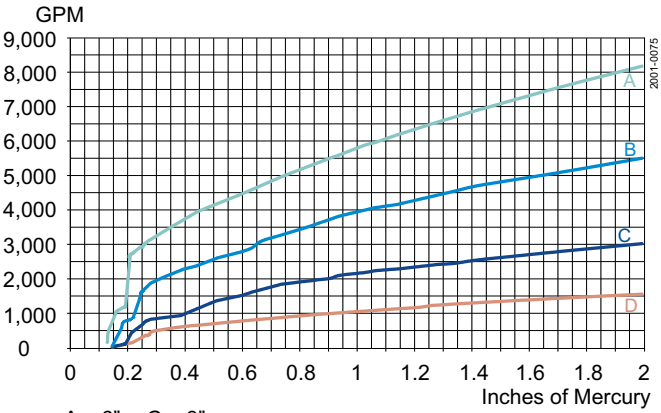


Figure 4. Cross section of Anti Vacuum House with Force opener, Proximity sensor and Drain collector

Volumetric Flow Capacity



A = 6” C = 3”
B = 4” D = 2”

Medium: Air

Alfa Laval SB Pressure Relief Valve

Safety valves

Introduction

The Alfa Laval SB Pressure Relief Valve is a hygienic safety valve that removes excess liquid that creates overpressure in a process tank or vessel due to overfilling. When pressure in the tank exceeds a pre-set value, the pressure relief valve opens to vent fluid in the event of liquid overfilling and closes when the tank or vessel pressure has returned below the set point. This prevents damage to the tank or vessel and help ensure safe operations.

Application

This safety valve is designed to safeguard pressurized tanks and vessels used in hygienic process lines in the brewery, dairy, food, beverage and many other industries. The valve can be integrated with a SCANDI BREW® tank top system.

Benefits

- Cost-effective, hygienic design
- Protection against tank overfilling and pressurization
- Superior hygiene
- Customized to meet process requirements
- Easy to clean

Standard design

The SB Pressure Relief Valve is a deadweight safety valve. It is compliant with PED 2014/68/EU, EN 4126-1 and EN 764-7 and available in two versions: integrated with a SCANDI BREW® tank top system or mounted on its own counter flange.

Working principle

The Alfa Laval SB Pressure Relief Valve is delivered with counterweight and is set and locked at the pre-set pressure, specified by the customer as the opening pressure. When pressure in the tank or vessel exceeds the pre-set opening value, the valve relieves the excess pressure.

The opening pressure must be set at a value that is above the tank working pressure: 1.45 PSI above for working pressures < 14.5 PSI, and 10% above for working pressures ≥ 14.5 PSI. The valve should be seated horizontally. A maximum inclination of 10° is acceptable, but the lever arm must then point inward toward the centre of the cylindroconical tank top.

TECHNICAL DATA

Nominal size	Set Pressure Range
3”	2.9 - 50.8 PSI
4”	2.9 - 36.3 PSI
6”	5.8 - 21.8 PSI

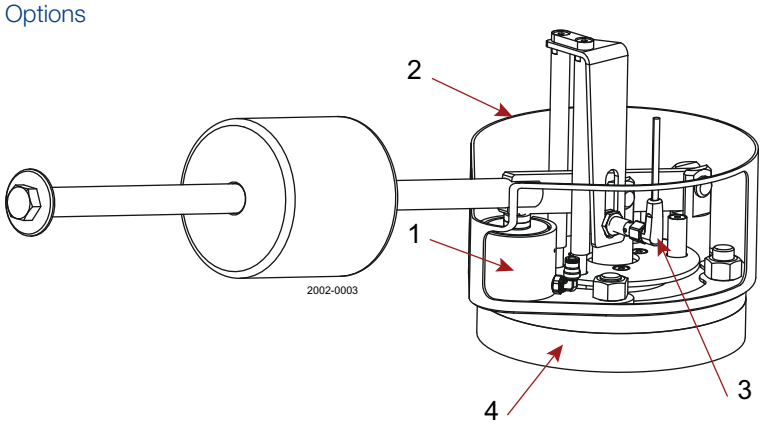
PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L) with 3.1 cert.
Product wetted steel surfaces:	Surface roughness Ra< 32 µin"
Product wetted seals:	EPDM

Cleaning In Place (CIP)

The Pressure Relief Valve is cleaned in closed position by the tank cleaning head, but this will not include the valve seating. To include the valve seating in the cleaning cycle, there is the option to equip the valve with a pneum. force opener and a splash guard.

Options



Options:

Pos. 1: Force opener: force opening during cleaning cycle

Pos. 2: Splash guard: containing CIP liquid during valve seat cleaning

Pos. 3: Proximity sensor: for operation detection

Pos. 4: Welding flange: for installation

Dimensions (inch)

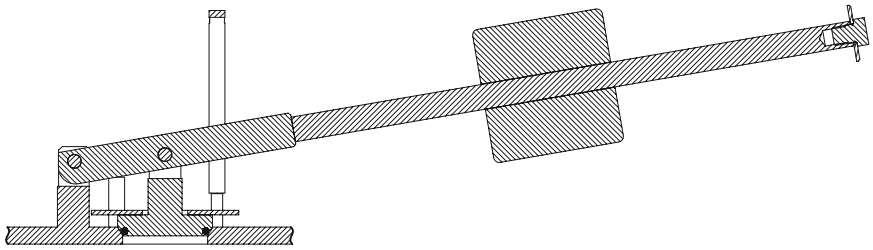


Figure 1. Integrated Valve

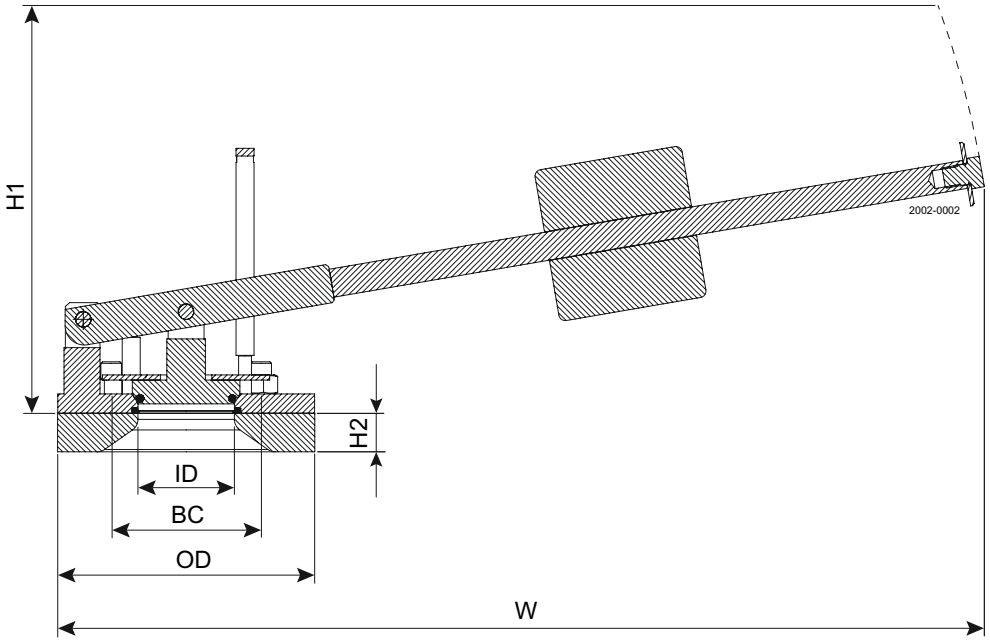


Figure 2. Flange Mounted Valve

ID = Active diameter

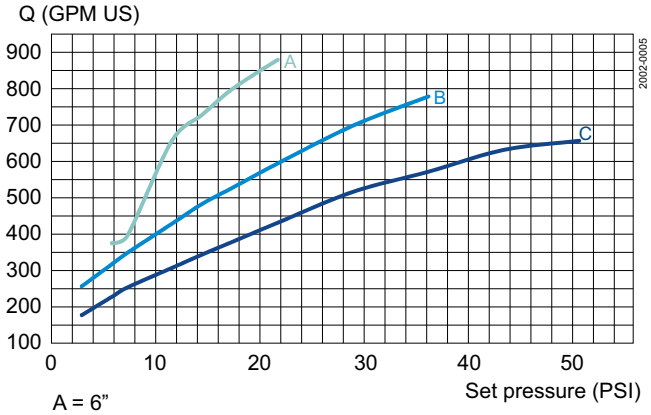
BC = Bolt circle

OD = Outside diameter

Interface requirements (inch)

Nominal Size	ID	BC	OD	Bolts	H1	H2	W
3	2.95	6.50	7.87	4xM16	14.76	1.18	29.13
4	3.94	6.50	7.87	4xM16	14.76	1.18	29.14
6	5.91	9.06	10.63	8xM16	16.93	1.18	41.34

Discharge Capacity



A = 6”
B = 4”
C = 3”

In accordance with EN 4126-1

Capacity measured at:

ΔP=10% Set pressure ≥ 14.5 PSI

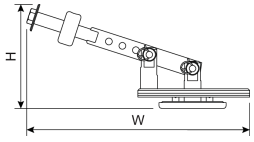
ΔP=1,45 Set pressure < 14.5 PSI

Medium: water (68°F)

SB anti vacuum valve

Safety valve
ALSIS Code: 5916

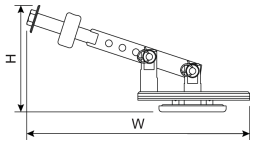
Material: 1.4404
Seals: NBR
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Ra ≤ 1.6 µm

Item no.	Size	Opening pressure	Fully open at	Dimension (inch)		
	DN	inch H_2O	inch H_2O	H	W	
						SCANDI BREW
9615053901	100	1.97	5.91	12.20	20.08	
9615053902	100	1.97	7.87	12.20	20.08	
9615053903	100	5.91	9.84	12.20	20.08	
9615053904	100	7.87	11.81	12.20	20.08	
9615053905	100	9.84	13.78	12.20	20.08	
9615053906	100	11.81	15.75	12.20	20.08	
9615053907	100	13.78	17.72	12.20	20.08	
9615053908	100	15.75	19.68	12.20	20.08	
9615053909	100	17.72	21.65	12.20	20.08	
9615053910	100	19.68	23.62	12.20	20.08	
9615055001	150	0.98	4.92	12.80	21.65	
9615055002	150	1.97	5.91	12.80	21.26	
9615055003	150	1.97	7.87	12.80	21.26	
9615055004	150	5.91	9.84	12.80	21.26	
9615055005	150	7.87	11.81	12.80	21.26	
9615055006	150	9.84	13.78	12.80	21.26	
9615055007	150	11.81	15.75	12.80	21.26	
9615055008	150	13.78	17.72	12.80	21.26	
9615055009	150	15.75	19.68	12.80	21.26	
9615055010	150	17.72	21.65	12.80	21.26	
9615055011	150	19.68	23.62	12.80	21.26	
9615064301	200	0.98	2.95	12.20	22.44	
9615064302	200	1.97	3.94	12.20	22.44	
9615064303	200	1.97	5.91	12.20	22.44	
9615064304	200	5.91	7.87	12.20	22.44	
9615064305	200	7.87	9.84	12.20	22.44	
9615064306	200	9.84	11.81	12.20	22.44	
9615064307	200	11.81	13.78	12.20	22.44	
9615064308	200	13.78	15.75	12.20	22.44	
9615064309	200	15.75	17.72	12.20	22.44	
9615064310	200	17.72	19.68	12.20	22.44	
9615064311	200	19.68	21.65	12.20	22.44	
9615064501	250	0.98	2.95	12.80	23.62	
9615064502	250	1.97	3.94	12.80	23.62	
9615064503	250	1.97	5.91	12.80	23.62	
9615064504	250	5.91	7.87	12.80	23.62	
9615064505	250	7.87	9.84	12.80	23.62	
9615064506	250	9.84	11.81	12.80	23.62	
9615064507	250	11.81	13.78	12.80	23.62	
9615064701	300	0.98	2.95	19.69	23.62	
9615064702	300	1.97	3.94	19.69	37.01	
9615064703	300	1.97	5.91	19.69	37.01	
9615064704	300	5.91	7.87	19.69	37.01	
9615064705	300	7.87	9.84	19.69	37.01	
9615064706	300	9.84	11.81	19.69	37.01	
9615064707	300	11.81	13.78	19.69	37.01	
9615064708	300	13.78	15.75	19.69	37.01	

For specific flow (Nm3/h) please see the PD leaflet in Anytime

Safety valve
ALSIS Code: 5916

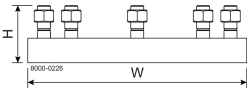
Material: 1.4404
Seals: NBR
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Ra ≤ 1.6 µm

Item no.	Size	Opening pressure	Fully open at	Dimension (inch)		
	DN	inch H_2O	inch H_2O	H	W	
						SCANDI BREW
9615064709	300	15.75	17.72	19.69	37.01	
9615064710	300	17.72	19.68	19.69	37.01	
9615064711	300	19.68	21.65	19.69	37.01	
9615064901	400	0.98	2.95	19.26	39.76	
9615064902	400	1.97	3.94	19.26	39.76	
9615064903	400	1.97	5.91	19.26	39.76	

For specific flow (Nm3/h) please see the PD leaflet in Anytime

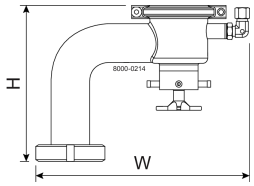
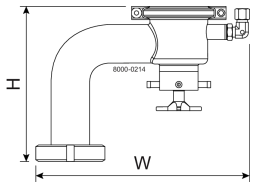
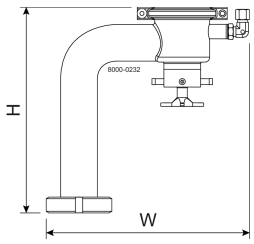
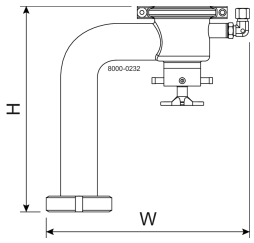
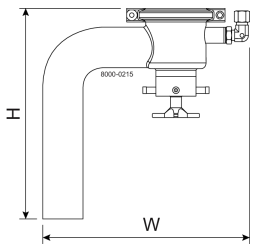
ALSIS Code: 5919

Material: 1.4404 (316L)
Seals: NBR
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Ra ≤ 1.6 µm

Item no.	Size	Dimension (inch)		
		H	W	
				SCANDI BREW - AVV Counter Flange
9615085401	3.94"	2.76	7.87	
9615085402	6.0"	2.76	10.63	
9615085403	7.87"	2.76	12.60	
9615085404	9.84"	2.76	14.57	
9615085405	11.81"	2.76	16.54	
9615085406	15.75"	2.76	22.05	

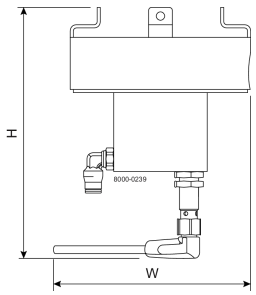
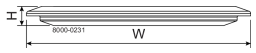
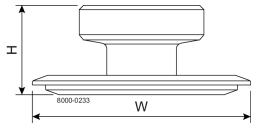
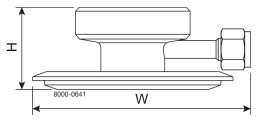
Safety valve
ALSIS Code: 5916

Material: 1.4404
Seals: EPDM
Outside surface finish: Blasted
Inside surface finish: Blasted

Item no.	Size	Operating range	Flow	Dimension (inch)		
	DN	inch WG	gallon/h	H	W	
SCANDI BREW - Anti Vacuum House Short DIN Nut & Liner acc. DIN 11851						
9615110502	2.0"	2-20 in WG	0 - 79251.63	8.11	11.18	
9615070502	3.0"	2-20	0 - 153219.82	10.16	14.57	
9615070902	4.0"	2-20	0 - 285305.87	12.56	17.17	
9615071306	DN 150	2-20	0 - 488718.39	14.29	22.32	
SCANDI BREW - Anti Vacuum House Short SMS Nut & Liner						
9615110505	2.0"	2-20	0 - 79251.63	11.30	11.18	
9615070505	3.0"	2-20 in WG	0 - 153219.82	13.23	14.57	
9615070905	4.0"	2-20	0 - 285305.87	15.79	17.17	
SCANDI BREW - Anti Vacuum House Standard DIN Nut & Liner acc. DIN 11851						
9615110501	2.0"	2-20	0 - 79251.63	11.30	11.18	
9615070501	3.0"	2-20	0 - 153219.82	13.23	14.57	
9615070901	4.0"	2-20 in WG	0 - 285305.87	15.79	17.17	
9615071305	DN 150	2-20	0 - 488718.39	16.89	22.32	
SCANDI BREW - Anti Vacuum House Standard SMS Nut & Liner						
9615110504	2.0"	2-20	0 - 79251.63	11.30	11.18	
9615070504	3.0"	2-20	0 - 153219.82	13.23	14.57	
9615070904	4.0"	2-20	0 - 285305.87	15.79	17.17	
SCANDI BREW - Anti Vacuum House Weld End						
9615110503	2.0"	2-20 in WG	0 - 79251.63	10.51	10.35	
9615070503	3.0"	2-20	0 - 153219.82	12.44	12.05	
9615070903	4.0"	2-20	0 - 285305.87	14.88	16.22	
9615071303	DN 150	2-20 in WG	0 - 488718.39	15.71	21.14	

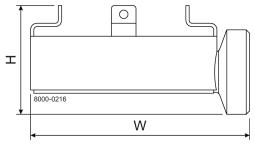
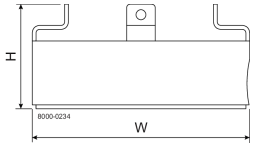
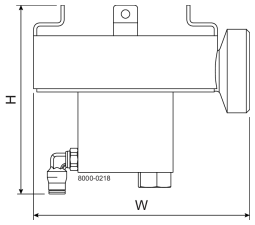
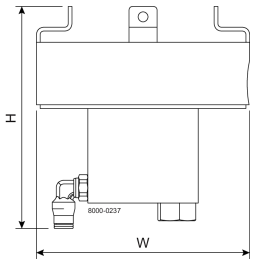
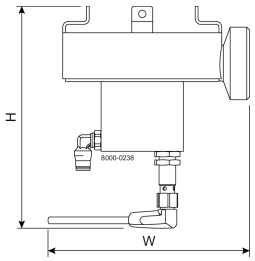
ALSIS Code: 5919

Material: 1.4307 (304L)
Seals: EPDM
Inside surface finish: Blasted
Outside surface finish: Blasted

Item no.	Size	Connection	Dimension (inch)		
	DN		H	W	
					SCANDI BREW
9615073908	DN150	Weld end	6.34	9.06	
9615073902	2.0"	Weld end	6.26	4.49	
9615073904	3.0"	Weld end	6.77	5.71	
9615073906	4.0"	Weld end	6.34	5.71	
					SCANDI BREW - AVH Blindplate
9615074801	150.0	Blind plate	1.10	7.20	
9615121101	2.0"	Blind plate	0.32	3.58	
9615121401	3.0" - 4.0"	Blind plate	0.32	4.69	
9615140803	3.0" - 4.0"	DIN 25 Male Part	1.46	4.49	
					SCANDI BREW - AVH Blindplate with Connection
9615140808	DN150	DIN 40 Male Part	2.40	7.20	
9615140809	DN150	DIN 50 Male Part	2.48	7.20	
9615140810	DN150	DIN 65 Male Part	2.68	7.20	
9615140811	DN150	DIN 80 Male Part	2.87	7.20	
9615140801	2.0"	DIN 25 Male Part	1.46	3.94	
9615140802	2.0"	DIN 40 Male Part	1.61	4.17	
9615140804	3.0" - 4.0"	DIN 40 Male Part	1.61	4.72	
9615140805	3.0" - 4.0"	DIN 50 Male Part	1.69	4.96	
9615140806	3.0" - 4.0"	DIN 65 Male Part	1.89	5.28	
9615140807	3.0" - 4.0"	DIN 80 Male Part	2.01	5.55	
					SCANDI BREW - AVH Blindplate with Connection & CIP
9615147109	DIN150	DIN 50 Male Part	2.48	7.20	
9615147111	DIN150	Pressure Relief Valve Ø75	2.87	7.20	
9615122001	DN150	Pressure Relief Valve Ø100	3.70	7.87	
9615122002	DN150	Pressure Relief Valve Ø100	3.70	7.87	
9615147101	2.0"	DIN 25 Male Part	1.46	3.94	
9615147102	2.0"	DIN 40 Male Part	1.61	4.17	
9615147103	3.0" - 4.0"	DIN 25 Male Part	1.46	4.49	
9615147104	3.0" - 4.0"	DIN 40 Male Part	1.61	4.72	
9615147105	3.0" - 4.0"	DIN 50 Male Part	1.69	4.96	
9615147106	3.0" - 4.0"	DIN 65 Male Part	1.89	5.28	
9615147107	3.0" - 4.0"	DIN 80 Male Part	2.09	5.55	
9615121901	3.0" - 4.0"	Pressure Relief Valve Ø75	2.87	7.87	
9615121902	3.0" - 4.0"	Pressure Relief Valve Ø100	2.87	7.87	

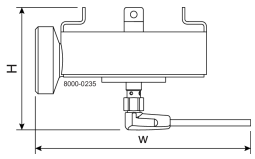
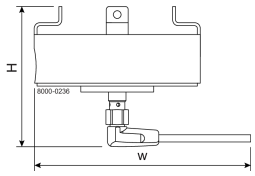
ALSIS Code: 5919

Material: 1.4307 (304L)
Seals: EPDM
Inside surface finish: Blasted
Outside surface finish: Blasted

Item no.	Size	Connection	Dimension (inch)		
	DN		H	W	
					SCANDI BREW - AVH Drain Collector - DIN, SMS
9615072807	DN150	DIN 25 Male Part	2.76	9.84	
9615072812	DN150	SMS ø25	2.52	9.57	
9615072801	2.0"	DIN 25 Male Part	2.64	5.28	
9615072809	2.0"	SMS ø25	2.40	5.00	
9615072803	3.0"	DIN 25 Male Part	3.15	6.50	
9615072810	3.0"	SMS ø25	2.91	6.34	
9615072805	4.0"	DIN 25 Male Part	2.76	6.50	
9615072811	4.0"	SMS ø25	2.52	6.22	
					SCANDI BREW - AVH Drain Collector - Weld
9615072808	DN150	Weld end	2.64	9.06	
9615072802	2.0"	Weld end	2.13	4.49	
9615072804	3.0"	Weld end	2.64	5.71	
9615072806	4.0"	Weld end	2.64	5.71	
					SCANDI BREW - AVH Drain Collector with Force Opener - DIN, SMS
9615073915	DN150	DIN 25	4.77	9.84	
9615073920	DN150	SMS ø25	4.77	9.57	
9615073909	2.0"	DIN 25	4.65	5.28	
9615073917	2.0"	SMS ø25	4.65	5.00	
9615073911	3.0"	DIN 25	5.16	6.50	
9615073918	3.0"	SMS ø25	5.16	6.22	
9615073913	4.0"	DIN 25	4.77	6.50	
9615073919	4.0"	SMS ø25	4.77	6.22	
					SCANDI BREW - AVH Drain Collector with Force Opener - Weld
9615073916	DN150	Weld end	4.77	9.06	
9615073910	2.0"	Weld end	4.65	4.49	
9615073912	3.0"	Weld end	5.16	5.71	
9615073914	4.0"	Weld end	4.77	5.71	
					SCANDI BREW - AVH Drain Collector with Prox Switch & Force Opener
9615073907	DN150	DIN 25	6.34	9.84	
9615073924	DN150	SMS ø25	6.34	9.57	
9615073901	2.0"	DIN 25	6.26	5.28	
9615073921	2.0"	SMS ø25	6.26	5.00	
9615073903	3.0"	DIN 25	6.77	6.50	
9615073922	3.0"	SMS ø25	6.77	6.22	
9615073905	4.0"	DIN 25	6.34	6.50	
9615073923	4.0"	SMS ø25	6.34	6.22	

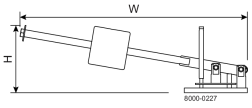
ALSIS Code: 5919

Material: 1.4307 (304L)
Seals: EPDM
Inside surface finish: Blasted
Outside surface finish: Blasted

Item no.	Size	Connection	Dimension (inch)		
	DN		H	W	
					SCANDI BREW - AVH Drain Collector with Prox Switch - DIN, SMS
9615074507	DN150	DIN 25	3.86	9.84	
9615074512	DN150	SMS ø25	3.86	9.84	
9615074501	2.0"	DIN 25	3.74	5.28	
9615074509	2.0"	SMS ø25	3.74	5.28	
9615074503	3.0"	DIN 25	4.25	6.50	
9615074510	3.0"	SMS ø25	4.25	6.50	
9615074505	4.0"	DIN 25	3.86	6.50	
9615074511	4.0"	SMS ø25	3.86	6.50	
					SCANDI BREW - AVH Drain Collector with Prox Switch - Weld
9615074508	DN150	Weld end	3.86	9.06	
9615074502	2.0"	Weld end	3.74	4.49	
9615074504	3.0"	Weld end	4.25	5.71	
9615074506	4.0"	Weld end	3.86	5.71	

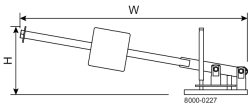
Safety valve
ALSIS Code: 5916

Material: 1.4404
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm

Item no.	Size	Opening pressure	Flow	Dimension (mm)	Dimension (inch)	
	inch	PSI	(gallon/h)	H	inch	
						SCANDI BREW
9615062801	3.0"	2.90	10672.55	14.76	29.13	
9615062802	3.0"	4.35	12099.08	14.76	29.13	
9615062803	3.0"	5.80	13631.28	14.76	29.13	
9615062804	3.0"	7.25	15216.31	14.76	29.13	
9615062805	3.0"	8.70	16299.42	14.76	29.13	
9615062806	3.0"	10.15	17382.52	14.76	29.13	
9615062807	3.0"	11.60	18492.05	14.76	29.13	
9615062808	3.0"	13.05	19575.15	14.76	29.13	
9615062809	3.0"	14.50	20684.68	14.76	29.13	
9615062810	3.0"	15.95	21714.95	14.76	29.13	
9615062811	3.0"	17.40	22771.64	14.76	29.13	
9615062812	3.0"	18.85	23828.32	14.76	29.13	
9615062813	3.0"	20.31	24858.59	14.76	29.13	
9615062814	3.0"	21.76	25915.28	14.76	29.13	
9615062815	3.0"	23.21	26945.55	14.76	29.13	
9615062816	3.0"	24.66	27949.41	14.76	29.13	
9615062817	3.0"	26.11	28979.68	14.76	29.13	
9615062818	3.0"	27.56	30009.95	14.76	29.13	
9615062819	3.0"	29.01	31013.8	14.76	29.13	
9615062820	3.0"	30.46	31674.23	14.76	29.13	
9615062821	3.0"	31.91	32334.67	14.76	29.13	
9615062822	3.0"	33.36	33021.51	14.76	29.13	
9615062823	3.0"	34.81	33681.94	14.76	29.13	
9615062824	3.0"	36.26	34342.37	14.76	29.13	
9615062825	3.0"	37.71	35055.64	14.76	29.13	
9615062826	3.0"	39.16	35768.9	14.76	29.13	
9615062827	3.0"	40.61	36508.58	14.76	29.13	
9615062828	3.0"	42.06	37221.85	14.76	29.13	
9615062829	3.0"	43.51	37935.11	14.76	29.13	
9615062830	3.0"	44.96	38252.12	14.76	29.13	
9615062831	3.0"	46.41	38542.71	14.76	29.13	
9615062832	3.0"	47.86	38833.3	14.76	29.13	
9615062833	3.0"	49.31	39150.31	14.76	29.13	
9615062834	3.0"	50.76	39440.89	14.76	29.13	
9615064201	4.0"	2.90	15427.65	14.76	29.13	
9615064202	4.0"	4.35	17250.44	14.76	29.13	
9615064203	4.0"	5.80	19073.23	14.76	29.13	
9615064204	4.0"	7.25	20896.01	14.76	29.13	
9615064205	4.0"	8.70	22533.88	14.76	29.13	
9615064206	4.0"	10.15	24145.33	14.76	29.13	
9615064207	4.0"	11.60	25783.2	14.76	29.13	
9615064208	4.0"	13.05	27421.06	14.76	29.13	
9615064209	4.0"	14.50	29032.51	14.76	29.13	
9615064210	4.0"	15.95	30379.79	14.76	29.13	
9615064211	4.0"	17.40	31700.65	14.76	29.13	
9615064212	4.0"	18.85	33047.93	14.76	29.13	
9615064213	4.0"	20.31	34368.79	14.76	29.13	

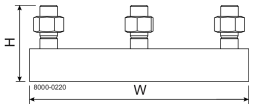
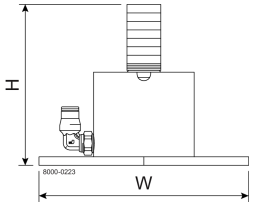
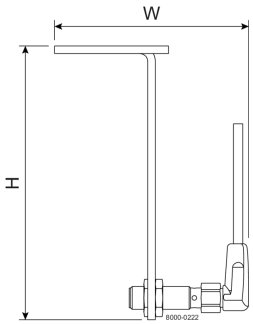
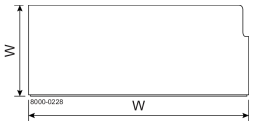
Safety valve
ALSIS Code: 5916

Material: 1.4404
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm

Item no.	Size	Opening pressure	Flow	Dimension (mm)	Dimension (inch)	
	inch	PSI	(gallon/h)	H	inch	
						SCANDI BREW
9615064214	4.0"	21.76	35716.07	14.76	29.13	
9615064215	4.0"	23.21	36931.26	14.76	29.13	
9615064216	4.0"	24.66	38146.45	14.76	29.13	
9615064217	4.0"	26.11	39361.64	14.76	29.13	
9615064218	4.0"	27.56	40603.25	14.76	29.13	
9615064219	4.0"	29.01	41818.44	14.76	29.13	
9615064220	4.0"	30.46	42901.55	14.76	29.13	
9615064221	4.0"	31.91	43878.99	14.76	29.13	
9615064222	4.0"	33.36	44830.01	14.76	29.13	
9615064223	4.0"	34.81	45807.44	14.76	29.13	
9615064224	4.0"	36.26	46969.8	14.76	29.13	
9615064601	6.0"	5.80	22507.46	16.93	41.34	
9615064602	6.0"	7.25	35214.14	16.93	41.34	
9615064603	6.0"	8.70	36640.67	16.93	41.34	
9615064604	6.0"	10.15	38093.62	16.93	41.34	
9615064605	6.0"	11.60	39520.15	16.93	41.34	
9615064606	6.0"	13.05	41633.52	16.93	41.34	
9615064607	6.0"	14.50	43773.32	16.93	41.34	
9615064608	6.0"	15.95	45886.69	16.93	41.34	
9615064609	6.0"	17.40	48026.49	16.93	41.34	
9615064610	6.0"	18.85	49611.52	16.93	41.34	
9615064611	6.0"	20.31	51222.97	16.93	41.34	
9615064612	6.0"	21.76	52834.42	16.93	41.34	

ALSIS Code: 5919

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish:

item no.	Size	Connection	Dimension (inch)		
			H	W	
					SCANDI BREW - PRV Counter Flange
9615052001 9615070601 9615066801	3.0" 4.0" 6.0"		2.76 2.76 2.76	7.87 7.87 10.63	
					SCANDI BREW - PRV Force Opener
9615065701 9615066201	3.0" - 4.0" 6.0"		3.74 3.74	5.98 4.88	
					SCANDI BREW - PRV Proximity Switch
9615063301 9615063501	3.0" - 4.0" 6.0"		6.10 5.71	3.94 3.94	
					SCANDI BREW - PRV Splash Guard
9615054401 9615050201	3.0" - 4.0" 6.0"		4.02 4.02	9.53 11.89	

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Sampling valves

Alfa Laval Unique Sampling Valve - Double Seat Valve

Sampling valves

Introduction

The Alfa Laval Unique Sampling Valve (Double Seat) is a double-seat sampling valve that enables representative sampling in hygienic processes under sterile conditions. It provides the high accuracy, exceptional repeatability and excellent reliability required for high-quality, cost-effective sampling. Either the ergonomically designed handle or the actuator ensures exceptional control during the sampling operation. It is possible to sterilize the entire seat between sampling, thereby eliminating the risk of cross-contamination.

Application

This double-seat sampling valve is specially designed for use in hygienic applications across the dairy, food, beverage, brewery, pharmaceutical, personal care and many other industries.

Benefits

- Safe, hygienic and contamination-free sampling
- Highly reliable operation
- Easy to operate and maintain
- Double seat with enhanced cleanability
- Modular design and easy to upgrade
- Sterilization possible

Standard design

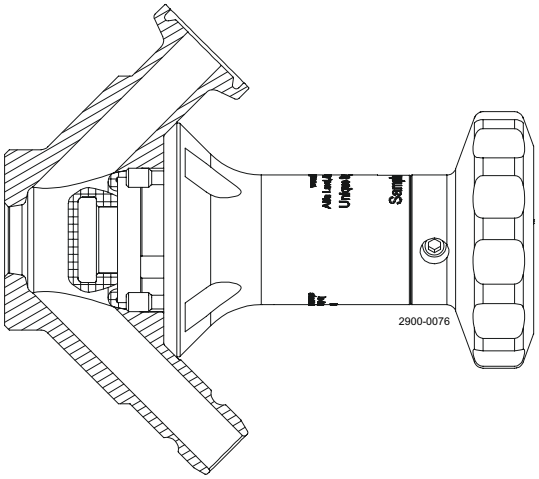
The Alfa Laval Unique Sampling Valve (Double Seat) consists of a valve body made of a single piece of stainless steel, either an actuator for automatic operation or a handle for manual operation, and a rubber membrane seal placed on the stem of the actuator, which acts as a stretchable plug.

The valve is available in three sizes: Type 4, Type 10 and Type 25. A collared pipe, tank or Tri-Clamp connection is available. The valve handles and actuators are interchangeable (see page 2).

Working principle

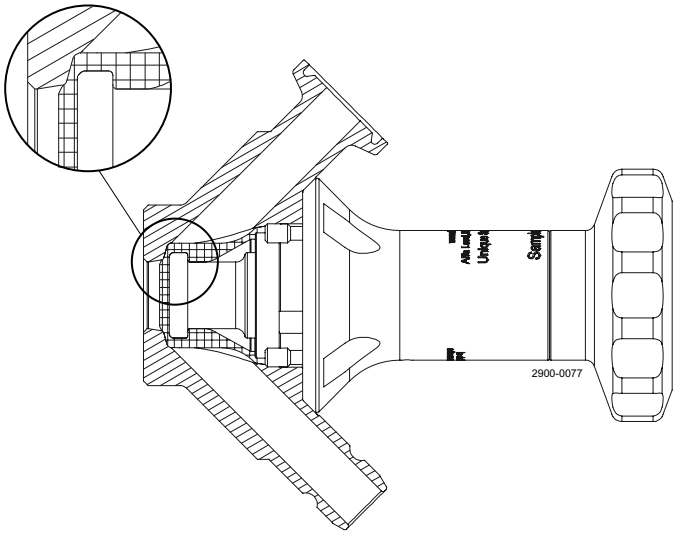
The Alfa Laval Unique Sampling Valve (Double Seat), with its patented technology, is designed for truly sterile sampling and ensures higher cleanability and sterilization of the valve seat and pipe connections. The double-seat sampling valve has three positions: open, shut and sterilization. It can be operated manually or automatically using a pneumatic actuator.

- **Open position: To start the sampling process**



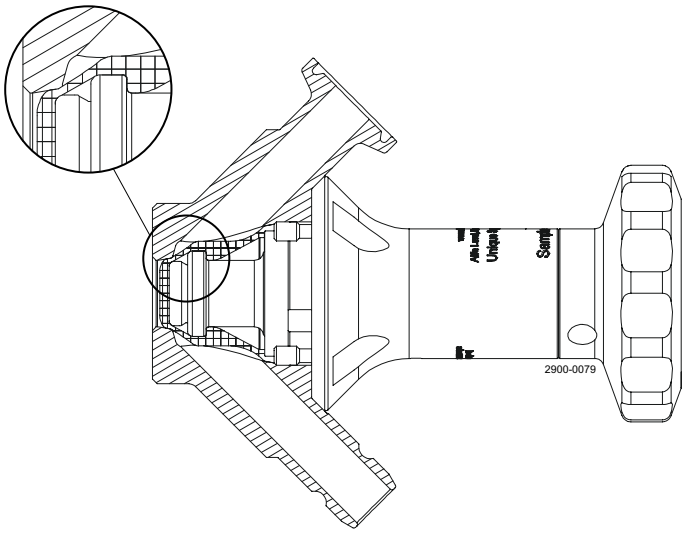
Manual valve: rotate the handle in a counterclockwise direction to open the valve. Pneumatic valve: open the valve by activating the actuator. This retracts the valve stem and membrane seal, which enables the product to flow freely through the open valve.

- **Shut position: To stop the sampling process**



Manual valve: rotate the handle in a clockwise direction to close the valve. Pneumatic valve: shut the air supply to stop the flow of product from the valve. In closed position, the valve body is now ready for sterilization. If steam is used for Sterilization-in-Place, the use of an optional pressure relief valve on the outlet is recommended to ensure proper steam temperature in the valve.

- **Sterilization position**



Manual valve: rotate the handle clockwise to the steam position. Pneumatic valve: apply air to the steam connection. This extends the inner spindle of the valve head into the inner seat and stops product flow in the valve port. At the same time, the outer spindle of the valve retracts and lifts the membrane seal away from its normal seat. Now it is possible to access the hard-to-reach areas on the seat surface, ensuring thorough sterilization and making the Unique Sampling Valve (Double Seat) a solid and reliable choice to achieve 100% representative sampling.

If steam is used for Sterilization-in-Place, the use of an optional pressure relief valve on the outlet is recommended to ensure proper steam temperature in the valve.

TECHNICAL DATA

Temperature	
Temperature range:	33.8°F - 266°F
Max. sterilisation temperature, dry steam (29 PSI):	249.8°F

Steam must be dry, since condensate will damage the membrane seal. It is recommended that the membrane seal is changed every 500 samples/sterilisations or in accordance with working conditions or experience.

Pressure	
Max. working pressure:	600 kPa (87 PSI)
Min. working pressure:	0 kPa (0 PSI)

ATEX	
Classification	II 2 G D [1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.

PHYSICAL DATA

Materials	
Valve body:	1.4404 (316L) with 3.1 cert
Actuator:	1.4301 (304), 1.4404 (316L)
Membrane seal:	EPDM, silicone

The valve is available in three sizes:

- **Size 4** for low-viscosity products such as water, beer, wine and liquid milk. Viscosity: (cP) 0-100. Max. particle size: 2,5 mm (0.098 in).
- **Size 10** for high-viscosity products such as fruit yoghurt, syrup and ice cream. Viscosity: (cP) 0-1000. Max. particle size: 7 mm (0.276 in).
- **Size 25** is for products with very high viscosity such as jam. Max. particle size: 20 mm (0.787 in).

Valve bodies:

- Tank (welding)
- Collared tube (welding)
- Clamp

Valve heads:

- Handle
- Pneumatic actuator (air supply 5-8 bar)

Accessories:

See Unique Sampling Valve - Accessories ordering leaflet.

Dimensions (inch)

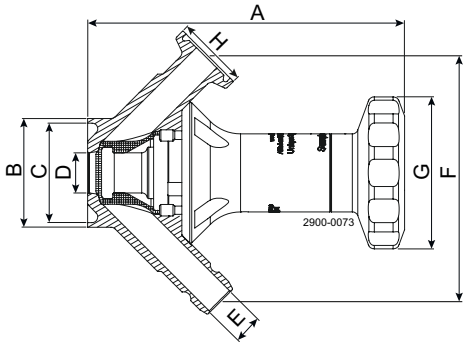


Figure 1. Handle with valve body: Collared pipe welding

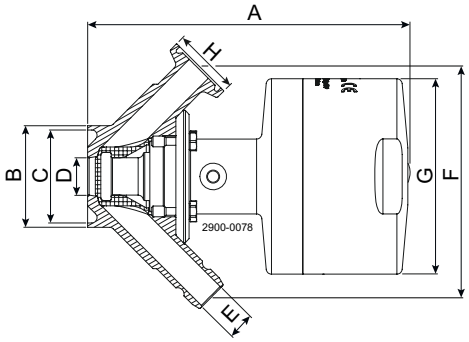


Figure 2. Pneumatic with valve body: Collared pipe welding

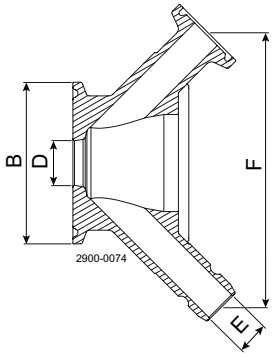


Figure 3. Valve body: Clamp

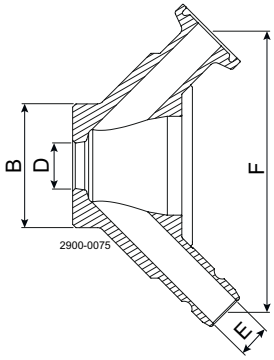


Figure 4. Valve body: Tank welding

Valve size	Size 4															
Valve Head	Handle Double Seat								Pneumatic Double seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
Nominal size			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
A	3.46	3.45	3.45	3.45	3.45	3.45	3.45	3.45	5.57	5.57	5.57	5.57	5.57	5.57	5.57	5.57
B	1.14	1.99	0.98	1.50	2.01	1.14	1.61	2.09	1.14	1.99	0.98	1.50	2.01	1.14	1.61	2.09
C	-	-	0.86	1.37	1.88	1.02	1.50	1.97	-	-	0.86	1.37	1.88	1.02	1.50	1.97
D	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
E	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
F	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
G	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
H	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Weight (lb)	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75

Valve size	Size 10															
Valve Head	Handle Double Seat								Pneumatic Double Seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
Nominal size			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
A	4.39	4.37	4.43	4.35	4.35	4.35	4.35	4.35	7.08	7.06	7.09	7.05	7.05	7.05	7.05	7.05
B	1.50	1.99	0.98	1.50	2.01	1.14	1.61	2.09	1.50	1.99	0.98	1.50	2.01	1.14	1.61	2.09
C	-	-	0.86	1.37	1.88	1.02	1.50	1.97	-	-	0.86	1.37	1.88	1.02	1.50	1.97
D	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
E	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
F	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38
G	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88
H	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Weight (lb)	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28

Valve size	Size 25					
Valve Head	Pneumatic Double Seat					
Valve body	Tank	Tri-clamp	Collarded pipe			
Nominal size			ISO 51	ISO 63.5	DIN 50	DIN 65
A	14.33	14.33	14.48	14.45	14.48	14.41
B	2.76	3.05	2.01	2.50	2.09	2.76
C	-	-	1.88	2.37	1.97	2.60
D	0.98	0.98	0.98	0.98	0.98	0.98
E	0.98	0.98	0.98	0.98	0.98	0.98
F	5.63	5.63	5.63	5.63	5.63	5.63
G	5.00	5.00	5.00	5.00	5.00	5.00
H	1.99	1.99	1.99	1.99	1.99	1.99
Weight (lb)	29.76	29.76	29.76	29.76	29.76	29.76

Alfa Laval Unique Sampling Valve - Single Seat Valve

Sampling valves

Introduction

The Alfa Laval Unique Sampling Valve (Single Seat) is a single-seat sampling valve that enables representative sampling in hygienic processes under sterile conditions. It provides high accuracy, exceptional repeatability and excellent reliability required for high quality, cost-effective sampling. Either the ergonomically designed handle or the actuator ensures exceptional control during the sampling operation.

Application

The single-seat sampling valve is specially designed for use in hygienic applications across the dairy, food, beverage, brewery, pharmaceutical, personal care and many other industries.

Benefits

- Safe, hygienic and contamination-free sampling
- Highly reliable operation
- Easy to operate and maintain
- Easy to clean
- Modular design and easy to upgrade
- Sterilization possible

Standard design

The Alfa Laval Unique Sampling Valve (Single Seat) consists of a valve body made of a single piece of stainless steel, either an actuator for automatic operation or a handle for manual operation, and a rubber membrane seal placed on the stem of the actuator, which acts as a stretchable plug.

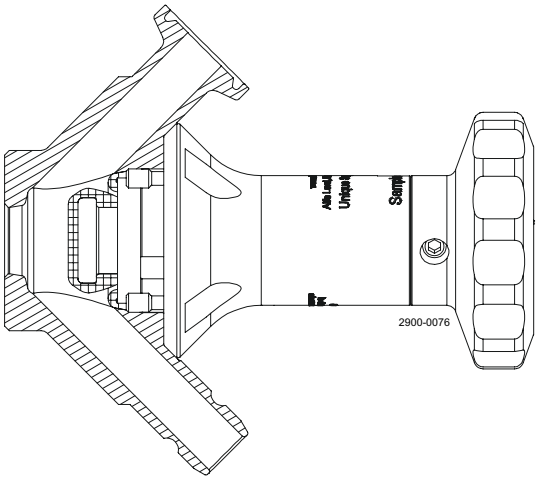
The valve is available in three sizes: Type 4, Type 10 and Type 25. A collared pipe, tank or Tri-Clamp connection is also available. The valve handles and actuators are interchangeable (see page 2).

The Unique Sampling Valve (Single Seat) can be upgraded to the Alfa Laval Unique Sampling Valve (Double Seat) by replacing the handle or actuator with an upgrade kit.

Working principle

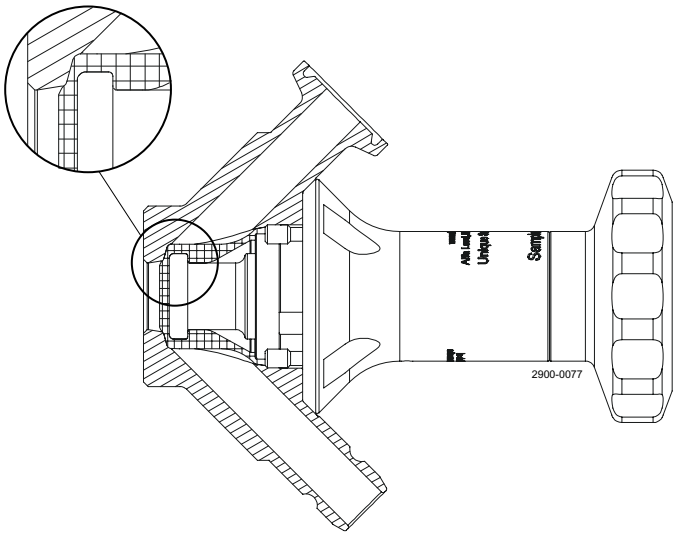
The Alfa Laval Unique Sampling Valve (Single Seat) is designed for standard hygienic sampling. The single-seat sampling valve has two positions: open and shut.

- **Open position: To start the sampling process**



Manual valve: rotate the handle in a counterclockwise direction to open the valve. Pneumatic valve: open the valve by activating the actuator. This retracts the valve stem and the membrane, which enables the product to flow freely through the open valve.

- **Shut position: To stop the sampling process**



Manual valve: rotate the handle in a clockwise direction to close the valve. Pneumatic valve: shut the air supply to stop the flow of product from the valve. In closed position, the valve body is now ready for sterilization. If steam is used for Sterilization-in-Place, the use of an optional pressure relief valve on the outlet is recommended to ensure proper steam temperature in the valve.

Upgrading to the Alfa Laval Unique Sampling Valve (Double Seat) is possible to realize higher cleanability and thorough sterilization of the valve seat and pipe connections.

TECHNICAL DATA

Temperature	
Temperature range:	33.8°F - 266°F
Max. sterilisation temperature, dry steam (29 PSI):	249.8°F

Steam must be dry, since condensate will damage the membrane seal. It is recommended that the membrane seal is changed every 500 samples/sterilisations or in accordance with working conditions or condition.

Pressure	
Max. working pressure:	87 psi (6 bar)
Min. working pressure:	0 psi (0 PSI)

ATEX	
Classification size 4 & 10 Manually	II 2 G D [1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.

PHYSICAL DATA

Materials	
Valve body:	1.4404 (316L) with 3.1 cert.
Actuator:	1.4301 (304), 1.4404 (316L)
Membrane seal:	EPDM, silicone

The valve is available in tree sizes:

- **Size 4** for low-viscosity products such as water, beer, wine and liquid milk. Viscosity: (cP) 0-100. Max. particle size: 2.5 mm (0.098 in).
- **Size 10** for high-viscosity products such as fruit yoghurt, syrup and ice cream. Viscosity: (cP) 0-1000. Max. particle size: 7 mm (0.276 in).
- **Size 25**is for products with very high viscosity such as jam. Max. particle size: 20 mm (0.787 in).

Valve bodies:

- Tank (welding)
- Collared tube (welding)
- Tri-clamp

Valve heads:

- Handle
- Pneumatic actuator (air supply 5-8 bar)

Accessories:

See Unique Sampling Valve - Accessories ordering leaflet.

Dimensions (inch)

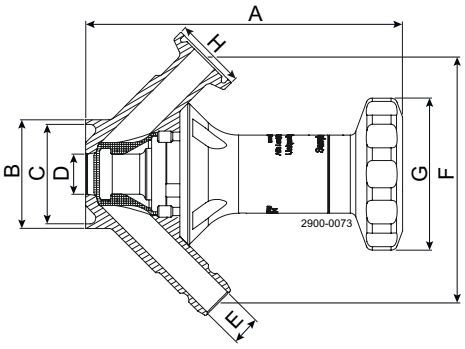


Figure 1. Handle with valve body: Collared pipe welding

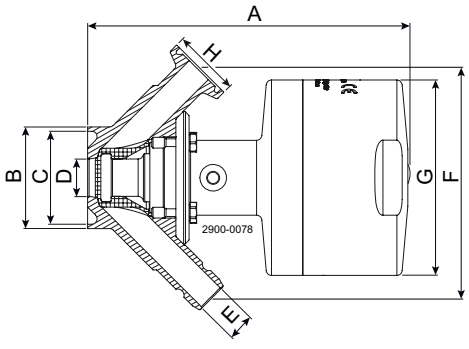


Figure 2. Pneumatic with valve body: Collared pipe welding

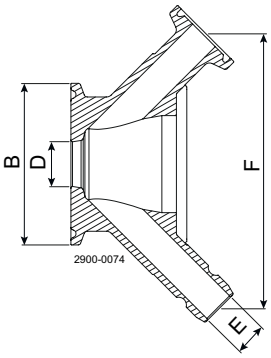


Figure 3. Valve body: Tri-clamp

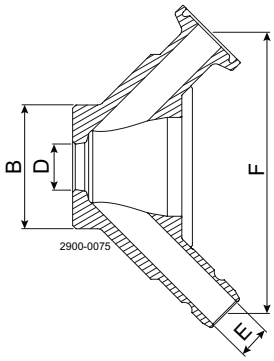


Figure 4. Valve body: Tank welding

Valve size	Size 4															
Valve Head	Handle Single Seat								Pneumatic Single Seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
Connection size			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
A	3.46	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.65	3.64	3.64	3.65	3.64	3.64	3.64	3.64
B	1.14	1.99	0.98	1.50	2.00	1.14	1.61	2.09	1.14	1.99	0.98	1.50	2.00	1.14	1.61	2.09
C	-	-	0.86	1.37	1.88	1.02	1.50	1.97	-	-	0.86	1.37	1.88	1.02	1.50	1.97
D	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
E	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
F	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
G	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
H	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Weight (lb)	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87

Valve size	Size 10															
Valve Head	Handle Single Seat								Pneumatic Single Seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
Connection size			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
A	4.39	4.37	4.43	4.35	4.35	4.35	4.35	4.35	4.80	4.78	4.81	4.77	4.79	4.79	4.79	4.79
B	1.50	1.99	0.98	1.50	2.00	1.14	1.61	2.09	1.50	1.99	0.98	1.50	2.00	1.14	1.61	2.09
C	-	-	0.86	1.37	1.88	1.02	1.50	1.97	-	-	0.86	1.37	1.88	1.02	1.50	1.97
D	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
E	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
F	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38
G	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88
H	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Weight (lb)	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19

Valve size	Size 25					
Valve Head	Pneumatic Single Seat					
Valve body	Tank	Tri-clamp	Collarded pipe			
Connection size			ISO 51	ISO 63,5	DIN 50	DIN 65
A	10.83	10.83	10.99	10.95	10.99	10.91
B	2.76	3.05	2.00	2.50	2.09	2.76
C	-	-	1.88	2.37	1.97	2.60
D	0.98	0.98	0.98	0.98	0.98	0.98
E	0.98	0.98	0.98	0.98	0.98	0.98
F	5.63	5.63	5.63	5.63	5.63	5.63
G	5.00	5.00	5.00	5.00	5.00	5.00
H	1.99	1.99	1.99	1.99	1.99	1.99
Weight (lb)	18.08	18.08	18.08	18.08	18.08	18.08

Alfa Laval Unique Sampling Valve - Accessories - Pressure Relief Valve

Sampling valves

Introduction

The Alfa Laval Pressure Relief Valve is a hygienic sampling accessory for overpressure protection when using the Alfa Laval Unique Sampling Valve. It controls steam pressure and temperature during sterilization of the valve. This safeguards your sampling valve and process lines against overpressure.

Application

This pressure relief valve for steam sterilization is designed for use during steam sterilization of the Unique Sampling Valve before and after taking representative samples from hygienic process lines across the food, beverage, personal care, pharmaceutical and many other industries.

Benefits

- Cost-effective, hygienic design
- Overpressure protection during Sterilization-in-Place
- Quick, thorough and safe steam sterilization
- Easy to clean

Standard design

This spring-loaded pressure relief valve for the Alfa Laval Unique Sampling Valve consists of a valve body, membrane seal, stem, spring, nozzle and handle. Constructed of insulating material for ease of handling during steam sterilization, it is positioned on the outlet of the sampling valve during Sterilization-in-Place.

Working principle

The Alfa Laval Pressure Relief Valve maintains the correct pressure and temperature during Sterilization-in-Place before and after taking representative samples. When using the pressure relief valve, sterilization typically takes place within two minutes using clean steam. The pressure relief valve is pre-set to a pressure of 29 psi, ensuring a temperature of 249.8°F, the recommended temperature for sterilization. Before taking a sample, pull the quick release handle to ensure that no steam pressure is present in the sampling valve, thereby ensuring operator safety.

TECHNICAL DATA

Temperature	
Temperature range:	33.8°F - 266°F
Max. sterilisation temperature, dry steam:	266°F

Pressure	
Max. working pressure:	87 psi (6 bar)
Min. working pressure:	0 psi (0 bar)

PHYSICAL DATA

Materials	
Steel parts:	1.4301 (304)
Other parts:	PA 6.6 30% GF
Membrane seal:	EPDM

Dimensions (inch)

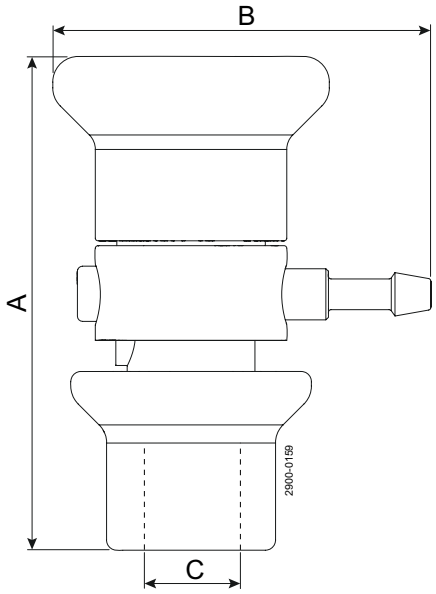


Figure 1. Size 4 and 10:

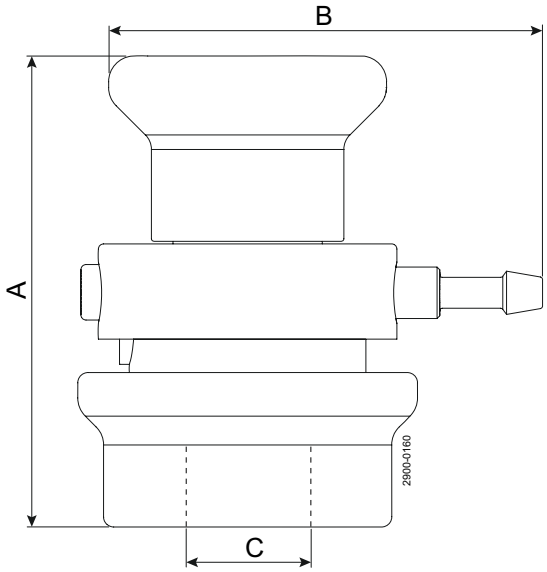


Figure 2. Size 25:

Size 4 and 10:			Size 25:		
A	B	C	A	B	C
3.8	2.78	0.55	3.6	3.56	1.18

Alfa Laval Unique Sampling Valve - Accessories - Non Return Valve

Sampling valves

Introduction

The Alfa Laval Non-return Valve is a hygienic sampling accessory for backflow protection when using with the Alfa Laval Unique Sampling Valve. It is a spring-loaded, non-return valve that prevents backflow of product from the sampling valve into the steam line when performing steam sterilization.

Application

This non-return valve for backflow protection is designed for automated processes when using the Unique Sampling Valve in applications across the food, beverage, personal care, pharmaceutical and many other industries.

Benefits

- Highly reliable
- Easy to install
- Protection for sampling valve and process equipment

Standard design

This non-return valve for use with the Alfa Laval Unique Sampling Valve consists of a nut, inlet piece, o-ring, piston, guide ring, spring, body and plug.

Working principle

The Alfa Laval Non-Return Valve is used when performing steam sterilization on the Alfa Laval Unique Sampling Valve. The non-return valve allows steam to pass through the sampling valve and blocks the product when taking a sample.

TECHNICAL DATA

Temperature	
Temperature range:	33.8°F - 266°F
Max. sterilisation temperature, dry steam:	266°F

Pressure	
Max. working pressure:	87 psi (6 bar)
Min. working pressure:	0 psi (0 bar)

PHYSICAL DATA

Materials	
Product wetted parts:	1.4404 (316L), PVDF
Other parts:	1.4301 (304)

Dimensions (inch)

Size 4 and 10:

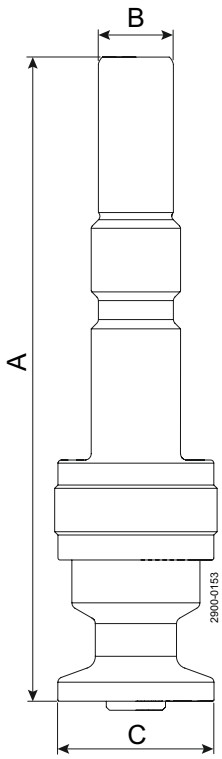


Figure 1. For steam generator

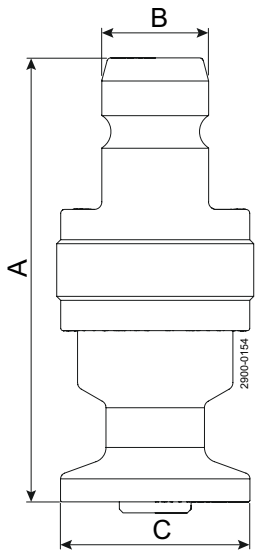


Figure 2. For Quick connection

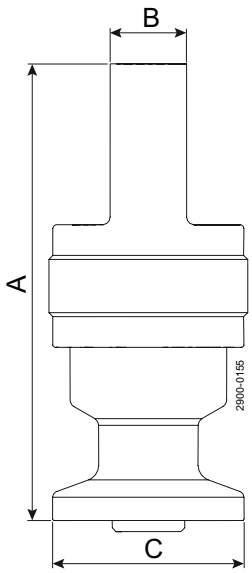


Figure 3. For tube welding

Size 25:

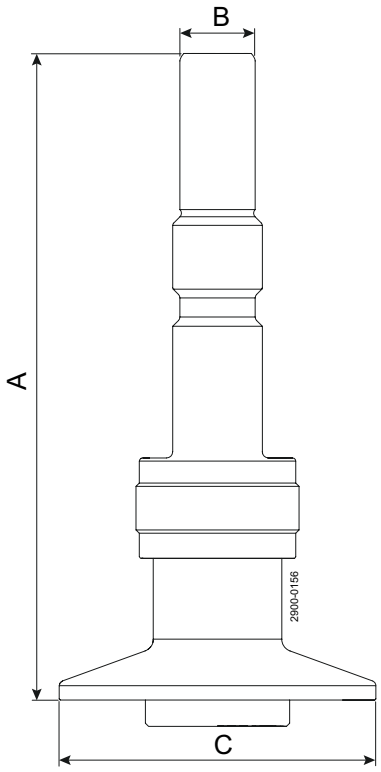


Figure 4. For steam generator

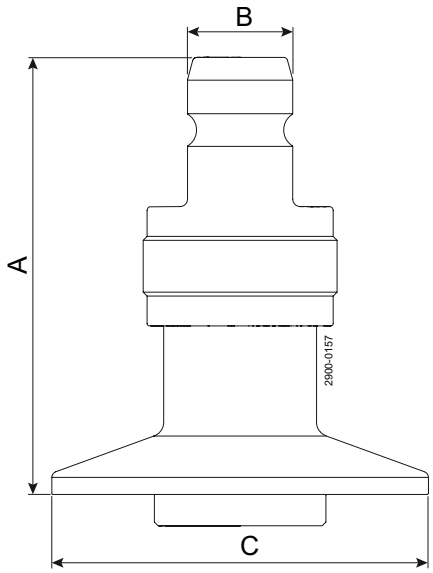


Figure 5. For Quick connection

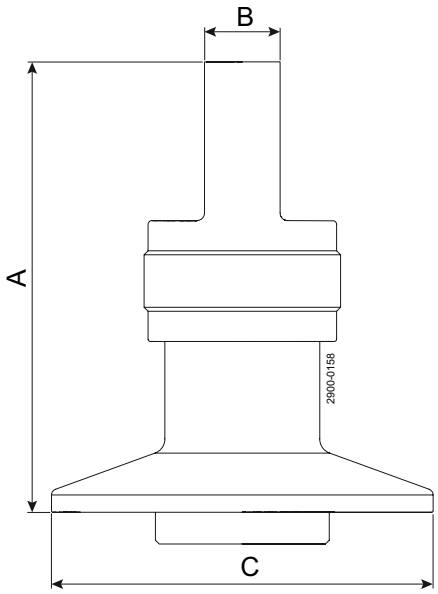


Figure 6. For tube welding

Inlet size	Size 4 and 10			Size 25		
	A	B	C	A	B	C
For steam generator	4.06	0.47	0.98	4.06	0.47	1.99
For Quick connection	2.31	0.55	0.98	2.31	0.55	1.99
For tube welding	2.35	0.39	0.98	2.35	0.39	1.99

Alfa Laval Unique Sampling Valve - Accessories - Quick Connection

Sampling valves

Introduction

The Alfa Laval Quick Connection is a hygienic sampling accessory for connection when using the Alfa Laval Unique Sampling Valve. It can be used individually or in combination with sampling accessories, such as the Alfa Laval Non-return Valve.

Application

This quick connection is designed for use with the Alfa Laval Unique Sampling Valve in hygienic applications across the food, beverage, personal care, pharmaceutical and many other industries.

Benefits

- Simple, straightforward design
- Easy to install and use
- Safe operation
- Flexible options

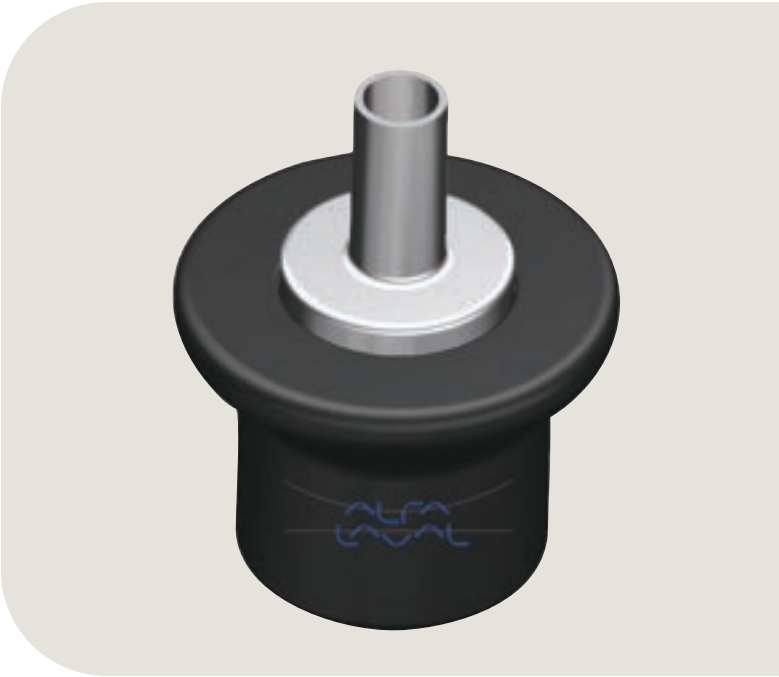
Standard design

The standard Quick Connection consists of a quick connection for fast and easy mounting on the sampling valve. It is available with either hose, tube, blind cap or male connection for further distribution via hose or tube. A special integrated Quick Connection version, including the Alfa Laval Non-return Valve and Indication Unit with the Unique Sampling Valve, makes it possible to use different Cleaning-in-Place (CIP) media without any risk of mixing.

Working principle

The standard Alfa Laval Quick Connection can easily be fitted with female quick connection. This makes it easy to divert product, steam or CIP media to the sample point or drain via hose or piping.

Using the Quick Connection with the Alfa Laval Non-return Valve and an indication unit make it possible to connect up to four different drains to the sampling valve by utilizing four different quick connections, each with an indication ring to differentiate the four from one another:



- No indication ring
- Inner indication ring
- Outer indication ring
- Inner and outer indication rings

Depending on the indication rings, the system indicates which pipe is connected to the sampling valve and ensures that the fluids are not mixed. The quick connection is fitted with non-return valves to prevent backflow and thereby prevent any cross-contamination of the fluids.

TECHNICAL DATA

Temperature	
Temperature range:	33.8 °F - 266 °F

Pressure	
Max. working pressure:	87 PSI (6 bar)
Min. working pressure:	0 PSI (0 bar)

PHYSICAL DATA

Materials	
Product wetted parts:	1.4404 (316L)
Other parts:	1.4301 (304), PA 6.6 30% GF

Dimensions (inch)

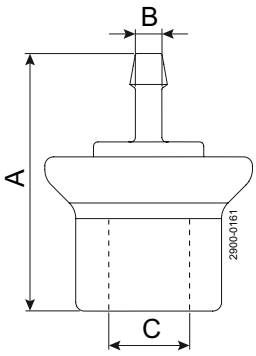


Figure 1. Hose Connection

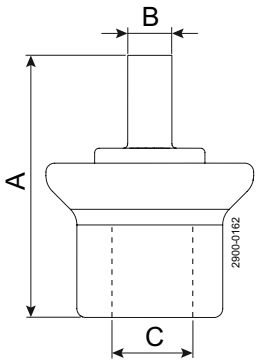


Figure 2. Tube welding

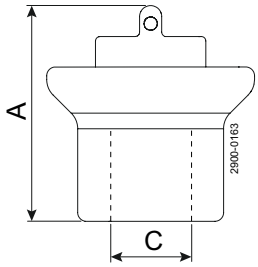


Figure 3. Blind cap

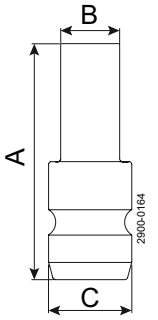


Figure 4. Male connection

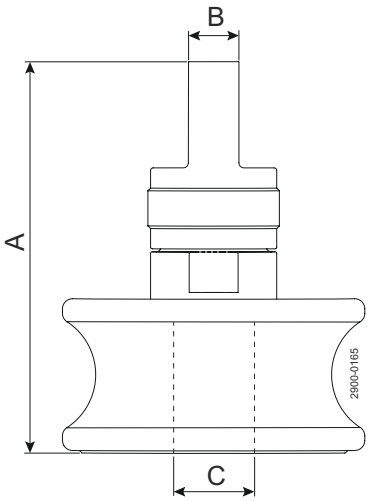


Figure 5. Female quick connection w. non return valve

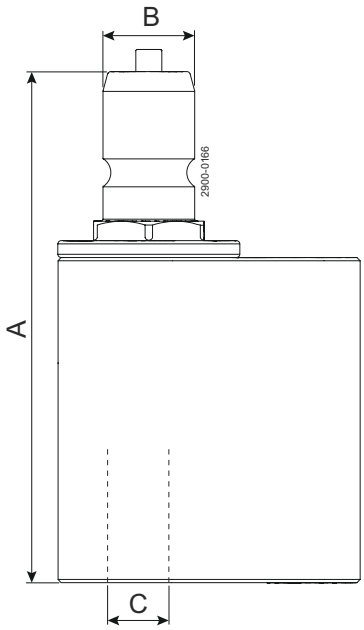


Figure 6. Male quick connection w. non return valve

Type	A	B	C
Quick connection w. hose connection ø0.24	2.28	0.24	0.55
Quick connection w. hose connection ø0.31	2.28	0.31	0.55
Quick connection w tube welding	2.32	0.39	0.55
Quick connection w. blind cab	1.93	-	0.55
Male connection	1.57	0.39	0.55
Female quick connection w. non return valve	3.03	0.39	0.55
Male quick connection w. non return valve	3.09	0.55	0.39

Alfa Laval SB Membrane Sampling Valve

Sampling valves

Introduction

The Alfa Laval SB Membrane Sampling Valve is a hygienic valve that enables representative sampling of products from tanks and pipework under sterile conditions. It provides the high accuracy, exceptional repeatability and excellent reliability required for high-quality, cost-effective sampling.

Application

This hygienic sampling valve is suitable for use in the hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Hygienic and sterilizable to ensure hygienic sampling at low investment cost
- No sampling contamination risk due to effective Sterilization-in-Place before and after each sampling
- Flexible sampling methods: manual activation, manual with micro port for hypodermic needle, or pneumatic versions
- Safe, reliable sampling procedures

Standard design

The membrane sampling valve consists of a valve body, a membrane seal which works as a stretchable plug, and an actuator and/or handle to open and close the valve. To minimize the risk of contamination, the valve is sterilized in place using alcohol or steam. The membrane forms a seal directly against the product to ensure representative sampling and provide accurate, repeatable results without any risk of secondary contamination.

The valve is available in three different actuator designs:

- Manual - For manual activation
- Manual + Micro Port - For manual activation or sampling using a hypodermic needle to penetrate the membrane for sample taking
- Manual + Pneumatic - For manual or pneumatic activation when the valve is connected to pipes for automatic sampling

Supplied with pipe outlet connections, the valve is available with three different types of connection: tank, pipe and threaded.

All types are available for manual or pneumatic operation, or a combination of both. The two connections are hose pieces designed as clip-on. The standard valve is equipped with one clip-on closing cap.

Working principle

Before opening the Alfa Laval SB Membrane Sampling Valve, the closing cap should be placed on the upper hose to avoid any product leaving the upper port. When the handle is turned to the horizontal position, the sample starts to flow through the lower outlet. When the handle is turned back to the vertical position, the valve shuts and the handle can be removed, if required. Samples can be taken using a special valve type with a micro port; removal of the red cap enables the insertion of a hypodermic needle through a central channel and into the membrane to take a sample with the valve in the shut position. After sampling, flush the valve with water or alcohol. The valve can be sterilized using alcohol or steam.

TECHNICAL DATA

Temperature	
Temperature range:	33.8 F° - 266 F°
Max sterilisation temperature dry steam (2 bar):	249.8 F°

Steam must be dry, since condensate will damage the membrane seal.

Pressure	
Product pressure:	145 psi (10 bar)

PHYSICAL DATA

Materials	
Valve body:	1.4404 (AISI 316L) with 3.1 cert.
Other metallic parts:	1.4307 (AISI 304L)
Membrane:	1 pcs. silicone and 1 pcs. EPDM supplied with valve

Accessories

See SB Membrane Sampling Valve Accessories ordering leaflet.

Special Versions

Instead of being clip-on type, the two outlets of the valve can be supplied with Swagelok. Other type is available on request.

The pneumatic valve can alternatively be supplied in a combined manual - pneumatic execution.

Please ask for separate information on the SCANDI BREW® Sampling system.

The valve body is available in the following constructions:

- Type T for direct welding into tank
- Type P for direct welding into pipe
- Type S for socket mounting. Valve body with male part in 3/8" BSP
- Other types are available on request, f.inst. 1/2" BSP, NW 10, NW 15

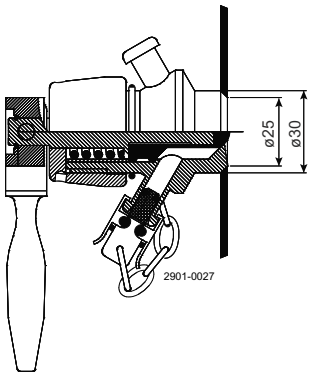


Figure 1. Type T

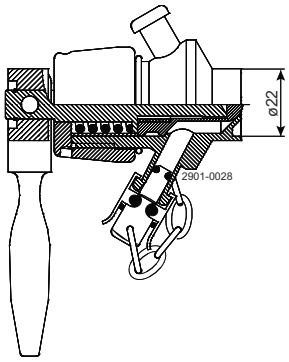


Figure 2. Type P

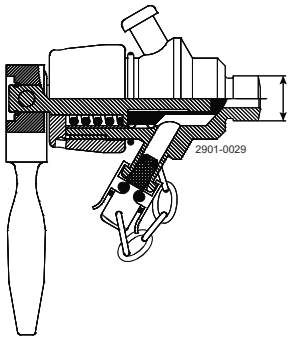
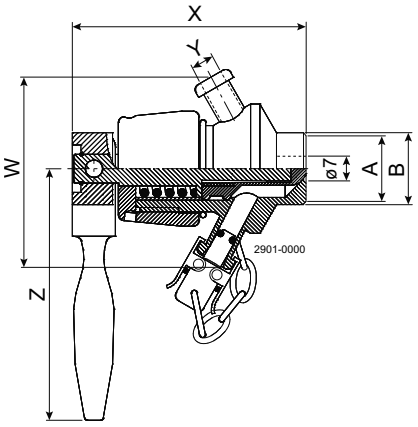


Figure 3. Type S

Dimensions (inch)



	Type T	Type P 1”	Type P DIN/NW25	Type S
A	ø0.98	-	-	-
B	ø1.18	ø0.98	ø29	3/8” BSP
X	3.19	3.25	3.25	3.70
Y	0.27	0.27	0.27	0.27
Z	3.44	3.44	3.44	3.44
W	2.57	2.57	2.57	2.57

Alfa Laval SB Micro Sampling Port

Sampling valves

Introduction

The Alfa Laval SB Micro Sampling Port enables representative hygienic and microbiological samples to be taken under sterile conditions in small volumes from tanks and pipework. To help ensure product safety, the sampling port features a straightforward hygienic design with minimal components to make collecting samples mid-stream easy, convenient and accurate.

Application

The SB Micro Sampling Port is specially designed for use within the brewery, food, dairy, beverage and many other industries.

Benefits

- Safe, simple, aseptic sampling
- Small sample size
- Minimum impact to product
- Superior hygiene
- Versatile mounting
- Easy to clean

Standard design

The sampling port consists of a housing made as a socket for direct welding into the tank wall or pipework, a rubber plug which is positioned by a press screw, o-ring, chain and closing cap. There are three types: Type P, Type PC, and Type T (see page 2).

Working principle

Before sampling, sterilize the plug with alcohol, for instance. The inner part of the rubber plug will automatically be cleaned during either tank or pipe cleaning.

To take a sample, simply unscrew the closing cap and insert a 0.04” hypodermic needle through the rubber plug.

Replacement of the rubber plug should only take place when the tank is empty, and pressure has been released. To replace the plug, loosen the press screw until it is released from the holder and the rubber plug is released. Mount the new plug, then remount the press screw tightly.

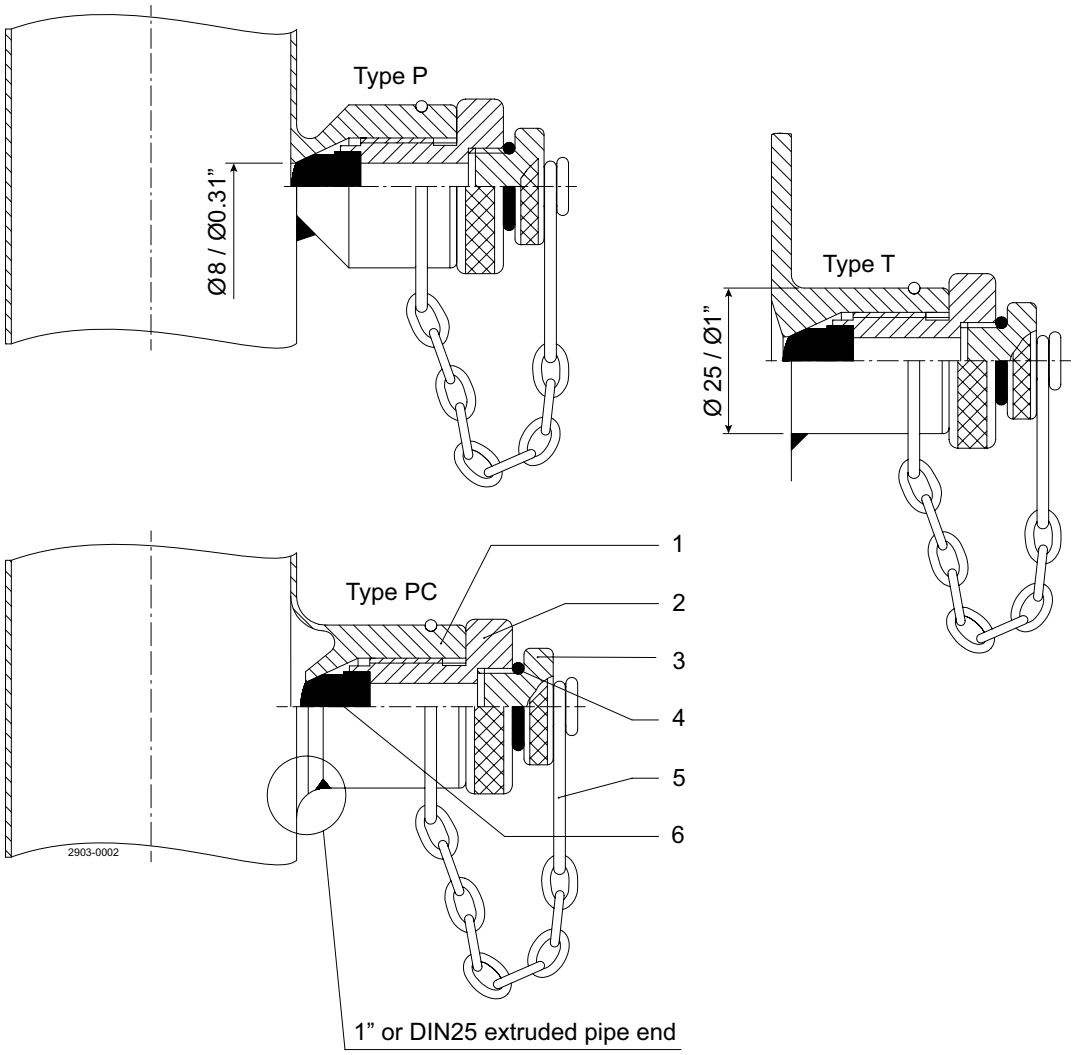
TECHNICAL DATA

Temperature	
Temperature range, silicone:	33 °F - 230 °F
Temperature range, natural rubber:	33 °F - 194 °F

Pressure	
Max. product pressure:	87 PSI

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L) 3.1 available
Membrane seals:	Silicone or natural rubber



Pos.1: Welding socket
Pos.2: Press screw
Pos.3: Closing cap
Pos.4: O-ring
Pos.5: Chain
Pos.6: Rubber plug

The different types of sockets are mounted as follows:

- Socket, Type T, is welded into a 1” diameter hole in a tankwall
- Socket, Type P, is welded on a pipewall and thereafter a 0.3” hole is drilled
- Socket, Type PC, is available for welding onto extruded pipe ends equal to 1” as well as DN25

Dimensions (inch)

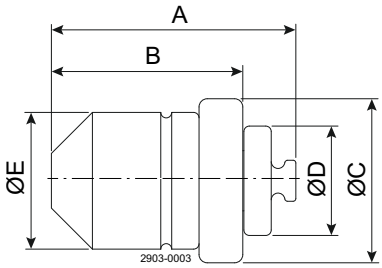


Figure 1. Type P

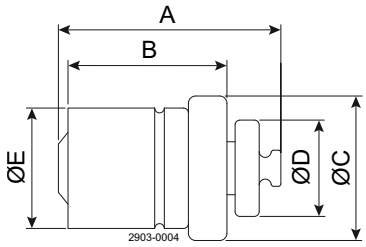


Figure 2. Type PC

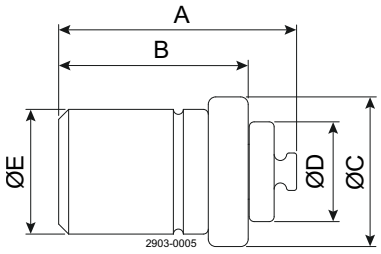


Figure 3. Type T

	A	B	ØC	ØD	ØE
Type P	1.76	1.38	1.18	0.79	1
Type PC	1.82	1.3	1.18	0.79	1
Type T	1.88	1.49	1.18	0.79	1

Alfa Laval SB Micro Sampling Port Type M

Sampling valves

Introduction

The Alfa Laval SB Micro Sampling Port Type M enables representative hygienic and microbiological samples to be taken in small volumes from tanks and pipework under sterile conditions. To help ensure product safety, the sampling port features a straightforward hygienic design with minimal components to make collecting samples easy, convenient and accurate.

Application

The sampling port is specially designed for use within the brewery, food, dairy, beverage and many other industries.

Benefits

- Simple, hygienic design
- Safe sampling
- Small sample size
- Minimum impact to product
- Easy to clean

Standard design

The SB Micro Sampling Port Type M consists of a housing made as a socket for direct welding into the tank wall or pipework, a threaded nipple, a membrane and a perforated disc that keeps the membrane in place. The membrane forms a seal directly against the product to ensure representative sampling and provide accurate, repeatable results without any risk of secondary contamination.

Working principle

Before sampling, sterilize the valve membrane with alcohol, for instance. The inner portion of the rubber membrane is automatically cleaned during tank or pipework cleaning.

To take a sample, simply unscrew the closing cap and insert a hypodermic needle through the membrane.

Replacement of the rubber membrane should only take place when the tank is empty, and pressure has been released. To remove the old membrane, unscrew the threaded nipple and remove the perforated disc. Replace the old membrane with a new one, and remount the components firmly in place.

TECHNICAL DATA

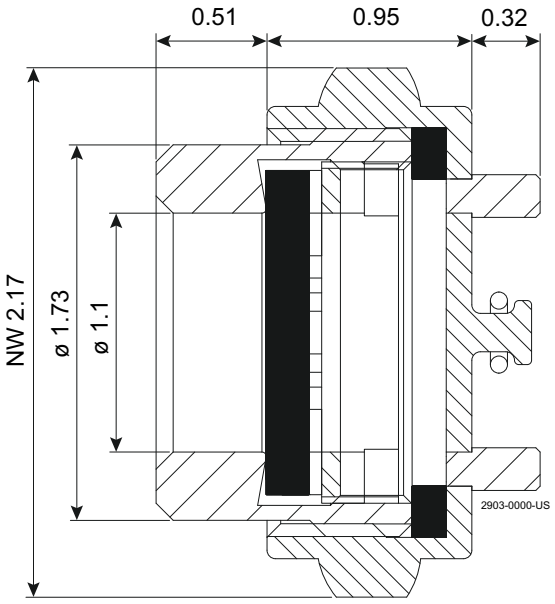
Temperature	
Temperature range:	33.8°F - 194°F

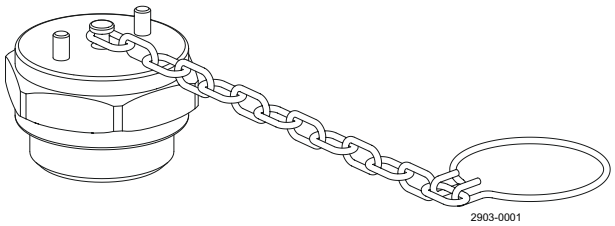
Pressure	
Max. product pressure:	145 PSI

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L) 3.1 available
Membrane seal:	NBR

Dimensions (inch)





Alfa Laval SB Carlsberg Flask

Yeast propagation

Introduction

The Alfa Laval SB Carlsberg Flask is ideal for laboratory-scale wort sterilization and pure yeast culture propagation in brewery applications. The flask is made of materials that meet stringent hygienic requirements and can be easily autoclaved.

Application

The SB Carlsberg Flask is specifically designed for use in the brewery industry.

Benefits

- Sterility assured by all-in-one aseptic design
- Hygienic, easy-to-clean configuration
- Safe and sterile transfer
- Easy to move to location required
- Robust construction for wort sterilization and yeast integrity

Standard design

The Alfa Laval SB Carlsberg Flask consists of a cylindrical container with a flat bottom and top cover equipped with breathing filters and a membrane sample valve for aeration and product transfer. A micro sample port enables aseptic introduction of pure yeast culture by means of a syringe. Compliant to PED 2014/68/EU.

Working principle

The SB Carlsberg Flask is filled to its net capacity with wort, corresponding to approximately 80% of the total volume. Sterilization takes place using an autoclave, a gas burner or an electric hotplate. It is then placed in a refrigerator or a cold room to cool the wort to the desired working temperature. The cold wort is aerated through the membrane sample valve connected to the aeration lance.

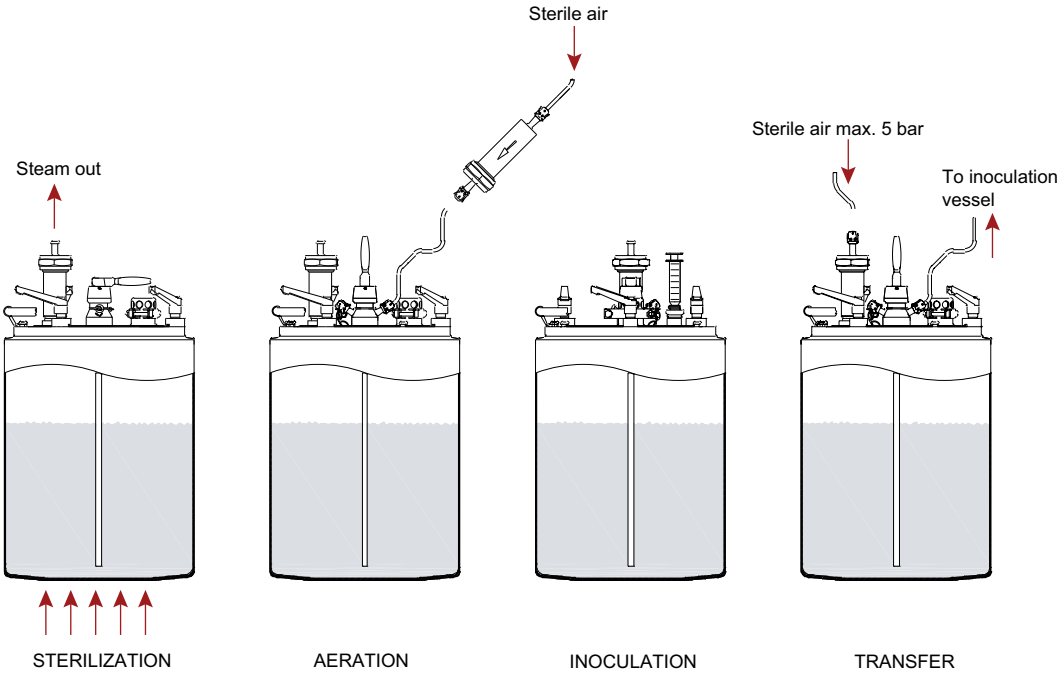
Yeast culture can be introduced aseptically through the membrane fitting by means of a syringe. Alternatively, dry yeast culture can be transferred to the flask through the empty filter housing.

TECHNICAL DATA

Net volume	Total volume	Recommend transfer pressure	Allowable pressure
6.6 Gallons	8.7 Gallons	30-43 PSI	87 PSI

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4307 (AISI 304L)
Product wetted seals:	EPDM
Product wetted o-ring:	Silicone

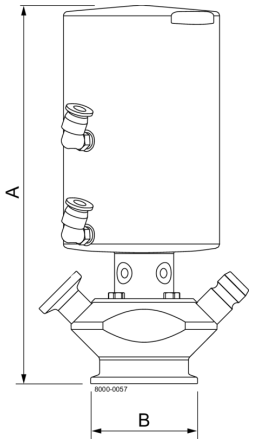


Unique Sampling Valve - Double Seat Valve

Valve ports: Tri-Clamp/Quick
ALSIS Code: 5349

Material: 1.4404 (316L)
Inside surface finish: Ra 0.8 µm
Outside surface finish: Polished

Item no.	Size	Max. working pressure	Connection	Dimension (inch)		
	bar	psi		A	B	
						Double Seat actuator
9614095004	Size 4	0.87	Collared pipe - DN25	5.56	1.14	
9614095040	Size 4	0.87	Collared pipe - DN25	4.35	1.14	
9614095006	Size 4	0.87	Collared pipe - DN40	5.56	1.61	
9614095042	Size 4	0.87	Collared pipe - DN40	4.35	1.61	
9614095008	Size 4	0.87	Collared pipe - DN50	5.56	2.09	
9614095044	Size 4	0.87	Collared pipe - DN50	4.35	2.09	
9614095003	Size 4	0.87	Collared pipe - ISO 25 mm	5.57	0.98	
9614095039	Size 4	0.87	Collared pipe - ISO 25 mm	5.57	0.98	
9614095005	Size 4	0.87	Collared pipe - ISO 38 mm	5.56	1.50	
9614095041	Size 4	0.87	Collared pipe - ISO 38 mm	5.56	1.50	
9614095007	Size 4	0.87	Collared pipe - ISO 51 mm	5.56	2.01	
9614095043	Size 4	0.87	Collared pipe - ISO 51 mm	4.35	2.01	
9614095002	Size 4	0.87	Tank mounted	5.57	1.14	
9614095038	Size 4	0.87	Tank mounted	4.39	1.50	
9614095001	Size 4	0.87	Tri-Clamp	5.56	1.99	
9614095037	Size 4	0.87	Tri-Clamp	4.37	1.99	
9614095406	Size 10	0.87	Collarded pipe	7.05	1.61	
9614095404	Size 10	0.87	Collared pipe - DN25	7.05	1.14	
9614095440	Size 10	0.87	Collared pipe - DN25	7.05	1.14	
9614095442	Size 10	0.87	Collared pipe - DN40	7.05	1.61	
9614095408	Size 10	0.87	Collared pipe - DN50	7.05	2.09	
9614095444	Size 10	0.87	Collared pipe - DN50	7.05	2.09	
9614095403	Size 10	0.87	Collared pipe - ISO 25 mm	7.09	0.98	
9614095439	Size 10	0.87	Collared pipe - ISO 25 mm	7.09	0.98	
9614095405	Size 10	0.87	Collared pipe - ISO 38 mm	7.05	1.50	
9614095441	Size 10	0.87	Collared pipe - ISO 38 mm	7.05	1.50	
9614095407	Size 10	0.87	Collared pipe - ISO 51 mm	7.05	2.01	
9614095443	Size 10	0.87	Collared pipe - ISO 51 mm	7.05	2.01	
9614095402	Size 10	0.87	Tank mounted	7.08	1.14	
9614095438	Size 10	0.87	Tank mounted	7.08	1.14	
9614095401	Size 10	0.87	Tri-Clamp	7.06	1.99	
9614095437	Size 10	0.87	Tri-Clamp	7.06	1.99	
9614095526	Size 25	0-87	Collarded pipe	14.45	2.50	
9614095504	Size 25	0-87	Collared pipe - DN50	14.48	2.09	
9614095525	Size 25	0-87	Collared pipe - DN50	14.48	2.09	
9614095506	Size 25	0-87	Collared pipe - DN65	14.44	2.76	
9614095527	Size 25	0-87	Collared pipe - DN65	14.44	2.76	
9614095503	Size 25	0-87	Collared pipe - ISO 51 mm	14.48	2.01	
9614095524	Size 25	0-87	Collared pipe - ISO 51 mm	14.48	2.01	
9614095505	Size 25	0-87	Collared pipe - ISO 63.5 mm	14.44	2.50	
9614095502	Size 25	0-87	Tank mounted	14.33	2.76	
9614095523	Size 25	0-87	Tank mounted	14.33	2.76	
9614095501	Size 25	0-87	Tri-Clamp	14.33	3.05	
9614095522	Size 25	0-87	Tri-Clamp	14.33	3.05	

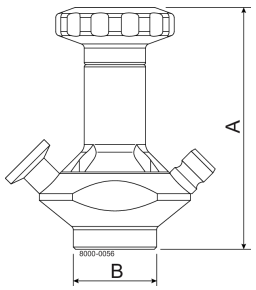


Unique Sampling Valve - Double Seat Valve

Valve ports: Tri-Clamp/Quick
ALSIS Code: 5349

Material: 1.4404 (316L)
Inside surface finish: Ra 0.8 µm
Outside surface finish: Polished

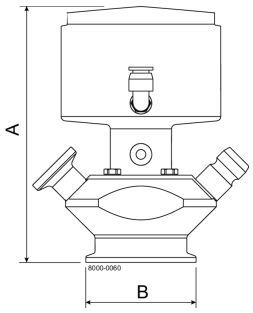
Item no.	Size	Max. working pressure	Connection	Dimension (inch)		
	bar	psi		A	B	
						Double Seat handle
9614094903	Size 4	0.87	Collarded pipe	3.45	0.98	
9614094904	Size 4	0.87	Collarded pipe	3.45	1.14	
9614094905	Size 4	0.87	Collarded pipe	3.45	1.50	
9614094906	Size 4	0.87	Collarded pipe	3.45	1.61	
9614094907	Size 4	0.87	Collarded pipe	3.45	2.01	
9614094908	Size 4	0.87	Collarded pipe	3.45	2.09	
9614094939	Size 4	0.87	Collarded pipe	3.45	0.98	
9614094940	Size 4	0.87	Collarded pipe	3.45	1.14	
9614094941	Size 4	0.87	Collarded pipe	3.45	1.50	
9614094942	Size 4	0.87	Collarded pipe	3.45	1.61	
9614094943	Size 4	0.87	Collarded pipe	3.45	2.01	
9614094944	Size 4	0.87	Collarded pipe	3.45	2.09	
9614095206	Size 4	0.87	Collarded pipe	4.35	1.61	
9614094902	Size 4	0.87	Tank	3.45	1.14	
9614094938	Size 4	0.87	Tank	3.45	1.14	
9614094901	Size 4	0.87	Tri-Clamp	3.46	1.99	
9614094937	Size 4	0.87	Tri-Clamp	3.46	1.99	
9614095203	Size 10	0.87	Collarded pipe	4.43	0.98	
9614095204	Size 10	0.87	Collarded pipe	4.35	1.14	
9614095205	Size 10	0.87	Collarded pipe	4.35	1.50	
9614095207	Size 10	0.87	Collarded pipe	4.35	2.01	
9614095208	Size 10	0.87	Collarded pipe	4.35	2.09	
9614095239	Size 10	0.87	Collarded pipe	4.39	0.98	
9614095240	Size 10	0.87	Collarded pipe	4.35	1.14	
9614095241	Size 10	0.87	Collarded pipe	4.35	1.50	
9614095242	Size 10	0.87	Collarded pipe	4.35	1.61	
9614095243	Size 10	0.87	Collarded pipe	4.35	2.01	
9614095244	Size 10	0.87	Collarded pipe	4.35	2.09	
9614095202	Size 10	0.87	Tank mounted	4.39	1.50	
9614095238	Size 10	0.87	Tank mounted	4.39	1.50	
9614095201	Size 10	0.87	Tri-Clamp	4.37	1.99	
9614095237	Size 10	0.87	Tri-Clamp	5.56	1.99	



Valve ports: Tri-Clamp/Quick
ALSIS Code: 5349

Material: 1.4404 (316L)
Inside surface finish: Ra 0.8 µm
Outside surface finish: Polished

Item no.	Size	Max. working pressure	Connection	Dimension (inch)		
		psi		A	B	
						Single Seat actuator
9614030908	Size 4	0.87	Collarded pipe	3.64	2.09	
9614030904	Size 4	0.87	Collared pipe - DN25	3.64	1.14	
9614030940	Size 4	0.87	Collared pipe - DN25	3.64	1.14	
9614030906	Size 4	0.87	Collared pipe - DN40	3.64	1.61	
9614030942	Size 4	0.87	Collared pipe - DN40	3.64	1.61	
9614030944	Size 4	0.87	Collared pipe - DN50	3.64	2.09	
9614030903	Size 4	0.87	Collared pipe - ISO 25 mm	3.64	0.98	
9614030939	Size 4	0.87	Collared pipe - ISO 25 mm	3.64	0.98	
9614030905	Size 4	0.87	Collared pipe - ISO 38 mm	3.65	1.50	
9614030941	Size 4	0.87	Collared pipe - ISO 38 mm	3.65	1.50	
9614030907	Size 4	0.87	Collared pipe - ISO 51 mm	3.64	2.01	
9614030943	Size 4	0.87	Collared pipe - ISO 51 mm	3.64	2.01	
9614030902	Size 4	0.87	Tank	3.65	1.50	
9614030938	Size 4	0.87	Tank mounted	3.65	1.50	
9614030901	Size 4	0.87	Tri-Clamp	3.64	1.99	
9614030937	Size 4	0.87	Tri-Clamp	3.64	1.99	
9614095304	Size 10	0.87	Collarded pipe	4.79	1.14	
9614095307	Size 10	0.87	Collarded pipe	4.79	2.01	
9614095340	Size 10	0.87	Collared pipe - DN25	4.79	1.14	
9614095306	Size 10	0.87	Collared pipe - DN40	4.79	1.61	
9614095342	Size 10	0.87	Collared pipe - DN40	4.79	1.61	
9614095308	Size 10	0.87	Collared pipe - DN50	4.79	2.09	
9614095344	Size 10	0.87	Collared pipe - DN50	4.79	2.09	
9614095303	Size 10	0.87	Collared pipe - ISO 25 mm	4.81	0.98	
9614095339	Size 10	0.87	Collared pipe - ISO 25 mm	4.81	0.98	
9614095305	Size 10	0.87	Collared pipe - ISO 38 mm	4.77	1.50	
9614095341	Size 10	0.87	Collared pipe - ISO 38 mm	4.77	1.50	
9614095343	Size 10	0.87	Collared pipe - ISO 51 mm	4.79	2.01	
9614095302	Size 10	0.87	Tank mounted	4.80	1.14	
9614095338	Size 10	0.87	Tank mounted	4.80	1.14	
9614095301	Size 10	0.87	Tri-Clamp	4.78	1.99	
9614095337	Size 10	0.87	Tri-Clamp	4.78	1.99	
9614095627	Size 25	0-87	Collarded pipe	10.91	2.76	
9614095604	Size 25	0-87	Collared pipe - DN50	10.99	2.09	
9614095625	Size 25	0-87	Collared pipe - DN50	10.99	2.09	
9614095606	Size 25	0-87	Collared pipe - DN65	10.91	2.76	
9614095603	Size 25	0-87	Collared pipe - ISO 51 mm	10.99	2.01	
9614095624	Size 25	0-87	Collared pipe - ISO 51 mm	10.99	2.01	
9614095605	Size 25	0-87	Collared pipe - ISO 63.5 mm	10.95	2.50	
9614095626	Size 25	0-87	Collared pipe - ISO 63.5 mm	10.95	2.50	
9614095602	Size 25	0-87	Tank	10.83	2.76	
9614095623	Size 25	0-87	Tank mounted	10.83	2.76	
9614095601	Size 25	0-87	Tri-Clamp	10.83	3.05	
9614095622	Size 25	0-87	Tri-Clamp	10.83	3.05	

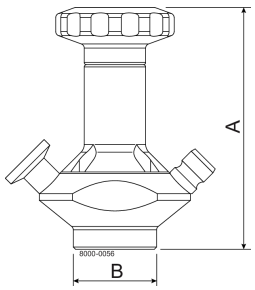


Unique Sampling Valve - Single Seat Valve

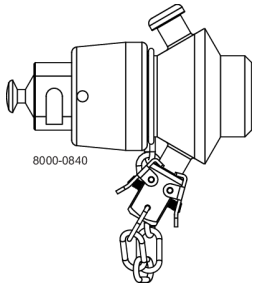
Valve ports: Tri-Clamp/Quick
ALSIS Code: 5349

Material: 1.4404 (316L)
Inside surface finish: Ra 0.8 µm
Outside surface finish: Polished

Item no.	Size	Max. working pressure	Connection	Dimension (inch)		
		psi		A	B	
						Single Seat handle
9614094803	Size 4	0.87	Collarded pipe	3.45	0.98	
9614094804	Size 4	0.87	Collarded pipe	3.45	1.14	
9614094805	Size 4	0.87	Collarded pipe	3.45	1.14	
9614094806	Size 4	0.87	Collarded pipe	3.45	1.61	
9614094807	Size 4	0.87	Collarded pipe	3.45	2.01	
9614094839	Size 4	0.87	Collarded pipe	3.45	0.98	
9614094840	Size 4	0.87	Collarded pipe	3.45	1.14	
9614094842	Size 4	0.87	Collarded pipe	3.45	1.61	
9614094841	Size 4	0.87	Collarded pipe	3.45	1.50	
9614094843	Size 4	0.87	Collarded pipe	3.45	2.01	
9614094844	Size 4	0.87	Collarded pipe	3.45	2.09	
9614094808	Size 4	0.87	Collared pipe - DN50	3.45	2.09	
9614094802	Size 4	0-87	Tank	3.45	1.14	
9614094838	Size 4	0.87	Tank	3.45	1.14	
9614094801	Size 4	0.87	Tri-Clamp	3.46	1.99	
9614094837	Size 4	0.87	Tri-Clamp	3.46	1.99	
9614095103	Size 10	0.87	Collarded pipe	4.43	0.98	
9614095104	Size 10	0.87	Collarded pipe	4.35	1.14	
9614095105	Size 10	0.87	Collarded pipe	4.35	1.50	
9614095106	Size 10	0.87	Collarded pipe	4.35	1.61	
9614095107	Size 10	0.87	Collarded pipe	4.35	2.01	
9614095108	Size 10	0.87	Collarded pipe	4.35	2.09	
9614095139	Size 10	0.87	Collarded pipe	4.43	0.98	
9614095140	Size 10	0.87	Collarded pipe	4.35	1.14	
9614095141	Size 10	0.87	Collarded pipe	4.35	1.50	
9614095142	Size 10	0.87	Collarded pipe	4.35	1.61	
9614095143	Size 10	0.87	Collarded pipe	4.35	2.01	
9614095144	Size 10	0.87	Collarded pipe	4.35	2.09	
9614095102	Size 10	0.87	Tank mounted	4.39	1.14	
9614095138	Size 10	0.87	Tank mounted	4.39	1.14	
9614095101	Size 10	0.87	Tri-Clamp	4.37	1.99	
9614095137	Size 10	0.87	Tri-Clamp	4.37	1.99	

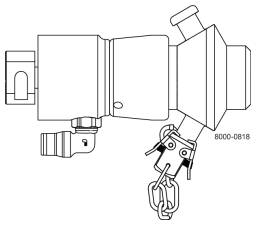


ALSIS Code: 5917 Outside surface finish: Ra ≤ 0.8 µm

Item no.	Specification	
		Membrane sample valve
9615094107	MSV Manuel Type T 0-10bar	
9615094108	MSV Manuel Type P (DN25) 0-10 bar	
9615094109	MSV Manuel Type P (Ø25/1") 0-10 bar	
9615094110	MSV Manuel Type P (Ø12-10mm) 0-10 bar	
9615094111	MSV Manuel Type S (3/8"BSP) 0-10 bar	

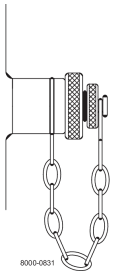
ALSIS Code: 5917

Outside surface finish: Ra ≤ 0.8 µm

Item no.	Specification	
		Pneumatic membrane sample valve
9615094606	MSV Pneumatic Type T 0-10 bar	
9615094607	MSV Pneumatic Type P (DN25) 0-10 bar	
9615094608	MSV Pneumatic Type P (Ø25/1") 0-10 bar	
9615094609	MSV PneumaticTypeP(Ø12-10mm) 0-10 bar	
9615094610	MSV Pneumatic Type S (3/8"BSP) 0-10bar	
9615094616	MSV Pneumatic Type T 0-10bar Swage	
9615094617	MSV Pneumatic Type P (DN25) 0-10bar Swage	
9615094618	MSV PneumaticTypeP(Ø25/1") 0-10bar Swage	
9615094619	MSV Pneumatic Type P (Ø12-10mm) 0-10bar Swage	
9615094620	MSV Pneumatic Type S (3/8"BSP) 0-10bar Swage	

ALSIS Code: 5917

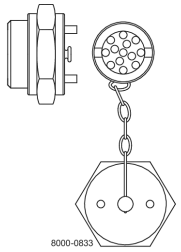
Material: 1.4404
Product wetted surface finish: Ra ≤ 0.8 µm

Item no.	Specification	
		Micro Sample Port
9615122501	Type T w/red silicone plug	
9615122502	Type T w/green rubber plug	
9615122701	Type P w/red silicone plug	
9615122702	Type P w/green rubber plug	
9615123301	Type PC 1” w/red silicone plug	
9615123302	Type PC 1” w/green rubber plug	
9615126501	Type PC DN 25 w/red silicone plug	
9615126502	Type PC DN 25 w/green rubber plug	

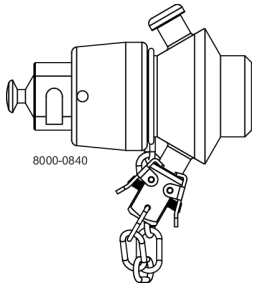
SB Micro sampling port type M

ALSIS Code: 5917

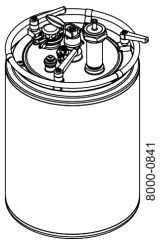
Material: 1.4404
Product wetted surface finish: Ra ≤ 0.8 µm

Item no.	Specification	
		Micro Sampling Port, Type M
9615139401	Micro Sample Port, Type M (max. 10 bar) (max. 145 psi)	

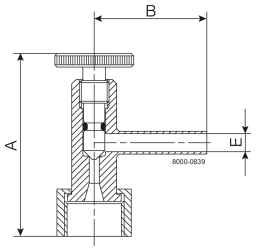
ALSIS Code: 5917

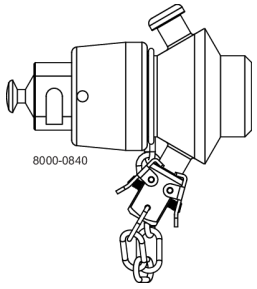
Item no.	Specification	
		Membrane sample valve
9615094406	MSV Manuel+Micro port Type T 6.1-10bar	
9615094407	MSV Manuel+Micro port Type P (DN25) 6.1-10 bar	
9615094408	MSV Manuel+Micro port Type P (Ø25/1") 6.1-10 bar	
9615094409	MSV Manuel+Micro port Type P (Ø12-10mm) 6.1-10 bar	
9615094410	MSV Manuel+Micro port Type S (3/8"BSP) 6.1-10 bar	

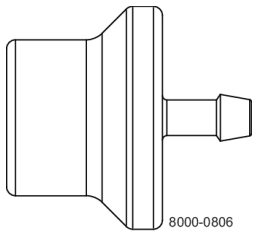
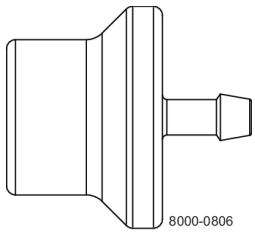
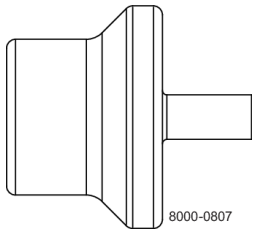
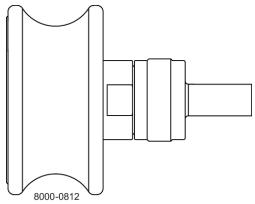
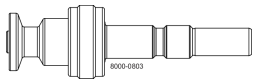
ALSIS Code: 5915

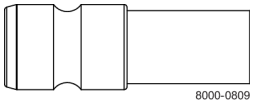
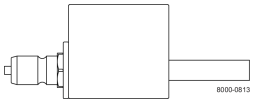
Item no.	Specification	
		Carlsberg Flask
9615126101	Carlsberg Flask, Complete with two 3 msilicone hoses with clip-on and extra aeration filter	

ALSIS Code: 5278
Sampling cocks/valves/plug

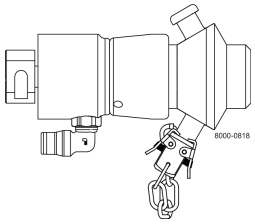
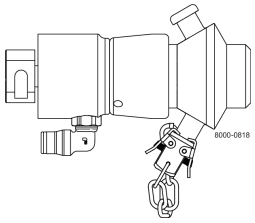
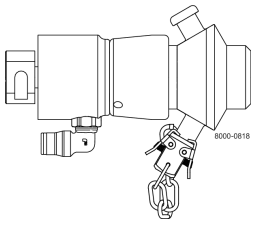
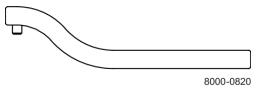
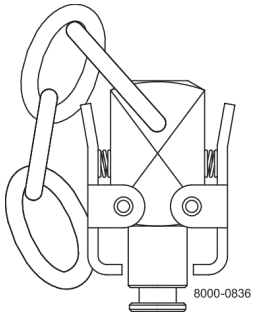
Item no.	Size	Dim. A	Dim. B	Dim. E	
	mm	mm	mm	mm	
					Sampling valve Type 20
3135000201	19.1	81.0	50.0	10.0	

Item no.	Description	
		MSV Manuel Type CB Flask 0-10 bar
9615094112	MSV Manuel Type CB Flask 0-10 bar	

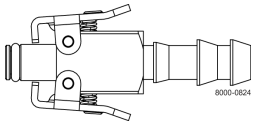
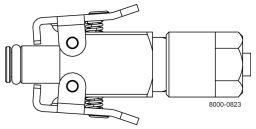
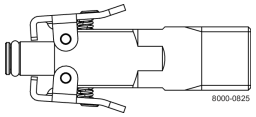
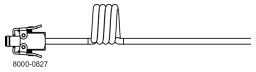
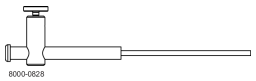
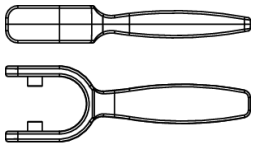
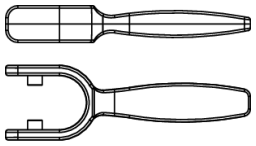
Item no.	Description	
		Female - Hose connection ID 0.24 in hose
9614195601	Female - Hose connection ID 0.24 in hose	
		Female - Hose connection ID 8 mm hose
9614195602	Female - Hose connection ID 8 mm hose	
		Female - Tube for welding ODØ 0.39 - IDØ 0.31
9614195603	Female - Tube for welding ODØ 0.39 - IDØ 0.31	
		Female quick connect with non return valve
9614195606	Female quick connect with non return valve	
		For quick coupling
9614195502 9614195505	For quick coupling For quick coupling	

Item no.	Description	
		Male - Tube for welding ODØ 0.39 - IDØ 0.31
9614195605	Male - Tube for welding ODØ 0.39 - IDØ 0.31	 8000-0809
		Male quick connect with non return valve
9614195607	Male quick connect with non return valve	 8000-0813

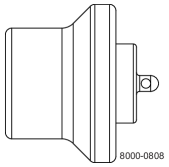
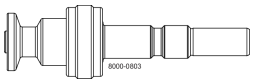
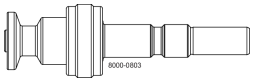
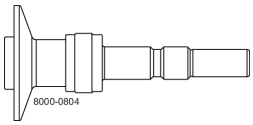
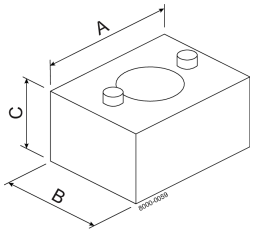
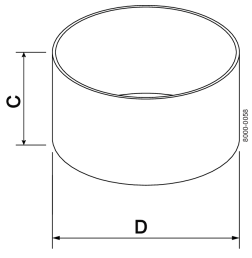
ALSIS Code: 5935

Item no.	Description	
		Actuator Manual
9615146301	Actuator Manual	
		Actuator Manual W. Micro Port
9615146401	Actuator Manual W. Micro Port	
		Actuator Pneumatic
9615146501	Actuator Pneumatic	
		Assembling tool
9615119801	Assembling tool	
		Clip on Closing cap
9615101201	Clip on Closing cap	

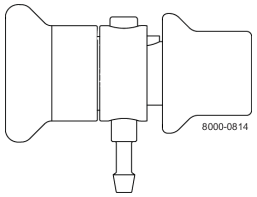
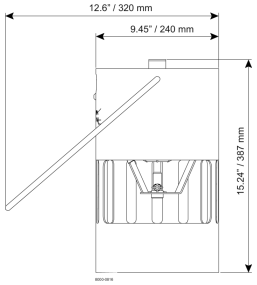
ALSIS Code: 5935

Item no.	Description	
		Clip-on 316L for CIP hose
9615132402	Clip-on 316L for CIP hose	
		Clip-on 316L for Ø3/Ø6mm silicone hose
9615132401	Clip-on 316L for Ø3/Ø6mm silicone hose	
		Clip-on cap with 1/4” BSP male 316L
9615132403	Clip-on cap with 1/4” BSP male 316L	
		Coil outlet with clip-on
9615118501	Coil outlet with clip-on	
		Isobaric hand bottling device
9615132601	Isobaric hand bottling device	
		Quick opening key
9615119001	Quick opening key	 8000-0819
		Quick opening key, twin step
9615119301	Quick opening key, twin step	 8000-0819

ALSIS Code: 5349

Item no.	Description	
		Blind cap
9614195604	Blind cap	
		For steam generator
9614195501 9614195504	For steam generator For steam generator	
		For tube - welding
9614195503	For tube - welding	
		For tube -welding
9614195506	For tube -welding	
		Hold tool
9614023901 9614023902 9614023903	Hold tool Hold tool Hold tool	
		M5 Proximity switch 0.059 in
9611995020	M5 Proximity switch 0.059 in	
		Mount tool
9614025801 9614025802 9614025803	Mount tool Mount tool Mount tool	

ALSIS Code: 5349

Item no.	Description	
		Pressure relief valve
9614195701 9614195702	Pressure relief valve Pressure relief valve	
		Steam Generator
8010006440	Steam Generator	

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Shutter valves

Alfa Laval Koltek Valves

Shutter valves

Introduction

The Alfa Laval Koltek Valve can be either manually or pneumatically operated. The valve is suitable for use with products that are highly viscous, contain large particles, or have strict requirements to minimize pressure loss.

Application

The koltek valve is designed for use in the food, chemical, pharmaceutical and many other industries.

Benefits

- Flexible in-line valve with three-port flow diversion
- Minimized pressure loss
- Hygienic design
- Capable of handling products highly viscous, contain large particles, or have strict requirements to minimize pressure loss

Standard design

The koltek valve consists of a rigid body with an internal cylindrical bore, a PTFE shutter and three ports for pipe connection. The two lids have guide rings or bearings for an internal shaft, which supports and positions the shutter. The stainless-steel handle for manual operation or the actuator for automatic operation is fitted to turn the shaft. The actuator consists of a system of cylinders and one or two main pistons interconnected with a toothed bar which interacts with a gear wheel on the valve shaft. The system is insensitive to pressure shocks in the valve.

Working principle

The Alfa Laval Koltek Valve is operated by means of a handle or an actuator. A spring system presses the shutter against the inside cylindrical surface of the valve body thus ensuring complete tightness.

The air-actuated valve can be fitted with an Alfa Laval ThinkTop® V50 or V70 control unit, or an indication unit installed laterally for remote indication of the valve position.

The manually operated valve can be fitted with indication units (used for Alfa Laval LKLA actuators) installed laterally. The valve actuator is available in two versions: a single-acting actuator or a double-acting actuator. The single-acting actuator operates with one main piston whereas the double-acting actuator operates with two main pistons.

TECHNICAL DATA

Temperature	
Max. temperature:	230°F

Pressure	
Max. pressure against shutter:	44 PSI (3 bar)
Max. pressure behind shutter:	145 PSI (10 bar)
Air pressure for actuator:	Max. 116 PSI (8 bar) Min. 73 PSI (5 bar)

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

Air Connections

Compressed air:

R 1/8" (BSP), internal thread

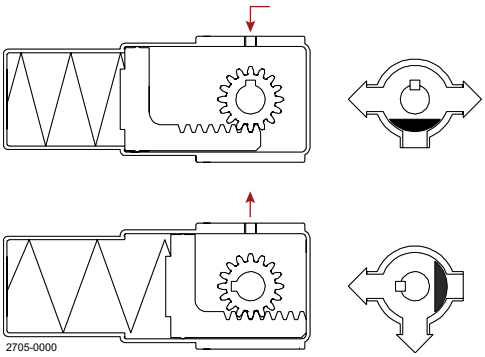
PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L.)
Finish:	Semi-bright (Ra = 32 µin)
Product wetted seals:	Shutter in PTFE EPDM
Actuator seals:	NBR

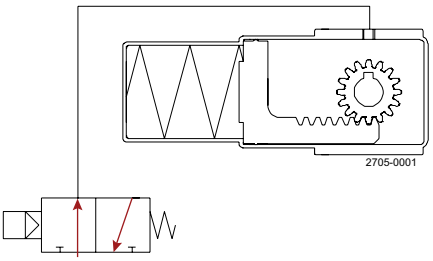
Actuator functions

- for 1" to 3" (25 mm to 76.1 mm) valves only
- two positions
- spring/air
- turning angle 1x90°

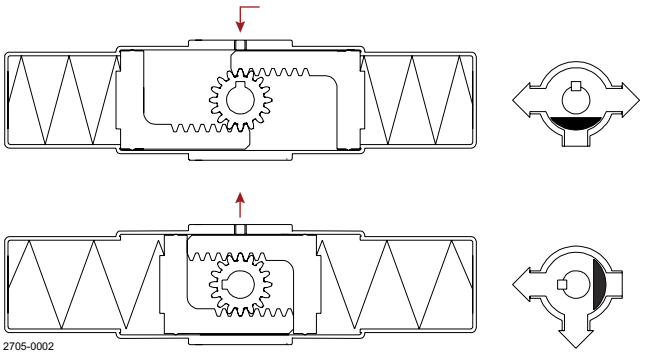
Sizes 1" t o 2":

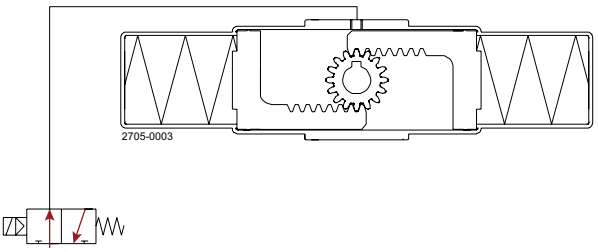


Pneumatic connections



Sizes 2½" - 3": Double acting actuator

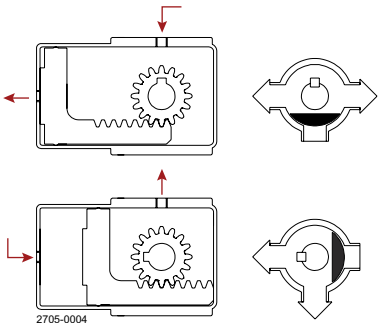




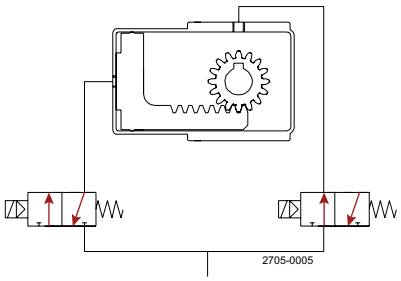
Actuator type 631:

- two positions
- air/air
- turning angle 1x90°

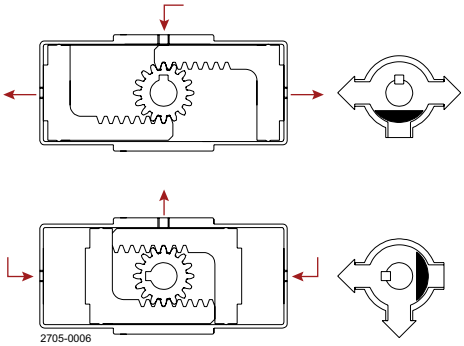
Sizes 1" - 3":



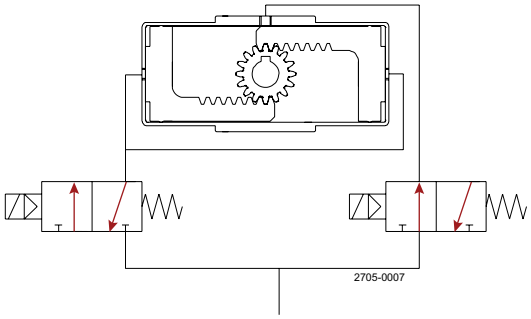
Pneumatic connections



Sizes 4": Double acting actuator



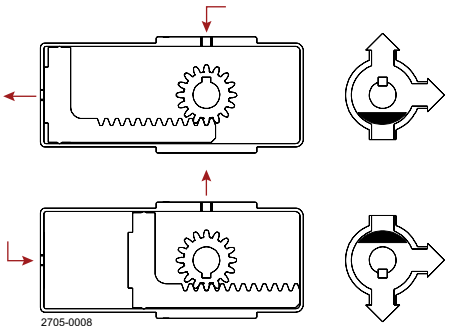
Pneumatic connections



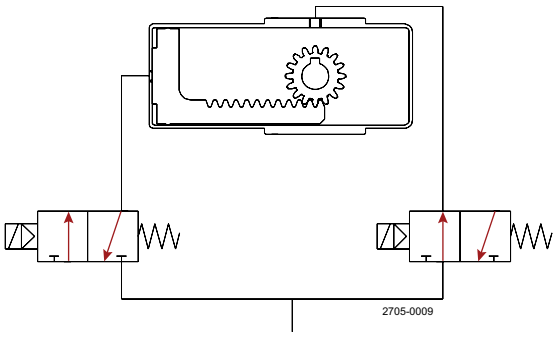
Actuator type 632:

- two positions
- air/air
- turning angle 1x180°

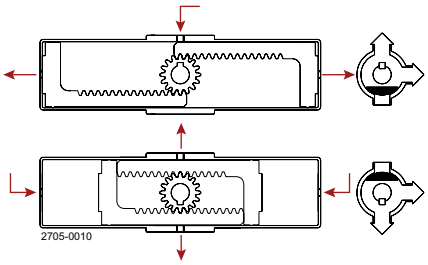
Sizes 1" - 3":

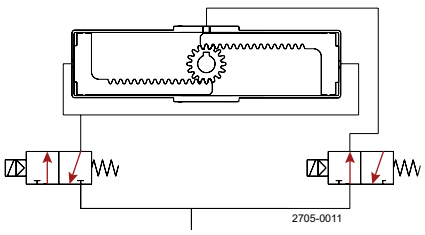


Pneumatic connections



Sizes 4": Double acting actuator

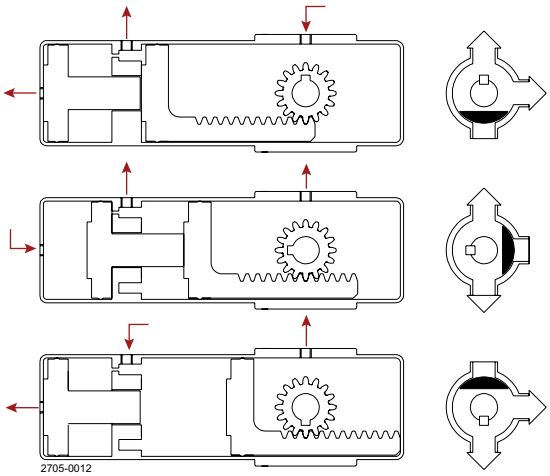


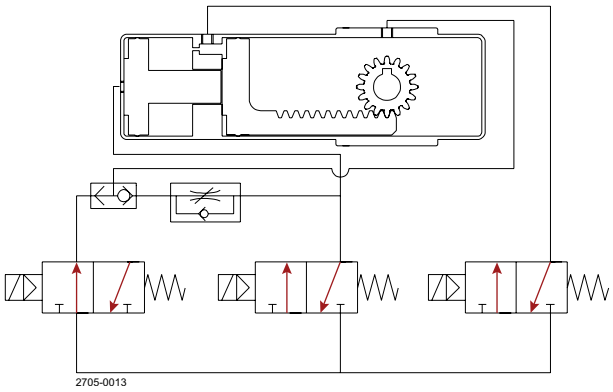


Actuator type 633:

- three positions
- air/air
- turning angles 2x90°

Sizes 1" - 3":





Dimensions (inch)

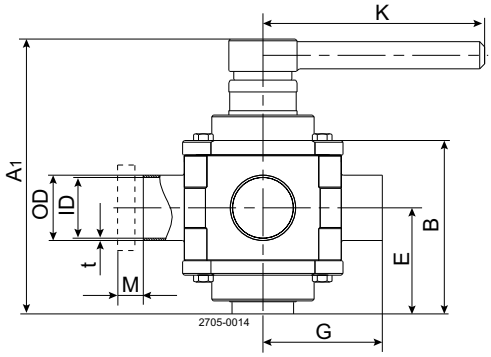


Figure 1. MH53 with handle

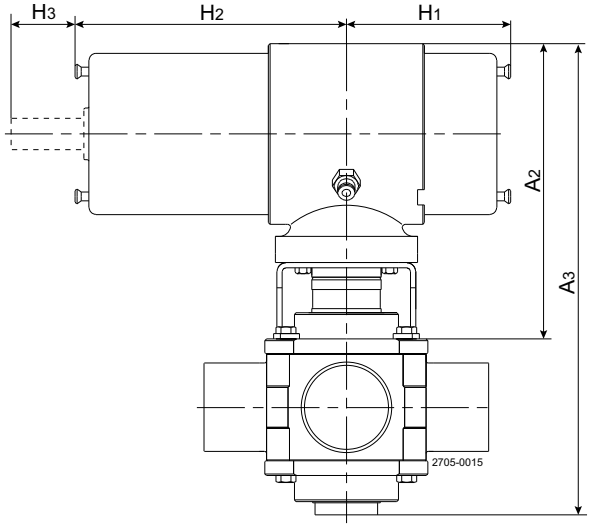


Figure 2. MH53 with actuator, type KH631

AH valves:

Size	1"	1.5"	2"	2.5"	3"	4"
A_1	4.57	5.87	6.34	7.05	8.03	11.50
B	2.56	3.54	4.02	4.65	5.39	7.68
OD	1.00	1.51	2.06	2.53	3.00	4.00
ID	0.89	1.40	1.91	2.37	2.83	3.82
t	0.06	0.05	0.07	0.08	0.08	0.09
E	1.65	2.20	2.44	2.76	3.15	4.61
G	2.17	2.76	3.23	4.13	4.33	6.10
G_1 (Clamp)	4.75	5.83	6.82	8.27	9.46	13.08
K	5.12	5.12	7.09	7.09	9.25	12.99
Weight (lbs.)	4.00	7.30	10.60	15.20	25.15	55.15

Actuators

Size	1"	1.5"	2"	2.5"	3"	4"
A_1	6.69	6.69	6.69	6.77	7.01	7.64
A_2	9.17	10.24	10.75	11.42	12.40	15.31
$H_1$630	2.24	2.24	2.24	11.22	11.22	-
$H_1$631	2.24	2.24	2.24	2.24	2.24	4.69
$H_1$632	3.74	3.74	3.74	3.74	3.74	7.64
$H_1$633	3.74	3.74	3.74	3.74	3.74	11.06
$H_2$630	12.83	12.83	12.83	11.22	11.22	-
$H_2$631	4.69	4.69	4.69	4.69	4.69	4.69
$H_2$632	6.18	6.18	6.18	6.18	6.18	7.64
$H_2$633	9.57	9.57	9.57	9.57	9.57	11.06
H_3	1.69	1.69	4.69	1.69	1.69	1.69

Caution, opening/closing time:

Opening/closing time will be affected by the following:

- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Options

- Male parts or clamp liners in accordance with required standard.
- Control and Indication: IndiTop, ThinkTop V50 or ThinkTop V70 .
- Bottom fitted indication unit.
- Rebuilding to double acting value for high viscosity product or quick operation.

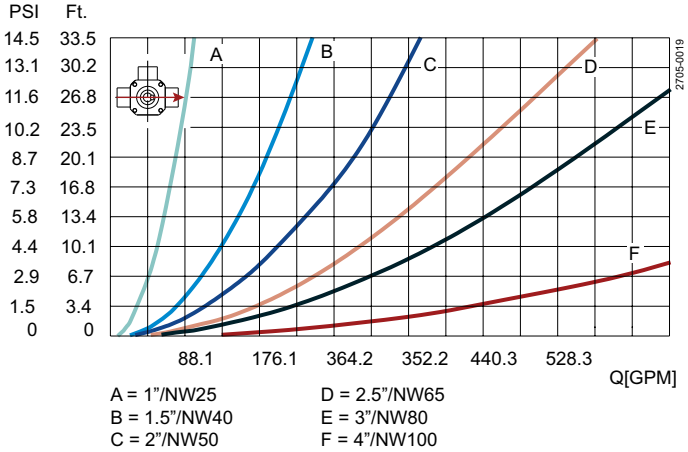
Note! For further details, see also instruction IM 70735.

Bottom fitted indication units (together with bracket for indication unit)

Actuator type / Indication unit	KH630	KH631	KH632	KH633
LKLA (lateral indication unit)	1 pcs.	1 pcs.	2 pcs.	2 pcs.

Note! For all manually operated valves: Use LKLA indication units.

Pressure drop/capacity diagrams



A = 1”/NW25
B = 1.5”/NW40
C = 2”/NW50
D = 2.5”/NW65
E = 3”/NW80
F = 4”/NW100

Note!
For the diagram the following applies:
Medium: Water(68°F).
Measurement: In accordance with VDI 2173.

Alfa Laval D10 and D11 Plug Valves

Shutter valves

Introduction

The Alfa Laval D10 and D11 Plug Valves are stainless steel valves with bonded-rubber or stainless steel plugs that open to allow the flow of process media and shut to stop the flow. Reliable and effective, these plug valves provide tight shutoff performance.

Application

The two-way D10 and three-way D11 plug valves are designed for use in hygienic applications that require minimum pressure drop. They are ideal for use across the dairy, food, beverage, home-personal care, chemical and many other industries.

Benefits

- Reliable and easy to operate
- Tight shutoff performance
- Low maintenance

Standard design

The Alfa Laval D10 and D11 Plug Valves consist of a valve body constructed from homogeneous, drop-forged AISI 304 stainless steel and a rubber-coated plug. The D10 is a two-way plug valve and the D11 is a three-way plug valve. The surface finish is Ra ≤ 32.

Available in four sizes, the plug valves may be supplied with weld, bevel seat or Tri-Clamp® connections. An optional chrome-plated and lapped metal plug is available.

Special D10 models, the D10F tank outlet valve and the D10FL legal tank pasteurization valve, are available.

TECHNICAL DATA

Temperature	
Maximum temperature:	100° F
Minimum temperature:	-4° F

Pressure	
Maximum working pressure (68° F):	25 PSI
Maximum test pressure (68° F):	25 PSI

PHYSICAL DATA

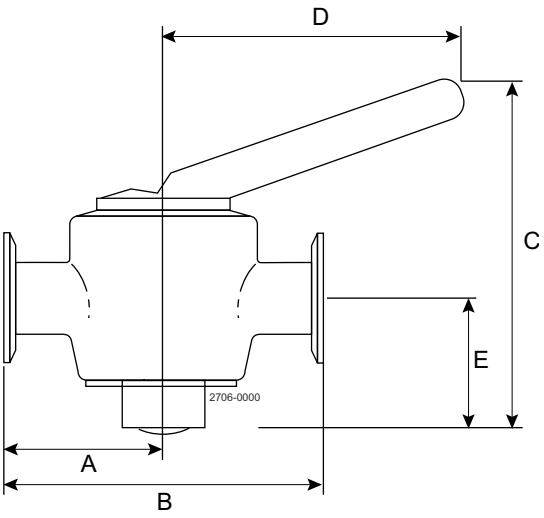
Materials	
Steel parts:	AISI 304
Finish:	≤ Ra 32 µin
Rubber parts:	Buna (N)

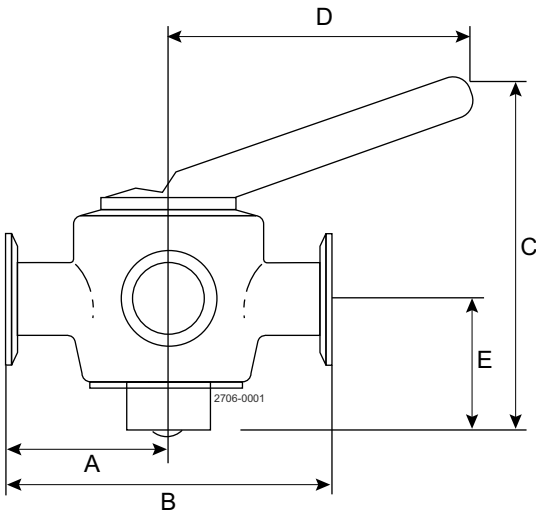
Ordering

Please state the following when ordering:

- Connections
  Tri-Clamp®, Bevel Seat, weld
- Type
  Straight-through valve D10, three-way valve D11, tank outlet valve D10F and D10FL legal tank pasteurization valve
- Plug
  Bonded rubber (Buna) or stainless steel. D10FL only available with stainless steel plug
- Size
  Following sizes are available: 1-inch, 1.5-inch, 2-inch, 2.5-inch, 3-inch

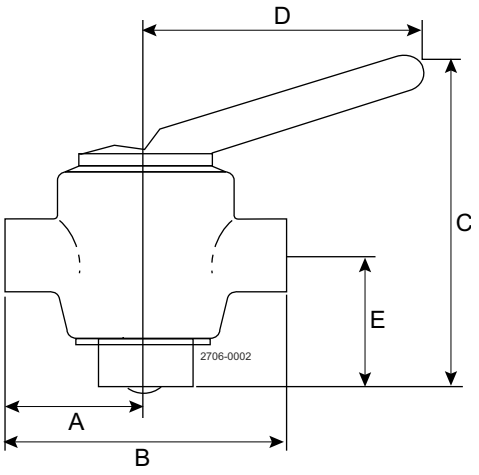
Dimensions (inch)

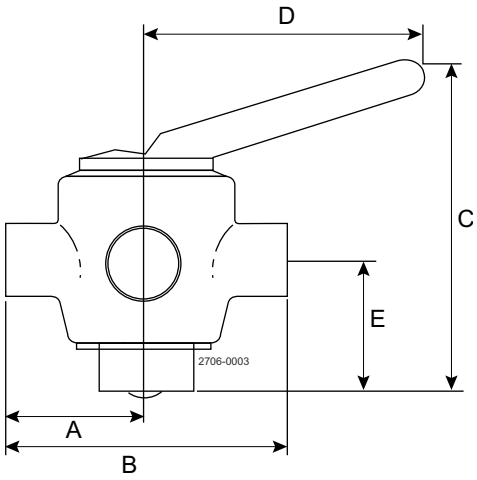




Dimensions Tri-Clamp® connections

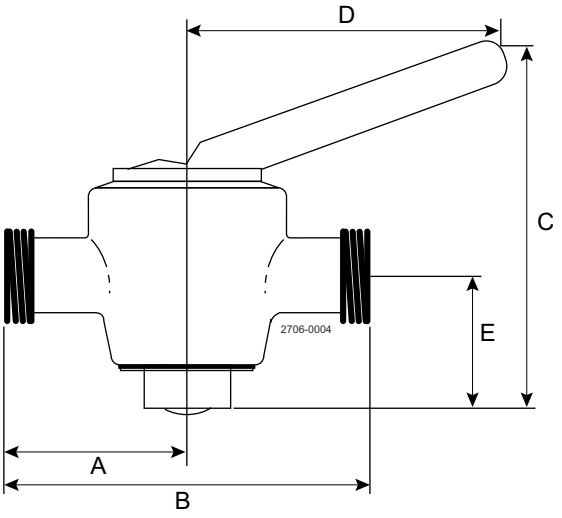
Size (Tube OD)		A		B		C		D		E		Approx. Wt.	
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lb	kg
1½	38.1	$22^{9}/_{32}$	73.8	$5^{13}/_{16}$	147.6	7	177.8	$5^{5}/_{8}$	142.9	2½	63.5	9.50	4.30
2	50.8	$31^{3}/_{32}$	86.5	$6^{13}/_{16}$	173.0	$7^{5}/_{8}$	193.7	$5^{5}/_{8}$	142.9	$2^{7}/_{8}$	73.0	15.50	7.03
2½	63.5	$4^{1}/_{8}$	104.8	8¼	209.6	8¾	222.3	6¼	158.8	3½	88.9	25.50	11.56
3	76.2	$42^{3}/_{32}$	119.9	$9^{7}/_{16}$	239.7	9¾	247.7	7¼	184.2	3¾	95.3	36.00	16.32

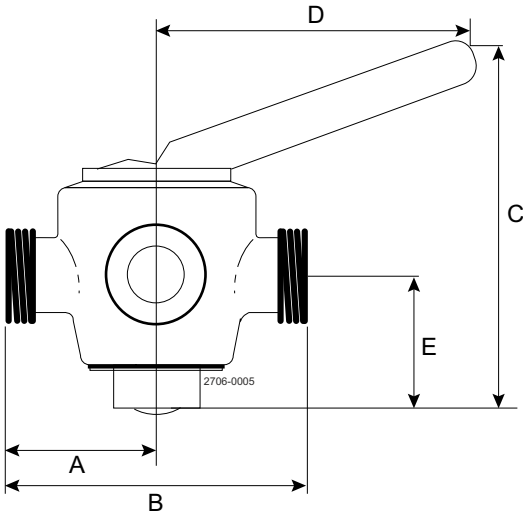




Dimensions Weld connections

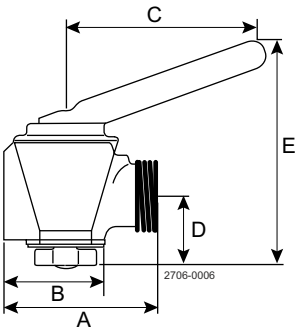
Size (Tube OD)		A		B		C		D		E		Approx. Wt.	
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lb	kg
1½	38.1	$2^{23}/_{32}$	69.1	$5^{7}/_{16}$	138.1	$6^{7}/_{8}$	177.8	$5^{5}/_{8}$	142.9	2½	63.5	9.50	4.30
2	50.8	$3^{3}/_{16}$	81.0	$6^{3}/_{8}$	161.9	$7^{5}/_{8}$	193.7	$5^{5}/_{8}$	142.9	$2^{7}/_{8}$	73.0	15.50	7.03
2½	63.5	$4^{7}/_{8}$	123.8	7¾	196.9	$8^{5}/_{8}$	222.3	6¼	158.8	3½	88.9	25.50	11.56
3	76.2	$4^{15}/_{32}$	113.5	$8^{15}/_{16}$	227.0	9¾	247.7	7¼	184.2	3¾	95.3	36.00	16.32

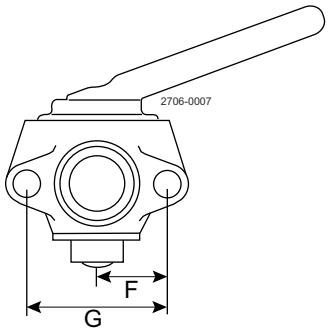


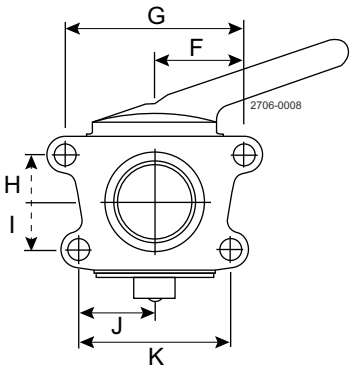


Dimensions Bevel Seat connections

Size (Tube OD)		A		B		C		D		E		Approx. Wt.	
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lb	kg
1½	38.1	$2^{29}/_{32}$	73.8	$5^{13}/_{16}$	147.6	$6^{7}/_{8}$	174.6	$5^{5}/_{8}$	142.9	2½	63.5	9.50	4.31
2	50.8	$3^{13}/_{32}$	86.5	$6^{13}/_{16}$	173.0	$7^{5}/_{8}$	193.7	$5^{5}/_{8}$	142.9	$2^{7/8}$	73.0	15.50	7.03
2½	63.5	$4^{1}/_{8}$	104.8	8¼	209.6	$8^{5}/_{8}$	219.1	6¼	158.8	3½	88.9	25.50	11.56
3	76.2	$4^{23}/_{32}$	119.9	$9^{7}/_{16}$	239.7	9¾	247.3	7¼	184.2	3¾	93.7	36.00	16.33







Dimensions (inches) Plug Valve Tank - D10F and D10FL

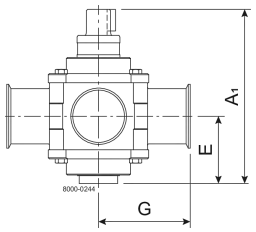
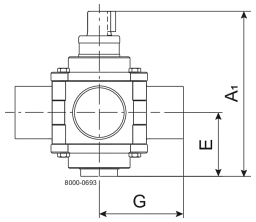
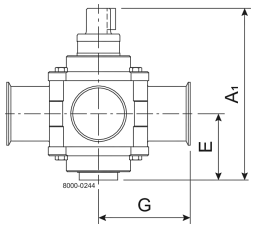
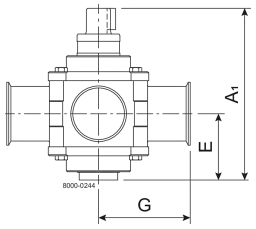
Size (Tube OD)	A	B	C	D	E	F	G	H	I	J	K	Hole Size	Approx. Wt.	
1½	$4^{5}/_{16}$	$3^{1}/_{8}$	$5^{5}/_{8}$	$2^{3}/_{8}$	6¾	$1^{23}/_{32}$	$3^{7}/_{16}$	--	--	--	--	$^{9}/_{16}$	9.50	4.30
2	$5^{7}/_{16}$	$4^{1}/_{8}$	$5^{5}/_{8}$	2¾	7½	$2^{1}/_{8}$	4¼	--	--	--	--	$^{9}/_{16}$	15.50	7.03
2½	6¾	$4^{5/8}$	6¼	3½	8¾	$2^{5}/_{8}$	5¼	$1^{5}/_{16}$	1½	2½	5	$^{9}/_{16}$	25.50	11.56
3	8	4¾	7¼	3¾	9¾	$3^{5}/_{16}$	$6^{5}/_{8}$	1¾	1¾	$2^{13}/_{16}$	$5^{5}/_{8}$	$^{11}/_{16}$	36.00	16.32

Dimensions (mm) Plug Valve Tank - D10F and D10FL

Size (Tube OD)	A	B	C	D	E	F	G	H	I	J	K	Hole Size	Approx. Wt.	
1½	109.5	79.4	142.9	60.3	171.5	43.7	87.3	--	--	--	--	14.3	9.5	4.30
2	138.1	104.8	142.9	69.9	190.5	54.0	108.0	--	--	--	--	14.3	15.5	7.03
2½	171.5	117.5	158.8	88.1	222.3	66.7	133.4	33.3	38.1	63.5	127.0	14.3	25.5	11.56
3	203.2	120.7	184.2	95.3	247.7	84.1	168.3	44.5	44.5	71.4	142.9	17.5	36.0	16.32

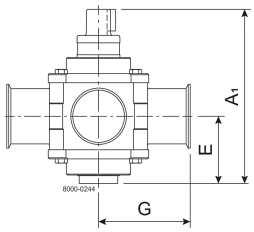
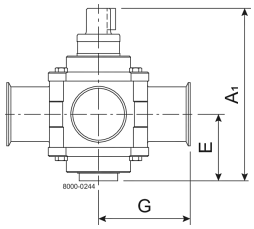
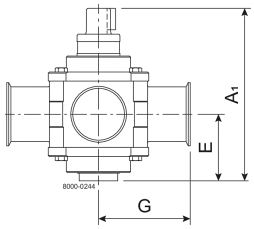
ALSIS Code: 5276

Material: 316L
Connection Type: Welding ends
Seals: EPDM

Item no.	Size	Dimension (inch)			
	inch	A1	E	G	
					AH11 - 3 Way - Clamp Ends
9634067471	0.5"	4.57	1.65	2.17	
9634067546	1.0"	4.57	1.65	2.17	
9634067545	1.5"	5.87	2.20	2.76	
9634067500	2.0"	6.34	2.44	3.23	
9634067543	2.5"	7.05	2.76	4.13	
9634067499	3.0"	8.03	3.15	4.33	
9634067472	4.0"	11.50	4.61	6.10	
					AH11 - 3 Way - Weld
9634069584	1.0"	4.57	1.65	2.17	
9634067501	2.0"	6.34	2.44	3.23	
9634077337	2.5"	7.05	2.76	4.13	
9634078082	3.0"	8.03	3.15	4.33	
					AH11 valve with KH630 - 2 pos. 90° Spring Return Actuator
9634069340	1.0"	4.57	1.65	2.17	
9634069136	2.0"	6.34	2.44	3.23	
9634079895	2.0"	6.34	2.44	3.23	
9634068414	2.5"	7.05	2.76	4.13	
9634068118	3.0"	8.03	3.15	4.33	
9634070544	3.0"	8.03	3.15	4.33	
					AH11 valve with KH631 - 2 pos. 90° Air-to-Air Actuator
9634067772	1.5"	5.87	2.20	2.76	
9634079897	1.5"	5.87	2.20	2.76	
9634067553	2.0"	6.34	2.44	3.23	
9634070510	2.0"	6.34	2.44	3.23	
9634067547	2.0"	6.34	2.44	3.23	
9634067615	2.5"	7.05	2.76	4.13	
9634067773	2.5"	7.05	2.76	4.13	
9634079896	2.5"	7.05	2.76	4.13	
9634067745	3.0"	8.03	3.15	4.33	
9634070511	3.0"	8.03	3.15	4.33	
9634076699	4.0"	11.50	4.61	6.10	
9634067473	4.0"	11.50	4.61	6.10	

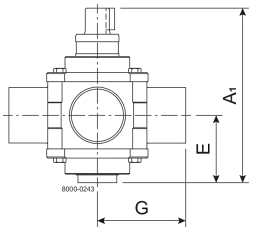
ALSIS Code: 5276

Material: 316L
Connection Type: Welding ends
Seals: EPDM

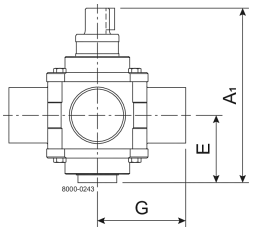
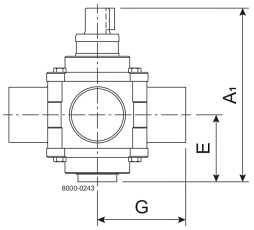
Item no.	Size	Dimension (inch)			
	inch	A1	E	G	
					AH11 valve with KH631T - 2 pos. 90° Air-to-Air Actuator for Think Top
9634079989	3.0"	8.03	3.15	4.33	
					AH11 valve with KH632 - 2 pos. 180° Air-to-Air Actuator
9634068741	1.5"	5.87	2.20	2.76	
9634068743	2.0"	6.34	2.44	3.23	
9634068744	2.5"	7.05	2.76	4.13	
9634072428	3.0"	8.03	3.15	4.33	
					AH11 valve with KH633 - 2 x 90° Air-to-Air Actuator
9634080060	1.5"	5.87	2.20	2.76	
9634080062	2.5"	7.05	2.76	4.13	
9634068664	3.0"	8.03	3.15	4.33	

ALSIS Code: 5276

Material: 1.4404 (316L)
Connection Type: Clamp ends
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Blasted
Actuation: Manual

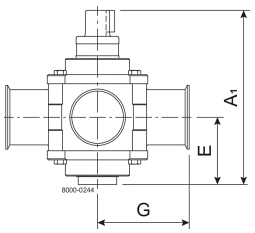
Item no.	Valve size (mm)		Dimension (inch)			
	Inch tube	DIN tube	A1	E	G	
						AH11 valve with KH631 - 2 pos. 90° Air-to-Air Actuator
9634067770	1.0"		4.57	1.65	2.17	

Connection Type: BS Male/Male
Material: 316L
Seals: EPDM

Item no.	Size	Dimension (inch)			
	inch	A1	E	G	
					AH11 - 3 Way
9634098790 9634093706 9634100165	1.5" 2.0" 3.0"	5.87 6.34 8.03	2.20 2.44 3.15	2.76 3.23 4.33	
					AH11 - 3 Way - Bevel Seat
9634079829	3.0"	8.03	3.15	4.33	

ALSIS Code: 5276

Material: 1.4404 (316L)
Connection Type:
Seals: EPDM
Inside surface finish: Ra ≤ 0.4 µm
Outside surface finish: Ra ≤0.4 µm
Actuation: Manual

Item no.	Valve size (inch)	Dimension (mm)			
	Inch tube	A1	E	G	
					AH11 - 3 Way
9634088774	1.5"	149.0	56.0	74.5	
9634101125	1.5"	149.0	56.0	74.5	
9634100665	1.5"	149.0	56.0	74.5	
9634097907	2.5"	179.0	70.0	105.0	
9634097571	3.0"	204.0	80.0	110.0	
9634097338	3.0"	204.0	80.0	110.0	
9634099675	3.0"	204.0	80.0	110.0	
9634100734	3.0"	204.0	80.0	110.0	

Material: 304 Stainless steel

Item no.	Size	Connection
	inch	
		Part # D10CR-Size-Type. Two-Way Plug Valve with Rubber Plug**
023114	2.5"	Tri-Clamp
		Part # DL10WWR-Size-Type. Two-Way Plug Valve with Rubber Plug**
433003	2.0"	Welding ends
433007	3.0"	Welding ends
		Three-Way Plug Valve with Metal Plug*
203289	2.5"	Tri-Clamp
		Two-Way Plug Valve with Metal Plug*
201207	1.5"	Tri-Clamp
202185	2.0"	Tri-Clamp
203183	2.5"	Tri-Clamp
204169	3.0"	Tri-Clamp
		Two-Way Plug Valve with Rubber Plug*
201206	1.5"	Tri-Clamp
202188	2.0"	Tri-Clamp
203185	2.5"	Tri-Clamp
204155	3.0"	Tri-Clamp

Material: 304 Stainless steel

Item no.	Size	Connection
	inch	
		Part # D11C-Size-Type. Three-Way Plug Valve with Metal Plug**
021221	1.5"	Tri-Clamp
022197	2.0"	Tri-Clamp
		Part # D11CR-Size-Type. Three-Way Plug Valve with Rubber Plug**
021219	1.5"	Tri-Clamp
022199	2.0"	Tri-Clamp
		Part # DL11WWW-Size-Type. Three-Way Plug Valve with Metal Plug**
430274	3.0"	Welding ends
		Part # DL11WWWR-Size-Type. Three-Way Plug Valve with Rubber Plug**
433046	1.5"	Welding ends
433048	2.0"	Welding ends
430624	3.0"	Welding ends
		Three-Way Plug Valve with Metal Plug*
201359	1.5"	Tri-Clamp
202340	2.0"	Tri-Clamp
204283	3.0"	Tri-Clamp
		Three-Way Plug Valve with Rubber Plug*
201361	1.5"	Tri-Clamp
202342	2.0"	Tri-Clamp
203291	2.5"	Tri-Clamp
204285	3.0"	Tri-Clamp

Single seat valves

Alfa Laval Unique SSV Standard

Single seat valves

Introduction

The Alfa Laval Unique SSV Standard is a versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. It is built on the well-proven Alfa Laval Unique SSV platform. Few moving parts ensure easy maintenance, high reliability and low total cost of ownership. A wide range of optional features enables customization to specific process requirements.

Application

This Unique SSV Standard is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety due to the static seal leak detection
- Protection against full vacuum due to the double lip seal

Standard design

The Unique SSV Standard is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured as a shutoff valve with two working ports or as a changeover valve with up to five ports.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Standard is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks, while directing or diverting fluids. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates

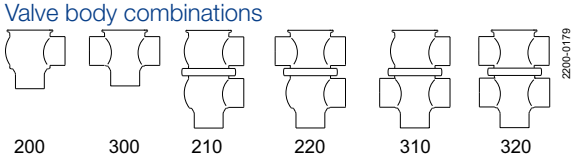
Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Temperature range	14 °F to +284 °F (EPDM) Elastomer Seal Plug

Pressure	
Max. product pressure	145 PSI (10 bar)
Min. product pressure	Full vacuum
Air pressure	72.5 to 101.5 PSI (5 - 7 bar)

Valve body combinations



Acuator function

- Pneumatic downward movement, spring return
- Pneumatic upward movement, spring return
- Pneumatic upward and downward movement (A/A)
- Actuator for intermediate position of the valve plug (optional)

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L (internal Ra < 32 µ inch)
Other steel parts:	AISI 304
Plug seal:	PTFE (TR2) (standard) Max. 230°F
Optional elastomer plug seal:	EPDM, HNBR or FPM
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 32 µin
Product wetted seals:	EPDM
Optional product wetted seals:	HNBR or FPM
Other seals:	NBR

Options

- Replaceable elastomer plug seals
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals in HNBR or FPM
- Plug seals HNBR, FPM or TR2 plug (floating PTFE design)
- External surface finish blasted

Note!
For further details, see instruction ESE00213.

Other valves in the same basic design

The Unique SSV valve range includes several purpose built valves. Below are some of the valve models available, though please use the Alfa Laval Anytime configurator for full access to all models and options.

- Reverse acting valve
- Manually operated valve
- Tank Outlet valve
- Tangential valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (inch)

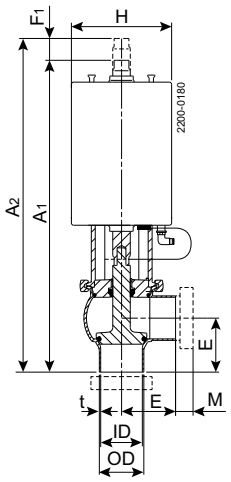


Figure 1. Shut-off valve

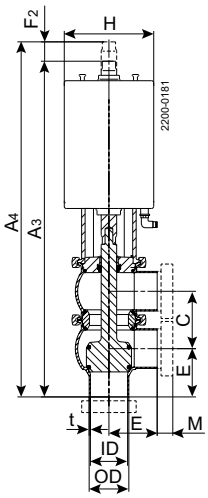


Figure 2. Change-over valve

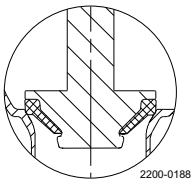


Figure 3. Replaceable elastomer plug seal

	Nominal Size					
	1"	1.5"	2"	2.5"	3"	4"
A1	12.3	12.34	14.27	15.31	16.62	18.40
A2	12.89	13.13	15.3	16.29	17.8	19.58
A3	14.19	14.7	17.18	18.70	20.51	23.27
A4	14.66	15.41	18.04	19.57	21.57	24.33
A1 High pressure	13.78	13.76	15.37	16.41	21.04	22.80
A2 High pressure	14.31	14.55	16.36	17.39	22.17	23.95
A3 High pressure	15.60	16.18	18.28	19.81	24.91	27.67
A4 High pressure	16.07	16.85	19.15	13.46	25.91	28.67
C	1.88	2.39	2.91	3.4	3.89	4.87
OD	0.98	1.5	2.01	2.5	3	4
ID	0.86	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.06	0.08
E1	1.97	1.95	2.40	3.19	3.39	4.69
E2	1.97	1.95	2.40	3.19	3.39	4.69
F1	0.59	0.79	0.98	0.98	1.18	1.18
F1 High pressure	-	-	-	-	1.12	1.15
F2	0.47	0.67	0.87	0.87	1.06	1.06
F2 High pressure	-	-	-	-	1.00	1.00
H	3.35	3.35	4.53	4.53	6.20	6.20
H High pressure	4.53	4.53	6.20	6.20	6.20	6.20
M/ Clamp	0.5	0.5	0.5	0.5	0.5	0.63
Weight (lb)						
Shut-off valve	6.8	7.3	12.1	14.3	24.9	30.0
Change-over valve	8.6	9.3	15.7	18.7	30.9	39.7
Stop Valve: High pressure	10.4	10.6	20.9	22.0	21.6	31.3
Change-over valve: High pressure	10.8	11.2	22.3	23.8	24.0	36.4

For exact high pressure actuator dimension (A and F) - please refer to information in Anytime configurator.

* Internal stroke

Please note!

Opening/closing time will be effected by the following:

- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

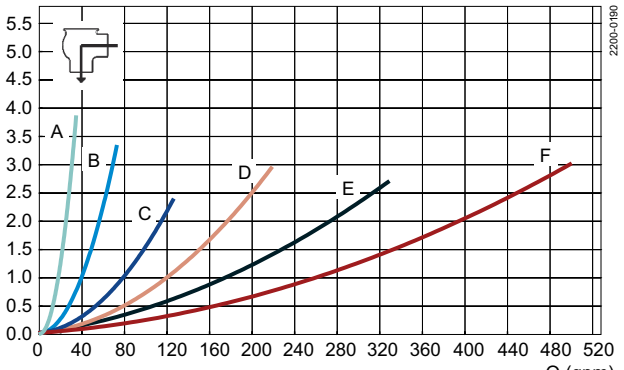
Air Connections Compressed air:

R 1/8" (BSP), internal thread.

Air Consumption (In^3 free air) for one stroke			
Size	**1"-1½"**	**2"-2½"**	**3"-4"**
NO and NC	0.2 x air pressure [PSI]	0.5 x air pressure [PSI]	1.3 x air pressure [PSI]
A/A	0.5 x air pressure [PSI]	1.1 x air pressure [PSI]	2.7 x air pressure [PSI]

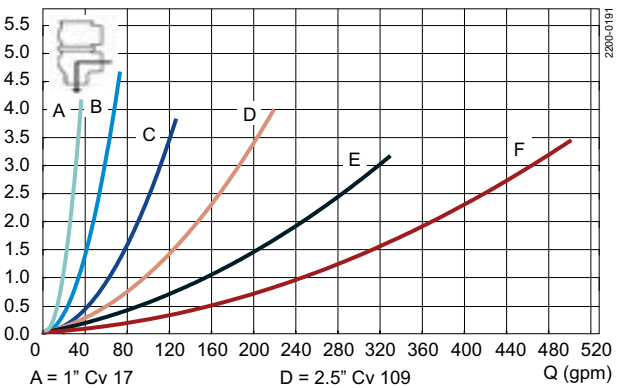
Pressure drop/capacity diagrams

ΔP [psi]



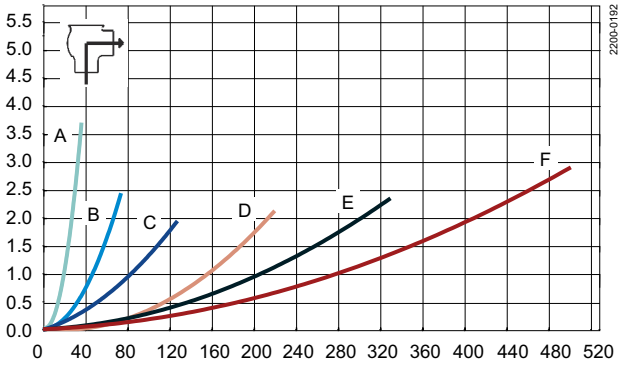
A = 1" Cv 17
B = 1.5" Cv 39
C = 2" Cv 81
D = 2.5" Cv 128
E = 3" Cv 205
F = 4" Cv 296

ΔP [psi]



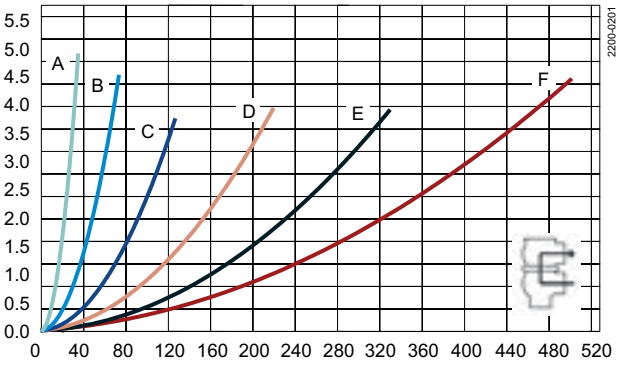
A = 1" Cv 17
B = 1.5" Cv 34
C = 2" Cv 65
D = 2.5" Cv 109
E = 3" Cv 192
F = 4" Cv 275

ΔP [psi]



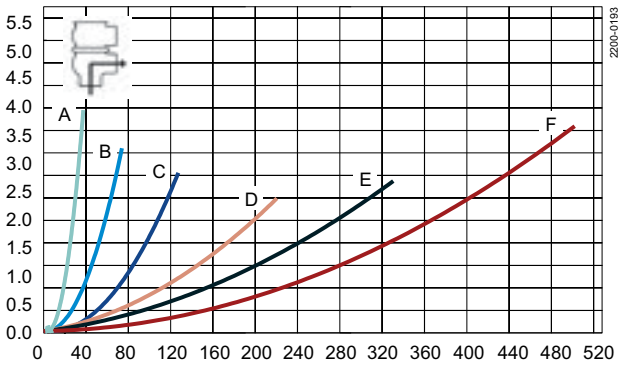
A = 1" Cv 17
B = 1.5" Cv 46
C = 2" Cv 892
D = 2.5" Cv 151
E = 3" Cv 215
F = 4" Cv 297

ΔP [psi]



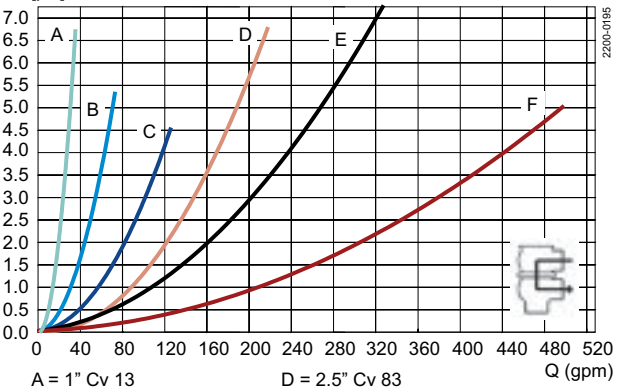
A = 1" Cv 14
B = 1.5" Cv 30
C = 2" Cv 58
D = 2.5" Cv 99
E = 3" Cv 148
F = 4" Cv 214

ΔP [psi]



A = 1" Cv 17
B = 1.5" Cv 39
C = 2" Cv 74
D = 2.5" Cv 148
E = 3" Cv 207
F = 4" Cv 262

ΔP [psi]



A = 1" Cv 13
B = 1.5" Cv 31
C = 2" Cv 59
D = 2.5" Cv 83
E = 3" Cv 123
F = 4" Cv 221

Note!
For the diagrams the following applies:
Medium: Water (68° F/20° C)
Measurement: In accordance with VDI2173
Pressure drop can also be calculated in Anytime configurator

Pressure drop can also be calculated with the following formula:

$Q = Cv \times \sqrt{\Delta p}$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 160 gallon/minute.

2.5" shut-off valve, where Cv = 128 (See table above).

$Q = Kv \times \sqrt{\Delta p}$

$160 = 128 \times \sqrt{\Delta p}$

$\Delta p = \left(\frac{160}{128}\right)^2 = 1{,}6 \text{ psi}$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve standard

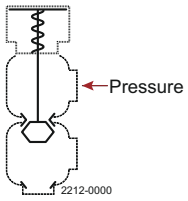


Figure 4. 1

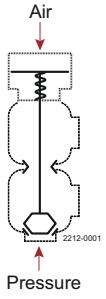


Figure 5. 2

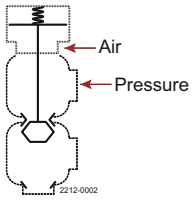


Figure 6. 3

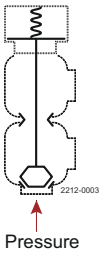


Figure 7. 4

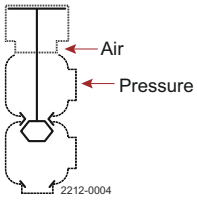


Figure 8. 5

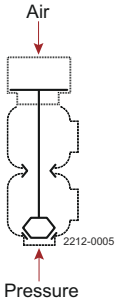


Figure 9. 6

Shut-off and Change-over valves

			Max. pressure in bar without leakage at the valve seat					
Actuator / Valve body combination and direction of pressure	Air pressure (psi)	Plug position	Valve size					
			1"	1½"	2"	2½"	3"	4"
Figure 4. 1		NO	145.0	119.0	122.0	65.0	99.0	64.0
	72.5		133.0	64.0	86.0	49.0	64.0	42.0
Figure 5. 2	87.0	NO	145.0	110.0	139.0	81.0	104.0	70.0
	101.5		145.0	145.0	145.0	113.0	145.0	97.0
	72.5		145.0	83.0	99.0	54.0	68.0	44.0
Figure 6. 3	87.0	NC	145.0	142.0	145.0	88.0	112.0	73.0
	101.5		145.0	145.0	145.0	123.0	145.0	100.0
Figure 7. 4		NC	145.0	91.0	104.0	61.0	93.0	61.0
	72.5		145.0	145.0	145.0	145.0	145.0	136.0
Figure 8. 5	87.0	A/A	145.0	145.0	145.0	145.0	145.0	145.0
	101.5		145.0	145.0	145.0	145.0	145.0	145.0
Figure 9. 6	72.5		145.0	145.0	145.0	145.0	145.0	132.0
	87.0	A/A	145.0	145.0	145.0	145.0	145.0	145.0
	101.5		145.0	145.0	145.0	145.0	145.0	145.0

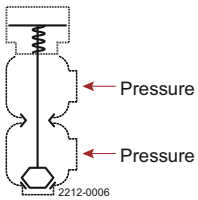


Figure 10. 7

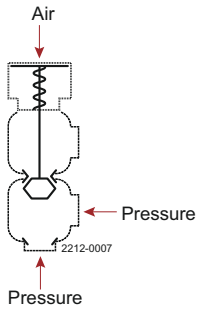


Figure 11. 8

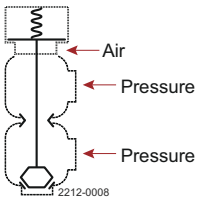


Figure 12. 9

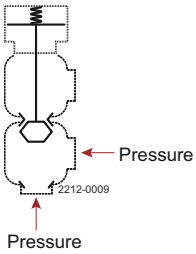


Figure 13. 10

Shut-off and Change-over valves

			Max. pressure in psi against which the valve can open					
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size DN/OD 1”	DN/OD 1½”	DN/OD 2”	DN/OD 2½”	DN/OD 3”	DN/OD 4”
Figure 10. 7		NO	145	145.0	145.0	107.3	140.7	91.4
	72.5		145	113.1	145.0	88.5	103.0	68.2
Figure 11. 8	87.0	NO	145	145.0	145.0	120.4	143.6	95.7
	101.5		145	145	145.0	145.0	145.0	123.3
	72.5		145	145.0	145.0	95.7	108.8	71.1
Figure 12. 9	87.0	NC	145	145.0	145.0	130.5	145.0	100.1
	101.5		145	145.0	145.0	145.0	145.0	127.6
Figure 13. 10		NC	145	140.7	145.0	98.6	132.0	88.5

Shut-off and Change-over valves with high pressure actuator option

			Max. pressure in bar without leakage at the valve seat					
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size DN/OD 1”	DN/OD 1½”	DN/OD 2”	DN/OD 2½”	DN/OD 3”	DN/OD 4”
Figure 4. 1		NO	145.0	145.0	145.0	145.0	-	-
Figure 5. 2	87.0	NO	145.0	145.0	145.0	145.0	-	-
Figure 6. 3	87.0	NC	145.0	145.0	145.0	145.0	72.5	43.5
Figure 7. 4		NC	145.0	145.0	145.0	139.2	145.0	101.5

Alfa Laval Unique SSV Reverse Acting

Single seat valve

Introduction

The Alfa Laval Unique SSV Reverse Acting is a versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. Built on the well-proven Alfa Laval Unique SSV platform, it provides multiple solutions where the direction of the flow does not allow the use of a standard Alfa Laval Unique SSV to eliminate the risk of pressure shock.

Few moving parts ensure easy dismantling, high reliability and low maintenance costs. A wide range of optional features enables customization to specific process requirements.

Application

The Unique SSV Reverse Acting is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety due to the static seal leak detection
- Protection against full vacuum due to the double lip seal
- Increased flexibility due to reverse-acting function

Standard design

The Unique SSV Reverse Acting is available in a two- or three-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured as a shut-off valve with two or four working ports or as a changeover valve with three to six ports.

To ensure flexibility, the valve seat that sits between the two bodies in both the shut-off and changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

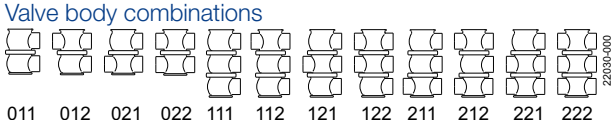
The Alfa Laval Unique SSV Reverse Acting is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks. The valve can be controlled using an Alfa Laval ThinkTop®.

TECHNICAL DATA

Temperature	
Temperature range:	14 °F to +284 °F (EPDM)

Pressure	
Max. product pressure:	145 PSI (1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 101.5 PSI (5 - 7 bar)

Valve body combinations



Actuator function

- Pneumatic downward movement, spring return
- Pneumatic upward movement, spring return
- Pneumatic upward and downward movement (A/A)

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L (internal Ra < 32 µ inch)
Other steel parts:	AISI 304
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 32 µm
Plug seal:	PTFE (TR2) (standard)
Optional elastomer plug seal:	EPDM, HNBR or FPM
Other product wetted seals:	EPDM (standard)
Optional product wetted seals:	HNBR or FPM
Other seal:	NBR

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals in HNBR or FPM
- Plug seals HNBR, FPM or TR2 plug (floating PTFE design)
- High pressure actuator
- Maintainable actuator
- External surface finish bright

Note!
For further details, see instruction ESE00213.

Other valves in the same basic design

- Long stroke valve
- Manually operated valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (inch)

	Nominal size						
	1"	1½"	2"	2.½"	3"	4"	Shut-off 4" XL stroke
A_1	13.3	13.96	16.21	17.19	19.05	21.00	32.9*
A_2	13.77	14.79	17.23	18.22	20.3	22.22	32.9*
A_3	15.18	16.5	19.27	20.75	23.10	26.02	N/A
A_4	15.61	17.15	20.28	21.61	24.17	27.08	N/A
C	1.88	2.39	2.91	3.40	3.89	4.87	4.87
OD	0.98	1.50	2.01	2.50	3.00	4.00	4.00
ID	0.86	1.37	1.88	2.37	2.87	3.84	3.84

	Nominal size						
	1"	1½"	2"	2.½"	3"	4"	Shut-off 4" XL stroke
t	0.06	0.06	0.06	0.06	0.06	0.08	0.08
E	1.97	1.95	2.44	3.23	3.43	4.72	4.72
F_1	0.47	0.83	1.02	1.02	1.22	1.22	2.95
F_2	0.43	0.63	0.87	0.87	1.06	1.06	N/A
G	0.94	1.95	1.59	3.23	3.43	4.72	4.72
H	ø3.34	ø3.34	ø4.53	ø4.53	ø6.18	ø6.18	6.00
H (high pressure)	ø3.34	ø4.53	ø6.18	ø6.18	ø6.18	ø6.18	N/A
M (Tri-Clamp)	0.50	0.50	0.50	0.50	0.50	0.63	0.63
Weight (lb)							
Shut-off valve	10.14	10.58	17.20	9.5	34.84	43.65	48.50
Change-over valve	12.13	12.79	20.28	20.94	41.01	54.01	N/A

For exact high pressure actuator dimension (A and F) - please refer to information in Anytime configurator.

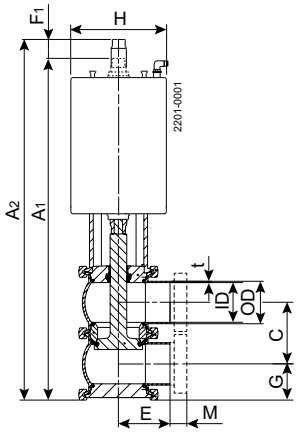


Figure 1. Shut-off valve

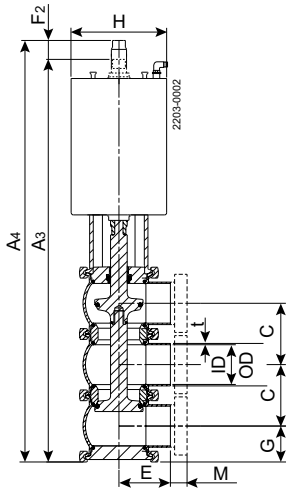


Figure 2. Change-over valve

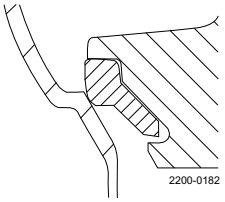


Figure 3. Replaceable elastomer plug seal

Please note!

Opening/closing time will be effected by the following:

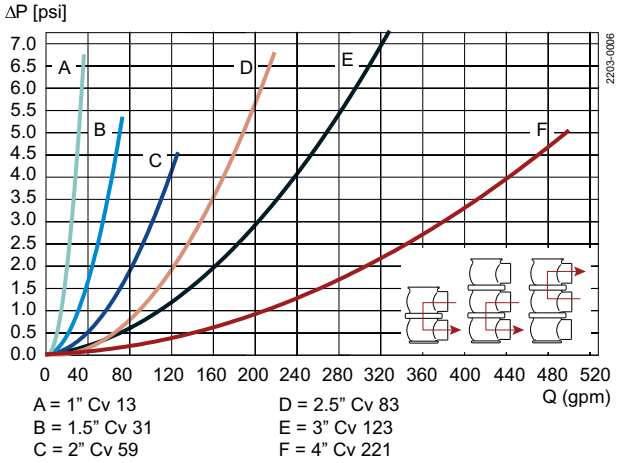
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure.

Air Connections Compressed air:

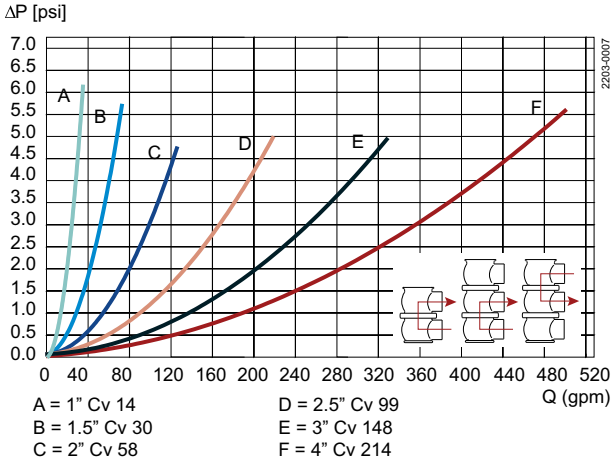
R 1/8" (BSP), internal thread.

Air Consumption (in^3 free air) for one stroke			
Size	**1"-1½"**	**2"-2½"**	**3"-4"**
NO and NC	0.96 x air pressure [PSI]	2.17 x air pressure [PSI]	5.51 x air pressure [PSI]
A/A	1.94 x air pressure [PSI]	4.82 x air pressure [PSI]	11.15 x air pressure [PSI]

Pressure drop/capacity diagrams



A = 1" Cv 13
B = 1.5" Cv 31
C = 2" Cv 59
D = 2.5" Cv 83
E = 3" Cv 123
F = 4" Cv 221



A = 1" Cv 14
B = 1.5" Cv 30
C = 2" Cv 58
D = 2.5" Cv 99
E = 3" Cv 148
F = 4" Cv 214

Note!
For the diagrams the following applies:
Medium: Water (68 °F)
Measurement: In accordance with VDI2173
Pressure drop can also be calculated in Anytime configurator.

Pressure drop can also be calculated with the following formula:

$Q = Kv \times \sqrt{\Delta p}$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 160 gallon/minute.

2.5" shut-off valve, where Cv = 128 (See table above).

$Q = Kv \times \sqrt{\Delta p}$

$160 = 128 \times \sqrt{\Delta p}$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1{,}6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Reverse Acting

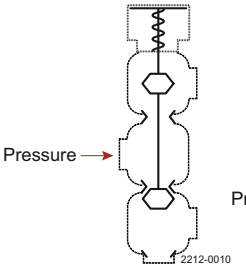


Figure 4. 1

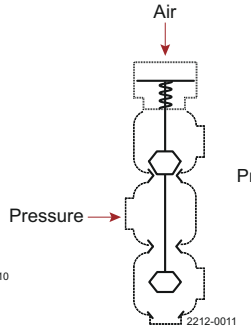


Figure 5. 2

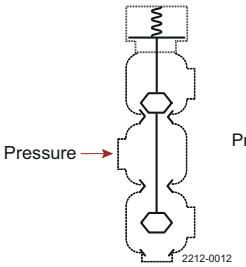


Figure 6. 3

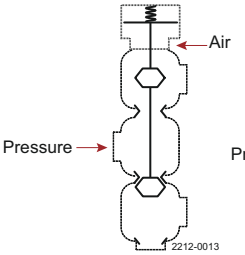


Figure 7. 4

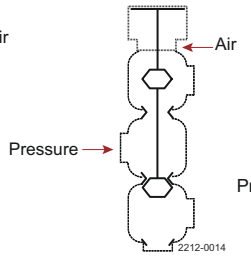


Figure 8. 5

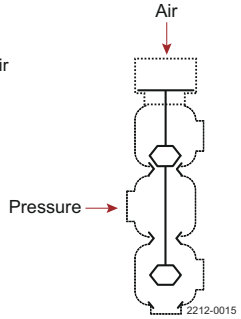


Figure 9. 6

Shut-off and Change-over valves

Actuator/valve body combination and direction of pressure Change-over valve	Air pressure (PSI)	Plug position	Max. pressure in bar without leakage at the valve seat Valve size DN25 DN/OD 1”	DN40 DN/OD 1½”	DN50 DN/OD 2”	DN65 DN/OD 2½”	DN80 DN/OD 3”	DN100 DN/OD 4”
Figure 4. 1		NC	145	119	122	65	99	64
Figure 5. 2	87	NC	145	110	139	81	104	70
Figure 6. 3		NO	145	91	104	61	93	61
Figure 7. 4	87	NO	145	145	145	88	112	5.0
Figure 8. 5	87	A/A	145	145	145	145	131	84
Figure 9. 6	87	A/A	145	145	145	145	123	81

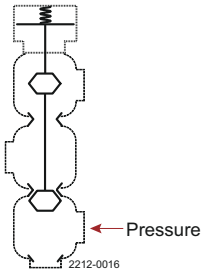


Figure 10. 7

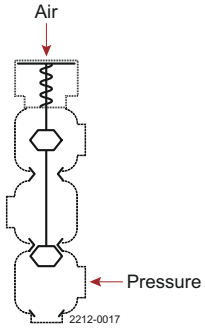


Figure 11. 8

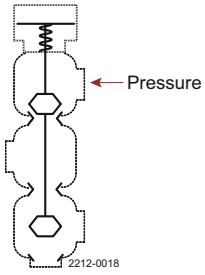


Figure 12. 9

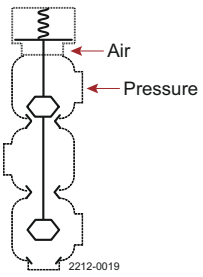


Figure 13. 10

Shut-off and Change-over valves

Actuator/valve body combination and direction of pressure Change-over valve	Air pressure (PSI)	Plug position	Max. pressure in bar against which the valve can open Valve size DN25 DN/OD 1”	DN40 DN/OD 1½”	DN50 DN/OD 2”	DN65 DN/OD 2½”	DN80 DN/OD 3”	DN100 DN/OD 4”
Figure 10. 7		NO	145	141	145	99	67	45
Figure 11. 8	87	NC	145	145	145	120	144	96
Figure 12. 9		NC	145	145	145	107	71	46
Figure 13. 10	87	NO	145	145	145	131	145	100

Alfa Laval Unique SSV Long Stroke

Single seat valves

Introduction

The Alfa Laval Unique SSV Long Stroke is versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination. Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. Built on the well-proven Unique SSV platform, it is especially suitable for use with highly viscous products and products containing particles and/or suspended solids due to its larger opening.

Application

This Unique SSV Long Stroke is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety thanks to the static seal leak detection
- Protection against full vacuum due to the double lip seal

Standard design

The Unique SSV Long Stroke is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured as a shut-off valve with two or three working ports or as a changeover valve with up to five ports.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Long Stroke is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates

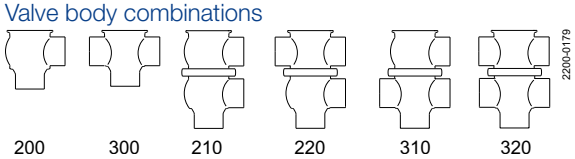
Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Temperature range:	14 °F to +284 °F (EPDM)

Pressure	
Max. product pressure (depending on valve specifications):	145 PSI (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 101.5 PSI (5 to 7 bar)

Valve body combinations



Actuator function

- Pneumatic downward movement, spring return
- Pneumatic upward movement, spring return
- Pneumatic upward and downward movement (AA)

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L (internal Ra < 32 µ inch)
Other steel parts:	AISI 304
Plug seal:	PTFE (TR2) (standard)
Optional elastomer plug seal:	EPDM, HNBR or FPM
Optional productwetted seals:	HNBR or FPM
Other productwetted seals:	EPDM (standard)
Other seals:	NBR

Options

- Weld ends or connection types other than Tri-Clamp
- Control and Indication: ThinkTop and ThinkTop Basic
- Product wetted seals in HNBR or FPM
- Replaceable elastomer plug seals.
- External surface finish blasted.

Note!
For further details, see instruction ESE00202.

Other valves in the same basic design

The Unique SSV valve range includes several purpose built valves. Below are some of the valve models available, though please use the Alfa Laval Anytime configurator for full access to all models and options.

- Reverse acting valve
- Manually operated valve
- Tank Outlet valve
- Tangential valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (inch)

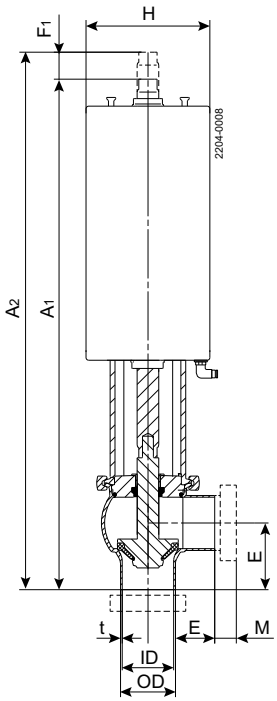


Figure 1. Shut-off valve

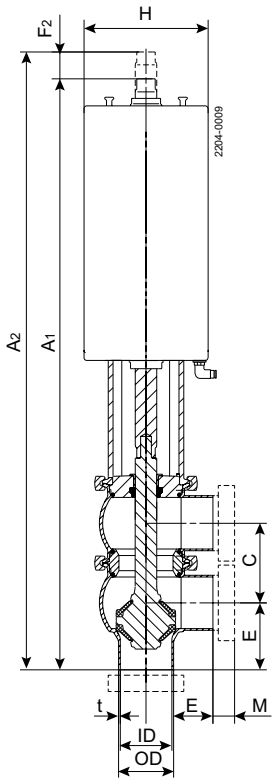


Figure 2. Change-over valve

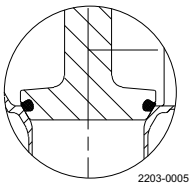


Figure 3. Replaceable elastomer plug seal

Nominal Size	Inch				
	1½"	2"	2½"	3"	4"
A_1	16.37	16.76	17.36	21.23	23.32
A_2	17.31	18.06	19.09	23.5	25.84
A_3	17.8	19.02	20.55	24.76	28.07
A_4	18.75	20.32	22.32	27	30.59
C	2.39	2.91	3.4	3.89	4.87
OD	1.5	2	2.5	3	4
ID	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.08
E_1	1.95	2.44	3.23	3.43	4.72
E_2	0.94	1.30	1.73	2.24	2.52
F_1	0.98	1.30	1.77	2.24	2.52
F_2	3.35	4.52	4.52	6.18	6.18
H	4.52	6.18	6.18	6.18	6.18
M (Tri-Clamp)	0.50	0.50	0.50	0.50	0.63
Weight (lb)					
Shut-off valve	13.4	14.7	16.8	33.2	38.8
Change-over valve	15	17.4	21	38.8	49.5

For exact high pressure actuator dimension (A and F) - please refer to information in Anytime.

Please note!

Opening/closing time will be affected by the following:

- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Air Connections Compressed air:

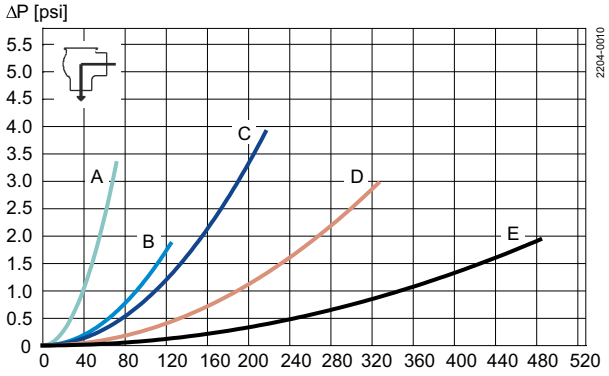
R 1/8" (BSP), internal thread.

Max. size of solids (inch)	Valve size (DN/OD)				
	1½"	2"	2½"	3"	4"
Shut-off valve	0.51	0.94	1.30	1.77	2.05
Change-over valve (plug up/lower body)	0.51	0.94	1.34	1.77	2.05
Change-over valve (plug down/between bodies)	0.47	0.59	0.91	1.18	1.57

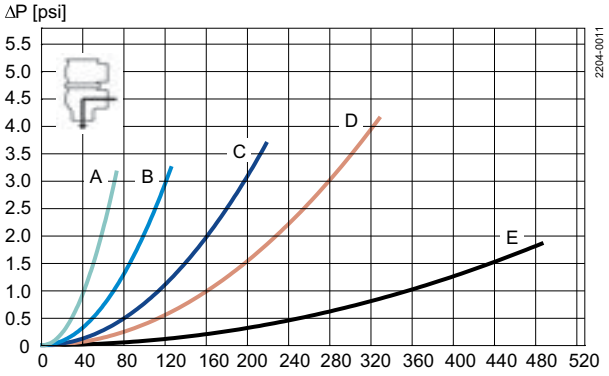
Air consumption (In3 free air) for one stroke

Size	1½" - 2½"	3" - 4"
NO and NC	0.8 x air pressure [PSI]	2 x air pressure [PSI]
A/A	1.4 x air pressure [PSI]	3.9 x air pressure [PSI]

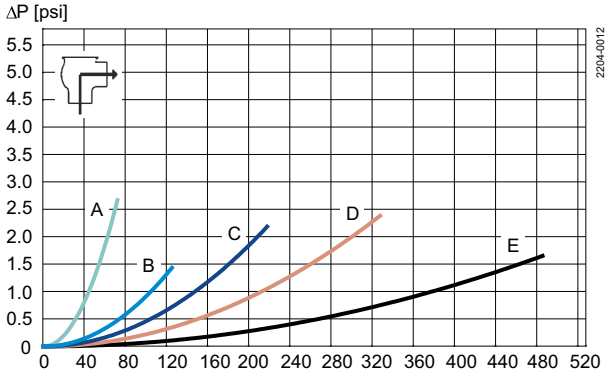
Pressure drop/capacity diagrams



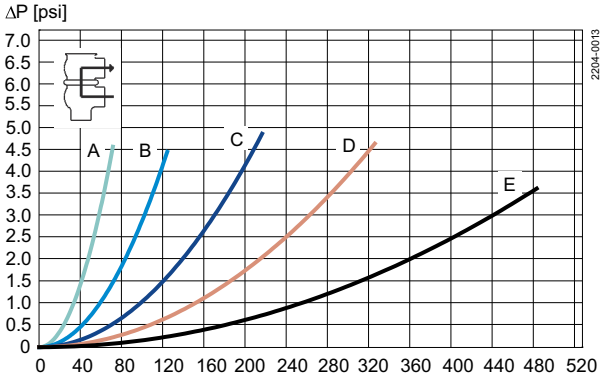
A = 1.5” Cv 39
B = 2” Cv 91
C = 2.5” Cv 110
E = 3” Cv 190
F = 4” Cv 348



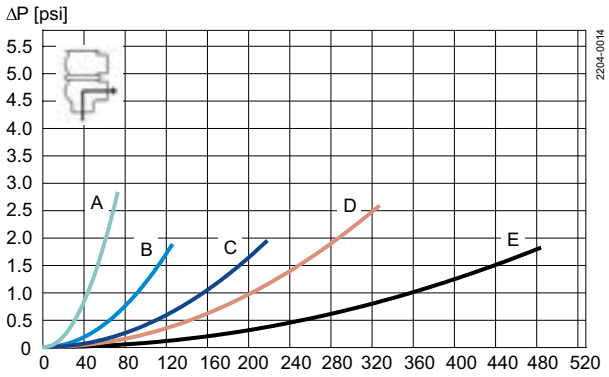
A = 1.5” Cv 40
B = 2” Cv 69
C = 2.5” Cv 113
E = 3” Cv 161
F = 4” Cv 356



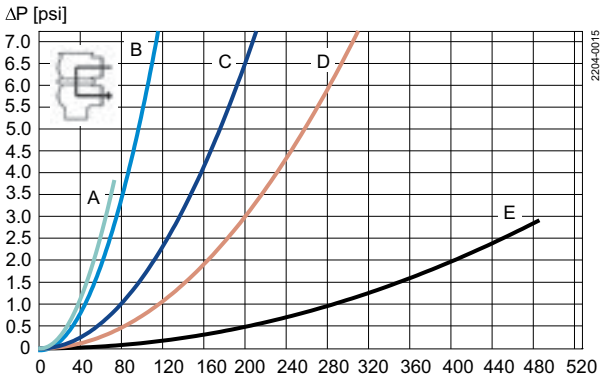
A = 1.5” Cv 44
B = 2” Cv 104
C = 2.5” Cv 147
E = 3” Cv 212
F = 4” Cv 377



A = 1.5” Cv 34
B = 2” Cv 59
C = 2.5” Cv 98
E = 3” Cv 151
F = 4” Cv 254



A = 1.5” Cv 43
B = 2” Cv 91
C = 2.5” Cv 156
E = 3” Cv 203
F = 4” Cv 360



A = 1.5” Cv 37
B = 2” Cv 43
C = 2.5” Cv 79
E = 3” Cv 116
F = 4” Cv 286

Note!
For the diagrams the following applies:
Medium: Water 68° F
Measurement: In accordance with VDI 2173
Pressure drop can also be calculated in Anytime configurator.
Pressure drop can also be calculated with the following formula:
$Q = Cv \times \sqrt{\Delta p}$
Where
$Q = Cv \times \sqrt{\Delta p}$
Q = Flow (gallon/minute).
Cv = gallon/minute at a pressure drop of 14.5 psi (see table above).
Δ p = Pressure drop in psi over the valve.
2.5" shut-off valve, where Cv = 128 (See table above).
$Q = Cv \times \sqrt{\Delta p}$
$160 = 128 \times \sqrt{\Delta p}$
$\Delta p = \left(\frac{160}{128}\right)^2 = 1{,}6$ psi

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Long Stroke

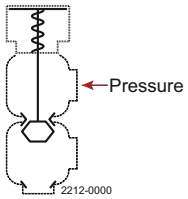


Figure 4. 1

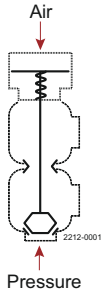


Figure 5. 2

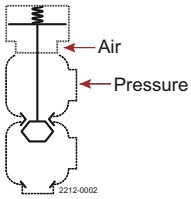


Figure 6. 3

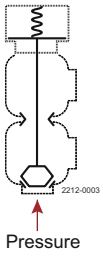


Figure 7. 4

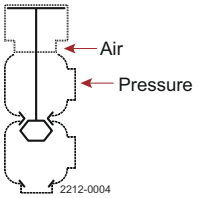


Figure 8. 5

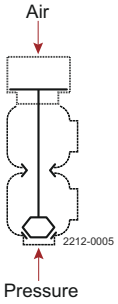


Figure 9. 6

Shut-off and Change-over valves

			Max. pressure in PSI without leakage at the valve seat				
			Valve size				
Actuator / Valve body combination and direction of pressure	**Air pressure (PSI)**	**Plug position**	**DN 40 DN/OD 1½”**	**DN50 DN/OD 2”**	**DN 65 DN/OD 2½”**	**DN 80 DN/OD 3”**	**DN 100 DN/OD 4”**
Figure 4. 1		NO	145	129	70	103	67
Figure 5. 2	87	NO	145	125	73	99	64
Figure 6. 3	87	NC	145	144	78	104	67
Figure 7. 4		NC	145	110	64	97	64
Figure 8. 5	87	A/A	145	145	145	145	145
Figure 9. 6	87	A/A	145	145	145	145	145

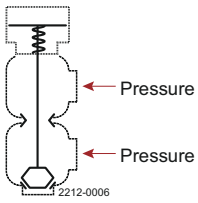


Figure 10. 7

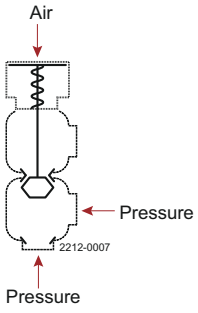


Figure 11. 8

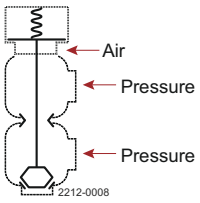


Figure 12. 9

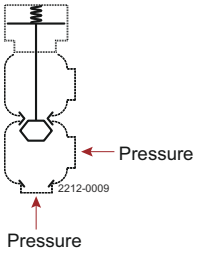


Figure 13. 10

Shut-off and Change-over valves

			Max. pressure in PSI against which the valve can open				
			Valve size				
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	DN 40 DN/OD 1½”	DN50 DN/OD 2”	DN 65 DN/OD 2½”	DN 80 DN/OD 3”	DN 100 DN/OD 4”
Figure 10. 7		NO	145	145	117	145	97
Figure 11. 8	87	NO	145	145	116	141	94
Figure 12. 9	87	NC	145	145	126	145	97
Figure 13. 10		NC	145	145	109	139	93

Alfa Laval Unique SSV Aseptic

Single seat valves

Introduction

The Alfa Laval Unique SSV Aseptic is a versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process requirements in terms of hygiene and safety. Built on the well-proven Alfa Laval Unique SSV platform, it features a one-piece diaphragm that provides hermetic sealing to prevent intrusion of contaminants from the atmosphere, ensuring full protection against the effects of microorganisms during processing. The special diaphragm can also be used with the Unique SSV Standard, Tangential, Two Step, Manual and Tank Outlet.

Few moving parts ensure easy maintenance, high reliability and low total cost of ownership. A wide range of optional features enables customization to specific process requirements.

Application

This Unique SSV Aseptic is designed for uninterrupted production in sterile and aseptic applications across the dairy, food, beverage, brewery, biotechnology, pharmaceutical and many other industries.

Benefits

- Durable, aseptic valve design
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety due to the static seal leak detection
- Protection against bacterial contamination
- Easy to configure

Standard design

The Unique SSV Aseptic is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured for aseptic processing as a shutoff valve with two or three working ports or as a changeover valve with three to five ports.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Aseptic is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks. An integrated valve plug/diaphragm secures aseptic operation. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates

Authorized to carry the 3A symbol

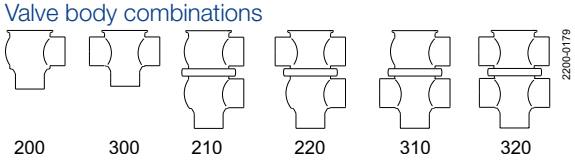
TECHNICAL DATA

Temperature	
Temperature range:	14 °F to 284 °F (EPDM)
Max. sterilization temperature (<1 min):	302 °F/380 kPa (55 PSI)

Pressure	
Pressure range:	0-116 PSI (0-8 bar)
Max. sterilization temperature (steam - short time):	302 °F/55 PSI (3.8 bar)
Air pressure:	72.5-101.5 PSI (500-700 kPa) (5-7 bar)

Note!
Vacuum is not recommended in aseptic applications.

Valve body combinations



Actuator function

- Pneumatic downward movement, spring return (NO)
- Pneumatic upward movement, spring return (NC)
- Pneumatic upward and downward movement (A/A)

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L
Other steel parts:	AISI 304
Internal surface finish:	Ra 32 µin
Product wetted seal:	EPDM
Optional product wetted seals:	HNBR and FPM
Other seals:	NBR
Diaphragm:	PTFE (Product wetted side)/EPDM

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals in HNBR or FPM
- Low pressure actuator
- High product pressure actuator
- Maintainable actuator
- 2 step/3 position actuator (not for DN/OD 25/DN 25)
- External surface bright
- Tangential valve body

Note!
For further details, see instruction ESE00529.

Other valves in the same basic design

- Shut-off valve
- Change-over valve
- Reverse acting valve
- Long stroke version

- Manual operated valve
- Small Single Seat Valve (SSSV)

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (inch)

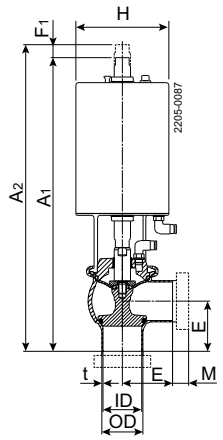


Figure 1. Shut-off valve

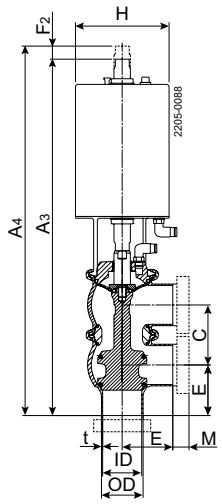


Figure 2. Change-over valve

Nominal size	DN/OD					
	1"	1.5"	2"	2.5"	3"	4"
A_1	12.14	12.38	14.46	15.50	17.01	18.99
A_2	12.57	12.81	15.06	16.09	17.8	19.74
A_3	14.02	14.8	17.37	18.90	20.91	23.86
A_4	14.34	15.13	17.88	19.41	21.54	24.49
C	1.88	2.39	2.91	3.4	3.89	4.87
OD	0.98	1.5	2.01	2.5	3.0	4
ID	0.86	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.06	0.08
E	1.97	1.95	2.40	3.19	3.39	4.69
F_1	0.43	0.43	0.59	0.59	0.75	0.75
F_2	0.31	0.35	0.51	0.51	0.63	0.63
H	3.35	3.35	4.52	4.52	6.07	6.07
M/ Clamp	0.50	0.50	0.50	0.50	0.50	0.63
Weight (lb)						
Shut-off valve	6.8	7.2	12.3	14.6	25.3	30.8
Change-over valve	8.6	9.3	15.8	19.1	31.2	40.5

Note!

Opening/closing time will be affected by the following:

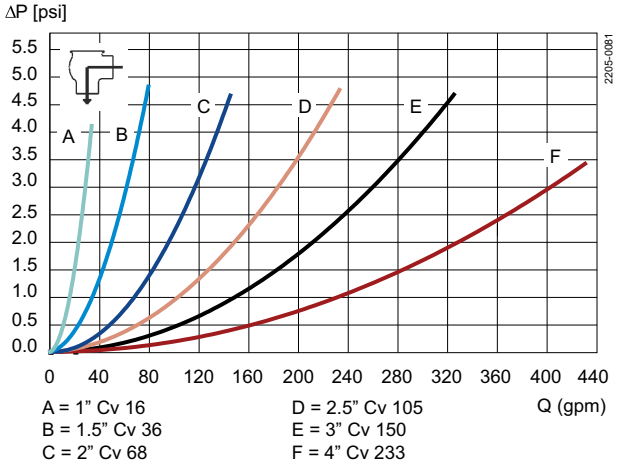
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

Air Connections Compressed air:

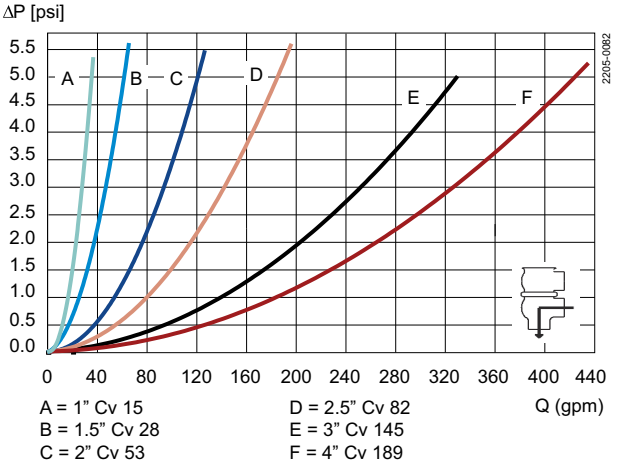
R 1/8" (BSP), internal thread.

Air Consumption (In^3 free air) for one stroke			
Size	**1"-1½"**	**2"-2½"**	**3"-4"**
NO and NC	0.96 x air pressure [PSI]	2.17 x air pressure [PSI]	5.51 x air pressure
A/A	1.94 x air pressure [PSI]	4.82 x air pressure [PSI]	11.15 x air pressure [PSI]

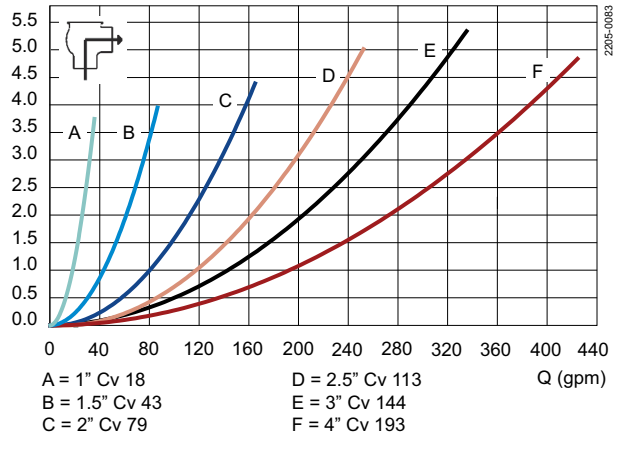
Pressure drop/capacity diagrams



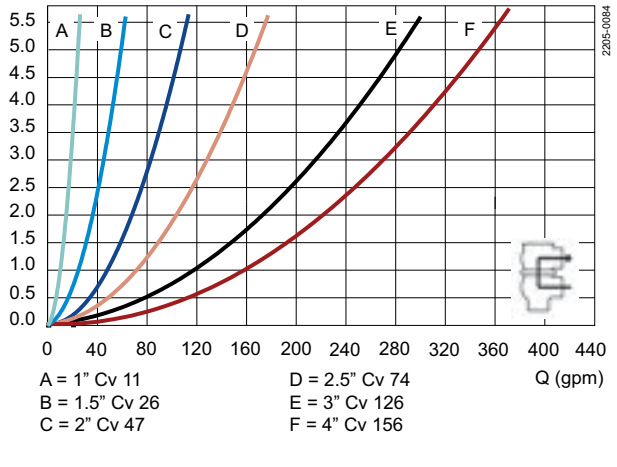
A = 1” Cv 16
B = 1.5” Cv 36
C = 2” Cv 68
D = 2.5” Cv 105
E = 3” Cv 150
F = 4” Cv 233



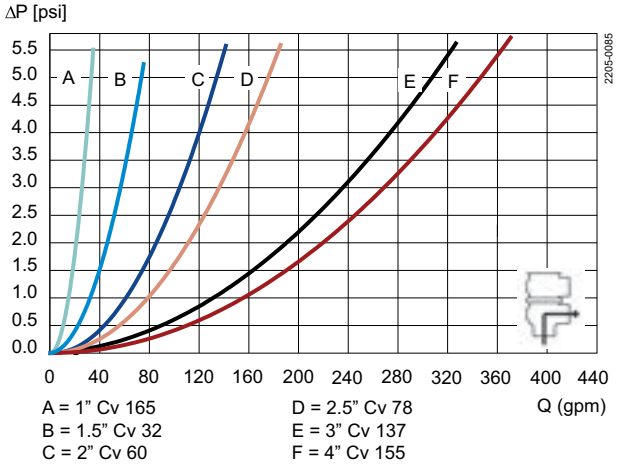
A = 1” Cv 15
B = 1.5” Cv 28
C = 2” Cv 53
D = 2.5” Cv 82
E = 3” Cv 145
F = 4” Cv 189



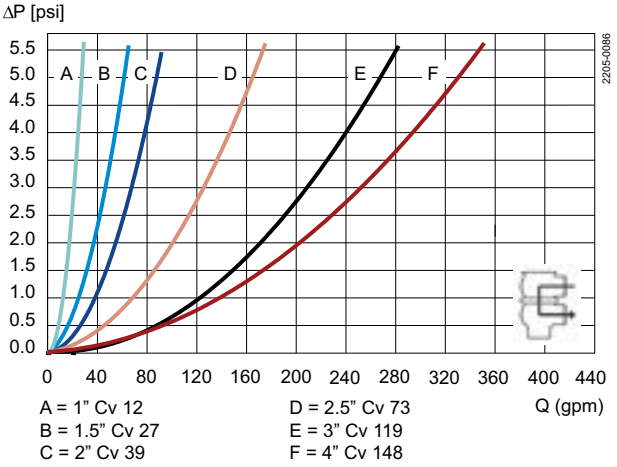
A = 1” Cv 18
B = 1.5” Cv 43
C = 2” Cv 79
D = 2.5” Cv 113
E = 3” Cv 144
F = 4” Cv 193



A = 1” Cv 11
B = 1.5” Cv 26
C = 2” Cv 47
D = 2.5” Cv 74
E = 3” Cv 126
F = 4” Cv 156



A = 1” Cv 165
B = 1.5” Cv 32
C = 2” Cv 60
D = 2.5” Cv 78
E = 3” Cv 137
F = 4” Cv 155



A = 1” Cv 12
B = 1.5” Cv 27
C = 2” Cv 39
D = 2.5” Cv 73
E = 3” Cv 119
F = 4” Cv 148

Note!
For the diagrams the following applies:
Medium: Water (68 ° F/20 °C)
Measurement: In accordance with VDI 2173
Pressure drop can also be calculated in Anytime configurator.

Pressure drop can also be calculated with the following formula:

$Q = Cv \times \sqrt{\Delta p}$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 PSI (see table above).

Δ p = Pressure drop in psi over the valve.

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 PSI (see table above).

Δ p = Pressure drop in psi over the valve.

$Q = Kv \times \sqrt{\Delta p}$

2.5" shut-off valve, where Cv = 128 (See table above).

$160 = 128 \times \sqrt{\Delta p}$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1{,}6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Aseptic

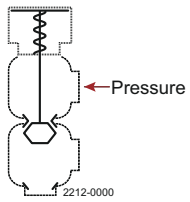


Figure 3. 1

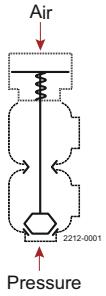


Figure 4. 2

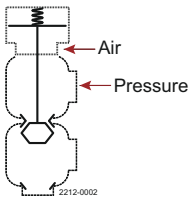


Figure 5. 3

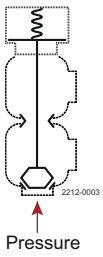


Figure 6. 4

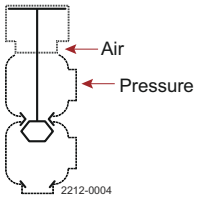


Figure 7. 5

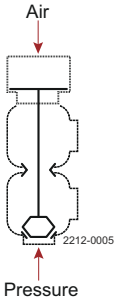


Figure 8. 6

Shut fully closed. Max. static pressure without leakage

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN 25 DN/OD 1"	DN 40 DN/OD 1½"	DN 50 DN/OD 2"	DN 65 DN/OD 2½"	DN 80 DN/OD 3"	DN 100 DN/OD 4"
Figure 3. 1		NO	116	87	116	64	109	78
Figure 4. 2	87	NO	116	110	116	81	104	70
Figure 5. 3	87	NC	116	116	116	6.8	109	73
Figure 6. 4		NC	116	91	104	61	93	61
Figure 7. 5	87	A/A	116	116	116	116	116	116
Figure 8. 6	87	A/A	116	116	116	116	116	116

Shut fully closed. Options with high pressure actuator - Max. static pressure without leakage

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN 25 DN/OD 1"	DN 40 DN/OD 1½"	DN 50 DN/OD 2"	DN 65 DN/OD 2½"	DN 80 DN/OD 3"	DN 100 DN/OD 4"
Figure 3. 1		NO	116	116	116	116	-	-
Figure 4. 2	87	NO	116	116	116	116	-	-
Figure 5. 3	87	NC	116	116	116	116	116	59
Figure 6. 4		NC	116	116	116	116	116	102

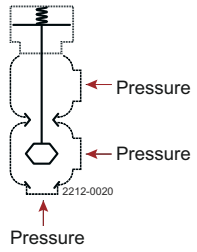


Figure 9. 1

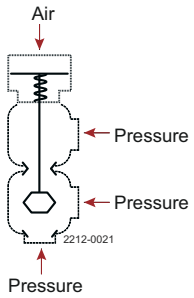


Figure 10. 2

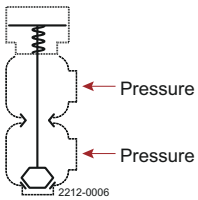


Figure 11. 3

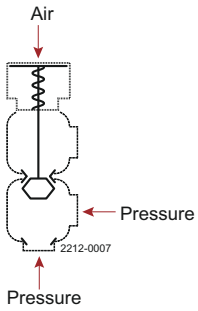


Figure 12. 4

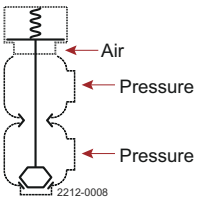


Figure 13. 5

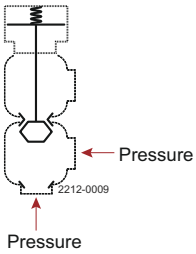


Figure 14. 6

Valve is closing. Approximately max. pressure in bar at which the valve can close by means of the spring or air pressure

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN 25 DN/OD 1"	DN 40 DN/OD 1½"	DN 50 DN/OD 2"	DN 65 DN/OD 2½"	DN 80 DN/OD 3"	DN 100 DN/OD 4"
Figure 9. 1		NC	94	94	116	116	106	110
Figure 10. 2	87	NO	116	116	116	116	115	116

Seat fully closed - Standard valve. Approximately pressure in bar, at which the valve plug can change positions by the spring or air pressure

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN 25 DN/OD 1"	DN 40 DN/OD 1½"	DN 50 DN/OD 2"	DN 65 DN/OD 2½"	DN 80 DN/OD 3"	DN 100 DN/OD 4"
Figure 11. 3		NO	116	116	116	116	116	116
Figure 12. 4	87	NO	116	116	116	116	116	116
Figure 13. 5	87	NC	116	116	116	116	116	116
Figure 14. 6		NC	116	116	116	83	116	78

Alfa Laval Unique SSV Two Step

Single seat valves

Introduction

The Alfa Laval Unique SSV Two Step is a versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination. Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety.

Built on the well-proven Alfa Laval Unique SSV platform, it is ideal for dosing and two-stage filling to ensure an exact volume or for draining of two pipes at the same time while reducing the risk of pressure shocks. Adjustable lifting height makes it possible to match specific volumes and quantities.

Few moving parts ensure easy dismantling, high reliability and low maintenance costs. A wide range of optional features enables customization to specific process requirements.

Application

The Unique SSV Two Step is designed for dosing and filling in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to defined seal compression
- Enhances product safety due to static seal leak detection
- Protection against full vacuum due to double lip seal
- Intermediate plug position

Standard design

The Unique SSV Two Step is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured as a shutoff valve with two to three working ports, or as a changeover valve with up to five ports for drainage of two pipes simultaneously or in closing/filling applications.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings. The degree of opening for the intermediate position can be adjusted by removing spacer rings inside the actuator.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Two Step is operated by means of compressed air from a remote location. The actuator smooths operation and an intermediate step protects process lines from pressure peaks while dosing and filling. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates

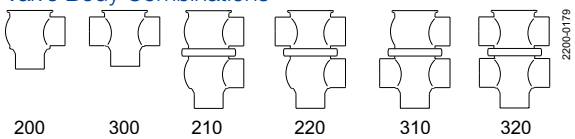
Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Temperature range	14°F to +284°F (EPDM)

Pressure	
Max. product pressure (depending on valve specifications):	145 psi (1000 kPa (10 bar))
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 101.5 psi (5 to 7 bar)

Valve Body Combinations



Actuator function

- Pneumatic downward movement, spring return.
- Pneumatic upward movement, spring return.

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L (internal Ra < 32 µinch)
Other steel parts:	AISI 304
Plug seal:	PTFE (TR2) (standard)
Optional plug seal:	EPDM, HNBR or FPM
Other product wetted seals:	EPDM (standard)
Optional product wetted seals:	HNBR and FPM
Other seals:	NBR

Options

- Weld ends or connection types other than Tri-Clamp.
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- Product wetted seals in HNBR or FPM.
- Replaceable elastomer plug seals.
- High pressure actuator (only 1.5" - 2.5").
- External surface finish blasted.

Note!
For further details, see instruction ESE00505.

Other valves in the same basic design

The valve range includes several purpose built valves. Below are some of the valve models available, though please use the Alfa Laval Anytime configurator for full access to all models and options.

- Aseptic valve.

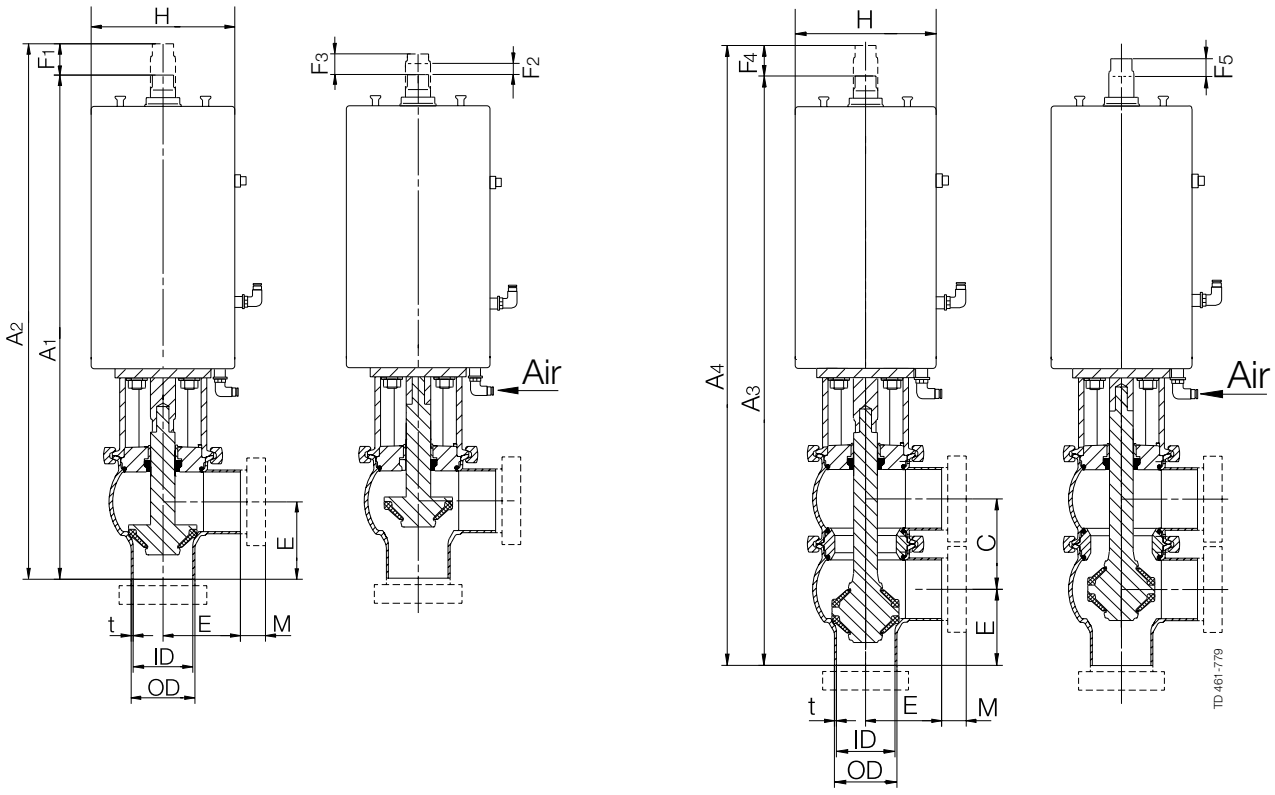
Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (inch)

Nominal size	Inch tubes DN/OD					High Pressure	
	1.5"	2"	2.5"	3"	4"	2"	2.5"
A_1	15.06	15.57	16.60	18.04	19.83	16.76	17.79
A_2	15.84	16.6	17.58	19.2	21.01	17.74	18.78
A_3	17.4	18.47	20.00	21.94	24.69	19.67	21.19
A_4	18.12	19.34	20.86	23.00	25.76	20.53	22.06
C	2.39	2.91	3.4	3.89	4.87	2.91	3.4
OD	1.5	2.01	2.5	3	4	2.01	2.5
ID	1.37	1.88	2.37	2.87	3.84	1.88	2.37
t	0.06	0.06	0.06	0.06	0.08	0.06	0.06
E	1.95	2.40	3.19	3.39	4.69	2.40	3.19

Nominal size	Inch tubes DN/OD					High Pressure	
	1.5"	2"	2.5"	3"	4"	2"	2.5"
F_1	0.79	0.98	0.98	1.18	1.18	0.98	0.98
F_2 Min. Two step stroke	0.12	0.12	0.12	0.10	0.10	0.24	0.24
F_3 Max. Two step stroke	0.24	0.43	0.43	0.55	0.55	0.35	0.35
F_4	0.67	0.87	0.87	1.06	1.06	0.87	0.87
F_5 Two step stroke	0.26	0.43	0.43	0.55	0.55	0.35	0.35
H	4.53	4.53	4.53	6.06	6.06	6.06	6.06
M (clamp)	0.5	0.5	0.5	0.5	0.63	0.5	0.5
Weight (lb)							
Stop valve	15.43	16.09	18.30	31.75	36.82	18.96	21.16
Change-over valve	17.64	19.62	22.71	37.48	46.30	22.49	25.57

Air Connections: R 1/8" (BSP), internal thread.



Shut-off valve closed

Shut-off valve with two step stroke activated

Change-over valve closed

Change-over valve with two step stroke activated

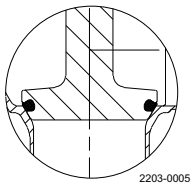


Figure 1. Replaceable elastomer plug seal

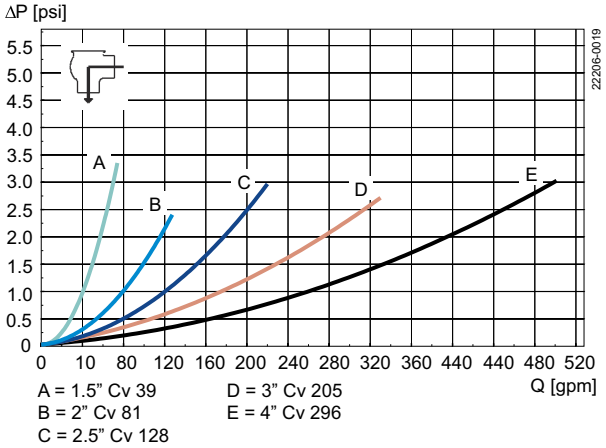
Air Consumption (In^3 free air) for one stroke			
Size	1.5"	2 - 2.5"	3" - 4"
NO and NC	2.17 x air pressure [psi]	2.17 x air pressure [psi]	5.51 x air pressure [psi]

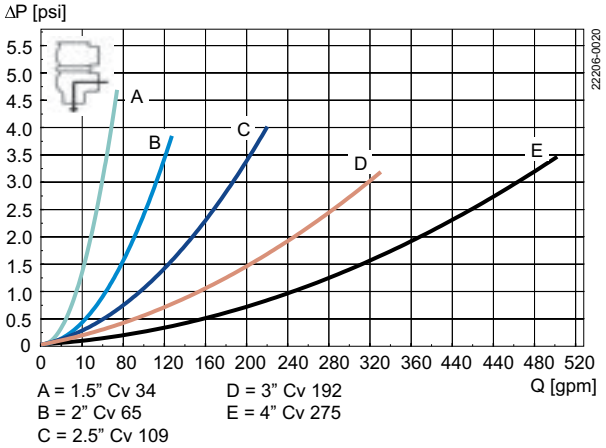
Note!
Vacuum is not recommended in aseptic applications.

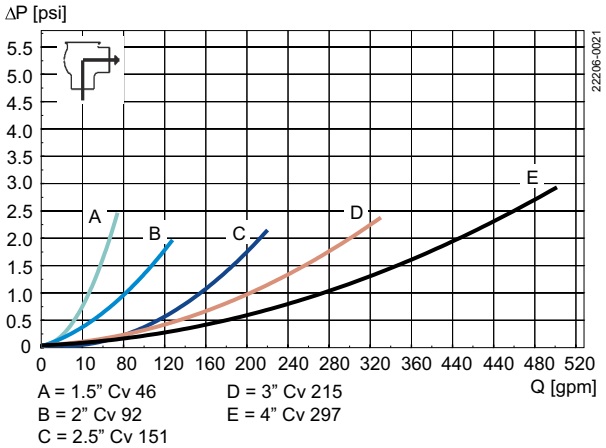
Opening/closing time will be affected by the following:

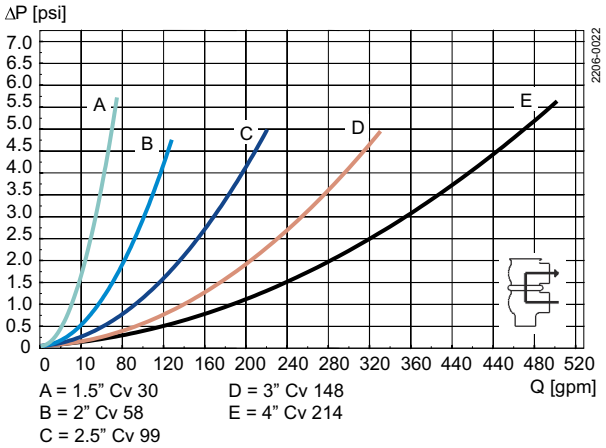
- The air supply (air pressure).
- The length and dimensions of the air hoses.
- The number of valves connected to the same air hose.
- Use of a single solenoid valve for serial connected air actuator functions.
- Product pressure.

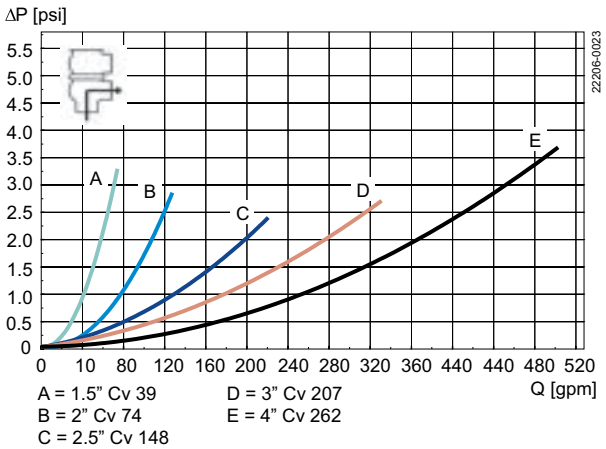
Pressure drop/capacity diagrams

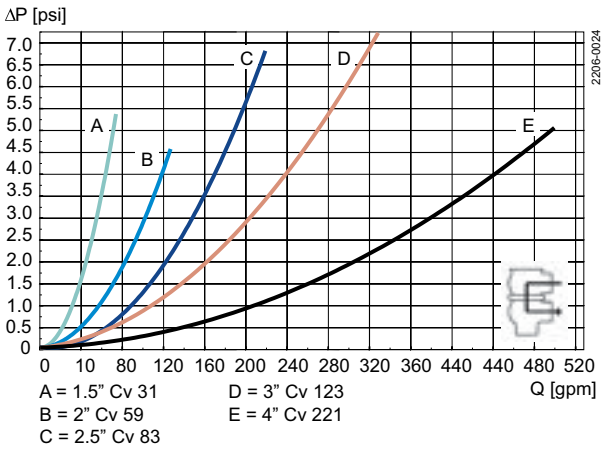












Note!
For the diagrams the following applies:
Medium: Water (68°F)
Measurement: In accordance with VDI 2173
Pressure drop can also be calculated in Anytime configurator.

Pressure drop can also be calculated with the following formula:

$Q = Cv \times \sqrt{\Delta p}$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

How to calculate the pressure drop for an ISO 2.5" shutt-off valve if the flow is 160 gallon/minute.

2.5" shut-off valve, where Cv = 128 (See table above).

$Q = Kv \times \sqrt{\Delta p}$

$160 = 128 \times \sqrt{\Delta p}$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1{,}6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Two Step

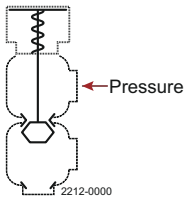


Figure 2. 1

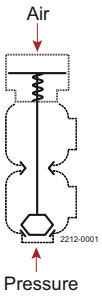


Figure 3. 2

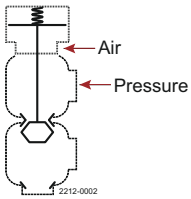


Figure 4. 3

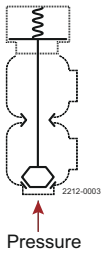


Figure 5. 4

Shut-off and Change-over valves

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max. pressure in PSI without leakage at the valve seat				
			Valve size				
			DN/OD 1½"	DN/OD 2"	DN/OD 2½"	DN/OD 3"	DN/OD 4"
1		NO	145	122	65	99	64
2	87	NO	145	139	81	104	70
3	87	NC	145	145	88	112	73
4		NC	145	104	61	93	61

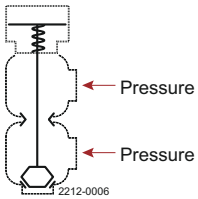


Figure 6. 5

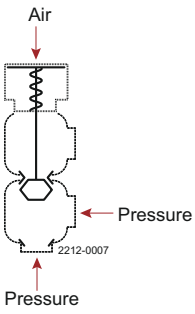


Figure 7. 6

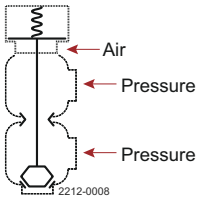


Figure 8. 7

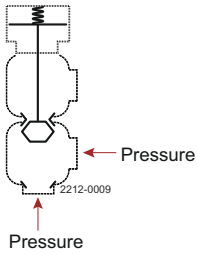


Figure 9. 8

Shut-off and Change-over valves

			Max. pressure in PSI against which the valve can open				
			Valve size				
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	DN 40 DN/OD 1½”	DN50 DN/OD 2”	DN 65 DN/OD 2½”	DN 80 DN/OD 3”	DN 100 DN/OD 4”
5		NO	145	145	68	141	91
6	87	NO	145	145	120	145	96
7	87	NC	145	145	131	145	100
8		NC	145	145	99	132	88

Shut-off and Change-over valves with high pressure actuator option (option)

			Max. pressure in PSI without leakage at the valve seat	
			Valve size	
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	DN/OD 2”	DN/OD 2½”
1		NO	145	145
2	87	NO	145	145
3	87	NC	145	145
4		NC	145	145

Alfa Laval Unique SSV Tangential

Single seat valves

Introduction

The Alfa Laval Unique SSV Tangential is a versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination. Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety.

Built on the well-proven Unique SSV platform, it provides complete drainability of the valve body near tank openings, on horizontally mounted ports, or wherever space restrictions make it difficult to install valves at other angles.

Few moving parts ensure easy maintenance, high reliability and low total cost of ownership. A wide range of optional features enables customization to specific process requirements.

Application

This Unique SSV Tangential is designed to provide complete drainability of the valve body when space is limited in hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety thanks to the static seal leak detection
- Protection against full vacuum due to the double lip seal

Standard design

The Unique SSV Tangential valve is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured as a shut-off valve with two or three ports or as a changeover valve with three to five ports.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Tangential is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks, while directing or diverting fluids. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates

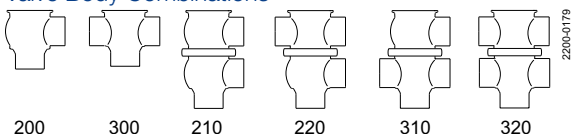
Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Temperature range:	50 °F to +284 °F (EPDM)

Pressure	
Max. product pressure (depending on valve specifications):	145 PSI (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 101.5 PSI (5-7 bar)

Valve Body Combinations



Actuator function

- Pneumatic downward movement, spring return
- Pneumatic upward movement, spring return
- Pneumatic upward and downward movement (A/A)
- Actuator for intermediate position of the valve plug (optional)

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L (internal Ra < 32 µ inch)
Other steel parts:	AISI 304
Plug seal:	PTFE (TR2) (standard)
Optional elastomer plug seal:	EPDM, HNBR or FPM
Other product wetted seals:	EPDM
Optional product wetted seals:	HNBR or FPM
Other seals:	NBR

Options

- Weld ends or connection types other than Tri-Clamp
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Aseptic version
- Product wetted seals in HNBR or FPM
- Replaceable elastomer plug seals
- High pressure actuator
- Manually operated
- NO or A/A actuator
- Long stroke actuator
- Maintainable actuator
- External surface finish blasted
- Adapter to mount to 32-154 & 32-595 tank flange “Model 7635”

Note!
For further details, see instruction ESE00586.

Other valves in the same basic design

The valve range includes several purpose built valves. Below are some of the valve models available, though please use the Alfa Laval Anytime configurator for full access to all models and options.

- Reverse acting valve
- Long stroke valve
- Manually operated valve
- Aseptic valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (inch)

	Nominal Size			
	2"	**2.5"**	**3"**	**4"**
A_1	14.23	14.72	16.08	17.06
A_2	15.21	15.70	17.26	18.24
A_3	17.13	18.12	19.98	21.92
A_4	18.00	18.98	21.04	22.98
C	2.91	3.40	3.89	4.87
OD	2	2.5	3	4
ID	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.08
E	2.40	3.19	3.39	4.69
G	2.36	2.60	2.85	3.34
F_1	0.98	0.98	1.18	1.18
F_2	0.87	0.87	1.06	1.06
H	4.52	4.52	6.07	6.07
N	0.56	0.70	0.85	0.98
M/Tri Clamp	0.5	0.5	0.5	0.63
M/SMS male	0.8	0.9	0.9	1.4
P	2.35	2.63	2.88	3.37
S	4.2	4.2	5.87	5.87
R	1.96	1.96	2.63	2.63
Weight (lb)				
Shut-off valve	12.7	15	25.9	31.1
Change-over valve	16.3	19.8	32	41.4

M*/Tri Clamp (Inlet) is designed for use with 13 MHP clamp.

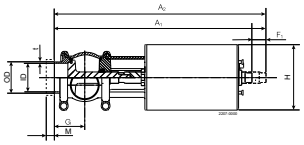


Figure 1. Shut-off valve

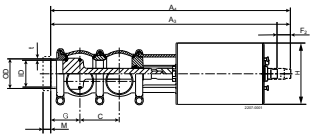
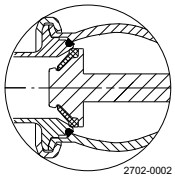


Figure 2. Change-over valve



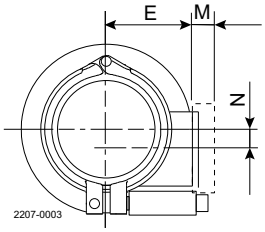


Figure 3. Replaceable elastomer plug seal

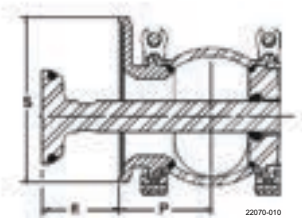


Figure 4. Flange adapter

Please note!

Opening/closing time will be effected by the following:

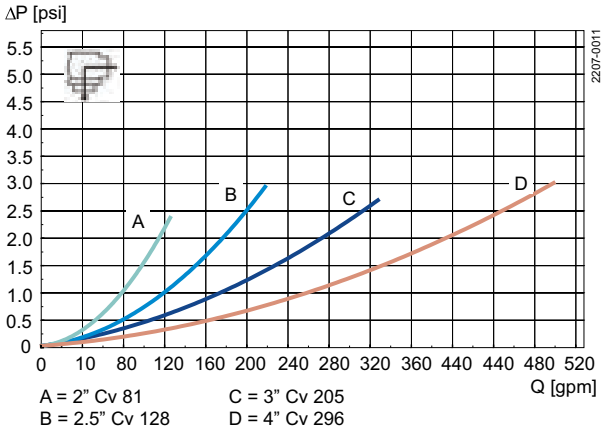
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

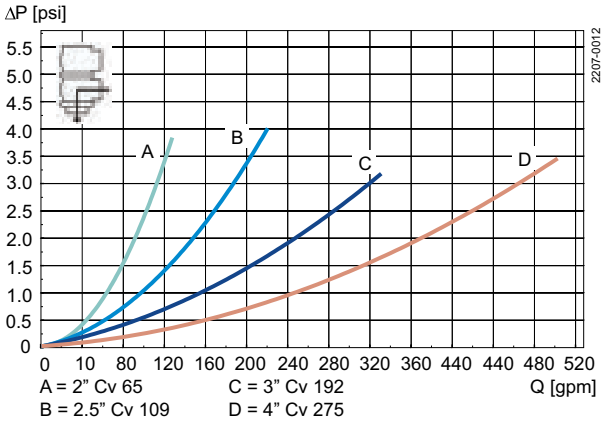
Air Connections Compressed air:

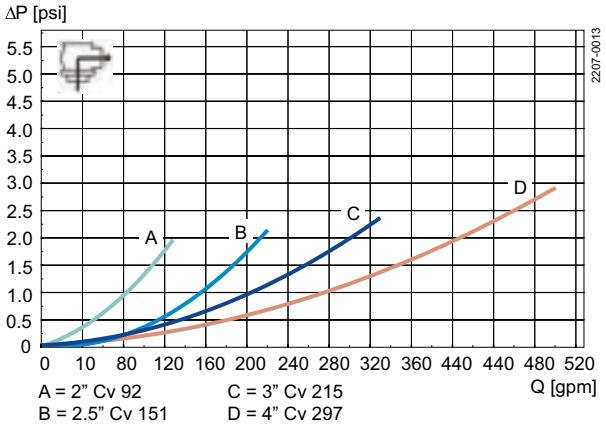
R 1/8" (BSP). Internal thread.

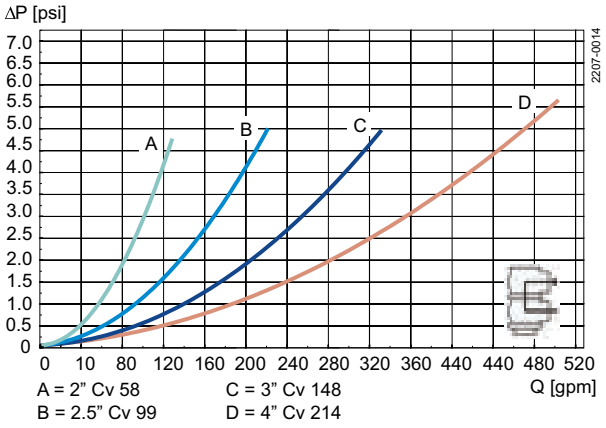
Air Consumption (In^3 free air) for one stroke		
Size	**2"- 2½"**	**3"- 4"**
NO and NC	2.17 x air pressure [PSI]	5.51 x air pressure [PSI]
A/A	4.82 x air pressure [PSI]	11.15 x air pressure [PSI]

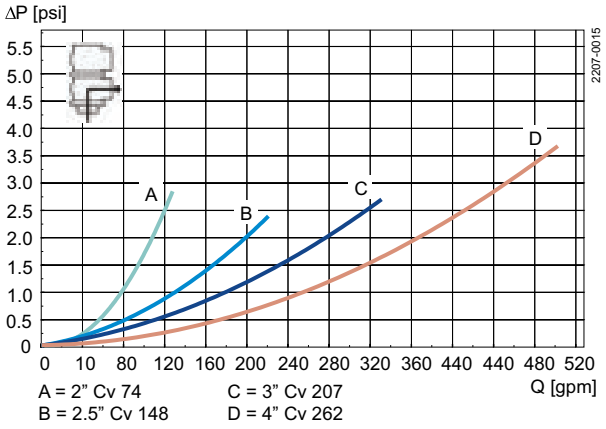
Pressure drop/capacity diagrams

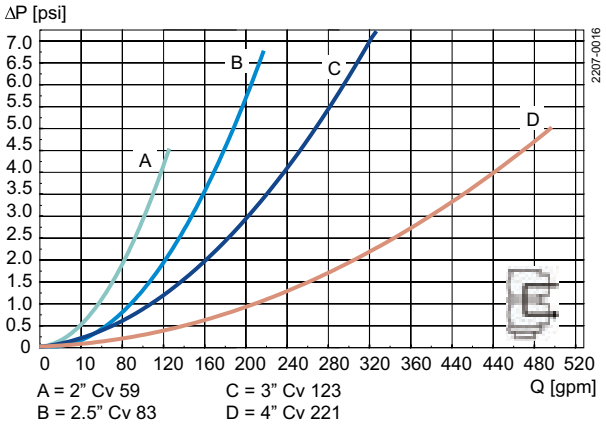












Note!
For the diagrams the following applies:
Medium: Water (68° F/20° C)
Measurement: In accordance with VDI2173
Pressure drop can also be calculated in Anytime configurator.

Pressure drop can also be calculated with the following formula:

$Q = Cv \times \sqrt{\Delta p}$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

2.5" shut-off valve, where Cv = 128 (See table above).

160 = 128 x √Δp

Q = Kv x √Δp

$$\Delta p=\left(\frac{160}{128}\right)^2=1{,}6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Tangential body/Tank valve

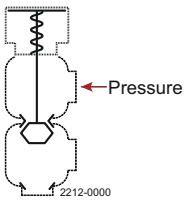


Figure 5. 1

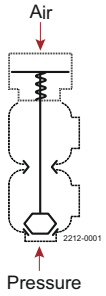


Figure 6. 2

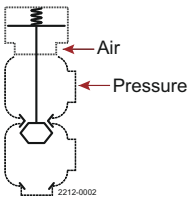


Figure 7. 3

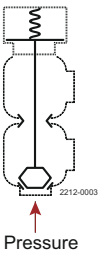


Figure 8. 4

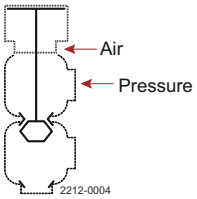


Figure 9. 5

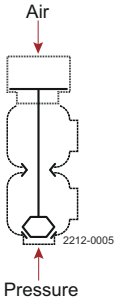


Figure 10. 6

Shut-off and change-over valves

			Max. pressure in PSI without leakage at the valve seat			
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size			
			2”	2½”	3”	4”
Figure 5. 1		NO	122	65	99	64
Figure 6. 2	87	NO	139	81	104	70
Figure 7. 3	87	NC	145	88	112	73
Figure 8. 4		NC	104	61	93	61
Figure 9. 5	87	A/A	145	145	145	145
Figure 10. 6	87	A/A	145	145	145	145

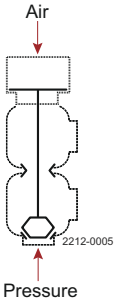


Figure 11. 7

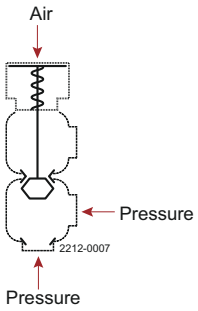


Figure 12. 8

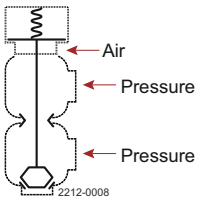


Figure 13. 9

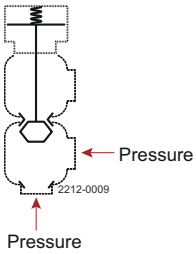


Figure 14. 10

Shut-off and change-over valves

			Max. pressure in PSI against which the valve can open			
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size			
			2”	2½”	3”	4”
Figure 11. 7		NO	145	107	141	91
Figure 12. 8	87	NO	145	120	144	95
Figure 13. 9	87	NC	145	131	145	100
Figure 14. 10		NC	145	99	132	88

Shut-off and change-over valves with high pressure actuator option

			Max. pressure in PSI against which the valve can open			
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size			
			2”	2½”	3”	4”
Figure 5. 1		NO	145	145	-	-
Figure 6. 2	87	NO	145	145	-	-
Figure 7. 3	87	NC	145	145	73	44
Figure 8. 4		NC	145	145	145	102

Alfa Laval Unique SSV Tank Outlet

Single seat valves

Introduction

The Alfa Laval Unique SSV Tank Outlet is a versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination. Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety.

Built on the well-proven Alfa Laval Unique SSV platform, it is designed for installations that open product flow into the tank (reverse-acting version) or close product flow from the tank (standard version).

Few moving parts ensure easy maintenance, high reliability and low total cost of ownership. A wide range of optional features enables customization to specific process requirements.

Application

The Unique SSV Tank Outlet is designed for use as a shut-off valve when closing product flow from a tank or as a reverse-acting valve when opening product flow into a tank in hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety due to the static seal leak detection
- Protection against full vacuum due to the double lip seal

Standard design

The Alfa Laval Unique SSV Tank Outlet valve is available in a one-body configuration with plugs, actuator, clamp rings, and up to two ports.

To ensure flexibility, the valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

An optional tank flange is available. When supplied, it is welded directly into the tank. Upon request, it can be supplied with TÜV approval AD 2000 and inspection certificate 3.1 according to EN10204.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Tank Outlet is operated by means of compressed air from a remote location. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates

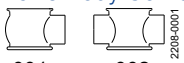
Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Max. product pressure in tank:	109 psi (7.5 bar) - max. 68° F
	94 psi (6.5 bar) - max 212° F
	65 psi (4.5 bar) - 302° F
Temperature range:	14°F to +284°F (EPDM)

Pressure	
Max. product pressure in pipeline (depends on valve specs):	145 PSI (10 bar)
Max. product pressure in tank (depends on valve specs and temp.):	145 psi (10 bar) - max. 68° F
	123 psi (8.5 bar) - max 212° F
	109 psi (7.5 bar) - 302° F
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 101.5 PSI (5 to 7 bar)

Valve Body Combinations



001 002

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L (internal Ra < 32 µ inch)
Other steel parts:	AISI 304
Plug seal:	PTFE (TR2) (standard)
Optional elastomer plug seal:	EPDM, HNBR or FPM
Optional product wetted seals:	HNBR and FPM
Other seals:	NBR

Options

- Weld ends or connection types other than Tri-Clamp.
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- Aseptic version.
- Product wetted seals in HNBR or FPM.
- Replaceable elastomer plug seals.
- Manually operated.
- NO or A/A actuator.
- High pressure actuator.
- Long stroke actuator.
- Maintainable actuator.
- External surface finish bright.
- Adapter to mount to 32-154 & 32-595 tank flange “Model 7635”.

Note!
For further details, see instruction ESE00364.

Other valves in the same basic design

The valve range includes several purpose built valves. Below are some of the valve models available, though please use the Alfa Laval Anytime configurator for full access to all models and options.

- Single Seat valve.
- Reverse acting valve.
- Long stroke valve.
- Manually operated valve.
- Aseptic valve.

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (inch)

Size	2"	2½"	3"	4"
A1	16.79	17.28	18.84	19.81
A2	15.49	15.98	17.5	18.51

Size	2"	2½"	3"	4"
A3	14.50	15.00	16.36	17.33
A4	15.37	15.86	17.42	18.39
A5	14.35	14.84	16.20	17.17
C	1.18	1.2	1.18	1.18
OD	2.01	2.5	3.0	4
ID	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.08
E	2.40	3.19	3.39	4.69
E1	2.63	2.88	3.13	3.61
F1	0.98	0.98	1.18	1.18
F2	1.02	1.02	1.22	1.22
H	4.52	4.52	6.07	6.07
J	5.83	6.42	7.01	7.80
S	0.61	0.61	0.81	0.81
M/ Clamp	0.50	0.50	0.50	0.63
O	1.02	1.02	1.02	1.02
N	4.2	4.2	5.87	5.87
P	2.59	2.84	3.09	3.57
R	1.96	1.96	2.63	2.63
Weight (lb)				
Standard	7.1	8.3	13.3	15.9
Reverse Acting	7.2	8.4	13.5	16.1

A_1 = min. installation measure to allow that valve can be lifted out of the tank flange / valve body (if Indication Unit is mounted, height must be added)

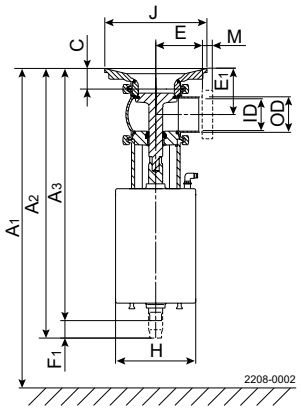


Figure 1. Standard

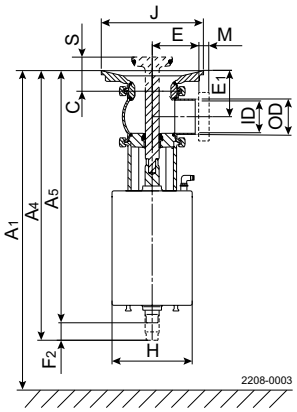


Figure 2. Reverse Acting

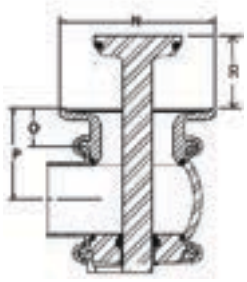


Figure 3. Flange adapter

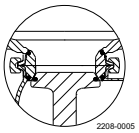


Figure 4. Replaceable elastomer plug seal

Please note!

Opening/closing time will be affected by the following:

- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

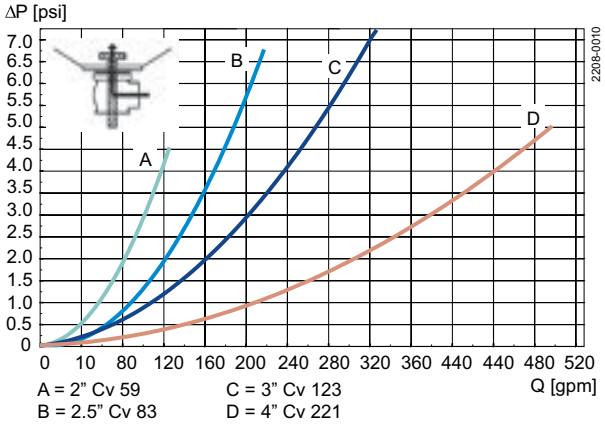
Air Connections Compressed air:

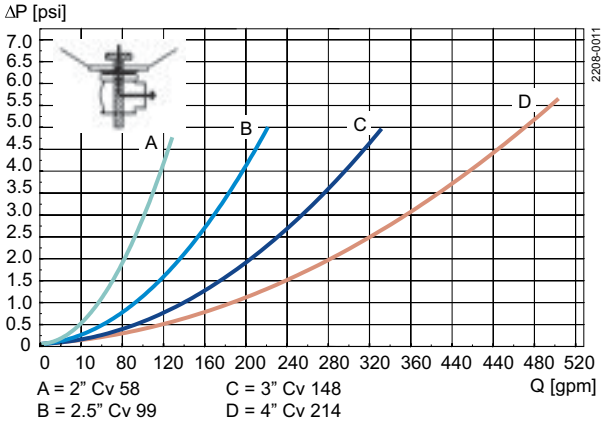
R 1/8" (BSP), internal thread.

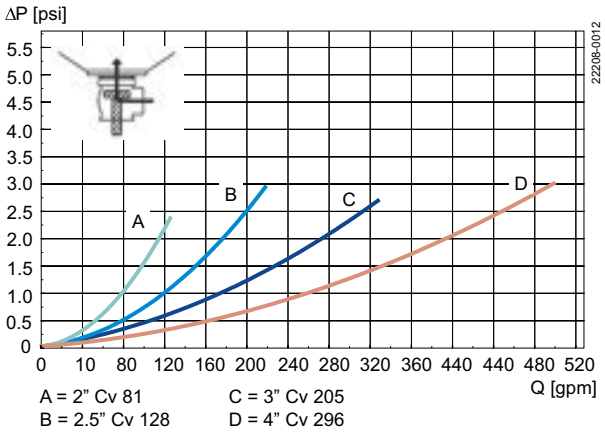
Actuator function

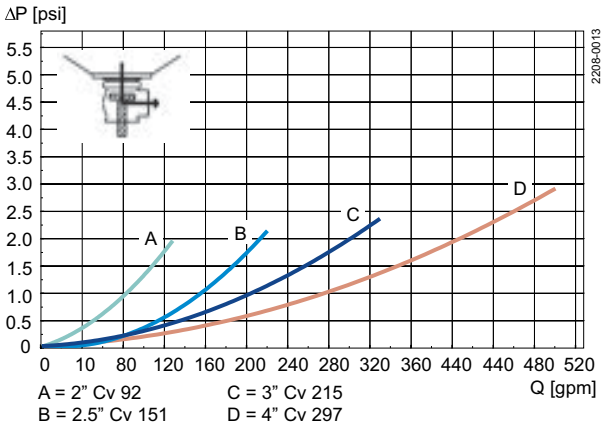
Air consumption (In^3 free air) for one stroke	
2" - 2½"	**3" - 4"**
2.17 x air pressure [psi]	5.51 x air pressure [psi]

Pressure drop/capacity diagrams









Note!
For the diagrams the following applies:
Medium: Water (68° F/20°C)
Measurement: In accordance with VDI2173
Pressure drop can also be calculated in Anytime configurator.

Pressure drop can also be calculated with the following formula:

$Q = Cv \times \sqrt{\Delta p}$

Where:

Q = Flow (gallon/minute)

Cv = gallon/minute at a pressure drop of 1 psi (see table above)

Δ p = Pressure drop in psi over the valve

Where:

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above)

Δ p = Pressure drop in psi over the valve

2.5" shut-off valve, where Cv = 128 (see table above)

Q = Kv x √Δp

160 = 128 x √Δp

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1{,}6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Tank Outlet

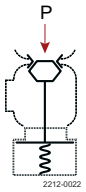


Figure 5. 1

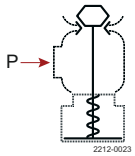


Figure 6. 2

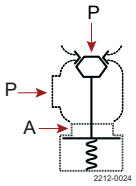


Figure 7. 3

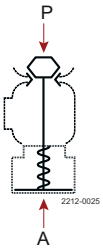


Figure 8. 4

A = Air

P = Product pressure

Shut fully closed

Actuator / Valve body combination and direction of pressure	Max. pressure in PSI without leakage at the valve seat			
	Valve size			
	2"	2½"	3"	4"
1	104	61	93	61
2	122	65	99	64

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Max. pressure in PSI against which the valve can open			
		Valve size			
		2"	2½"	3"	4"
3	87	145	131	145	100
4	87	145	121	144	96

Alfa Laval Unique SSV Y-body

Single seat valves

Introduction

The Alfa Laval Unique SSV Y-body is a versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination. Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety.

Built on the well-proven Alfa Laval Unique SSV platform, the Unique SSV Y-body provides uninterrupted flow and gentle handling of products that are highly viscous or contain large particles and require gentle product treatment.

Few moving parts ensure easy dismantling, high reliability and low maintenance costs. A wide range of optional features enables customization to specific process requirements.

Application

This robust single seat valve is designed for uninterrupted flow and gentle handling of products that are highly viscous or contain large particles in hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Extended seal life due to the defined seal compression
- Enhanced product safety due to the static seal leak detection
- Protection against full vacuum due to the double lip seal
- Gentle product handling

Standard design

The Unique SSV Y-body is available in a one-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp ring.

The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke and all components are assembled with a clamp ring.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Y-body is operated by means of compressed air from a remote location. The valve can be controlled using an Alfa Laval ThinkTop®.

TECHNICAL DATA

Temperature	
Temperature range:	14 °F to +284 °F (EPDM)

Pressure	
Max. product pressure (depending on valve specifications):	145 PSI (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 101.5 PSI (5 - 7 bar)

Actuator function

- Pneumatic downward movement, spring return
- Pneumatic upward movement, spring return
- Pneumatic upward and downward movement (A/A)

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L (internal Ra < 32 µ inch)
Other steel parts:	AISI 304
Product wetted seals:	EPDM
Other seals:	NBR
Plug seal:	PTFE (TR2)

Options

- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals in HNBR/NBR or FPM

Note!
For further details, see instruction ESE00583.

Other valves in the same basic design

- Single seat valve
- Reverse acting valve
- Long stroke valve
- Manually operated valve
- Aseptic valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (inch)

	Nominal Size			
	2"	2.5"	3"	4"
A	17.32	17.95	22.05	24.41
C	7.88	9.25	10.38	12.63
ID	1.86	2.36	2.86	3.81
F_1	1.97	1.97	2.64	2.64
H	4.53	4.53	6.14	6.14
Weight (lb)	18.9	24.5	41.1	59.7

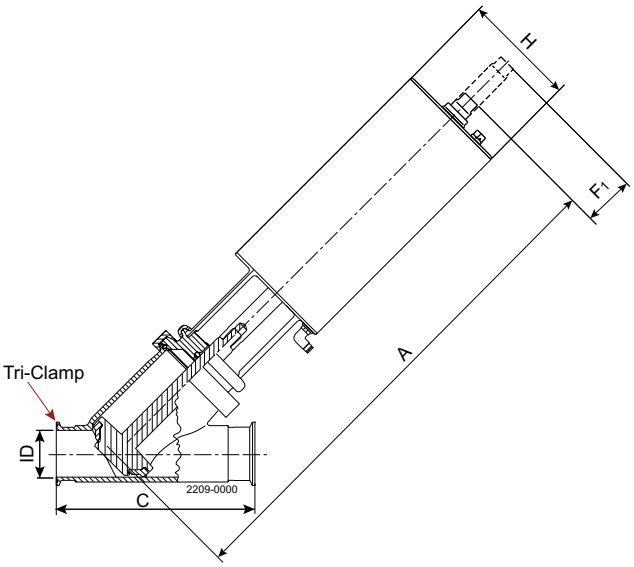


Figure 1. Y-body valve

Caution, opening/closing time:

Opening/closing time will be effected by the following:

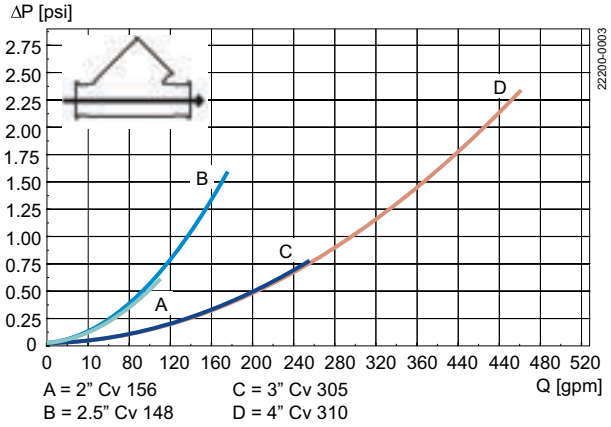
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

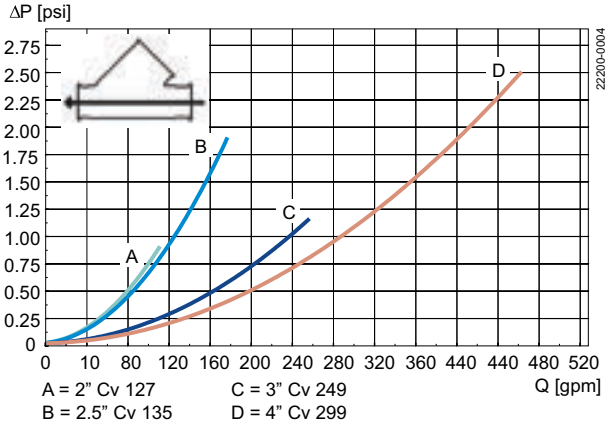
Air Connections Compressed air:

R 1/8" (BSP). internal thread.

Air Consumption (In^3 free air) for one stroke		
Size	**2"- 2½"**	**3"- 4"**
NO and NC	3.39 x air pressure [PSI]	8.52 x air pressure [PSI]
A/A	5.79 x air pressure [PSI]	16.2 x air pressure [PSI]

Pressure drop/capacity diagrams





Note!
For the diagrams the following applies:
Medium: Water (68° F/20° C)
Measurement: In accordance with VDI2173
Pressure drop can also be calculated in Anytime configurator.

Pressure drop can also be calculated with the following formula:

$Q = Kv \times \sqrt{\Delta p}$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

2.5" shut-off valve, where Cv = 128 (See table above).

$Q = Kv \times \sqrt{\Delta p}$

$160 = 128 \times \sqrt{\Delta p}$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1{,}6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Y-body

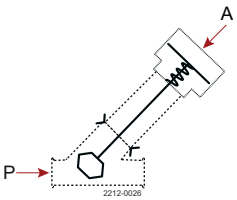


Figure 2. 1

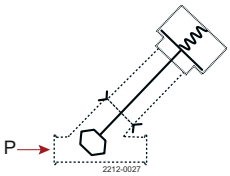


Figure 3. 2

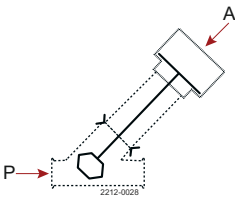


Figure 4. 3

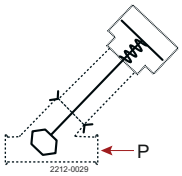


Figure 5. 4

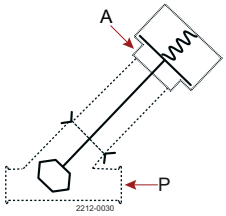


Figure 6. 5

A = Air

P= Product pressure

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max. pressure in psi without leakage at the valve seat Valve size 2"	2½"	3"	4"
Figure 2. 1	87	NO	71	40	55	31
Figure 3. 2		NC	64	35	55	31
Figure 4. 3	87	A/A	145	103	137	78

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max. pressure in psi without leakage at the valve seat Valve size 2"	2½"	3"	4"
Figure 5. 4		NO	133	74	94	54
Figure 6. 5	87	NC	142	79	95	54

Alfa Laval Unique SSV 6-Inch

Single seat valves

Introduction

The Alfa Laval Unique SSV 6-Inch Valves are versatile and reliable pneumatic single seat valves with a single contact surface between the plug and the seat to minimizes the risk of contamination.

With a modular, hygienic design, the single seat valve meets the highest process demands in terms of hygiene and safety. Few moving parts ensure high reliability and low maintenance costs. A wide range of optional features enables customization to specific process requirements.

Application

The Alfa Laval Unique SSV 6-Inch valve is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Cost effective and versatile
- Easily handles highly viscous fluids and large particles
- Durable, long-lasting construction
- Compliant with 3-A and hygienic standards

Standard design

The Alfa Laval Unique SSV 6 Inch valve is designed to deliver years of reliability and performance you've come to expect with all products. The TR2 seat ring with enhanced CIP capabilities and hygiene comes standard with all Unique SSV series valves. For added confidence, the valve can be supplied with a compression elastomer seal ring. The standard actuator comes with a five year warranty.

The valve can also be fitted with the Alfa Laval ThinkTop V70 for sensing and control of the valve.

Working principle

The Alfa Laval Unique SSV 6-Inch is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates

Authorized to carry the 3A symbol

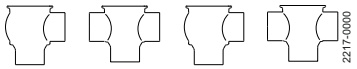
Tri-Clover®

TECHNICAL DATA

Temperature	
Temperature range:	14 °F to +284 °F (Standard EPDMseal) / 14 °F to +170 °F (TR2 seal)

Pressure	
Max. product pressure (depending on valve specifications):	145 PSI (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	72.5 to 101.5 PSI (500 to 700 kPa (5 - 7 bar))

Valve Body Combinations



200 300 208 (TR) 207 (TL) 309

Actuator function

- Pneumatic downward movement, spring return (NO-lower seat)
- Pneumatic upward movement, spring return (NC-lower seat)

PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L (internal Ra < 32 µ inch)
Other steel parts:	AISI 304
Plug seal:	PTFE (TR2) (standard)
Optional elastomer plug seal:	EPDM, Buna or SFY (fluorelastomer)
Product wetted seals:	EPDM
Optional product wetted seals:	Buna or SFY (fluorelastomer)
Other seals:	Buna

Options

- Weld ends or connection types other than Tri-Clamp
- Control and Indication (ThinkTop V70)
- Product wetted seals of NBR or FPM
- Product wetted seals in EPDM, Buna or SFY
- Low profile plug

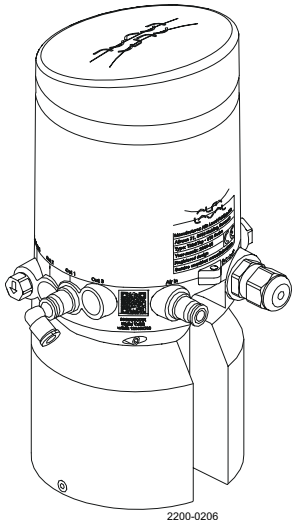


Figure 1. ThinkTop V70 with adapter

Dimensions (inch)

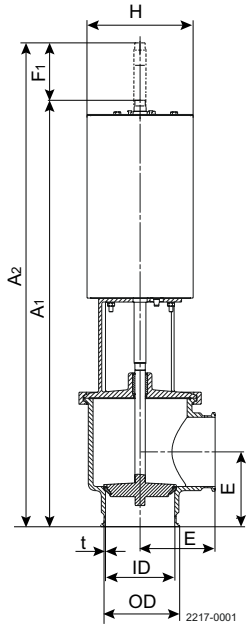


Figure 2. Shut-off valve

Nominal size	Inch
A_1	40.30
A_2	45.20
OD	6
ID	5.78
t	0.11
E with welding ends	6.50
E with Tri-clamps	6.25
F_1	4.84

Nominal size	Inch
H	8.86
N (tangential valve body)	1.04
Weight (lb)	164.60

Note!

Opening/closing time will be effected by the following:

- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

Air Connections Compressed air:

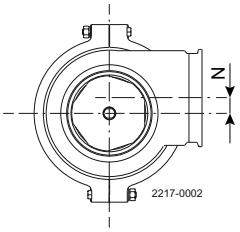


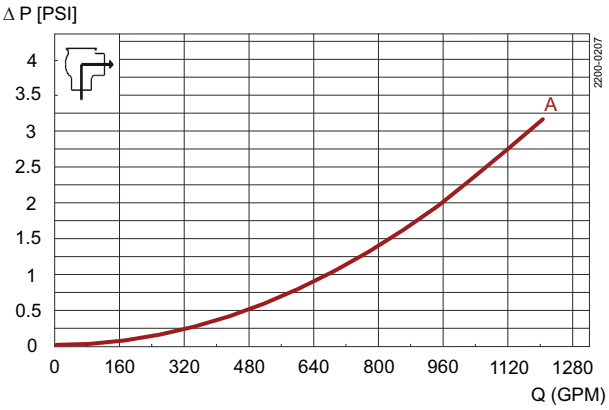
Figure 3. R 1/8" (BSP), internal thread.

Air Consumption

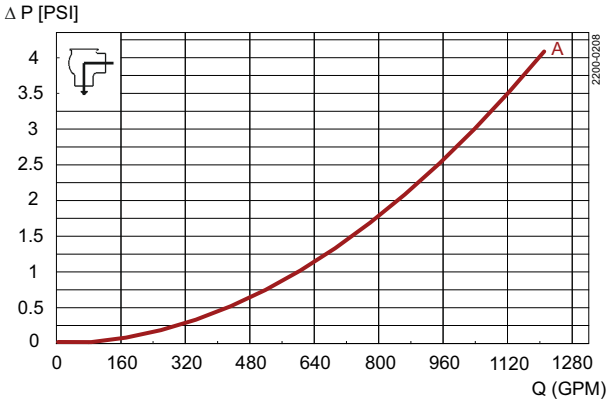
(In3 free air) for one stroke

Size	6"
NO and NC	19.5 x air pressure [PSI]

Pressure drop/capacity diagrams



A = 6" - Cv 681



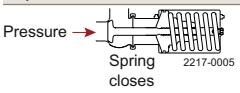
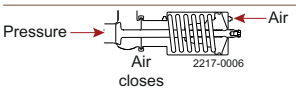
A = 6" - Cv 599

Note!

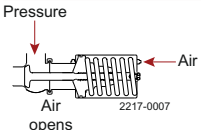
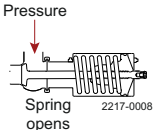
For the diagrams the following applies:
Medium: Water (68 ° F/20 ° C)
Measurement: In accordance with VDI2173

Pressure data for Unique SSV 6-Inch

Max. pressure in PSI without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max Pressure (PSI)
		NC	60
	87.6	NO	60

Max. pressure in psi against which the valve can open

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max Pressure (PSI)
	87.6	NC	60
		NO	60

Alfa Laval Unique SSV Manually Operated

Single seat valves

Introduction

The Alfa Laval Unique SSV Manually Operated valve is a versatile, reliable single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. It is built on the well-proven Alfa Laval Unique SSV platform. Few moving parts ensure easy dismantling, high reliability and low maintenance costs. A wide range of optional features, including lockable handles, enables customization to specific process requirements.

Application

The Unique SSV Manually Operated valve is designed for hygienic shutoff, tank outlet or straightforward regulating or dosing purposes across the dairy, food, beverage, brewery and many other industries.

Benefits

- Straightforward reliable design
- Cost effective and highly modular
- Exceptional valve hygiene
- Long service life
- Low total cost of ownership

Standard design

This manually operated single seat valve consists of one or two valve bodies, plug, sealing, crank mechanism, and clamp ring. The plug can be adjusted to a fixed position with a lock screw. Optional lockable handle is available.

The valve can be configured as a shutoff valve with two or three working ports or as a changeover valve with up to five ports. To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design.

The valve can easily be converted to a pneumatic valve by replacing the crank mechanism with an actuator.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Manually Operated valve operates manually using a crank mechanism to control pressure and flow through gradual opening and closing.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

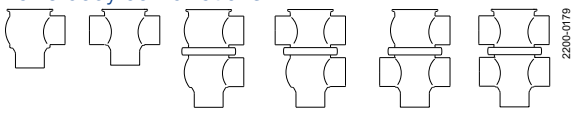
Temperature	
Temperature range:	14 °F to +284 °F (EPDM)

Pressure	
Max product pressure:	145 PSI (10 bar)
Min. product pressure:	Full vacuum

ATEX	
Classification	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.

Valve body combinations



PHYSICAL DATA

Materials	
Product wetted steel parts:	AISI 316L
Other steel parts:	AISI 304
Plug seal:	EPDM
Optional plug seal:	PTFE (TR2)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 32 µin
Other product wetted seals	EPDM
Optional product wetted seals:	HNBR and FPM

Options

- Weld ends or connection types other than Tri-Clamp
- Product wetted seals in HNBR or FPM
- Replacable elastomer plug seals (only for Manual Operated Valve).
- External surface finish blasted

Note!
For further details, see instruction ESE00504ENUS

Other valves in the same basic design

The valve range includes several purpose built valves. Below listed are some of the valve models available, though please use the Alfa Laval Anytime configurator for full access to all models and options.

- Standard valve
- Reverse acting valve
- Aseptic valve
- Long Stroke valve
- Tank Outlet valve

Dimensions (inch)

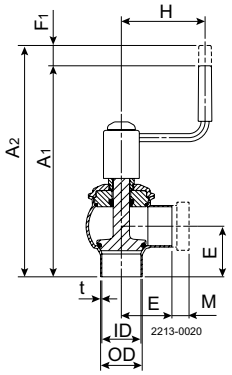


Figure 1. Shut off valve

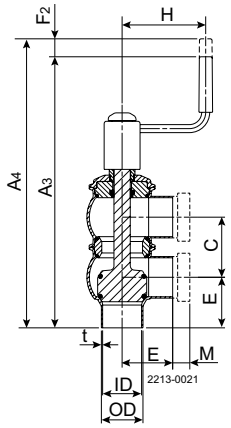


Figure 2. Change-over valve

Size	1	1.5	2	2.5	3	4
	inch	inch	inch	inch	inch	inch
A_1	9.65	9.65	10.2	11.22	11.46	13.27
A_2	10.24	10.43	11.18	12.2	12.64	14.45
A_3	11.46	12.09	13.07	14.61	15.35	18.11
A_4	11.93	12.76	13.94	15.47	16.42	19.17
C	1.88	2.39	2.91	3.4	3.89	4.87
OD	0.98	1.5	2.01	2.5	3	4
ID	0.86	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.06	0.08
E_1	1.97	1.95	2.40	3.19	3.39	4.69
E_2	1.97	1.95	2.40	3.19	3.39	4.69
F_1	0.59	0.79	0.98	0.98	1.18	1.18
F_2	0.47	0.67	0.87	0.87	1.06	1.06
H	4.13	4.13	4.13	4.13	4.13	4.13
M/ clamp	0.5	0.5	0.5	0.5	0.5	0.63
Weight (kg)						
Shut off valve:	1.8	2	2.6	3.6	4.6	7
Change-over valve:	2.6	3	4.2	5.6	7.3	11.4

Kv-Factors

Valve size	Kv
1.5"	14[1]/44
2.0"	75
2.5"	106
3.0"	171
4.0"	250

[1] optional

Kv = m^3/h at a pressure drop of 1 bar.

For other pressure drops than 1 bar the flow can be calculated with the following formula:

$Q = Kv \times \sqrt{\Delta p}$

Where

Q = Flow in m^3/h.

Kv = See above.

Δ p = Pressure drop in bar over the valve.

Example:

Plug Kv 75

Q to be calculated at Δp = 2 bar:

$Q = 75 \times \sqrt{2} = 106\ m^3/h$

or at 50% stroke:

$Q = 0.5 \times 75 \times \sqrt{2} = 53\ m^3/h$

Pressure drop/capacity diagram:

The plugs have linear characteristics. This means that a certain amount of throttling, by reducing the stroke, results in a proportional reduction of the flow if the pressure drop remains unchanged.

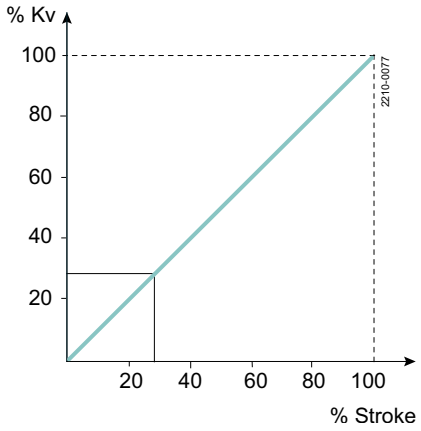


Figure 3. The flow in % of the total flow at a pressure drop of 1 bar

Dimensions (inch) - Unique Manually Regulating Valve

Size	1.5"	2"	2.5"	3"	4"
A1	6.93	7.48	8.50	8.74	10.60
A2	7.72	8.46	9.49	9.92	11.70
OD	1.50	2.01	2.50	3.00	4.00
ID	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.08
E1	19.50	2.44	3.23	3.43	4.72
E2	19.50	2.44	3.23	3.43	4.72
F1	0.79	0.98	0.98	1.18	1.18
H	3.15	3.15	3.15	3.15	3.15
M/ISO clamp	0.83	0.83	0.83	0.83	0.83
M/DIN clamp					
M/DIN male					
M/SMS male	0.79	0.79	0.95	0.95	1.38
Weight (kg)					
Shut off valve:	2.1	2.9	4.0	5.4	8.2

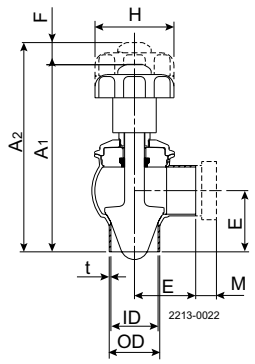


Figure 4. Dimensions

Alfa Laval Unique SSV Aseptic Manually Operated

Single seat valves

Introduction

The Alfa Laval Unique SSV Aseptic Manually Operated is a versatile, reliable single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process requirements in terms of hygiene and safety. Built on the well-proven Alfa Laval Unique SSV platform, it features a one-piece diaphragm that provides hermetic sealing to prevent intrusion of contaminants from the atmosphere, ensuring full protection against the effects of microorganisms during processing. The diaphragm can also be used with the Unique SSV Standard, Tangential, Two Step, Manual and Tank Outlet.

Few moving parts ensure easy maintenance, high reliability and low total cost of ownership. A wide range of optional features enables customization to specific process requirements.

Application

This Unique SSV Aseptic Manually Operated is designed for production in sterile process applications across the dairy, food, beverage, brewery, biotechnology, pharmaceutical and many other industries.

Benefits

- Durable, aseptic valve design
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Protection against bacterial contamination for enhanced product safety
- Easy to configure

Standard design

The Unique SSV Aseptic Manually Operated is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, and clamp rings. The valve can be configured for aseptic processing as a shut-off valve with two or three working ports or as a changeover valve with three to five ports.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The

valve seals are optimized for durability and long service life through a defined compression design.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV Aseptic Manually Operated uses a crank mechanism to control flow by manually opening and closing the valve.

Certificates

Authorized to carry the 3A symbol

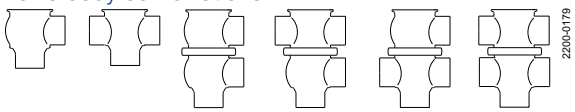
TECHNICAL DATA

Temperature	
Temperature range:	14 °F to 284 °F (EPDM)

Pressure	
Pressure range:	0 - 116 PSI (8 bar)
Max. sterilization temperature:	302 °F / 55 PSI (3.8 bar)

Note!
Vacuum is not recommended in aseptic applications.

Valve body combinations



PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Bright (polished)
Internal surface finish:	Bright (polished), Ra < 32 µ inch
Product wetted seal:	EPDM
Other seals:	HNBR
Diaphragm:	PTFE (Product wetted side) / EPDM

Options

- Male parts or clamp liners in accordance with required standard
- Product wetted seals in HNBR or FPM (only for Unique SSV aseptic manually tank outlet valve)
- Plug seal HNBR, FPM
- Tangential bodys (only for Unique SSV aseptic manually tank outlet valve and for Unique SSV aseptic manually operated valve)
- External surface bright

Note!
For further details, see Unique SSV Aseptic Manually Operated instruction manual.

Other valves in the same basic design

The Unique SSV valve range includes several purpose built valves. Please use the Alfa Laval Anytime configurator for full access to all models and options.

Pressure drop/capacity diagram:

The plugs have linear characteristics. This means that a certain amount of throttling, by reducing the stroke, results in a proportional reduction of the flow if the pressure drop remains unchanged.

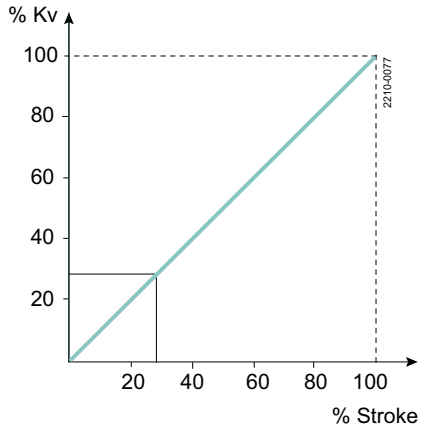
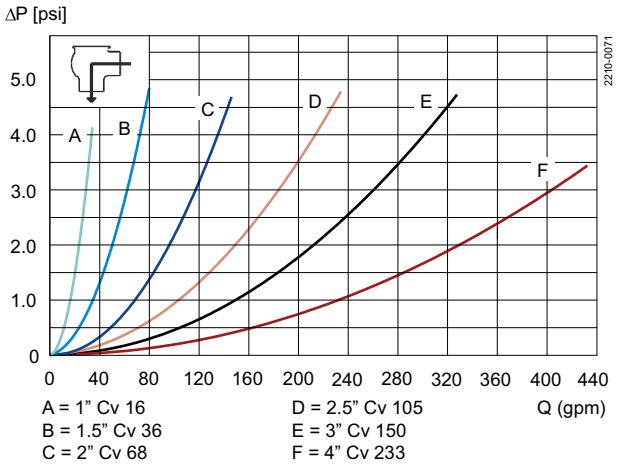
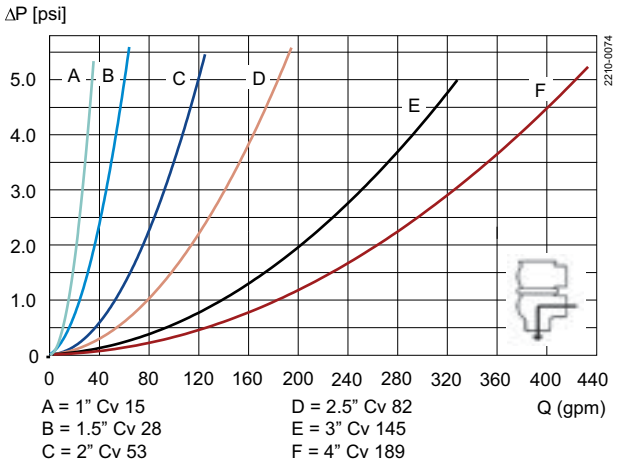


Figure 1. The flow in % of the total flow at a pressure drop of 1 bar

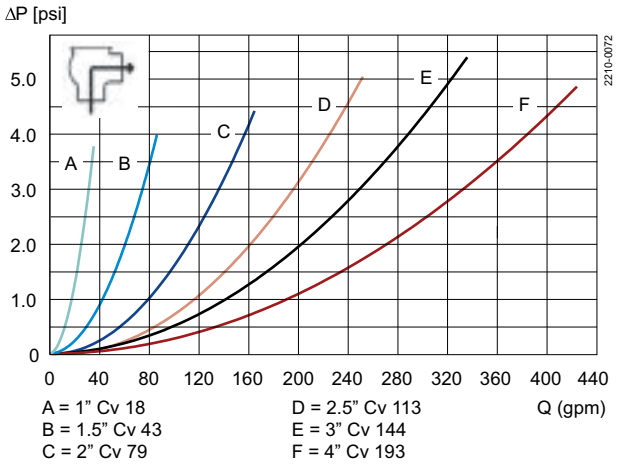
Pressure drop/capacity diagrams



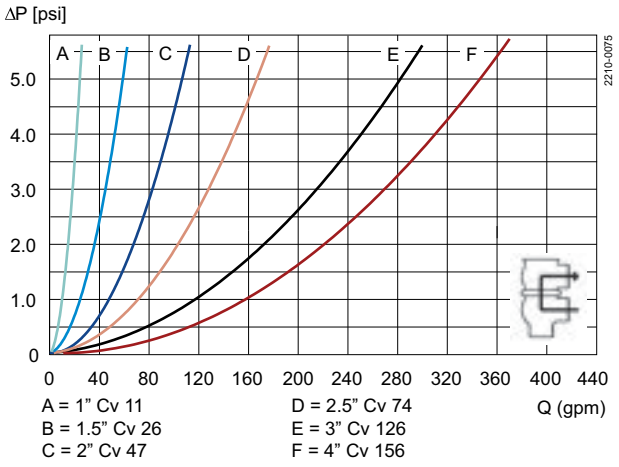
A = 1” Cv 16
B = 1.5” Cv 36
C = 2” Cv 68
D = 2.5” Cv 105
E = 3” Cv 150
F = 4” Cv 233



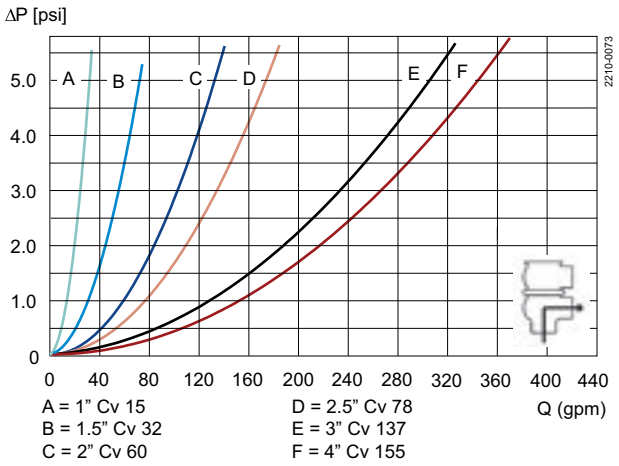
A = 1” Cv 15
B = 1.5” Cv 28
C = 2” Cv 53
D = 2.5” Cv 82
E = 3” Cv 145
F = 4” Cv 189

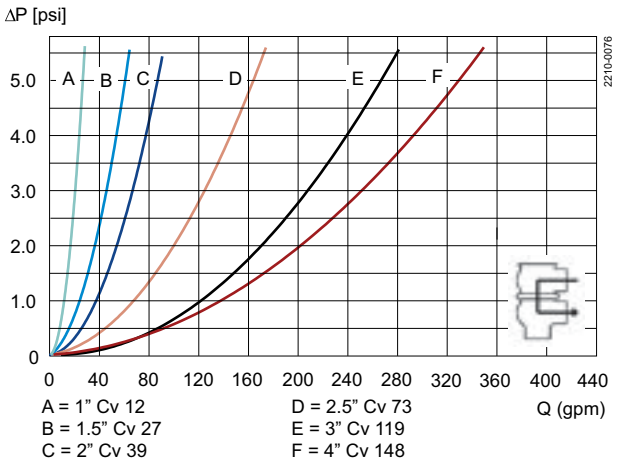


A = 1” Cv 18
B = 1.5” Cv 43
C = 2” Cv 79
D = 2.5” Cv 113
E = 3” Cv 144
F = 4” Cv 193



A = 1” Cv 11
B = 1.5” Cv 26
C = 2” Cv 47
D = 2.5” Cv 74
E = 3” Cv 126
F = 4” Cv 156





Note!
For the diagrams the following applies:
Medium: Water (20 °C)
Measurement: In accordance with VDI 2173
Pressure drop can also be calculated in Anytime configurator.

Dimensions (inch)

Dimensions for Unique SSV aseptic manually operated valve

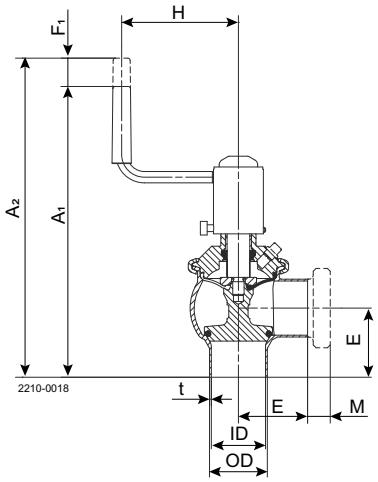


Figure 2. Shut-off valve

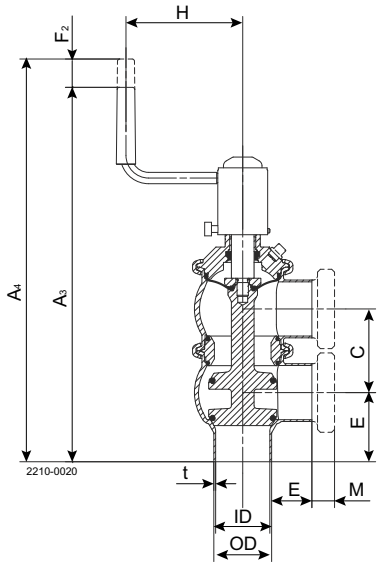


Figure 3. Change-over valve

Size	1	1.5	2	2,5	3	4
	inch	inch	inch	inch	inch	inch
A1	9.25	9.53	10.20	11.18	11.54	13.54
A2	9.65	9.92	10.71	11.70	12.20	14.17
A3	11.18	11.93	13.03	14.53	15.43	18.35
A4	11.54	12.28	13.50	15.04	16.02	18.98
C	1.88	2.39	2.91	3.40	3.89	4.87
OD	0.98	1.50	2.01	2.50	3.00	4.00
ID	0.86	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.06	0.08
E1	1.97	1.95	2.40	3.19	3.39	4.69
F1	0.43	0.43	0.55	0.59	0.67	0.67
F2	0.35	0.35	0.47	0.51	0.59	0.59
H	4.13	4.13	4.13	4.13	4.13	4.13
M (Tri-clamp)	0.50	0.50	0.50	0.50	0.50	0.63

Size	1	1.5	2	2,5	3	4
	inch	inch	inch	inch	inch	inch
Weight (lb)						
Shut off valve:	3.97	4.41	5.73	7.94	10.14	15.43
Change-over valve	5.73	6.61	9.26	12.35	16.09	25.13

Dimensions for Unique SSV aseptic manually tank outlet valve

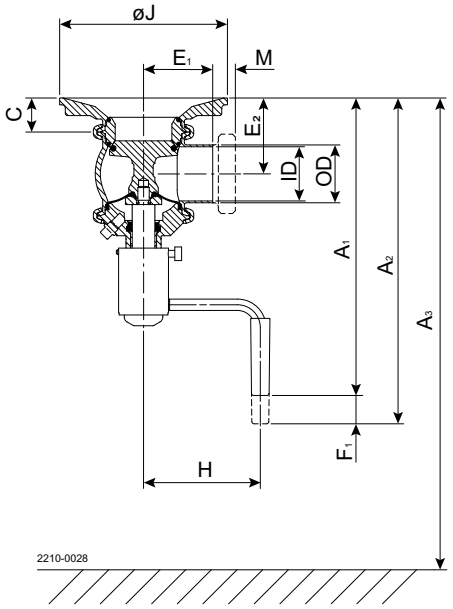


Figure 4. Shut-off valve

Size	2	2.5	3	4
	inch	inch	inch	inch
A1	10.40	10.87	11.14	12.17
A2	10.87	11.40	11.93	12.91
A3	13.39	14.96	15.35	17.32
C	1.18	1.20	1.18	1.18
OD	2.01	2.50	3.00	4.00
ID	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.08
E1	2.40	3.19	3.39	4.69
E2	2.64	2.87	3.13	3.62
F	0.55	0.59	0.67	0.67
H	4.13	4.13	4.13	4.13
øJ	5.83	6.42	7.01	7.80
M (Tri-clamp)	0.50	0.50	0.50	0.63
Weight (lb)				
Shut off valve:	8.60	11.24	13.89	19.40

Cv-Factors

Valve size	Kv	Cv
2”	60	71
2½”	95	112
3”	125	148
4”	180	212

Cv = US gal/min. at 1 psi pressure drop

For other pressure drops than 1 psi the flow can be calculated with the following formula:

$Q = Kv \times \sqrt{\Delta p}$

Where

Q = Flow in m^3/h

Kv = See above

Δ p = Pressure drop in bar over the valve

Conversion factors:

Cv = US gal/min. at 1 PSI pressure drop

Cv = Kv x 1.18

Q (gal/min) = 4.4 x Q (m^3/h)

Example:

How to calculate the pressure drop for an ISO 63.5 tank outlet valve if the flow is 176 gal/min.

ISO 63.5 tank outlet valve where Cv = 112 (See table above)

$Q = Cv \times \sqrt{\Delta p}$

$176 = 112 \times \sqrt{\Delta p}$

$\Delta p = \left(\frac{176}{112}\right)^2 = 2.5$ psi

Dimensions for Unique SSV aseptic manual regulating valve

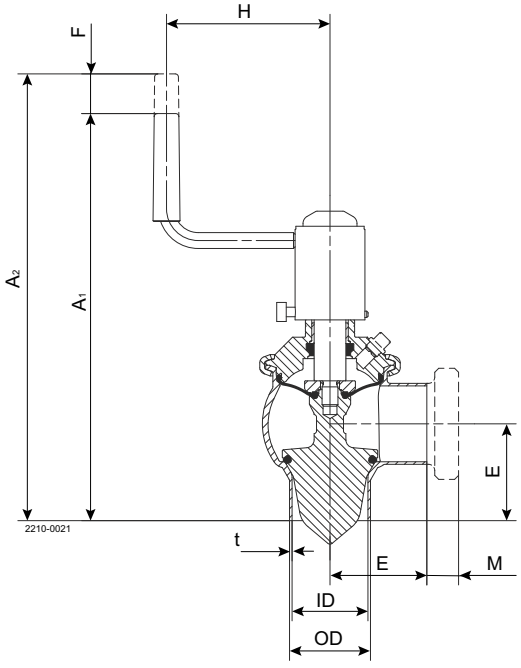


Figure 5. Shut-off valve

Size	1.5	2	2.5	3	4
	inch	inch	inch	inch	inch
A1	9.50	10.20	11.20	11.50	13.50
A2	9.90	10.70	11.70	12.20	14.20
OD	1.50	2.01	2.50	3.00	4.00
ID	1.37	1.88	2.37	2.87	3.84
t	0.063	0.063	0.063	0.063	0.079
E	1.95	2.40	3.19	3.39	4.69
F	0.43	0.55	0.59	0.67	0.67
H	4.10	4.10	4.10	4.10	4.10

Size	1.5	2	2.5	3	4
	inch	inch	inch	inch	inch
M (Tri-clamp)	0.50	0.50	0.50	0.50	0.63
Weight (lb)					
Shut-off valve:	4.63	6.39	8.81	11.90	18.88

Cv-Factors

Valve size	Kv	Cv
1½"	21	25
2"	40	47
2½"	90	106
3"	90	106
4"	130	153

For other pressure drops than 1 bar the flow can be calculated with the following formula:

$Q = Kv \times \sqrt{\Delta p}$

Where

Q = Flow in m^3/h

Kv = See above

Δ p =Pressure drop in bar over the valve

Conversion factors:

Cv = US gal/min. at 1 PSIpressure drop

Cv = Kv x 1,18

Q (gal/min) = 4.4 x Q(m^3/h)

Example:

How to calculate the flow, if the pressure drop is 29 PSI bar for an ISO51 regulating valve.

Plug Kv 40

Plug Cv= 47

$Q = Cv \times \sqrt{\Delta p} = 47 \times \sqrt{\Delta p} = 66$ gal/min

or at 50% stroke:

Q = 0.5 x 66 = 33 gal/min

Alfa Laval Unique SSSV

Single seat valves

Introduction

The Alfa Laval Unique SSSV is a versatile, reliable and small pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. Built as the well-proven Alfa Laval Unique SSV platform, it is fast-acting and handles dosing and small flow rates in hygienic applications.

Few moving parts ensure easy maintenance, high reliability, and low total cost of ownership. A wide range of optional features enables customization to specific process requirements.

Application

This Unique SSSV is designed for uninterrupted production or dosing of small product flows in a broad range of hygienic applications across the dairy, food, brewery, beverage, and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety due to the static seal leak detection
- Protection against full vacuum due to the double lip seal
- Fast-acting

Standard design

The Alfa Laval Unique SSSV is available in a one- or two-body configuration, with easy-to-configure valve bodies, elastomer-free PVDF plugs, static sealing, actuator or manual mechanism, and clamp rings. It is available in DN/OD 12.7 mm (½") and 19 mm (¾") versions.

The valve is assembled when delivered. Valve housing is either supplied with standard weld or clamp ends, and it is assembled by means of clamp rings. The piston and valve plug in PVDF have threaded connections.

The Unique SSSV can be configured as a manually operated valve or a pneumatic valve. It can also be configured as a shutoff valve or as a changeover valve, each with two to five ports.

The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSSV is operated either manually by means of cranking mechanism or by means of compressed air from a remote location. For a pneumatic valve, the actuator smooths operation and protects process lines against pressure

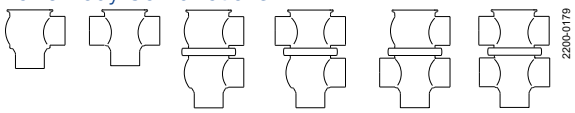
peaks. The valve can be controlled using an Alfa Laval ThinkTop®.

TECHNICAL DATA

Temperature	
Temperature range:	14 °F to + 284 °F (EPDM)

Pressure	
Max. product pressure:	145 PSI (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	14.5 to 101.5 PSI (1 to 7 bar)

Valve Body Combinations



Actuator function

- Pneumatic downward movement, spring return (NO)
- Pneumatic upward movement, spring return (NC)
- Manually operated

Air consumption (litres free air) for one stroke	
Size:	½" and ¾"
Stop valve/Divert valve:	0.004 x Air pressure (PSI)
Actuator function:	NO and NC

PHYSICAL DATA

Materials	
Product wetted steel parts:	Acid-resistant steel AISI 316L (1.4404)
Other steel parts:	Stainless steel AISI 304L (1.4307)
Finish outside:	Semi bright
Finish inside:	≤ 20 µinch Ra
Product wetted seals:	EPDM
Other seals:	NBR
Alternative product wetted seals:	HNBR, FPM
Plug:	PVDF

OPTIONS

- Adapter for IndiTop, ThinkTop and ThinkTop Basic
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals of HNBR or FPM
- Surface finish external ≤ 32 µinch Ra

Dimensions (inch)

Valve dimensions

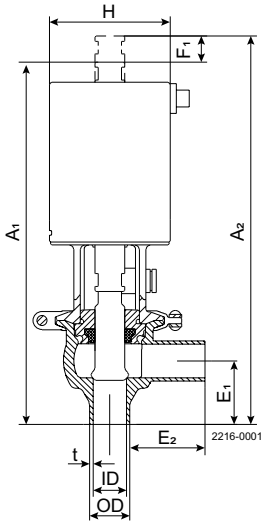


Figure 1. Stop valve

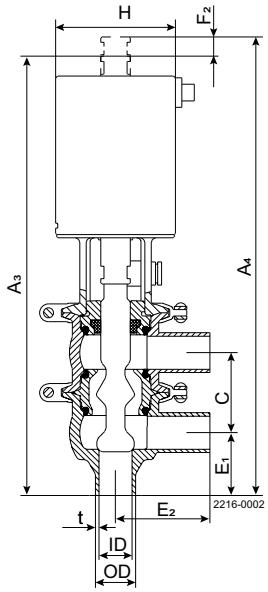


Figure 2. Divert valve

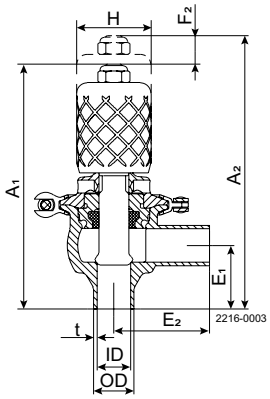


Figure 3. Manual stop valve

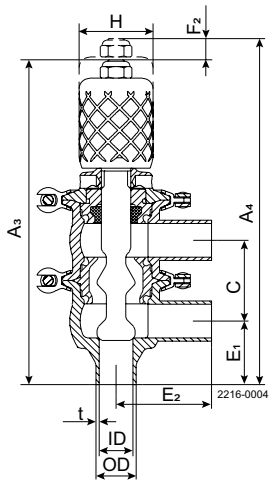


Figure 4. Manual divert valve

Nominal Size	Remote-controlled	
	OD	OD
	½”	¾“
A[1]	6.78	6.74
A[2]	7.06	7.17
A[3]	7.88	8.24
A[4]	8.16	8.67
C	1.27	1.50
OD	0.50	0.75
ID	0.37	0.62
t	0.06	0.06
E[1]	1.17	1.18
E[2]	1.77	1.77
F[1]	0.28	0.43
F[2]	0.28	0.43

Nominal Size	Remote-controlled	
	OD	OD
	½”	¾“
H	2.24	2.24
Weight (lbs) Stop valve	2.36	2.43
Weight (lbs) Change-over valve	3.00	3.11

(900-233)

*Dimensions valid for both welding ends and clamp ends.

Please note!

Opening/closing time will be affected by the following:

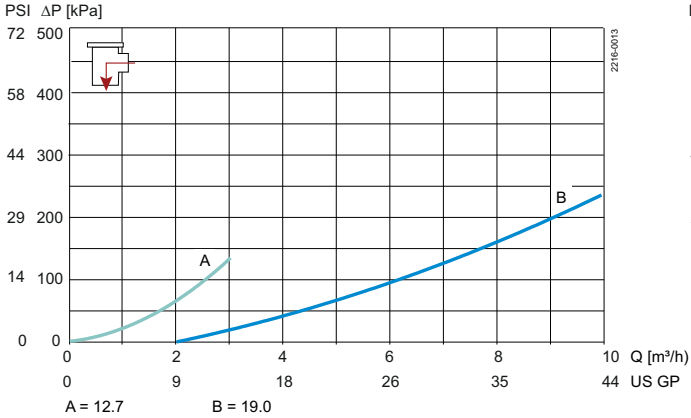
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure.

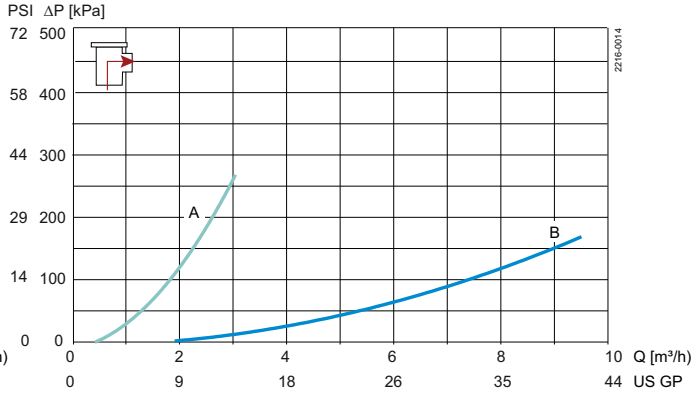
Air Connections Compressed air:

R 1/8" (BSP), internal thread

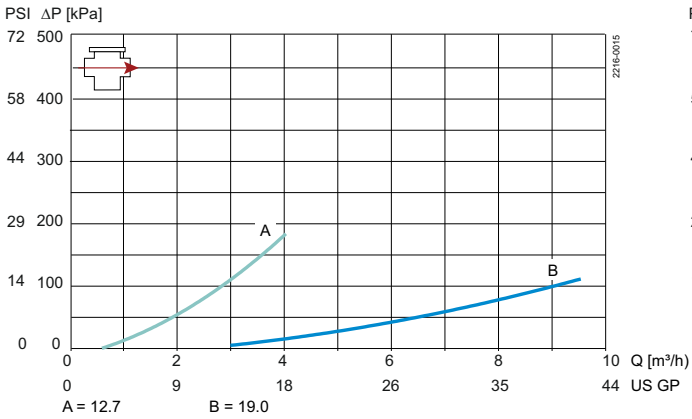
Pressure drop/capacity diagrams

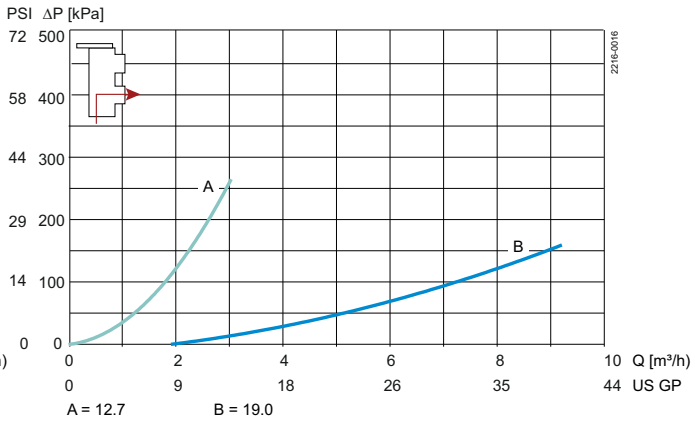
Stop valve

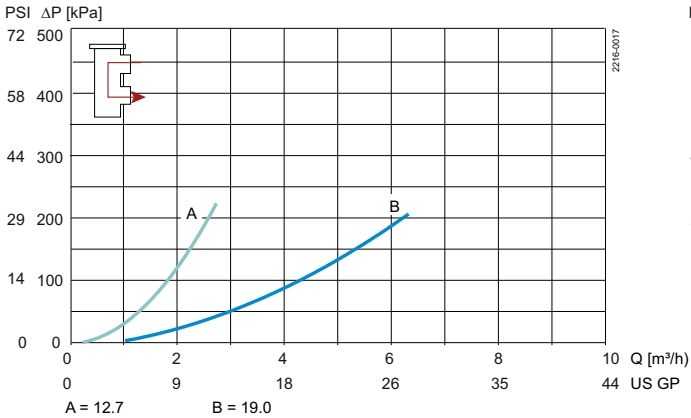


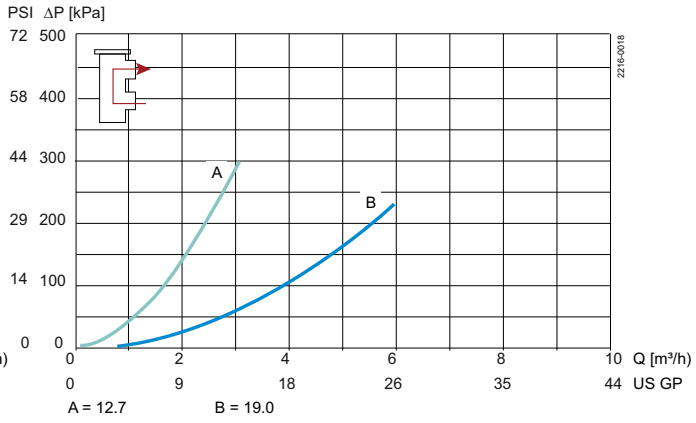


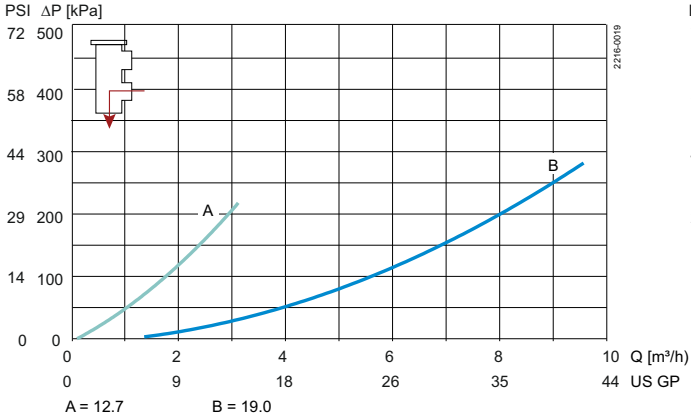
Change-over valve

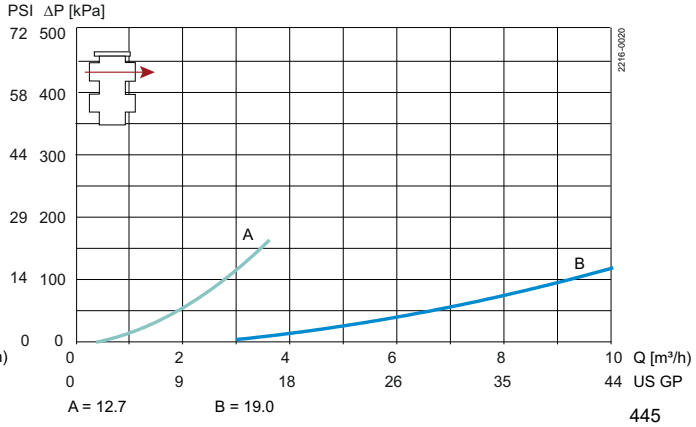












Note!
For the diagrams the following applies:
Medium: Water (68 °F).
Measurement: In accordance with VDI2173
Pressure drop can also be calculated in Anytime configurator.

Pressure drop can also be calculated with the following formula:

$Q = Kv \times \sqrt{\Delta p}$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δ p = Pressure drop in psi over the valve.

2.5" shut-off valve, where Cv = 128 (See table above).

$Q = Kv \times \sqrt{\Delta p}$

$160 = 128 \times \sqrt{\Delta p}$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1{,}6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Small Single Seat Valve

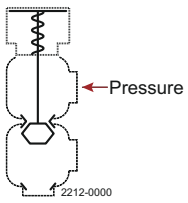


Figure 5. 1

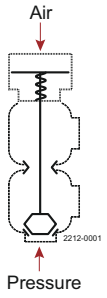


Figure 6. 2

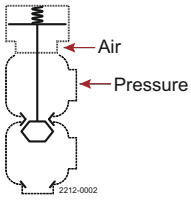


Figure 7. 3

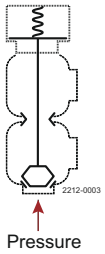


Figure 8. 4

Shut-off and change-over valves

			Max. pressure in bar without leakage at the valve seat	
Actuator / Valve body combination and direction of pressure	**Air pressure (PSI)**	**Plug position**	**Valve size**	
			DN/OD ½”	**DN/OD ¾”**
Figure 5. 1		NO	Min. 145	Min. 145
Figure 6. 2	29	NO	29	-
	43.5	NO	Min. 145	43.5
	58	NO		Min. 145

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max. pressure in bar without leakage at the valve seat Valve size DN/OD ½”	DN/OD ¾”
Figure 7. 3	29	NC	130.5	-
	43.5	NC	Min. 145	Min. 145
Figure 8. 4		NC	Min. 145	Min. 145

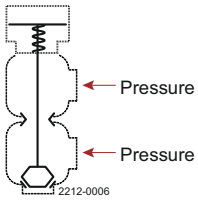


Figure 9. 5

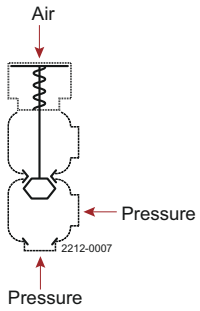


Figure 10. 6

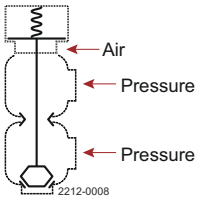


Figure 11. 7

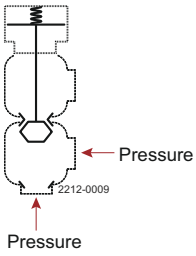


Figure 12. 8

Stop and change-over valve

Actuator / Valve body combination and direction of pressure	The table shows the approx. static pressure (p) in bar against which the valve can open Air pressure (PSI)	Plug position	Valve size DN/OD ½”	DN/OD ¾”
Figure 9. 5		NO	Min. 145	Min. 145
Figure 10. 6	29	NO	130.5	-
	43.5	NO	Min. 145	87
	58	NO	-	Min. 145
Figure 11. 7	29	NC	Min. 145	Min. 145
Figure 12. 8		NC	Min. 145	Min. 145

Alfa Laval SB Mini Flow Valve

Single seat valves

Introduction

The Alfa Laval SB Mini Flow Valve is a reliable single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination. Designed for working in a gas or liquid environment, it is used to close or divert small product flows when hygienic shut off and changeover are required.

Application

The SB Mini Flow Valve is designed for diverting or closing small product flows in a broad range of applications across the brewery, food, dairy, beverage and many other industries. The valve can be used as an integral part of a SCANDI BREW® tank top system.

Benefits

- Versatile shut-off or changeover valve
- Handles small flows of liquid or gas with ease
- Compact and hygienic design
- Low maintenance
- Fast-acting

Standard design

The SB Mini Flow Valve comprises a valve body, inlet and outlet, with threaded pipe couplings for 0.24”/0.31” pipe. Four versions are available: a pneumatic angle valve, a pneumatic two-way valve, a drain valve with fittings, or a drain valve with fittings and clip-on. The valve can also be used as an integral part of a SCANDI BREW® tank top system.

Working principle

The Alfa Laval SB Mini Flow Valve is operated either manually or by means of compressed air from a remote location. For a pneumatic valve, the actuator smooths operation and protects process lines from pressure peaks.

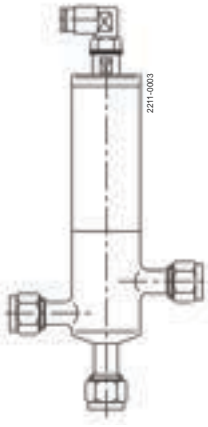
TECHNICAL DATA

Pressure	
Max. product pressure:	87 PSI
Max. product pressure (9615082001):	160 PSI
Process air pressure:	87 - 116 PSI

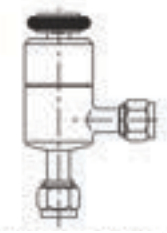
PHYSICAL DATA

Materials	
Product wetted steel surfaces:	EN 1.4404 (AISI 316L)
Product wetted seals:	EPDM
Product wetted polymers:	PTFE

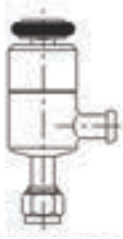
Pneumatic angle valve



Pneumatic 2-way valve

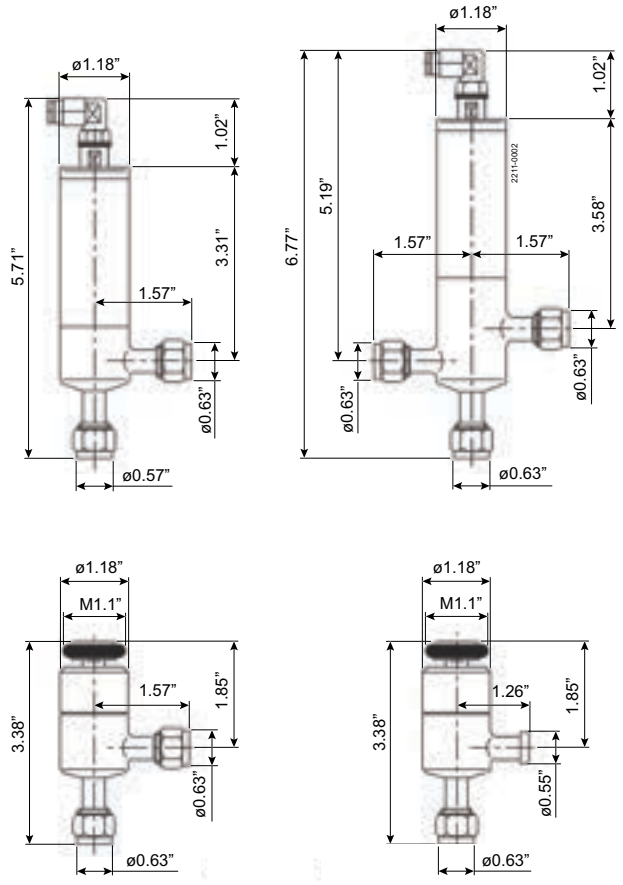


Drain valve with fittings



Drain valve with fittings/clip-on

Dimensions (inch)

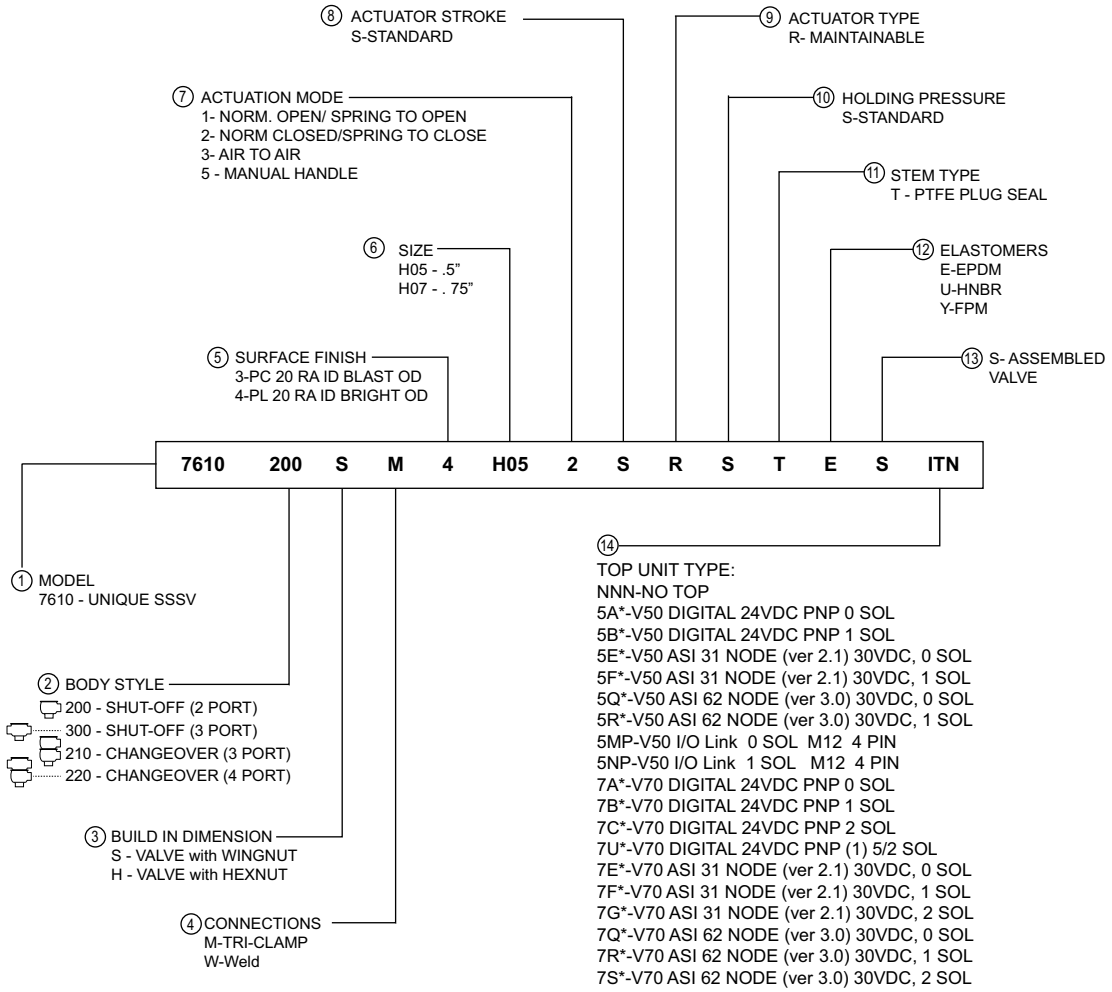


Alfa Laval Unique SSSV

Product description

MODEL NUMBER All PORTS TRI - CLAMP

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
7610 -	200 -	S -	M -	4	H05	2	S	R	S	T	E	S	ITN



LAST LETTER IS : * SEE BUILD CODE BELOW
N = CABLEGLAND
P = PIGTAIL or M12 ADDED TO THINKTOP for CONNECTIVITY

INDY TOP	
5M CORD PNP/NPN	N
10M CORD PNP/NPN	1
0.5M CABLE & COUNTER PART - NPN	2
0.5M CABLE & COUNTER PART - PNP	3

NOTES:
A/A 1 SOL TOP REQUIRE 5/2 SOL
**Cables supplied by Others

Alfa Laval Unique SSV Aseptic

Product description

MODEL NUMBER All PORTS TRI-CLAMP

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
7610 -	012 -	S -	M -	2	H40	1	S	S	S	T	Y	S	ITN

COMBINATION PORTS WELD AND TRI-CLAMP

①	②	③	④					⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
7610 -	012 -	S -	S	N	N	N	N	W	M	M	2	H40	1	S	S	S	T	Y	S	ITN

② BODY STYLE
200 - SHUT-OFF (2 PORT)
300 - SHUT-OFF (3 PORT)
210 - CHANGEOVER (3 PORT)
220 - CHANGEOVER (4 PORT)
310 - CHANGEOVER (4 PORT)
320 - CHANGEOVER (5 PORT)
011 - SHUT-OFF RA (2 PORT)
X11 - SHUT-OFF DA (2 PORT)
0B1 - SHUT-OFF RA (2 PORT)
XB1 - SHUT-OFF DA (2 PORT)
021 - SHUT-OFF RA (3 PORT)
X21 - SHUT-OFF DA (3 PORT)
012 - SHUT-OFF RA (3 PORT)
X12 - SHUT-OFF DA (3 PORT)
0B2 - SHUT-OFF RA (3 PORT)
XB2 - SHUT-OFF DA (3 PORT)
022 - SHUT-OFF RA (4 PORT)
X22 - SHUT-OFF DA (4 PORT)
111 - CHANGEOVER RA (3 PORT)
211 - CHANGEOVER RA (4 PORT)
121 - CHANGEOVER RA (4 PORT)
112 - CHANGEOVER RA (4 PORT)
212 - CHANGEOVER RA (5 PORT)
222 - CHANGEOVER RA (6 PORT)
B11 - CHANGEOVER RA (3 PORT)
B12 - CHANGEOVER RA (4 PORT)
B21 - CHANGEOVER RA (4 PORT)
B22 - CHANGEOVER RA (5 PORT)
900 - Y-BODY 2" THRU 4" ONLY

⑥ SIZE
H10 - 1"
H15 - 1.5"
H20 - 2"
H25 - 2.5"
H30 - 3"
H40 - 4"

⑧ ACTUATOR STROKE
S - STANDARD
L - LONG

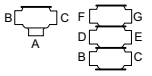
⑬ S - ASSEMBLED VALVE

⑭ TOP UNIT TYPE
NNN - NO TOP
5A* - V50 DIGITAL 24VDC, PNP, 0 SOL
5B* - V50 DIGITAL 24VDC, PNP, 1 SOL
5E* - V50 ASI 31 NODE (ver 2.1), 30VDC, 0 SOL
5F* - V50 ASI 31 NODE (ver 2.1), 30VDC, 1 SOL
5Q* - V50 ASI 62 NODE (ver 3.0), 30VDC, 0 SOL
5R* - V50 ASI 62 NODE (ver 3.0), 30VDC, 1 SOL
5MP - V50 I/O Link, 0 SOL, M12, 4 PIN
5NP - V50 I/O Link, 1 SOL, M12, 4 PIN
7A* - V70 DIGITAL 24VDC, PNP, 0 SOL
7B* - V70 DIGITAL 24VDC, PNP, 1 SOL
7C* - V70 DIGITAL 24VDC, PNP, 2 SOL
7U* - V70 DIGITAL 24VDC, PNP, (1) 5/2 SOL
7E* - V70 ASI 31 NODE (ver 2.1), 30VDC, 0 SOL
7F* - V70 ASI 31 NODE (ver 2.1), 30VDC, 1 SOL
7G* - V70 ASI 31 NODE (ver 2.1), 30VDC, 2 SOL
7Q* - V70 ASI 62 NODE (ver 3.0), 30VDC, 0 SOL
7R* - V70 ASI 62 NODE (ver 3.0), 30VDC, 1 SOL
7S* - V70 ASI 62 NODE (ver 3.0), 30VDC, 2 SOL
7V* - V70 ASI 62 NODE (ver 3.0), 30VDC, (1) 5/2 SOL
7MP - V70 I/O Link, 0 SOL, M12, 4 PIN
7NP - V70 I/O Link, 1 SOL, M12, 4 PIN
7OP - V70 I/O Link, 2 SOL, M12, 4 PIN
7XP - V70 I/O Link, (1) 5/2 SOL, M12, 4 PIN
BEI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 0 SOL
BFI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 1 SOL
BGI - T - TOP BASIC INTRINSICALLY SAFE 10-30VDC, 2 SOL
IT* - INDITOP DIGITAL, 0 SOLENOID
DBN-D30 - DIGITAL, 0 SOLENIOD

NOTES:
A/A 1 SOL TOP REQUIRE 5/2 SOL
**Cables supplied by others

7610 - 012 - S - S N N N N W M M 2 H40 1 S S S T Y S IT*

A B C D E F G



⑫ ELASTOMERS
E - EPDM
U - HNBR
Y - FPM

⑪ STEM TYPE
S - ELASTOMER PLUG SEAL
T - TR2/PTFE PLUG SEAL

⑩ HOLDING PRESSURE
S - STANDARD
H - HIGH PRESSURE

⑨ ACTUATOR TYPE
R - MAINTAINABLE
S - SEMI-MAINTAINABLE

⑦ ACTUATION MODE
1 - NO/SPRING TO OPEN [Air to Lower]
2 - NO/SPRING TO OPEN [Air to Raise] (RA)
2 - NC/SPRING TO CLOSE [Air to Raise]
1 - NC/SPRING TO CLOSE [Air to Lower] (RA)
3 - AIR TO AIR - - - SEE CONTROL TOP NOTE - - -
4 - 2 STEP/THREE POSITION (NO) DIVERT ONLY
5 - MANUAL
6 - TWO STEP/THREE POSITION (NC)
7 - 2 STEP (NC) W MODIFIED STROKE

④ CONNECTIONS
(SINGLE LETTER FOR IDENTICAL PORTS)
W - WELD
M - TRI-CLAMP
T - THRD´D BEVEL SEAT
"S" FOR MIXED PORTS
THEN LETTER EACH PORT
W - WELD END
C - UNION DIN
M - TRI-CLAMP
D - DIN
I - ISO
S - UNION SMS
H - HDI 14
F - HDI 15
N - NO PORT

⑤ SURFACE FINISH
1 - 3A 32RA ID DUST BLAST OD
2 - 3A BRIGHT 32RA ID BRIGHT OD
3 - PC 20 RA ID DUST BLAST OD
4 - PL 20 RA ID BRIGHT OD

③ BUILD IN DIMENSION
S - VALVE with WINGNUT
H - VALVE with HEXNUT
C - 700 SERIES BUILD DIMENSION
CENTER TO FACE, SHUT-OFF ONLY

① MODEL
7610 - UNIQUE SSV Standard
8610 - UNIQUE SSV ASEPTIC (SHORT STROKE ONLY)

LAST LETTER IS : * SEE BUILD CODE BELOW
N = CABLEGLAND
P = PIGTAIL or M12 ADDED TO THINKTOP for CONNECTIVITY

INDY TOP	
5M CORD PNP/NPN	N
10M CORD PNP/NPN	1
0.5M CABLE & COUNTER PART - NPN	2
0.5M CABLE & COUNTER PART - PNP	3

Alfa Laval Unique SSV Standard

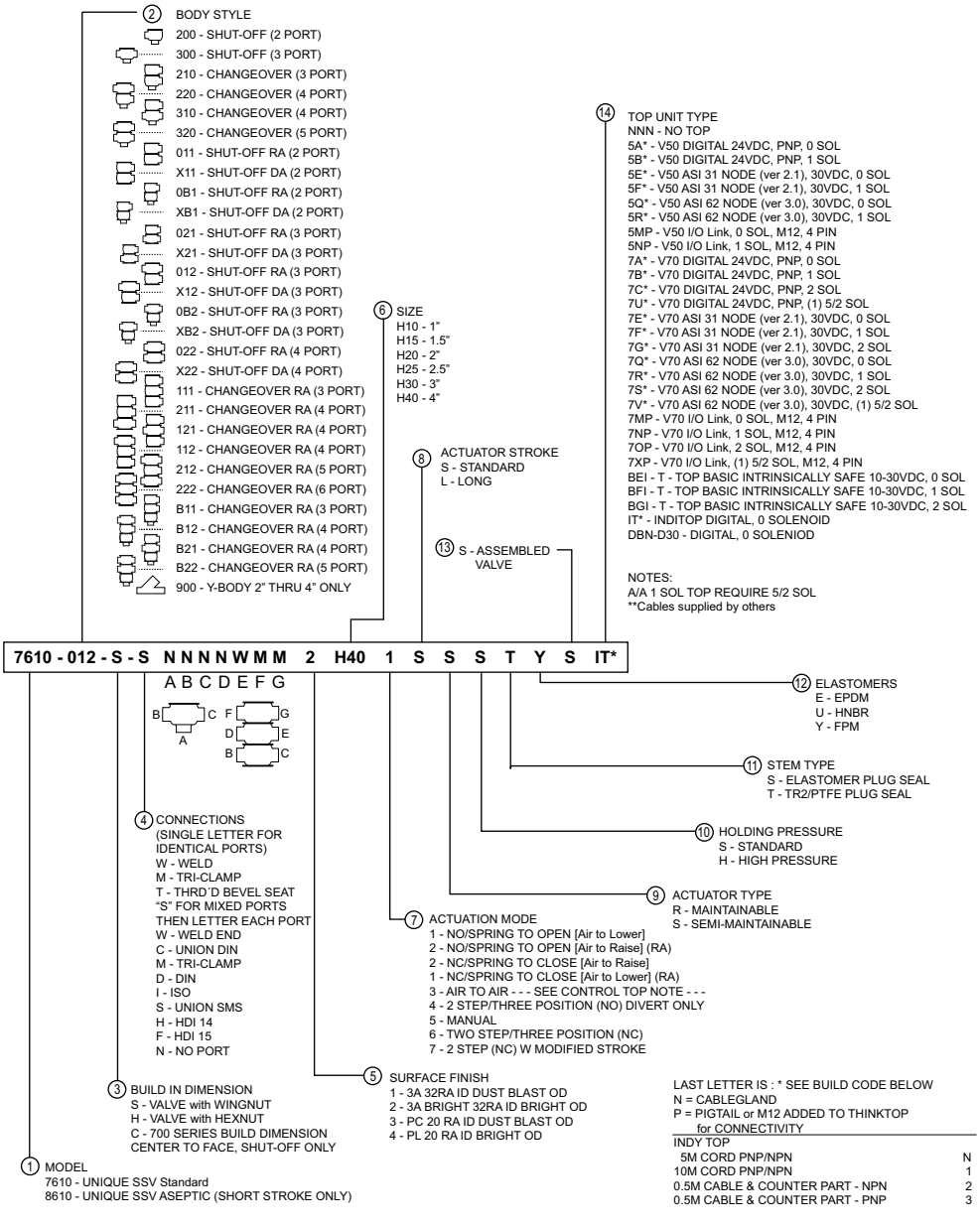
Description codes

MODEL NUMBER All PORTS TRI-CLAMP

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
7610 -	012 -	S -	M -	2	H40	1	S	S	S	T	Y	S	ITN

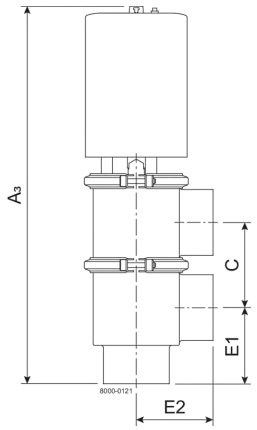
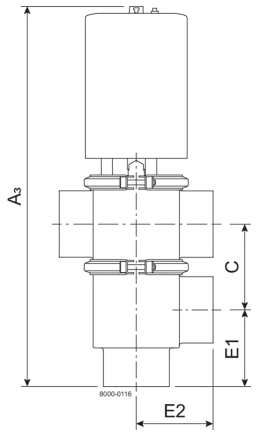
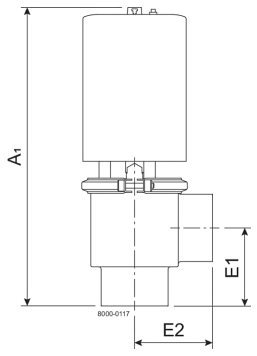
COMBINATION PORTS WELD AND TRI-CLAMP

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
7610 -	012 -	S -	S N N N N W M M	2	H40	1	S	S	S	T	Y	S	ITN



Valve Model Specification: Air-operated valve
ALSIS Code: 5233

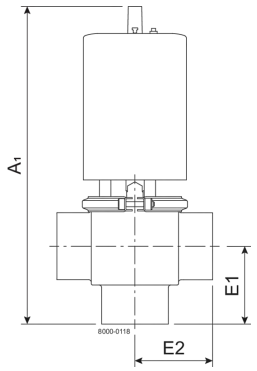
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted

Item no.	Size	Actuation	Dimension (inch)				
mm	inch	mm	A1/A3 or A2/A4	C	E1	E2	
							Change-over 210
9612488205	5.91"	Pneumatic NC	30.59	7.56	5.90	5.10	
9612488207	5.91"	Pneumatic NO	32.13	7.56	5.90	5.10	
							Change-over 220
9612488206	5.91"	Pneumatic NC	30.59	7.56	5.90	5.10	
9612488208	5.91"	Pneumatic NO	32.13	7.56	5.90	5.10	
							Stop valve 20
9612486005	5.91"	Pneumatic NC	22.99		5.90	5.96	
9612486007	5.91"	Pneumatic NO	24.84		5.90	5.98	

NOTE! Body combinations 31 and 32 on request.

Valve Model Specification: Air-operated valve
ALSIS Code: 5233

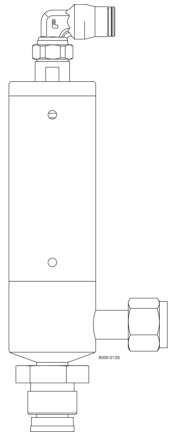
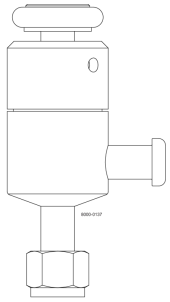
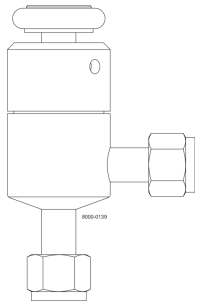
Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted

Item no.	Size	Actuation	Dimension (inch)				
mm	inch	mm	A1/A3 or A2/A4	C	E1	E2	
							Stop valve 30
9612486006	5.91"	Pneumatic NC	22.99		5.90	5.97	
9612486008	5.91"	Pneumatic NO	24.84		5.90	5.99	

NOTE! Body combinations 31 and 32 on request.

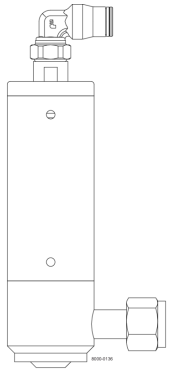
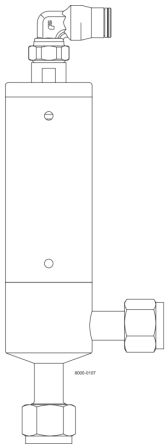
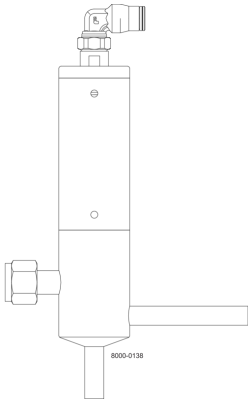
SCANDI BREW
Valve Model Specification: CIP valve
ALSIS Code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Ra ≤ 1.6 µm

Item no.	Specification	Function	
			9615082103
9615082103	9615082103	NO	
			Manual angle valve clip-on/swage
9615085302	Manual angle valve clip-on/swage	N/A	
			Manual angle valve swage/swage
9615085301	Manual angle valve swage/swage	N/A	

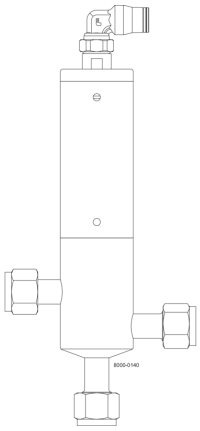
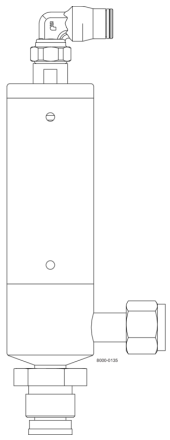
SCANDI BREW
Valve Model Specification: CIP valve
ALSIS Code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Ra ≤ 1.6 µm

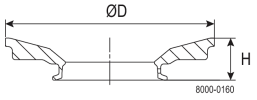
Item no.	Specification	Function	
			Pneumatic Angle Valve Swage/1 Inch ISO
9615082002 9615082102	Pneumatic Angle Valve Swage/1 Inch ISO Pneumatic Angle Valve Swage/1 Inch ISO	NC NO	
			Pneumatic Angle Valve Swage/Swage
9615082001 9615082101	Pneumatic Angle Valve Swage/Swage Pneumatic Angle Valve Swage/Swage	NC NO	
			Pneumatic Change Over Valve Swage/Pipe
9615088402	Pneumatic Change Over Valve Swage/Pipe	NC	

SCANDI BREW
Valve Model Specification: CIP valve
ALSIS Code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Ra ≤ 1.6 µm

Item no.	Specification	Function	
			Pneumatic Change Over Valve Swage/Swage
9615088301	Pneumatic Change Over Valve Swage/Swage	NO	
9615088401	Pneumatic Change Over Valve Swage/Swage	NC	
			PneumaticAngle ValveSwage/BSP
9615082003	PneumaticAngle ValveSwage/BSP	NC	

ALSIS Code: 5293

Item no.	Size		Elastomer	Dimension (mm)		
	DN/OD, mm	DN		ØD	H	
						Blind flange kit
9614465001	51	DN50	EPDM			
9614465002	51	DN50	HNBR			
9614465003	51	DN50	FPM (Viton)			
9614465004	63.5	DN65	EPDM			
9614465005	63.5	DN65	HNBR			
9614465006	63.5	DN65	FPM (Viton)			
9614465007	76.1	DN50	EPDM			
9614465008	76.1	DN80	HNBR			
9614465009	76.1	DN80	FPM (Viton)			
9614465011	101.6	DN100	HNBR			
9614465012	101.6	DN100	FPM (Viton)			
9614465010	101.6	DN100	EPDM			
						Tank flange
9634069901	51	DN50		148.0	30.0	
9634070001	63.5	DN65		163.0	30.0	
9634070101	80	DN76.1		178.0	30.0	
9634070201	101.6	DN100		198.0	30.0	

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Alfa Laval's innovative technologies are dedicated to purifying, refining, and reusing materials, promoting more responsible use of natural resources. They contribute to improved energy efficiency and heat recovery, better water treatment, and reduced emissions. Thereby, Alfa Laval is not only accelerating success for its customers, but also for people and the planet. Making the world better, every day. It's all about Advancing better™.

How to contact Alfa Laval

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